

INVESTING IN AMERICA'S SURFACE TRANSPORTATION INFRASTRUCTURE: THE NEED FOR A MULTI-YEAR REAUTHORIZATION BILL

HEARING
BEFORE THE
COMMITTEE ON
ENVIRONMENT AND PUBLIC WORKS
UNITED STATES SENATE
ONE HUNDRED SIXTEENTH CONGRESS
FIRST SESSION

JULY 10, 2019

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COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

ONE HUNDRED SIXTEENTH CONGRESS
FIRST SESSION

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INVESTING IN AMERICA'S SURFACE TRANSPORTATION INFRASTRUCTURE: THE NEED FOR A MULTI-YEAR REAUTHORIZATION BILL

WEDNESDAY, JULY 10, 2019

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

The committee met, pursuant to notice, at 10:05 a.m. in room 406, Dirksen Senate Building, Hon. John Barrasso (chairman of the committee) presiding.

Present: Senators Barrasso, Carper, Capito, Braun, Rounds, Boozman, Ernst, Cardin, Whitehouse, Markey, and Van Hollen.

OPENING STATEMENT OF HON. JOHN BARRASSO, U.S. SENATOR FROM THE STATE OF WYOMING

Senator BARRASSO. I call this hearing to order.

Today's hearing is about the need for this committee to draft and to pass a bipartisan highway infrastructure bill. Both Ranking Member Carper's staff and my staff have been working on drafting this legislation, along with all of the members of this committee. We appreciate all the input that we have received from our home States, our fellow members and from transportation stakeholders.

It is our shared goal to advance a bill out of the committee this summer. That means the Senate Environment and Public Works Committee will be first out of the gate to pass a highway infrastructure bill. This is appropriate, given this committee's history of initiating bipartisan efforts to pass previous surface transportation bills.

We have crumbling roads and bridges, and they desperately need to be repaired and replaced. Projected population growth and existing congestion requires States to build new capacity to meet future needs. Our economy is built on a well-functioning road system that allows products from rural areas to get to our population centers. America's work force uses our highways to get to the office, the factory or to the farm.

In 2015, the U.S. transportation system moved a daily average of about 49 million tons of freight that was worth more than \$52 billion. That is a daily average. Annually, that is around 18 billion tons of freight valued at over \$19 trillion. These numbers are only going up. According to the Department of Transportation, by 2045, our aging roads and bridges will carry an additional 4 billion tons of freight annually. Our Nation's highways need to keep pace.

The authorization of the Federal highway funding will expire in September of next year. The Congressional Budget Office projects that the Highway Trust Fund will become insolvent some time in 2021. Our bridges and roads are in need of serious investment.

I am working with Ranking Member Carper to advance the most substantial bipartisan highway bill ever passed by Congress. We, along with the other members of the committee, are working to pass a 5-year highway infrastructure bill to fix our roads, our bridges and our highways. If we do not pass a long-term surface transportation bill, and instead pass a series of short-term extensions, we will undermine our States' abilities to plan for these challenges. It is not a good option. We have an obligation to get this done.

Our highway infrastructure legislation would be for all of America. It will ensure both rural and urban areas have access to funding. That means maintaining each State's share of highway formula funding. Formula funding gives each State the flexibility that they need to address their specific surface transportation needs.

Maintaining the Federal Highway Program's current approach of distributing over 90 percent of the funds to the States by formula is the key to this. Using a formula-based approach expedites the delivery of highway infrastructure spending. So States get the funds they need faster. It is a proven approach that works for everyone and should be continued.

Our bill will also speed project delivery through streamlining. By cutting Washington red tape, highway projects can get done better, faster, cheaper, and smarter. In our legislation, we must reduce the time it takes for Federal permitting, to lower paperwork burdens on States. We need to incorporate innovative construction approaches and other technologies.

This will be the most substantial highway bill ever passed by Congress, and it needs to be paid for. The Environment and Public Works Committee doesn't have jurisdiction over the revenues for the highway bill. Ranking Member Carper and I are going to work with other members to find ways to responsibly pay for the legislation.

I believe highways should be paid for by their users. I am committed to making sure that everyone who uses the roads contributes to maintaining and improving them. That must include electric vehicles and other alternative fuel vehicles, which will become an increasing share of the cars on the road. We will also work with other surface transportation committees, including the Commerce and the Banking Committees, to include their input in the legislation as we move to the Senate floor.

I am thankful to Ranking Member Carper for his partnership, and look forward to continuing to work together with him in a bipartisan way to pass a surface transportation infrastructure bill, a bill that will grow America's economy, that will improve the safety of our roads, and will enhance quality of life for the American people.

I would now like to recognize Senator Carper for his opening remarks.

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

Senator CARPER. Mr. Chairman, thank you for your kind words.

To our witnesses, to let you know, one of the joys of serving here in the Senate, you think all we do is fight with one another, actually we work together pretty well, too. We try to really set an example in this committee to our colleagues, both in the Senate and in the House. I think that is what the people of our 49 States plus Delaware tell us what they want, and that is what we try to do. It is a joy to work with Chairman Barrasso, his staff, and frankly, with any of our colleagues. We are happy you are here. Thank you so much for coming today. I know some of you came on fairly short notice and we are grateful for that, especially.

It is an honor to be joined by a panel as distinguished as the five of you. I want to especially extend a warm welcome to my seat mate on the train coming down from Delaware this morning, Carolann Wicks, who was our Transportation Secretary for a number of years, had a 28-year career at DelDOT and has gone on to do other great things with her life. Welcome.

It is my hope today that our conversation will serve to inform this committee's ongoing work as we proceed with negotiating the reauthorization of our Nation's Surface Transportation Program. I want to begin by sharing why I believe this particular reauthorization is so important.

Just last week we celebrated the 243d anniversary of the signing of our Nation's declaration of independence, 243 years. I remember that day.

[Laughter.]

Senator CARPER. Not really. A day on which our founding fathers asserted Americans' inalienable rights to life, liberty, and the pursuit of happiness. I often link these three inalienable rights with the work we do on this committee, because Americans cannot be guaranteed life, liberty, or the pursuit of happiness without clean air to breathe or safe water to drink. The fact is, Americans cannot truly enjoy life, liberty, or the pursuit of happiness without a safe transportation system that nurtures our economy, protects our environment and enhances our mobility.

Over the 4th of July holiday weekend, some 49 million Americans traveled on our roads, highways and bridges, in order to be able to head for the nearest beaches, hike mountain trails, go fishing or camping or visit loved ones or visit and celebrate our Nation's history. They visited all of our States. Some of them even made it to the 49th largest State in the U.S., that is us, to enjoy our five-star beaches, tax-free shopping, and much more. Others traveled to places like Yellowstone National Park in Wyoming, to Denali National Park in Alaska, and to the Grand Canyon, to experience some of our Nation's many natural wonders.

Wherever the destination, these trips had at least one thing in common: almost all of us relied on our Nation's transportation systems to get us to those destinations. Hopefully, most travelers found the roads and bridges they traveled on smooth and uncongested, they were able to arrive safely at their destination on time. Unfortunately, that was not always the case. Based on data from previous years, we know that roughly 600 people died over

the holiday weekend, as they were navigating our roadways. That is more than the total membership of the U.S. House and the Senate combined.

We also know that as Americans traveled over the holiday weekend, we released billions of tons of harmful greenhouse gas emissions, contributing to our climate crisis. Emissions on holiday weekends are even higher than usual due to increased traffic. In some cities, emissions have been three or even four times worse than average.

While none of us travel with the goal of sitting in traffic, or getting into an accident, or worsening climate change, some of our roadways are so outdated, they are in dangerous condition, or in desperate need of redesign, that they are leading to outcomes that none of us want. For too many travelers, there are simply no low-emission travel options available. Electric vehicles are an option, but without a comprehensive national network of electric vehicle charging infrastructure and other alternative fueling infrastructure in place, many consumers lack the confidence needed to purchase the electric vehicles that can help us address our climate crisis.

In order to address these challenges, our committee began bipartisan work on the next reauthorization bill to our transportation program earlier this year, as the Chairman has said. I am proud to say that we have made demonstrable progress, thanks to the contributions of every member on this committee, every member on this committee. Thanks to the leadership of Senator Barrasso, our Chairman, as well as the hard work of our staff members. We thank you all.

As we have undertaken this work, we have recognized that we start with transportation programs that help us achieve many of our mobility goals, but can still be improved. I like to say everything we do, I know we can do better. But particularly with respect to enhancing climate resilience, reducing harmful emissions, and improving safety. For example, just this past week, people in Maryland, Virginia and Washington, DC. experienced record-breaking rain and flash flooding. Nearly four inches of rain fell in 1 hour, 1 hour, right here. Water was seeping into the White House and all kinds of buildings, washing our roads, flooding transit stations, creating sinkholes and leaving many commuters stranded. Some roads, I am told, still remain impassible.

Not far away from here, Ellicott City, Maryland, has withstood two 1,000-year floods in less than 2 years. A thousand-year flood is something that is supposed to happen once every thousand years. We have had two in an 18-month period in nearby Ellicott City.

But earlier this year, communities across Nebraska, Iowa, Missouri, and other parts of the Midwest experienced unprecedented flooding that destroyed bridges, dams, and levees. One stretch of InterState 29 in Missouri was flooded with 15 feet of water. As we gather here today, 11 States are reporting enormous wildfires, including fire in Alaska, where nearly 700,000 acres have burned this month. That is an area almost the size of Rhode Island.

Our Nation's scientists tell us that climate change, left unchecked, means even more frequent and intense storms, more record-breaking rainfalls, bomb cyclones and wildfires the size of

even larger States. Smart planning and targeted investment in the resilience of our Nation's infrastructure will ensure that roadways can better withstand these worsening effects of climate change. This will save American taxpayers untold billions by allowing us to avoid rebuilding the same infrastructure projects again and again after severe weather events.

At the same time, smart investments in electric charging and low emission alternative fuel infrastructure will provide travelers with better choices so traveling to loved ones doesn't come at the expense of our climate.

It is also essential that we make the safety of our roadways a top priority. More than 37,000 people are dying on our roads each year. They are our friends and our neighbors and our constituents. We can do better than that, a lot better than that, especially for the bicyclists and pedestrians who are sadly, the growing share of the deaths we are seeing all over our States.

We also know it is imperative that we better ensure that the roads and transportation systems that we design and build today will continue to meet the travel and commerce needs of the future. That includes integrating new technology, so that the advanced vehicles that are increasingly automated will be able to operate safely on our roads in the future.

Finally, I believe that a long-term focus on national needs must include identifying new sources of sustainable user fee-based revenues to support investments into transportation, as the Chairman has suggested. In closing, these are some of the important issues where I believe this committee can find bipartisan agreement, and doing so, lead by example for other committees who will be responsible for developing other titles of a major surface transportation reauthorization.

The work that we do on this committee is of critical importance to the people of our Country. None is more important than work that we focus on today. The people who we are privileged to represent are counting on us. Let's show them that we are up to the challenge by doing our part by helping to restore our surface transportation program's solvency, so that we can keep that promise of life, liberty, and the pursuit of happiness on which our Nation was founded.

Thank you.

Senator BARRASSO. Thank you, Senator Carper.

To our friends in the audience as well as our witnesses, we have a series of three votes this morning, starting at 11 o'clock. So you will see members coming and going. But there is great interest in this hearing, but you will see some of that commotion up here. We apologize for that, but we will continue the hearing throughout all of this, as different people chair the committee meeting during, so that you will be able to continue uninterrupted in your testimony and in the questioning.

Before we hear from our witnesses, I want to take a moment to welcome to the committee Luke Reiner, the Director of the Wyoming Department of Transportation. Luke was appointed the 18th Director of the Wyoming Department of Transportation in just March of this year. He has recently retired as the Adjunct General for Wyoming for our National Guard. In that role, he directed the

Wyoming military department in Cheyenne, where he was responsible for formulating, developing and coordinating all policies, all plans, and programs that affected more than 3,000 Army and Air National Guard Members.

Director Reiner served as a commander of a camp in Kuwait during Operation Iraqi Freedom II, and he commanded the Wyoming Army National Guard's 115th Fires Brigade. I know we have another deployment coming shortly. He has received numerous rewards and honors for his remarkable service to our Country. He has an extensive educational background, which includes an accounting degree and a Master of Public Administration degree from the University of Wyoming.

Director Reiner, I want to thank you for your service to our Country and for everything you are doing for the people of Wyoming. Thank you for being here to testify today. I now would like to call on Senator Carper to introduce a witness from Delaware.

Senator CARPER. Thanks, Mr. Chairman. I would ask that her bio, which we have as part of our record, be included as part of our record for Carolann Wicks. I have had the privilege of not just riding on the train this morning from Wilmington with our former Secretary, but to have known her and to call her my friend for, gosh, over three decades.

I want to just briefly mention, she grew up in Delaware, was educated in Delaware, University of Delaware as a civil engineer, as I recall. Went to work at DelDOT and served there for 28 years.

I call her the Czarina of the bicycling evolution that started in our State a long time ago. We used to not be a very good biking greenway State, and we are now, we are among the best. And it started really with her early involvement. She went on to become our DelDOT Secretary, and served with great distinction.

If you ever drive through Delaware and you are on I-95, that a good part of what she did. We actually resurfaced I-95 from Wilmington, Delaware, to the Pennsylvania line, shut down I-95, the year that I was running for U.S. Senate, and I still won. I still won, and people said, have you lost your mind? She ran that project, resurfaced I-495 through our State both ways, built State Route 1, which goes all the way from I-95 down past the Dover Air Force Base. And you name it, she was involved in it.

The riverfront, if you come through Wilmington on the train, you look out at the Christina River, where the first Swedes and Finns landed in America, gosh, 380 years ago, that transformation was one that she worked on, for a million different projects. She went on to become a partner in RK&K and still helps out in any variety of ways. Lives on a farm, has a very successful family farm in the middle part of our State, and we are just delighted that she is here today. Thank you very much again, Carolann, for joining us.

Senator BARRASSO. And Senator Carper, in addition to those distinguished guests, we also have Carlos Braceras returning to the committee, President of the American Association of State Highway and Transportation Officials, and also the Executive Director of the Utah Department of Transportation. And Max Kuney, who is the President of Max J. Kuney Company, testifying on behalf of the Associated General Contractors of America. And the Executive Direc-

tor of the Georgetown Climate Center, Vicki Arroyo. I agree all of you. Welcome here.

Senator CARPER. Mr. Chairman, Carlos keeps coming back again and again. We are going to have to put him on the payroll. He is a frequent flier when it comes to this committee.

[Laughter.]

Senator BARRASSO. I would like to remind the witnesses that your full written testimony will be made part of the official hearing record, so please try to keep your statements to 5 minutes so we have time for questions. I look forward to hearing the testimony from each of you, beginning with Mr. Reiner.

**STATEMENT OF K. LUKE REINER, DIRECTOR, WYOMING
DEPARTMENT OF TRANSPORTATION**

Mr. REINER. Thank you, Chairman Barrasso, Ranking Member Carper, and members of the committee. Good morning. My name is Luke Reiner and I am privileged to be the director of the Wyoming Department of Transportation.

Chairman, thank you for that very kind introduction. On behalf of the men and women serving in uniform, thank you for your solid and consistent support of them. And thank you for supporting transportation as well.

I am pleased to report to you that the transportation departments of Idaho, Montana, North and South Dakota have joined in our written statement today. We do wish to commend you, Mr. Chairman and Ranking Member Carper, for your hard and very timely work on needed reauthorization legislation. We applaud your effort to move legislation through the committee.

In terms of our rural States, we recommend your legislation do five key things. First would be continued Federal support for transportation in rural States. We see such support as necessary to keep the Country connected and move goods to market.

Second would be a continued emphasis on formula funding. Formula dollars are delivered as projects more promptly than discretionary dollars.

Third, several thoughtful, regulatory reductions would be helpful and would allow each program dollar to deliver greater benefits. We see potential regulatory reductions in both project delivery processes and administrative requirements.

Fourth, additional funding is certainly needed and if received, would be put to use promptly in an environmentally responsible way in order to enhance safety, increased mobility, work to create jobs and strengthen the economy. Fifth, a multi-year reauthorization is essential for States to be able to effectively deliver the program.

Let me turn to a few additional points. It is worth noting that rural States actually contribute significantly per capita to the highway account of the Highway Trust Fund. Nationally, the annual per capita contribution is approximately \$117. The contribution from rural States is much higher, with Wyoming currently being the highest at \$312.

On another topic, we support repeal of the approaching \$7.6 billion rescission of highway contract authority. This repeal is needed to ensure program flexibility and funding, and thank you, Mr.

Chairman and Senator Carper, for your leadership in this repeal effort.

In terms of transportation safety, we ask Congress to continue to set aside the wireless communication spectrum 5.9 gigahertz currently reserved for transportation safety. Some have called for opening this portion of the spectrum for use by fifth generation cell phones in non-safety-related activities. We see that change as having a significant negative impact on our Nation's efforts to reduce fatalities. Wyoming is currently a leader in developing this spectrum for transportation safety purposes, and we certainly ask Congress to help protect the spectrum for transportation safety use.

In summary, I would like to reemphasize that significant Federal investment in transportation in rural States benefits the Nation by positively affecting almost every sector of our economy. The Nation, its people and commerce benefit from cross-country traffic. In Wyoming, about 90 percent of the trucks on Interstate 80, which runs east to west, have origins and destinations outside of the State. That is clearly national transportation and warrants Federal investment.

I would also like to reemphasize that streamlining regulatory processes and requirements will enable transportation dollars to be put to work more effectively, while still protecting the environment and other public interests. Simply put, Federal investment in highways and rural States helps move people and goods throughout the Country and helps move agricultural, energy and natural resources to market.

We believe that our highways can better advance these important national objectives if legislation is structured with a strong emphasis on formula funding and thoughtful streamlining of regulatory burdens. We certainly commend the committee for its efforts to move a reauthorization bill promptly and thank you once again for the opportunity to present testimony today.

[The prepared statement of Mr. Reiner follows:]

Statement of the Transportation Departments of
Wyoming, Idaho, Montana, North Dakota, and South Dakota
before the
Committee on Environment and Public Works, United States Senate
presented by
Luke Reiner, Director, Wyoming Department of Transportation
Regarding
Improving Our Nation's Highway and Surface Transportation Infrastructure – Rural Perspectives
July 10, 2019

Chairman Barrasso, Ranking Member Carper, and Members of the Committee:

I am Luke Reiner, Director and chief executive officer of the Wyoming Department of Transportation. Thanks for the opportunity to appear before you today. I am pleased to advise that the transportation departments of Idaho, Montana, North Dakota, and South Dakota have joined the Wyoming DOT in this statement. We hope our comments will enhance understanding of the vital rural perspective as the Congress works to reauthorize highway and surface transportation programs.

Let me turn to our key points.

At the outset, let us commend you, Mr. Chairman, the Ranking Member, and the Committee for your hard work on needed reauthorization legislation. The legislative process is a long and winding road. But the journey has to begin. So, we applaud the effort to move legislation through the Committee soon.

In the legislation under development, we hope to find provisions reflecting five key points.

- **Support for Rural States.** Funding provisions must reflect that significant Federal investment in highways and transportation in rural States continues to be warranted and benefits the entire nation.
- **Emphasis on formula funding.** Formula highway programs, in contrast to discretionary programs, should continue to receive very strong Federal funding emphasis, such as occurred under the FAST Act. Formula dollars are delivered as projects more promptly than discretionary dollars, and the public is eager for transportation investment.
- **Regulatory reduction.** Regulatory burdens can be streamlined and in some cases reduced, so each dollar can deliver greater benefits. This comment is not limited to the project delivery process. Administrative and program burdens can also be streamlined and in some cases eliminated. Congress should streamline where it can, so States will be able to put more time and dollars into delivering transportation benefits to the public.
- **Additional funding,** provided through the Highway Trust Fund. Additional funds are needed and would be put to use promptly, in an environmentally responsible way, enhancing safety, mobility, job creation, and the economy.
- **Multi-year legislation.** This is essential for States to be able to effectively deliver the program.

Additional Issues and Discussion

We turn now to some additional points.

Repeal the approaching rescission of highway contract authority

The Chairman and Ranking Member, joined by Senators Capito and Cardin, recently introduced legislation to repeal the impending \$7.6 billion rescission of unobligated contract authority. We appreciate that leadership. This repeal should be passed as soon as possible, so that the rescission does not reduce program flexibility and funding. The rescission would be a setback at a time of strong support across the nation for infrastructure investment.

Congress should maintain, for transportation safety purposes, the wireless communications spectrum that is currently reserved for safety

The 5.9 GHz spectrum band is currently allocated to public safety use. Direct Short Range Communication (DSRC), including the applications WYDOT is testing in our connected vehicle pilot study on Interstate 80, use technology that operates in this range. Some have called for opening this portion of the spectrum for use by “fifth generation” (5G) cell phones. We see that change as having a significant negative impact on our Nation’s efforts to reduce fatalities. Wyoming is certainly a leader in developing the spectrum for transportation safety purposes, and we ask Congress to help protect this spectrum for transportation safety use.

Significant Federal investment in highways and transportation in rural States benefits the nation

Significant Federal investment in highways and transportation in rural States is a sound policy that must be continued, for many reasons. Consider truck movements from West Coast ports to Chicago or the East Coast. These and other movements traverse States like ours and benefit people and commerce in the metropolitan areas at both ends of the journey.

In Wyoming, about 90 percent of the trucks on Interstate 80 have origins **AND** destinations beyond Wyoming’s borders. This is clearly national transportation and warrants Federal investment.

In addition, the Federal-aid highways in rural States:

- serve the nation’s agriculture and energy production industries, including ethanol and wind power, which are located largely in rural areas;
- provide access to scenic wonders like Yellowstone National Park, Mount Rushmore, and many other great national parks, monuments, and forests located in rural States;
- have become increasingly important to rural America, with the abandonment of many rail branch lines;
- are a lifeline for remotely located and economically challenged citizens, such as those living on tribal reservations;
- enable people and business to access and traverse vast tracts of Federally owned land; and
- facilitate military readiness.

For example, Wyoming produces significant grain and cattle consumed domestically and exported throughout the world. In 2017, North Dakota lead the nation in the production of many crops, including dry edible beans, canola, flaxseed, honey, peas, durum wheat, and spring wheat. Montana is a leading producer of wheat, peas, and other crops and in 2016 exported 80 percent of its nearly billion dollar wheat crop. South Dakota and Idaho are also major grain producers and possibly billions of people around the world have consumed Idaho potatoes. The highway network is essential to moving these important products to national and world markets and improving the U.S. economy.

Similarly, energy and other natural resources are largely located in rural States and areas. Wind, solar, and other energy production facilities use our highways and Federal lands access roads not only to move product but to maintain their facilities.

Further, without a strong road network in the rural West, access to many of our country's great national parks and other scenic wonders would be limited. The residents of major metropolitan areas may travel the roads approaching national parks or monuments infrequently. But they want quality highway access to these national treasures for those special trips. Millions of those special trips are made even though the roads leading to the parks are distant from the Interstate System. For example, in 2018, Yellowstone, Glacier, and Grand Teton national parks hosted roughly 10.6 million visitors. The entire population of Wyoming and Montana combined is approximately 1.6 million. Similarly, visitors to Mount Rushmore total about three times the population of South Dakota.

Other important scenic destinations are located in this region: Devils Tower in Wyoming, Theodore Roosevelt National Park in North Dakota, the Badlands National Park in South Dakota, and the Craters of the Moon National Monument and the Sawtooth National Recreation Area in Idaho. Investment in highways that provide access to these wonderful places also helps ensure that American and international tourism dollars are spent in America, furthering national economic goals.

Rural States face funding challenges

Rural States face major transportation infrastructure funding challenges. We can't provide these benefits to the nation and ensure a sufficiently connected national system without Federal investment. We –

- are geographically large,
- often include vast tracts of Federal lands,
- have extensive highway networks, and
- have low population densities.

So, we have very few people to support each lane mile of Federal-aid highway even as preserving this aging, nationally connected system is expensive. Yet, citizens from our States contribute to this effort significantly. Nationally, the per capita contribution to the Highway Account of the Highway Trust fund is approximately \$117. The per capita contribution to the Highway Account attributable to rural states is much higher. In Wyoming it is the highest of the States at \$312 annually per capita to the Highway Account; North Dakota, South Dakota, and Montana are the next highest.

The vast extent of Federal lands in many Western States presents a particular challenge to improving surface transportation in those States. Idaho is well over 60 percent Federal and tribal lands; Wyoming, over 50 percent; Montana, roughly one-third.

Development or use of Federal lands is limited, and State and local governments can't tax them. Yet, the nation's citizens and businesses want reasonable opportunities to access and cross those lands. This is an expensive transportation proposition for sparsely populated States. Significant investment of transportation dollars by the Federal government has been, and remains, a proper response, both in terms of apportionments to low population density States and in terms of direct Federal programs generally referred to as the "Federal Lands Programs."

There are needs for surface transportation infrastructure investment in rural States (and in all States). Wyoming's estimates indicate that current funding does not enable Wyoming to maintain, much less improve, its road and bridge conditions, with an annual surface transportation funding deficit of more than \$72 million to maintain current conditions. Any additional Federal funds would be put to good use promptly in Wyoming and, I'm sure, other States. There would be safety, employment, and other immediate benefits.

Let me also mention briefly that we may be approaching a time of increased needs related to technology. For example, prospects for using connected and automated vehicles are advancing. In Wyoming, for instance, we are entering the third stage of a connected vehicle pilot program funded in part through USDOT to demonstrate use of new communications technology to make Interstate 80 safer for commercial trucks and public travel, especially during the treacherous snow season. At some point, States and cities may well begin installing meaningful amounts of equipment, as part of the highway infrastructure, to facilitate vehicle to infrastructure communication to improve safety. The cost of those investments is likely not captured fully in current needs studies. But these innovations hold out promise for reducing fatalities and improving safety performance.

On a related point, in Wyoming high winds on the high plains on our Interstates present a safety risk to trucks, which can be blown over or off the road. Addressing this can require increased investment in message signs and other weather related investments.

Wyoming and other rural States and areas also have safety investment needs due to the risk of vehicle-wildlife collisions. Needs studies may not always consider such accommodations as crossings for wildlife, but those are public interest investments that improve safety.

Reauthorization legislation should very strongly emphasize formula funding

In reauthorization legislation, the highway program should continue its extremely strong emphasis of funding distributed by formula programs, as was the case under the FAST Act. Discretionary and allocation programs are usually slower to put funding to work than formula programs. So, the approach that puts the funds to work faster has much to commend it, including faster generation of direct and indirect jobs, faster deployment of projects that enhance safety, and prompter deployment of projects enhancing freight movement.

As to discretionary programs, we all hope for recognition of the issues we face as discretionary programs are structured or implemented. Freight programs, for example, sometimes are thought of in the context of crowded Interstates near major cities. But the intersection of two Interstate System routes in a rural state, for example, can also be very important to the national transportation network and worthy of consideration.

In addition, we would have serious concern if any new, non-formula surface transportation programs were structured in a way that made it challenging, or even impossible, for rural States to benefit meaningfully.

Streamlining regulatory processes and requirements will enable transportation dollars to be put to work more efficiently – while protecting the environment and other public interests

Congress should continue to find ways to streamline regulatory processes and requirements. This absolutely can be done consistent with environmental protection, public involvement, and other public interests.

We have testified on this before, so we will be brief in highlighting ways to achieve this.

As to project delivery, we believe that the lead agency can be given a stronger hand in setting the schedule for environmental review of EIS projects after consultation with other agencies. This would not mean that other agencies would be compelled to issue any permits within their authority, but it would mean more certainty as to schedule and should result in prompter schedules.

As to review of smaller projects, we support the idea that, as to a project, an agency should be able to use any categorical exclusion available to another agency for the project.

Don't subject rural States to rules inspired by the problems of heavily populated States

Another concern we have is that rules sometimes are not merely burdensome. They also maddeningly subject rural States to requirements intended to help address traffic congestion in America's largest metropolitan areas.

Our States are rural, without a high population metropolitan area. Yet, in the NPRM for the system performance and congestion management rule, where FHWA described the "Purpose of the Regulatory Action," the first purpose identified was "Congestion Reduction." See 81 Federal Register at 23807.

Our States do not experience anything remotely resembling the congestion in large metropolitan areas, but we are still subject to the rule. We are subject to data-related costs and management, and staff must put time in to achieve regulatory compliance. Adding such requirements to the already heavy workload of State DOTs is not appropriate for rural States like Wyoming. We have to report to FHWA how many vehicles were on the road, for example, at some point between Cody and Casper at 10 o'clock on a Tuesday morning. This information is not needed to combat congestion, and every dollar used to obtain the data and implement the rule is unavailable for much better use.

Subject Stewardship and Oversight “Agreements” to notice and comment and reduce the burden they impose on States

Another area of concern is the “Stewardship and Oversight” agreements between FHWA and State DOTs. These “agreements” initially were brief but now routinely exceed 50 single-spaced pages per State. Their requirements cumulatively, and in some cases specifically, have become burdensome.

While some State-specific material is included in a State’s stewardship and oversight agreement with FHWA, most text in these documents consists of standardized clauses. And the number of clauses periodically expands – far beyond the subject matter of 23 USC 106(c), the provision that gave rise to these agreements. Under 23 USC 106(c) a State is able to “assume the responsibilities of the Secretary under this title for design, plans, specifications, estimates, contract awards, and inspections with respect to the projects.”

Yet, as the American Association of State Highway and Transportation Officials (AASHTO) has noted, the stewardship and oversight agreements require advance notice of or approval of changes in many kinds of State DOT policies and practices. This includes those for which the State supposedly assumed the responsibilities of the Secretary, such as for: the State’s standard specifications; pavement design policy; value engineering policy; quality assurance programs; and other matters. Statute does not require such advance notice or approval of such State decisions. As noted, the statute actually calls for the State to assume the Secretary’s responsibility in many of these areas. But, in practice, the “assumption” is subject to periodic approvals as to many matters. This is not what most people think of as an assumption of a responsibility. Nor is it straightforward oversight of how a State exercises assumed responsibility. Yet, States have no real choice other than to accept those terms.

Instead, States should have more flexibility, subject to FHWA oversight. After all, State DOTs are public sector entities, serving the public interest, and subject to public review within the State. Legislation should be drafted with appreciation that there should be a very high bar to jump – higher than it has been to date – before regulating a State.

USDOT should minimize the number of standard clauses in a stewardship agreement and publish a revised draft agreement for notice and comment. That notice should be required to include justification for any proposed requirements for advance notification or approval of State policies not specifically called for by statute or for any other requirements not specified by statute. The provisions that survive the comment process and that are adopted in final rule or notice would supersede the current agreements, with allowance made for any appropriate State-specific adjustments that are mutually agreed. Regulatory filings from States to USDOT, urging these kinds of improvements, have not brought about change, making thoughtful legislation on this point appropriate.

Planning and flexibility issues

For a project to be subject to the environmental review process, it must first emerge from the planning process. That is a frightfully complex process that needs no more requirements. This does not mean that new planning approaches should not be tried, but any additions to current planning requirements should be voluntary, not mandatory. And if any planning requirements can be streamlined, such as fiscal constraint requirements, that would be helpful.

Similarly, it is important that any legislation maintain or increase flexibility available to States under the current highway program. This is not just a question of maintaining current flexibility across programs but, in some cases, a matter of improving flexibility within programs. For example, more flexibility to designate additional mileage as critical urban or rural freight corridors would enhance flexibility in the use of freight program funds.

The current ratio between Federal Highway Program funding and Federal Transit Program funding is appropriate

We support the relative weighting of major surface transportation infrastructure program elements adopted by Congress in the FAST Act. Congress should not reduce the relative weighting accorded to the highway program.

This is consistent with USDOT's most recent Conditions and Performance Report. Among other data points, the report identifies a backlog of highway capital projects with a positive benefit to cost ratio that is roughly 7-8 times the dollar value of the comparable transit backlog.

Public Private Partnerships (P3s) and other approaches to infrastructure investment that depend on a positive revenue stream from a project are not a surface transportation infrastructure solution for rural States.

The relatively low traffic volumes on projects in rural States, including on projects that provide excellent public benefits, are often not suitable for tolls, even if one wanted to impose them. Projects in rural areas are unlikely to generate revenues that will attract investors for bonds or other instruments to finance those projects – even if the revenues are supplemented by tax credits for investors. Further, an emphasis on preserving existing infrastructure reduces the relevance of P3s as a funding source, as resurfacing and reconstruction projects tend not to generate new revenue streams. In short, as to funding surface transportation, P3s can play at most a limited role, particularly in rural areas.

Public Transportation

Before closing, let us mention public transportation, which is not just for big metropolitan areas. Even though our States' share of Federal transit program funds is small, transit plays a role in the surface transportation network in rural States.

The Federal transit program includes apportionments for rural transit. Federal investment in rural transit helps ensure personal mobility, especially for senior citizens and the disabled, connecting them to necessary services. Transit service is an often vital link for citizens in small towns to visit the hospital or clinic as well as to work or other destinations. Some rural areas are experiencing an increase in the age of the population, as is occurring throughout Wyoming. Public transit helps senior citizens meet essential needs without moving from their homes. In short, the transit component of reauthorization legislation must continue to include funding that will help meet transit needs in rural States as well as in more densely populated areas.

Conclusion

Federal investment in highways in rural States helps move people and goods throughout the country, helps move agricultural, energy and natural resources to market, and is in the national interest for the many reasons we have presented. We believe that our highways can better advance these important national objectives if legislation is structured as we suggest: with strong emphasis on formula funding and thoughtful streamlining of regulatory burdens.

That concludes our statement. I'll be pleased to respond to questions though, to the extent the responses go beyond what we have addressed in writing, I am able to respond only for my own department.

Thanks again for the opportunity to present testimony today.

Senator BARRASSO. Well, thanks so much for your testimony. Very useful information. Thank you.

Mr. BRACERAS.

**STATEMENT OF CARLOS M. BRACERAS, P.E., PRESIDENT,
AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS**

Mr. BRACERAS. Chairman Barrasso, Ranking Member Carper and members of the committee, thank you for the opportunity to appear here today and address the critical need for timely reauthorization of the Federal surface transportation legislation.

As mentioned, my name is Carlos Braceras, and I serve as the Executive Director of the Utah Department of Transportation, and I am the current President of the American Association of State Highway and Transportation Officials, which includes the State departments of transportation in all 50 States, Washington, DC, and Puerto Rico.

First, allow me to express the State DOT's collective appreciation to this committee for getting the next Federal transportation bill done on time and for your desire to repeal the \$7.6 billion rescission of the highway contract authority scheduled for July 2020. Your recognition of the importance of maintaining regular order in the business of Congress is something every State strongly supports.

My testimony today will emphasize four main points. No. 1, ensure the timely reauthorization of a long-term Federal surface transportation bill. We recognize that a well-functioning and safe transportation system is the foundation of a strong economy and quality of life. It is this interconnected, multi-modal national system that has enabled the United States to become the most vibrant and powerful nation in history.

The investment backlog for transportation infrastructure continues to increase, reaching \$836 billion for highways and bridges, and \$122 billion for transit. In order to simply maintain the current Highway Trust Fund spending levels adjusted for inflation, Congress will need to identify \$90 billion in additional revenues for a 5-year bill, or \$114 billion for a 6-year bill. At the same time, the purchasing power of the Highway Trust Fund revenues has declined, losing over half its value in the last 26 years.

After FAST Act expiration on September 30th of 2020, the Highway Trust Fund is expected to experience an estimated 51 percent drop in highway obligations from the year before, and is zeroing out of obligations for the mass transit account around 2021 or 2022. The lack of stable, predictable funding from the Highway Trust Fund makes it nearly impossible for State DOTs to plan for large projects that need a reliable flow of funding over multiple years. Americans and members of both parties agree that it is extremely important to invest in our Nation's transportation system. We can harness this momentum by completing the FAST Act reauthorization before October 2020 without relying on any short-term gaps.

Two, increase and prioritize formula-based Federal funding provided to States. The heart and soul of the federally funded, State-administered highway program has been perfectly suited to a grow-

ing and diverse Nation like ours. As your committee unveils your FAST Act reauthorization bill later this month, we urge you to focus on maximizing Federal formula-based dollars provided directly to States through the existing core formula programs, and to continue to consolidate Federal programs.

Three, increase flexibility, reduce program burdens, and improve project delivery. To further enhance the effectiveness of Federal funding, we recommend increased flexibility and transferability between the various Federal programs. Even with significant progress having been made this past decade, getting projects done still takes too long. We believe there remains opportunity to improve the National Environmental Policy Act process, but also make the NEPA process work more effectively with other Federal requirements.

State DOTs continue to implement MAP-21 performance management framework. The first reporting cycle is not expected to be completed until 2022, at earliest. As such, we ask that this body refrain from considering new performance measures and changes to existing regulations that would increase requirements until at least two full reporting cycles.

Four, support and ensure State DOTs' ability to harness innovation and technology. There is no opportunity greater than cooperative, automated transportation which has been defined as all modes of transportation working together to improve safety and mobility through interdependent vehicle and infrastructure automation and information exchange.

The top priority for the State DOTs and AASHTO has been and will always remain safety. Connected vehicles utilizing vehicle to everything communication in the 5.9 gigahertz spectrum will save lives. We must work together to preserve the transportation safety spectrum.

Beyond automated transportation, I would like to emphasize that State DOTs are at the forefront of practitioner based innovative deployment of innovative materials which can improve safety, reduce costs and increase the overall life of our Nation's highway transportation system. We ask Congress to preserve the flexibility for States to choose the types of technology investments that best maximize that value.

In conclusion, State DOTs remain committed to assisting Congress in the development of the next surface transportation, and will ensure enhanced quality of life and long-term economic growth through sound Federal investments. We cannot emphasize enough how much State DOTs and AASHTO value the longstanding partnership with this committee.

I want to thank you again for the opportunity to testify today, and I am happy to answer any questions that you may have.

[The prepared statement of Mr. Bracerac follows:]

AMERICAN ASSOCIATION
OF STATE HIGHWAY AND
TRANSPORTATION OFFICIALS

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TESTIMONY OF

The Honorable Carlos M. Braceras, P.E.

President, American Association of State Highway and Transportation Officials;
Executive Director, Utah Department of Transportation

REGARDING

**The Critical Need for Timely Reauthorization of
the Federal Surface Transportation Legislation**

BEFORE THE

**Committee on Environment and Public Works
of the United States Senate**

ON

July 10, 2019

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INTRODUCTION

Chairman Barrasso, Ranking Member Carper, and Members of the Committee, thank you for the opportunity to appear today and address the critical need for timely reauthorization of the federal surface transportation legislation.

My name is Carlos Braceras, and I serve as Executive Director of the Utah Department of Transportation (UDOT) and as President of the American Association of State Highway and Transportation Officials (AASHTO). Today, it is my honor to testify on behalf of the great state of Utah and AASHTO, which represents the state departments of transportation (state DOTs) of all 50 states, Washington, DC, and Puerto Rico.

I first joined UDOT with degrees in engineering and geology in 1986. Prior to my appointment as the Executive Director in May 2013, I served as the Deputy Director for twelve years with previous experience as Region Director, Major Project Manager, Chief Geotechnical Engineer and Chief Value Engineer. In addition to serving as AASHTO's President for 2018-2019, I am also the Chairman of the AASHTO Committee on Design and the Chair of the Technical Working Group of the AASHTO Center for Environmental Excellence.

First, allow me to express the state DOTs' collective and utmost appreciation for you—the members of the Environment and Public Works (EPW) Committee—in committing to get the next federal transportation bill done on time. When federal funds are predictable and stable, states are able to fully focus attention on programming projects to deliver and maintain critical transportation assets and safety projects. And your focus on maintaining regular order of business in Congress by passing this important legislation by next fall is something every state strongly supports.

I also want to thank the Chairman and Ranking Member of this Committee, and the Chairman and Ranking Member of the EPW Subcommittee on Transportation and Infrastructure, for your introduction of S. 1992 last month, which would repeal the \$7.6 billion rescission of highway contract authority scheduled for July 1, 2020. Removing this large rescission will allow states like Utah to put federal dollars to work in the most efficient manner possible under our asset management plan.

My testimony today will emphasize four main points:

- Ensure timely reauthorization of a long-term federal surface transportation bill
- Increase and prioritize formula-based federal funding provided to states
- Increase flexibility, reduce program burdens, and improve project delivery
- Support and ensure state DOTs' ability to harness innovation and technology

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ENSURE TIMELY REAUTHORIZATION OF A LONG-TERM FEDERAL SURFACE TRANSPORTATION BILL

We are at an inflection point in transportation history.

From the very beginning of our developing nation we have valued investment in our transportation system—starting with rivers, harbors, and post roads. We recognize that a well-functioning and safe transportation system is the foundation of a strong economy and quality of life benefits such as access to employment, education, recreational, and health services opportunities, and it is this interconnected multimodal national system that has enabled the United States to become the most vibrant and powerful nation in history.

Utah's contribution to our collective commitment to America's transportation network is reflected by the Golden Spike celebration that occurred on May 10, 2019 commemorating the 150th anniversary of the completion of the transcontinental railroad in Promontory, Utah. More than 1,900 miles of railroad track were carved in the plains, deserts, and mountains of the western United States, connecting our country from east to west. Travel across the country was reduced from six months to one week, transforming our nation's economy. Ten years after the golden spike was laid in the railroad bed in Utah, the transcontinental railroad was shipping more than \$50 million worth of freight, driving development of the West through strong, reliable transportation infrastructure.

The story of the first transcontinental railroad is just one example of how our entire nation—including residents and businesses of major metropolitan areas and rural areas alike—is well-served by a strong federal investment that improves transportation infrastructure. Another major turning point in the history of our transportation system was the vision and implementation of our nation's interstate highway system. Whether by land, water, or air, our nation's transportation system is the necessary foundation to ensure the vitality of our country.

With that said, at this current inflection point, our proud legacy of achievement is at risk as we face what the future could look like without a revitalized federal surface transportation program: compromised safety, seriously degraded quality of life and environment, and lack of global economic competitiveness.

Despite substantial and recurring funding challenges facing transportation, the investment backlog for transportation infrastructure continues to increase—reaching \$836 billion for highways and bridges and \$122 billion for transit according to the United States Department of Transportation. According to the Congressional Budget Office, in order to simply maintain the current Highway Trust Fund (HTF) spending levels adjusted for inflation after the Fixing America's Surface Transportation (FAST) Act, Congress will need to identify \$90 billion in additional revenues for a five-year bill through 2025; \$114 billion would be needed to support a six-year bill through 2026. At the same time, the purchasing power of HTF revenues has

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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 26 years.

Because Utah knows the criticality of transportation to the quality of life of our citizens, in 2015 our legislature passed a five-cent increase to the fuel tax and indexed the rate to inflation. On top of that, in 2018 the Utah Department of Transportation was instructed to implement a voluntary road usage charge program that must go into effect by January 2020.

The current trends mean that after FAST Act expiration on September 30, 2020, the HTF is expected to experience a significant cash shortfall leading to an estimated 51 percent drop in highway obligations from the year before, or from \$47 billion to \$23 billion, and a zeroing out of obligations from the Mass Transit Account around 2021 and 2022. As you all know, every state is required to have a Statewide Transportation Improvement Program (STIP), which identifies funded priorities for the next four years. In order to do this, every state must make assumptions about what might happen out past the expiration of the FAST Act. In Utah, we have assumed flat funding and not a major cut in federal support—did I guess right? I hope so. In the past, similar shortfall situations have led to the possibility of major cuts in federal reimbursements to states on existing obligations, leading to serious cash flow problems for states and resulting project delays.

We in the transportation industry do everything in our power to deliver needed priority projects as quickly as possible, but due to the nature of large capital programs, including an extensive regulatory process, many of the projects take several years to complete. 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. And these projects are what connect people, enhance quality of life, and stimulate economic growth in each community where they are built.

Fortunately, infrastructure investment has been one of the top national policy agenda items the last few years, even if significant action is yet to be taken. But Americans get it—they understand the benefits, and they want to see investment in our transportation systems. According to a Politico and Harvard poll earlier this year, 79 percent of respondents said that infrastructure investment is, "extremely important," falling just behind lowering prescription drug prices and substantially reducing the federal deficit on the list of issues polled.

Infrastructure investment ranks high for both parties, with 88 percent of Democrats and 81 percent of Republicans surveyed calling it, "extremely important." A crucial step we can take to harness this momentum is to complete the FAST Act reauthorization before October 2020 without relying on any short-term gaps.

We believe this truly is a unique window of opportunity to ensure the continued quality of life and economic vitality that make America a nation we are proud to call home. To do this, the situation demands bold action to invest in our transportation infrastructure at the appropriate

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level to guarantee the success of our nation's future. This action has the clear support of the American public, and it is time for the President and Congress to make it happen.

INCREASE AND PRIORITIZE FORMULA-BASED FEDERAL FUNDING PROVIDED TO STATES

The heart and soul of the Federal-aid Highway Program are the formula dollars supporting state and local investment decisions. This nation-building program, starting with the Federal-aid Road Act of 1916, established the foundation of a *federally-funded, state-administered* highway program, and has been perfectly suited to a growing and geographically diverse nation like ours. The stable federal investment enabled by the Highway Trust Fund has allowed states and their local partners to fund locally-critical projects that at the same time serve the interests of the nation as a whole.

As your Committee unveils your FAST Act reauthorization bill later this month, we urge you to focus on maximizing federal formula-based dollars provided directly to states through the existing core formula programs rather than looking at untested new programs and approaches that can divert the federal government's focus and role in the surface transportation program.

Congress recognized in the Moving Ahead for Progress in the 21st Century (MAP-21) legislation the need to consolidate a complex array of federal highway programs into a smaller number of broader programs, with the eligibilities generally continuing under such programs. This revised program structure has provided state DOTs with greater flexibility to deliver projects more efficiently, and it better supports data-driven investment decisions to meet MAP-21's performance targets.

In Utah, federal highway funds are prioritized and programmed to projects that advance the state's strategic goals to Preserve Infrastructure, Optimize Mobility, and achieve Zero Fatalities. For example, strategic investment of our federal formula funds has enabled us to implement and support a robust, proactive asset management program, keeping Utah's roads and bridges in good condition and reducing the overall cost of the system. Taking advantage of online technology, we provide a live, data- and performance-driven report that is constantly updated to reflect how we are reaching our performance targets. The success of our effort is integral with a federally-funded, state-administered highway program that allows us to target federal funds to those projects and programs that achieve the greatest return on investment.

The formula-based program framework built the Interstate Highway System and the National Highway System, the backbone of our national network of roads and bridges that drives our national economy. This remains the optimal approach to underpin the next surface transportation legislation that will serve all corners of our country—by improving mobility and quality of life in urban, suburban, and rural areas.

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INCREASE FLEXIBILITY, REDUCE PROGRAM BURDENS, AND IMPROVE PROJECT DELIVERY

As mentioned earlier, state DOTs are appreciative of the flexibility in the federal program that supports the right mix of projects to meet the unique investment needs of their own states. To further enhance the effectiveness of federal funding, we recommend increased flexibility of and transferability between the various federal programs.

In Utah, a clear example of the need for increased flexibility of the federal program is evidenced by the high demand for the federal funding exchange program that UDOT administers. UDOT exchanges local federal dollars at 85 cents on the dollar because of the enhanced flexibility afforded to the local government.

Each program has rules that are not always flexible regarding how the funds may be used, and each program is governed by transferability provisions that are established in statute. Increased program-level flexibility would enable states to direct funding to better meet their needs, whether for preservation, capacity, safety, or other unmet needs. For example, the suballocated portion of the Surface Transportation Block Grant Program (STBGP) is underspent, with the latest available data showing 80 percent of total unobligated STBGP funds nationwide belonging to the suballocated STBGP even though it comprises 54 percent of total STBGP funding in 2019, rising to 55 percent next year.

In addition, because some set-aside programs have strict guidelines for use or narrow purposes, these programs tend to be underutilized. Yet limitations in the flexibility of set-aside programs prevent states from prioritizing projects based on local needs, as well as limiting the ability of state DOTs to maximize the use of available funding if a partner is not ready to begin a set-aside project.

On project delivery, even with significant progress being made in the past decade, getting the projects done—especially larger improvements—still takes too long and is unduly costly and delay-prone. We believe there remain opportunities to not only make continued improvement in the National Environmental Policy Act (NEPA) process itself, but also in making the NEPA process work more efficiently with other federal requirements, all the while carefully and responsibly stewarding optimal environmental outcomes.

In Utah, we have taken advantage of the flexibility afforded and have taken on NEPA assignment. We feel a strong sense of responsibility for our natural and built environment and believe we are best able to make choices that benefit the communities we serve. We are directly accountable to our public for those decisions, so we work hard to make the right decisions. We have seen significant time savings in delivering our projects because of NEPA assignment, which is only possible because of our great federal partners. It isn't easy. In fact, it was probably easier when we could point the finger at FHWA and say, "Sorry, we can't do this. They won't let us." Now, we are responsible to make the hard decisions, but we are willing to stand by them.

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Beyond NEPA, AASHTO has identified a number of touchpoints where states can make determinations in lieu of seeking Federal Highway Administration (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.

In addition, we ask Congress to continue supporting states and their local partners in implementing the MAP-21 performance management framework. The new and updated federal performance management regulations were developed and published over a six-year time period finally ending just last year in 2018.

State DOTs continue to implement the first required aspects of these provisions: establish targets for the federal performance measures; incorporate those targets into the planning process; and report on progress towards achieving targets. The first comprehensive report document for the first reporting cycle is not expected to be developed and published until 2022 at the earliest. As such, we ask that Congress refrains from considering new performance measures—and changes to existing regulations that would increase requirements—until after at least two full reporting cycles, which will give states and their local partners the necessary time and experience in meeting the national policy goals articulated under these laws and regulations.

We firmly believe that if any changes are to be made to existing performance management regulations, such changes should reduce the burden of performance measurement and management on state DOTs, rather than increase mandates and requirements. Additionally, we note that to the extent a state or a metropolitan planning organization desires to pursue any additional steps in performance management, they should be free to do so without additional federal rules or statute.

SUPPORT AND ENSURE STATE DOTs' ABILITY TO HARNESS INNOVATION AND TECHNOLOGY

There is no realm where our current inflection point in transportation history is better represented than in cooperative automated transportation (CAT), which has been defined as all modes of transportation working together to improve safety, mobility, and operations efficiency through interdependent vehicle and systems automation and information exchange.

Today, the dramatic change underway is no less significant than when the combustion engine was merged with the wagon in the early 1900s. Today, with the merger of technology between the car, truck and other vehicles—and with the roadway—we will enable unprecedented improvements to safety and mobility. This will change the way we move goods, services and people on our roads and highways. It is more important now than ever that we respect the

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roles at local, state and federal levels and work hard to develop a shared vision of this transportation future in order not to be a bottleneck to continued innovation.

The top priority for the state DOTs and AASHTO has been—and will always remain—the safety of all transportation system users. The loss of 36,750 lives last year on our nation’s highways and streets demands that we act boldly. To this end, connected vehicles (CV) utilizing Vehicle-to-Everything (V2X) communication in the 5.9 GHz spectrum will save lives by creating a seamless, cooperative environment that significantly improves the safety of our transportation system. It is critical that we work together to preserve this transportation safety spectrum; otherwise, we risk forfeiting this incredible opportunity.

As infrastructure owners and operators of the nation’s surface transportation infrastructure, state and local transportation agencies are at the core of creating the optimal CV environment. While automakers and device manufacturers will dictate availability of vehicular equipment, transportation agencies will control the deployment and operation of roadside infrastructure and the incorporation of CV technologies into infrastructure applications. Together, the public and private sectors have already invested hundreds of millions of dollars to develop and deploy lifesaving CV technologies in the 5.9 GHz spectrum.

Last week, the Utah DOT announced a partnership with Panasonic Corporation of North America to develop the nation’s most advanced transportation data network. This effort will accelerate development toward a statewide system for collecting, monitoring and sharing connected and autonomous vehicle (CAV) data. This network will improve safety and mobility on the road by sharing data between vehicles, infrastructure, roadways and traffic operators in real time. Utah already has much of the framework in place for a connected future. We built the first operational connected vehicle corridor in the nation, with a second corridor opened last year. Buses equipped with special radios are already “talking” to the traffic signals along these key corridors, and if the bus is running behind schedule, the signal can extend the length of the green light—all without any action taken by the bus driver.

With the Panasonic partnership, Utah will be ready to accommodate the incoming wave of smart vehicles that are more connected, more autonomous, and able to operate more safely and more efficiently through communication among vehicles as well as the infrastructure – including signs, signals, and other sensors.

We recognize that oversight of communications technology may lie outside of your Committee’s jurisdiction—but we ask that you stand with the state DOTs to make sure that our nation’s highway infrastructure assets are provided the necessary technology to greatly improve safety outcomes for all road users.

Beyond automated transportation, I would also like to emphasize that state DOTs are at the forefront of practitioner-based deployment of innovative materials. Our members fully recognize the potential benefits that can save lives, make a bridge last longer, make signs appear

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brighter from a longer distance, or traffic signals operate more efficiently. Innovative materials can improve safety, reduce cost, and increase the overall life of the nation's surface transportation infrastructure.

That being said, the definition of "materials" is broad. Sometimes it can't be seen. For example, in Utah, on our first design-build megaproject, we built portions of Interstate 15 on Styrofoam blocks. This minimized ground settlement, so as not to damage underground utilities, and to deliver the project at a better value to taxpayers.

It is critical to note that any new product or material being produced and marketed towards state DOTs may come with it a higher cost and more risk. Utah was only willing to construct the first bridge off to the side of the roadway and move it into place over a weekend because we had our partners at FHWA standing with us, sharing in the risks—and the benefits. Programs and statutory assistance to reduce or mitigate a risk association with a new product or material could be helpful, but it must not sacrifice states' flexibility to deploy the materials that best fit their system.

I especially want to note that even without federal involvement, AASHTO has for a long time been supporting innovative materials through the AASHTO Product Evaluation List (APEL), which is a database of product and materials evaluations, and the AASHTO Innovation Initiative (AII) which identifies and champions the implementation or deployment of a select few proven technologies, products, or processes that are likely to yield significant economic or qualitative benefits to the users.

State DOTs remain at the forefront of developing and implementing the smartest and most technologically advanced way to improve our transportation system—and we ask Congress to preserve this crucial flexibility for states to choose the types of specific technological investments that best maximize value for their investment.

CONCLUSION

State DOTs remain committed to assisting Congress in the development of the next surface transportation legislation that will ensure enhanced quality of life and long-term economic growth through sound federal investments provided to all states. AASHTO has been working for over a year to develop specific policy and revenue recommendations for the next reauthorization. We will be bringing those to our Board of Directors at our annual meeting in St. Louis this fall, and look forward to sharing these recommendations with this committee. We cannot emphasize how much state DOTs and AASHTO value the longstanding partnership with the Environment and Public Works Committee, and the tremendous partnership between us.

I want to thank you again for the opportunity to testify today, and I am happy to answer any questions that you may have.

Testimony of Carlos M. Braceras, P.E.
President, American Association of State Highway and Transportation Officials (AASHTO);
Executive Director, Utah Department of Transportation

Senate Committee on Environment and Public Works
Hearing entitled, *“Investing in America’s Surface Transportation Infrastructure: The Need
for a Multi-Year Reauthorization Bill”*.
July 10, 2019
Questions for the Record for Mr. Braceras

Senator Shelby:

1. Mr. Braceras, I would like to ask you about the individual states’ choices regarding technologies and materials used in road, highway, and bridge projects. I certainly support innovation, but I am concerned about intervention.

The IMAGINE Act (S. 403) requires research and use of innovative materials to accelerate their deployment.

We have to beware of the “wolf in sheep’s clothing” where we say we support innovation”, and then we use that as an excuse to go meddle in the marketplace. As the Supreme Court has said, competition “is the best method for allocating resources in a free market.”

- a. Aren’t states already free to pursue a range of eligible choices for techniques and materials?

Yes. The bedrock principle of the Federal-aid Highway Program is that this is a federally-assisted State program. With that, states are provided the flexibility to meet their own unique needs including selection of materials as long as the plans, specifications, and estimates for projects meet federal requirements.

- b. Are State DOTs prohibited from using innovative (e.g. new) materials on projects?

No. States are always motivated to provide highest value to taxpayers including by improving project performance and lifecycle through the use of innovative materials if and where they make sense.

- c. Does the Federal government’s process of research, deployment and acceptance of materials for roads, highways, and bridges exclude any materials such as composites or geosynthetics as an effort to preserve market share for any type of material (including proven, traditional materials)? Are there instances where materials are excluded and the playing field is not level for the private sector would justify government intervention or require changes to existing law?

We do not feel the current federal process on transportation research, deployment, and acceptance of materials deters certain types of materials over others. It is crucial that this flexibility is preserved. It should also be noted that any new product

or material being produced and marketed towards state DOTs may come with it a higher cost and more risk, including safety risk and potential for litigation.

2. Mr. Braceras, you were a Chief Engineer. You must have heard complaints from industries and even particular companies about not considering or selecting their products for your projects.
 - a. Help us understand what thinking and the processes that go into making materials choices? Are you limited by law or regulation? Do any of those laws or regulations preclude your consideration of "innovative" materials?

As a leader of a state DOT I am always driven—first and foremost—by developing and operating the safest transportation system in the world. Second, I strive to provide the highest value transportation system for the public's investment. I believe we do that by creating an environment where the private sector can compete fairly. I do not believe that the government should “pick winners and losers.” Rather, state DOTs specify what outcome we want to achieve, create a level playing field, and allow the private sector—through competition—to provide the highest value. This model will allow for a continual, fast-paced evolution of innovative materials.

- b. What would be the AASHTO position having the federal government seek to tell the states what technologies and materials to consider, evaluate or use?

State DOTs remain at the forefront of developing and implementing the smartest and most technologically advanced way to improve our transportation system—and we ask Congress to preserve this crucial flexibility for states to choose the types of specific innovation and technological investments that best maximize value for their investment.

- c. From a State DOT perspective, do we need legislation to subsidize private sector development of materials and incentivize states to adopt new materials?

State DOTs absolutely support development and deployment of innovative solutions and any action that Congress takes should not duplicate at best or put the “thumb on the scale” at worst when it comes to states’ ability to choose materials.

3. Mr. Braceras, what is the AASHTO Product Evaluation List? Can you describe what it does and what benefits it provides?

This is an AASHTO technical service program created to facilitate the exchange of information between state DOTs about innovative, patented, and/or proprietary type products. There are four distinct services provided: AASHTO evaluated products, DOT evaluated products, state proprietary products, and links and state resources. Currently there are over 400 listings of proprietary products and related performance data. We feel this program already serves the outcomes sought under the IMAGINE Act, without the federal government potentially putting its “thumb

on the scale” when it comes to state decisions on use of materials. We welcome any and all opportunity to make this program more broadly used.

Senator BARRASSO. Thank you very much, Mr. Braceras.
Mr. Kuney.

**STATEMENT OF MAX KUNEY, PRESIDENT, MAX J. KUNEY
COMPANY**

Mr. KUNEY. Chairman Barrasso, Ranking Member Carper and members of this committee, thank you for convening today's hearing, and more important, for your commitment to moving forward on a reauthorization of the FAST Act well before the Act expires in September of next year.

My name is Max Kuney. I am a fourth-generation infrastructure contractor from Spokane, Washington, serving this year as the chairman of AGC's Highway and Transportation Division.

Mr. Chairman, America's transportation infrastructure, both urban and rural, needs significant repair, replacement and expansion. Reports provided by the Federal Highway Administration, based on State DOT data, identify a litany of troublesome facts, including failing and underperforming pavements, bridges that are structurally deficient or don't meet modern specifications, congestion caused by insufficient capacity in key locations, inadequate intermodal connections and safety hazards. From coast to coast, our transportation infrastructure is showing signs of distress.

All of this is coming at a time when an increasing population, growth in vehicle use and significant increases in freight movement will add to the strain on our transportation infrastructure. Just one example is that the level of heavy truck traffic nationally is anticipated to increase by approximately 56 percent from 2018 to 2045, putting greater stress on the Nation's roadways. As our economy continues to grow and global competition increases, there will be an expanding need for new infrastructure improvements to support our manufacturing, farming, service, technology and industrial sectors. All of this leads to an opportunity for this committee and Congress to pass a well-funded reauthorization bill that addresses our current and future transportation needs.

Federal highway funding has historically been critical to capital investment in highways and bridges, and it is important that this funding continues and grows. On average, States use 52 percent of their annual Federal aid allocation for capital investment projects, with that percentage higher in many smaller population States. The existing program structure and funding formula allows States the flexibility to address their individual priorities and specific requirements, while also supporting the overall need for a strong, well-functioning, interconnected national transportation system. Assuring States that the Federal Government will continue to be a reliable partner in funding and delivering a safe and efficient national surface transportation network should be a top priority.

While reauthorization is an opportunity, failure to meet the deadline will negatively impact addressing our national transportation needs and put the U.S. further behind. AGC urges Congress to not repeat the mistakes of the past by kicking the can down the road with numerous short-term extensions. This uncertainty in the flow of Federal aid funding has caused project delays and cancellations, resulting in higher costs and slowed transportation improvements.

States postpone or slow down their planning, design, permitting and construction projects because of uncertainty. Prior to the FAST Act passage in 2015, short-term extensions caused 15 State transportation agencies to delay or seriously consider canceling payments on contracts for transportation improvement projects worth over \$1 billion when the reimbursements from the Highway Trust Fund were slowed.

Of course, the final issue in the FAST Act reauthorization is addressing the Highway Trust Fund's revenue deficit. Shortly after the FAST Act expires in September 2020, there will be a minimum of \$18 billion per year shortfall in the revenue needed just to maintain current funding levels. AGC urges Congress and the Administration to act sooner, rather than later.

AGC believes the Highway Trust Fund revenue solution must include real, reliable, dedicated and sustainable revenue sources derived from users, and the beneficiaries of our surface transportation system, resources sufficient to end the chronic shortfalls and support increased investment, and be dedicated solely to surface transportation improvements. Increasing the Federal Motor Fuels Tax is the simplest and most effective way to achieve this goal. AGC joins our many partners in the business community and organized labor in supporting such an increase. Now is the time for the Federal Government to do what 33 States have done since 2012: enact a revenue package to support increased transportation investment.

Congress and the Administration must take advantage of the strong support for infrastructure investment to solve the Highway Trust Fund's long-term solvency by providing real and growing revenue to address our surface transportation needs. This committee and its leaders are an essential component to making this priority a reality. That is why I not only feel grateful to be here, but am hopeful that my words will help lay the foundation for your successfully passing a transportation infrastructure package.

Mr. Chairman, thank you again for allowing AGC to participate in today's discussion. I look forward to your questions.

[The prepared statement of Mr. Kuney follows:]

Statement of the
Associated General Contractors of America
Presented by Max Kuney
Chairman, AGC Highway and Transportation Division
To the
Senate Committee on Environment and Public Works
Supporting
Timely Reauthorization of the
Fixing America's Surface Transportation (FAST) Act
July 10, 2019



The Associated General Contractors of America (AGC) is the leading association in the construction industry representing more than 26,500 firms, including America's leading general contractors and specialty-contracting firms. Many of the nation's service providers and suppliers are associated with AGC through a nationwide network of chapters. AGC contractors are engaged in the construction of the nation's commercial buildings, shopping centers, factories, warehouses, highways, bridges, tunnels, airports, waterworks facilities, waste treatment facilities, levees, locks, dams, water conservation projects, defense facilities, multi-family housing projects, and more.

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AASHTO FAST ACT REAUTHORIZATION CORE POLICY PRINCIPLES

Adopted by the AASHTO Transportation Policy Forum on May 22, 2019

1. **Ensure timely reauthorization of a long-term federal surface transportation bill**
 - Funding stability provided by federal transportation programs is absolutely crucial to meet states' capital investment needs, which take multiple years to plan and construct.
 - A long-term transportation bill is needed so that there is no authorization gap upon FAST Act expiration in September 2020. Short-term program extensions cause unnecessary program disruptions and delays mobility and safety benefits to states and communities.
2. **Enact a long-term, sustainable revenue solution for the Highway Trust Fund**
 - Ensuring Highway Trust fund solvency in supporting a six-year federal surface transportation bill that simply maintains current FAST Act funding levels, will require \$114 billion in additional revenues for the Highway Trust Fund.
 - To achieve a state of good repair, USDOT's 2015 Conditions and Performance Report estimates highway and bridge needs at \$836B and transit needs at \$122B, which would require significant additional investment.
 - Federal funding solutions can draw upon the experience of 31 states that have successfully enacted transportation revenue packages since 2012.
3. **Increase and prioritize formula-based federal funding provided to states**
 - The current federal highway program optimally balances national goals with state and local decision-making.
 - Formula-based transportation funding reflects the successful federal-state partnership by ensuring flexibility necessary for each state to best meet its unique investment needs.
4. **Increase Flexibility, Reduce Program Burdens and Improve Project Delivery**
 - Increase programmatic and funding flexibility to plan, design, construct and operate the surface transportation system.
 - Reduce regulatory and programmatic burdens associated with federal programs that are not part of the project approval process.
 - Modernize Clean Water Act, Clean Air Act, and Endangered Species Act processes to improve transportation and environmental outcomes and reduce delays.
 - To streamline and improve project delivery, states should be provided with opportunities to assume more federal responsibilities and associated accountability.
5. **Support and Ensure State DOTs' Ability to Harness Innovation and Technology**
 - Innovative approaches and technologies should be embraced to achieve a safer and more resilient, efficient and secure surface transportation system.
 - State DOTs, as infrastructure owners and operators, need the 5.9GHz spectrum for transportation safety and connected vehicle deployment purposes.
 - Preserve state and local government authority to regulate operational safety of autonomous vehicles.



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AASHTO FAST ACT REAUTHORIZATION Transportation Policy Forum White Paper May 29, 2019

TPF WHITE PAPER DEVELOPMENT

Listed below are the individual in-depth policy white papers that were developed by the four Modal Councils, the Special Committee on Freight and the eleven topical working groups.

1. Active Transportation
2. Freight
3. Highways and Streets
4. Public Transportation
5. Rail Transportation
6. Connected and Automated Vehicles
7. Data Management and Analytics
8. Funding and Finance
9. Operations
10. Performance-based Management
11. Planning
12. Project Delivery: Engineering
13. Project Delivery: Environmental Protection
14. Research and Innovation
15. Safety
16. Transportation System Security and Resilience

This draft TPF white paper consists of policy priorities identified by the TPF from all 16 white papers and input from committees, councils and staff.

TIMELINE

- **May 2018:** Formally kick off the FAST Act reauthorization effort at the TPF meeting; *2018 AASHTO Spring Meeting, Franklin, TN*
- **May 2018 to September 2018:** Committees to develop and approve their five-page white paper.
- **September 2018:** TPF, Modal Councils, and Special Committee on Freight to receive briefings on each white paper; *2018 AASHTO Annual Meeting, Atlanta, GA*
- **September 2018 to February 2019:** Modal Councils and Special Committee on Freight to develop and approve their five-page white paper.

- **February 2019:** TPF to receive briefings on each Modal and Special Committee white paper; *2019 AASHTO Washington Briefing, Washington, DC*
- **February 2019 to May 2019:** TPF to prioritize policy issue areas based on 16 white papers received.
- **May 2019:** TPF to identify the priority policy issue areas for further discussion; *2019 AASHTO Spring Meeting, Park City, UT*
- **August 8-9, 2019:** TPF to hold an in-person special session to consider all priority issue areas, then draft policy resolutions for AASHTO Board; *Minneapolis, MN*
- **October 2019:** AASHTO Board of Directors to consider and formally adopt the AASHTO reauthorization policy package; *2019 AASHTO Annual Meeting, St. Louis, MO*
- **October to November 2019:** AASHTO staff to develop visual complements of the reauthorization package intended to serve different audiences in the transportation stakeholder community
- **November 2019 to September 2020:** AASHTO members and staff to communicate and explain AASHTO's formal policy positions

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Funding and Finance

TIER 1

ISSUE 1: Increase Federal Funding

- Proposal 8-1 from the compilation of 16 policy white papers
- *Current Federal Policy:* The FAST Act authorized \$305 billion from both the HTF and the GF of the United States Treasury. It provided \$225 billion in HTF contract authority over five years for the Federal-Aid Highway Program and \$61 billion over five years for Federal transit programs. It also includes funding for highway safety, authorized general funding for rail, and increased emphasis on freight investments through new highway program elements supported by the HTF.
- *Issue:* Our nation is currently faced with aging infrastructure, a growing national population, and a major transportation funding shortfall. The American Society of Civil engineers has identified a \$1.1 trillion funding gap for surface transportation between 2016 and 2025. It is essential to increase federal funding for surface transportation to sustain national and regional connectivity and mobility for people and business. The federal government must connect the nation. Reducing that role or proposing turn back of the system is not appropriate. The states cannot fund a dynamic and efficient national transportation system alone.
- *Recommendation:* Congress is urged to increase federal surface transportation funding significantly above the current FAST Act funding levels. Enhanced federal funding is required for both rural and urban areas of the country to improve the quality of life and to increase the nation's economic vitality, well-being, and competitiveness.

ISSUE 2: Stability of the Highway Trust Fund

- Combines 3-1 and 8-2 from the compilation of 16 policy white papers
- *Current Federal Policy:* N/A
- *Issue:* The HTF serves as the backbone of Federal highway and transit programs and was once supported solely by user fees. This user fee has not increased in over 25 years, and thus is not nearly large enough to cover current costs, let alone the massive reconstruction efforts needed across our country. Since 2008, the HTF has been sustained by supplementing user fees through a series of General Fund transfers now amounting to \$140 billion. According to the Congressional Budget Office, annual HTF spending at current levels plus inflation is estimated to exceed receipts by \$16 billion in FY 2020, growing to \$23 billion by FY 2027. HTF revenues, mainly derived from fuel taxes, will continue to decline due to increased vehicle fuel efficiency and growing use of alternative fuel vehicles. Absent legislation, in FY 2021, the HTF is expected to experience a significant cash shortfall leading to an estimated 40 percent drop in highway obligations from the year before, or from \$46.2 billion to \$27.7 billion, and a near zeroing out of the Mass Transit Account.

The Highway Trust Fund (HTF) does not currently allow for continuity and consistency in the Federal-Aid program, and solvency is the root of this issue. This program needs to grow to continue providing transportation projects that result in great benefits to our nation.

The challenges resulting from the continued threat of insolvency are many. In the short-term, continuing resolutions release obligation limitation piecemeal throughout the year, causing State DOTs to have difficulty: obligating projects in monthly lettings, leading to lettings with state funds and the build-up of large AC balances; and having enough state funds to let projects and make progress payments while awaiting obligation limitation to become available for federal reimbursement. In addition, having state funds unnecessarily tied up while waiting for federal funds delays the ability to begin more projects using state dollars. In the long term, long-range

transportation planning is difficult when future funding levels in the HTF are unknown because the DOTs must guess at the level of general-fund transfers that may be approved. Additionally, State DOTs may be unnecessarily conservative in funding projects to avoid over-obligating funds that might have to be covered by the state in the event future federal reimbursement levels drop.

AASHTO has provided Congress with numerous alternative methods to fund transportation at the federal level. Between 2013 and 2018, 56 percent of the states passed legislation to increase their state gas taxes; we feel the time is right to take this action on a federal level to shore-up the HTF. It is in the nation's best interest to provide funding through the HTF to cover our surface transportation infrastructure needs and ensure that the program becomes a dependable source of revenue for the next decade.

- *Recommendations:*
 - Congress must provide sustainable, certain, long-term funding to the HTF to support multi-year legislation. Such solutions would eliminate the need to use general fund monies to supplement the HTF.
 - Congress should continue to fund the development and implementation of revenue alternatives to the motor fuel tax, such as the Surface Transportation System Funding Alternatives Program, which was established under the FAST Act and provides \$95 million in federal share (for up to 50 percent of project cost) over five years to states to demonstrate alternative revenue methods that incorporate a user fee structure to maintain the long-term solvency of the HTF.

ISSUE 3: Prioritize Formula-based Federal Funding

- Proposal 8-3 from the compilation of 16 policy white papers
- *Current Federal Policy:* The Federal-aid Highway Program is a Federally-assisted state program that is rooted in Article 1, Section 8 of the United States Constitution and confirmed by 23 U.S.C 145. Currently, approximately 90 percent of the Federal highway program funds are distributed to the states by formula. This approach of emphasizing formula funds has a decades long track record of success in supporting long-term capital improvements across the United States. This enables funds to be distributed to states in a stable and predictable manner and allows the Federal program to efficiently deliver projects that have been identified and prioritized through the statewide and metropolitan planning processes.
- *Issue:* Recently proposals have been advanced that would greatly increase the discretionary funding programs, with projects chosen by the Federal Government. These proposals combine the discretionary programs with requirements that states and others greatly increase their contributions or greatly leverage Federal dollars. For a variety of reasons, many states cannot leverage funding beyond the current matching requirements. This makes it critical that Congress continue to recognize the importance of continuing the current prioritization of formula funding over discretionary funding. Using discretionary programs, the Federal government must solicit applications and review them before awarding funds which delays the deployment of funds. In addition, not only are grant applications costly both in time and dollars, such grant dollars are uncertain by nature preventing states from properly planning. This results in lost efficiency and added complexity to processes and project delivery. More funding for discretionary programs will likely result in an even lengthier processing timeframe making them an inefficient way to increase investments in transportation infrastructure.
- *Recommendation:* Congress should continue to prioritize formula funding over discretionary funding. State and local governments have existing plans and processes in place and can put new Federal formula funds to work promptly.

ISSUE 4: Eliminate Rescissions of Contract Authority

- Proposal 8-4 from the compilation of 16 policy white papers
- *Current Federal Policy:* Congress has used rescissions of highway contract authority as budgetary offsets. An \$856 million rescission in unobligated contract authority was enacted in June 2017 and a \$7.6 billion rescission is scheduled for July 2020 under the FAST Act. The \$7.6 billion rescission would be derived from Federal-aid Highway Program categories other than those that are exempt including: Highway Safety Improvement Program, Railway-Highway Crossing Program, and sub-allocated portions of the Surface Transportation Block Grant Program (STBGP). Non-exempt program dollars are required to be rescinded from unobligated balances remaining on that date on a proportional basis.
- *Issue:* Rescinding previously-authorized highway contract authority greatly impedes the flexibility of state departments of transportation to program Federal dollars and could result in hard cuts to highway funding and seriously delay project construction.
- *Recommendation:* Congress is urged to repeal the scheduled FY 2020 rescission and avoid using rescissions of highway contract authority. However, if a rescission is imposed, no funding categories should be exempt. States should have the flexibility to choose among all the funding categories to rescind so they can reduce the negative impact of the rescission on transportation service and performance.

ISSUE 5: Funding Flexibility, Transferability and Innovation

- Combines 3-2, 8-6, 10-6 and 11-2 from the compilation of 16 policy white papers
- *Current Federal Policy:* The total amount of Federal highway funding apportioned to a state is divided among the individual apportioned programs. To ensure the most effective use of Federal funding, increased flexibility of and transferability between the various Federal programs is necessary. Each program has rules that are not always flexible regarding how the funds may be used. Each program is governed by transferability provisions that are established in statute.
- *Issue:* AASHTO supports increased flexibility in programs and in transferring funding among the programs. Such reform would enable states to direct funding to better meet their needs, whether for preservation, capacity, safety or other needs. This flexibility in directing funds is especially important when overall funding is insufficient.

As some set-aside programs have strict guidelines for use or narrow purposes, these programs are often underspent. Limitations in the flexibility of set-aside programs prevent States from prioritizing projects based on local needs, as well as the limits the ability of DOTs to maximize the use of available funding if a partner is not ready to begin a set-aside project (for example, MPO allocations). In the end, monies lapse and are lost.

Deploying funds productively is important to the states, and each state understands best how to meet both the national and state needs. States with programs meeting the intent of the various federal programs should have broad trust to spend their funding appropriately. The states would be able to make greater use of federal-aid programs if there were reductions in both the regulations pertaining to these programs and the sheer number of restrictive set-aside programs.

Also, many states have a long history with incorporating performance goals into their planning processes to guide state programming decisions. Concurrently, Congress has established national performance goals and the states are implementing the performance management regulations established by FHWA. Under this structure, states face constraints to align available funding with priority needs.

- *Recommendations:*
 - Examine federal transportation programs for need and applicability.
 - Provide increased flexibility and transferability between highway program funds.
 - Any program growth should be in the most flexible categories.
 - Authorize a pilot program that allows a limited number of states the option to treat all federal funds they receive during the pilot program years as having been apportioned to that state under the most flexible of the existing federal funding categories. The purpose of the pilot program is to demonstrate how states produce results toward state goals and needs using a flexible needs-based and outcome-oriented project prioritization and programming process. States that use performance indicators in their programming or project selection processes would be eligible to apply for the pilot program. The program would not eliminate statutory set-asides for geographic areas within such states or eliminate the applicability of federal performance requirements. Such a pilot would enable USDOT to consider the impact of the increased flexibility – positive, negative, or neutral – on results, including under the federal transportation performance management process. The proposed pilot program will provide practical, real-world experience that will help inform future policy making.

ISSUE 6: Preserve the Current Federal/State Matching Ratio Requirements

- Proposal 8-5 from the compilation of 16 policy white papers
- *Current Federal Policy:* While there are exceptions, 23 U.S.C. 120 generally requires most federal-aid transportation projects to have an 80 percent federal share and a 20 percent state matching share. This 80/20 Federal/Non-Federal funding share means Federal support is focused on larger capital projects and leverages state and local dollars to be used for a much broader array of projects.
- *Issue:* This 80/20 Federal/Non-Federal funding match has a proven track record of success. Many states have recently raised highway revenues. However, some states remain challenged to meet the 20 percent non-Federal match requirements. States and local governments already provide approximately 75 percent of transportation funding for highways and transit. Achieving national goals require our federal partners to contribute an equitable share. There are significant needs for state and other non-federal transportation funding to operate and maintain the federal system as well as provide capital, operating, and maintenance funding for non-federal, state and local transportation systems. The current matching requirements allow state and local dollars to be used to match federal funds and also to be used for non-federal transportation.
- *Recommendation:* Maintain the current federal/state matching ratio requirements for projects and explore innovative match strategies (e.g., the sale of toll credits).

ISSUE 7: Provide Flexibility to Toll Federal-aid Highways

- Proposal 8-8 from the compilation of 16 policy white papers
- *Current Federal Policy:* In most cases, federal law (23 USC 301) restricts states from tolling Federal-aid Highways, which eliminates a potential source of revenue. The Interstate System Reconstruction and Rehabilitation Pilot Program (ISRRPP) was authorized under Section 1216(b) of TEA-21 to permit up to three existing Interstate facilities to be tolled to fund needed reconstruction on Interstate corridors that could not otherwise be adequately maintained or functionally improved without the collection of tolls.
- *Issue:* In some states, a portion of the transportation facilities cannot be adequately maintained or functionally improved without toll collection; however, federal law imposes restrictions on states from tolling Interstate routes.

- *Recommendation:* Provide increased tolling flexibility to states to maximize revenue-raising opportunities in light of federal funding challenges.

ISSUE 8: Maintain the Current Balance of Funding Among Highways, Transit, and Highway Safety

- Proposal 8-7 from the compilation of 16 policy white papers
- *Current Federal Policy:* The Highway Trust Fund supports highway, transit, and highway safety programs. The FAST Act also added a new National Highway Freight Program (NHFP) and a new discretionary program entitled the Nationally Significant Freight and Highway Programs (now known as Infrastructure for Rebuilding America or INFRA) within the highway program. Additionally, the general fund supports rail programs.
- *Issue:* The current funding balance along with transferability and flexibility allows states to direct available funding to meet highway, safety, and transit needs. The most recent FHWA Conditions and Performance report estimated the highway backlog at \$836 billion and a transit backlog of \$90 billion. States need all the tools to address such a high level of need.
- *Recommendations:*
 - Maintain the current balance of funding among highways, transit and highway safety from the HTF and continue General Fund support for rail programs.
 - Further increase flexibility within the STBG Program by expanding the state departments of transportation's share of funding (which will be reduced to 45 percent by FY 2020 under the FAST Act) which can be used in any area within a state. This flexibility includes each state's ability to direct more of its own STBG program funding to their local partners, over and above sub allocated STBG Program funds, if they so wish.

ISSUE 9: Surface Transportation Block Grant Program

- Combines 1-2, 1-3, 3-3, 11-5 and 12-14 from the compilation of 16 policy white papers
- *Current Federal Policy:* 23 U.S.C. 133(h), 23 USC 206
- *Issue:* Although state DOTs use significant state resources to administer the Surface Transportation Block Grant Transportation (STBGP) set-aside for Transportation Alternatives (TA), state DOTs are not eligible recipients of TA funding. Similar programs, such as the Recreational Trails Program, allow states to be reimbursed for costs incurred in administering the program, up to seven percent of the apportionment made to the state each year (23 USC 206(d)(2)(H)), and one percent of Recreational Trails Program monies are returned to USDOT each year to administer the program (23 USC 133(h)(5)(B)). Thus, it is important that state DOTs be allowed to use a portion of the TA program funds for expenses associated with administering these funds.

The current prohibition of state DOT sponsorship/eligibility for TA funds hinders fund obligation as local government sponsors are often reluctant to use federal funding for small projects. As such, state DOTs should be able to sponsor local projects and receive project grants, at the request of the local agency.

Also, TA funding is available only for infrastructure related and environmental projects. The Recreational Trails Program, however, includes eligibility for maintenance of existing trails and educational programs to promote safety and environmental protection.

Applying the full range of federal requirements to the much smaller Transportation Alternatives (TA) projects inhibits the efficient delivery of those projects. Often, 50 percent or more of TA funding is spent on preliminary engineering activities to meet federal requirements, leaving little money for project construction. In addition, local public agencies are typically unfamiliar with

federal processes, which slows down project delivery. Simplifying the federal requirements for TA projects would greatly expedite project delivery.

Also, the current TA set aside is a fixed dollar amount. This fixed amount does not allow the TA program to grow throughout time as do other percentage based programs.

Finally, core programs with 80-, 90-, or 100-percent federal-aid participation greatly free-up state dollars that can be used on local projects without the typically restrictive federal rules. This increases the buying power of those dollars, and allows them to be used with greater efficiency. States should have the ability to select the level of federal, state, and local funding participation in order to extend the reach of their limited transportation dollars and to use them in the most efficient and effective ways possible. Established participation percentages may require a state or local agency to set aside dollars in anticipation of letting specific federal projects, which ties up those funds while waiting for the project to be let (preventing other projects from being let sooner using the funds that are being set aside for match). Some local entities wait years to build up enough funds to match a needed transportation project, but if let as a 100%-federal-share project it could be let without waiting for local funds to become available. With this added flexibility, State DOTs could tailor the federal/state/local funding split to specific situations and projects and further maximize the use of all available funding sources.

- *Recommendations:*
 - State DOTs should be reimbursed for eligible costs incurred in administering the TA program, up to seven percent of the apportionment made to the state each year.
 - Allow states to receive TA funding and administer TA projects, at the request of a local agency.
 - Allow TA funds to be used for non-infrastructure programs that focus on preservation, safety, public education, enforcement, and/or public outreach.
 - Develop a Task Force consisting of state DOTs and local transportation agency representatives to make recommendations to USDOT on streamlining federal processes and expediting project delivery for TA projects.
 - Change the TA set-aside from a specific dollar amount to a percentage so that the TA Set-aside funding is tied to increases/decreases in overall transportation funding.
 - Allow transportation agencies to choose the level of federal share for set-aside programs.

TIER 2

ISSUE 10: Reduce and Simplify Regulations, Requirements, Data Collections, and Process to Expedite the Process

- Proposal 8-10 from the compilation of 16 policy white papers
- *Current Federal Policy:* Preserve useful program and policy reforms and support additional opportunities to streamline and simplify the federal surface transportation programs.
- *Issue:* Notwithstanding efforts by AASHTO, current Federal surface transportation programs are subject to significant requirements and processes. Appropriate reduction of such requirements will save money, increase efficiency, and allow more funding to be used to improve transportation services. Many of the requirements are tied to finance and funding. There are financial process difficulties caused by federal funding uncertainty in the fiscal constraint and financial planning provisions related to the State Long Range Plan, the Statewide Transportation Improvement Program, the Asset Management Plan, and Performance Management.
- Under the current uncertain federal funding conditions, performance management, asset management, and financial planning requirements have far less value for decision making and risk is multiplied. If federal transportation appropriations are not known at the beginning of the federal fiscal year, financial planning, financial forecasting, programming, performance, and asset

management are adversely affected. This is further accentuated if these decision systems use financial optimization methods over long-time frames. Many of the financial planning and forecasting requirements are associated with the statutory language “reasonably expected to be available.” For such purposes it is critical to know both ‘how much funding and when the funding will reasonably be available.’

- *Recommendations:*
 - Define “reasonably expected to be available.”
 - Fiscal constraint and other financial requirements in planning and programming should be imposed for no more than the STIP timeframe. States should have the option to do financial estimates for longer periods, if desired.

ISSUE 11: Support for Financing Tools

- Proposal 8-9 from the compilation of 16 policy white papers
- *Current Federal Policy:* Title 23 authorizes a number of beneficial transportation financing tools, including the Transportation Infrastructure Finance and Innovation Act (TIFIA), Grant Anticipation Revenue Vehicles (GARVEEs), State Infrastructure Banks (SIBs), and Private Activity Bonds (PABs).
- *Issue:* While not a substitute for adequate funding, states need access to financing tools to help maximize the value of existing resources, particularly when federal funding is insufficient.
- *Recommendation:* While most projects require Federal support in the form of direct funding rather than financing incentives, Congress should continue to support the financing tools currently provided and support new innovative financing tools.

Public Transportation

TIER 1

ISSUE 1: Retain, Strengthen and Expand the Federal Program for Public Transportation; Retain the Mass Transit Account within the Highway Trust Fund

- Proposal 4-1 from the compilation of 16 policy white papers
- *Current Federal Policy:* The FAST Act authorized \$61.1 billion for transit programs with funding provided from both the Mass Transit Account (MTA) of the Highway Trust Fund (HTF) and the General Fund (GF). As of FY 2020, annual HTF outlays are estimated to exceed receipts by \$16 billion in FY 2020, growing to more than \$23 billion by FY 2027.
- *Issue:* Public transportation provides personal mobility that significantly contributes to national goals and policies in support of global economic competitiveness, energy independence, environmental sustainability, congestion mitigation and emergency preparedness. Also, on an individual user basis public transportation saves money, reduces the carbon footprint of households and provides people with choices, freedom and opportunities.
- *Recommendations:*
 - Commensurate with increases overall transportation funding, increase federal funding for both rural and urban area public transportation services to enhance regional and national economic competitiveness and promote community vitality.
 - Prioritize increases in formula-based program funding, including funding to address bus and rail modernization and rural transit, while also providing funds for the general fund non-formula New Start/Small Start program.
 - Implement a long-term sustainable revenue strategy that (1) addresses the insolvency of the federal Highway Trust Fund; (2) preserves a separate Mass Transit Account; (3) proportionately grows the highway and transit programs and mitigates the current infrastructure deficit; and (4) supports new transformative infrastructure investments.
 - Increase the flexibility and transferability of federal highway and transit funding.

ISSUE 2: Maintain and grow the Bus/Bus Facility formula and discretionary program

- Proposal 4-3 from the compilation of 16 policy white papers
- *Current Federal Policy:* 49 U.S. Code § 5339(a)(b)
- *Issue:* Section 5339 in MAP-21 created a new hybrid (formula/discretionary) Bus and Bus Facilities grant program. The increased weight given to formula funds was consistent with AASHTO policy emphasizing formula funds. The FAST Act change replaced the previous Section 5309's 100 percent discretionary Bus and Bus Facilities program and provided funding to address extraordinary needs for the rehabilitation and replacement of buses and bus related equipment; and to rehabilitate existing or construct new bus-related support facilities; transfer stations; and intermodal facilities. In FY2018, \$366 million was awarded in general fund discretionary program funds out of a request of \$2.2 billion. This oversubscription shows the strong need to maintain and grow the overall bus and bus facilities program, both formula and discretionary components.
- *Recommendation:* Using current federal appropriated funding levels as a baseline for formula and discretionary funds, provide increased highway trust fund formula and discretionary general fund funding. Direct USDOT to consider industry comments, including comments of state DOT's, on criteria for discretionary grants.

TIER 2**ISSUE 3: Support the Goals of Safety Management Systems (SMS), the Public Transportation Agency Safety Plan (PTASP), and State of Good Repair (SGR)**

- Proposal 4-4 from the compilation of 16 policy white papers
- *Current Federal Policy:* 49 U.S. Code § 5329 outlines U.S. DOT's mandate to implement a public transportation safety program with numerous components including National Public Transportation Safety Plan, Safety Certification Training Program, Agency Safety Plan and State Safety Oversight Program. In 2018, FTA issued a final rule implementing the Public Transportation Agency Safety Plan.
- *Issue:* The Public Transportation Agency Safety Plan (PTASP) final rule requires those transit agencies affected by the rule to incorporate SMS policies and procedures into final Safety Plans. While state DOTs support the federal goals of Safety Management Systems (SMS), PTASP, and State of Good Repair, without authorizing a source of funding for implementation, an unfunded mandate has been created and imposed upon states and their sub-recipients. The PTASP final rule defers FTA Sections 5310 and 5311-only providers from having to comply with the new rule. Reauthorization is an opportunity for Congress to eliminate this uncertainty by formally exempting FTA Sections 5310 and 5311 providers from the requirements.
- *Recommendation:* Codify the current the PTASP exemption for FTA Section 5310 and 5311 providers and provide funding to support implementation for systems receiving funding from the Urbanized Area Formula Program (49 U.S.C. 5307) and have "100 or fewer" vehicles in 'peak' revenue service.

ISSUE 4: Maintain the Current Maximum Federal Funding Match Ratios for Public Transit Programs to Support Rural and Urban Communities, Individuals with Disabilities and Seniors and Our Nation's Transit Infrastructure

- Proposal 4-2 from the compilation of 16 policy white papers
- *Current Federal Policy:* 49 U.S. Code § 5307, 5309, 5310, 5311, and 5339
- *Issue:* On a national basis, state and local financial support for public transportation services far exceed the current federal support. Nonetheless, the current federal share is essential to ensure that current services are retained. As such, the federal government should not shift additional costs to states/local governments by reducing the current level of federal participation in operating and capital projects. Congress should honor the existing federal shares authorized for transit operating and capital programs, including the transit New Start program. Lowering the federal share for projects also makes it more difficult to compete for discretionary or flexible highway funds, especially those subject to the Metropolitan Planning Organization process.
- *Recommendation:* Preserve the current federal/non-federal matching ratio requirements for federal-aid eligible transit projects.

ISSUE 5: Reauthorize the Transit Cooperative Research Program

- Proposal 4-7 from the compilation of 16 policy white papers
- *Current Federal Policy:* 49 U.S. Code § 5312 - Public transportation innovation
- *Issue:* Research conducted through the Transit Cooperative Research Program (TCRP) and directly by the FTA remains a high priority for states. These activities promote best practices and facilitate the deployment of new technologies, thereby enhancing increases in operational efficiency. In support of these efforts, TCRP, as outlined under "§ 5312 Public transportation innovation" of the 2015 FAST Act, should be reauthorized.
- *Recommendation:* Preserve and enhance funding to support the Transit Cooperative Research Program.

ISSUE 6: Congress Should Direct the Government Accountability Office to Study Streamlining the Federal Transit Grant Approval Process

- Proposal 4-6 from the compilation of 16 policy white papers
- *Current Federal Policy:* None
- *Issue:* State DOTs are required to submit a unified program of projects to FTA to authorize the use of funds for a wide range of activities. The program of projects may include routine and recurring activities such as the replacement of bus and bus related equipment as well as more complex activities, including but not limited to construction of new facilities or deployment of new technologies. Frequently, approval of routine and recurring activities in a grant are held up while FTA works through issues pertaining to new initiatives. To speed project delivery and reduce delays in the procurement of routine and recurring activities, AASHTO is proposing that GAO review and provide recommendations on streamlining/expediting the current approval process.
- *Recommendation:* Direct the Government Accountability Office to study the federal transit grant approval process for routine and recurring procurements (e.g., buses), provide recommendations to Congress and U.S. DOT on effective strategies for streamlining existing processes/practices, and work with the stakeholder community to take action and implement the study's recommendations.

Freight

TIER 1

ISSUE 1: Expand the Extent of both the Primary Highway Freight System and National Multimodal Freight Network

- Combines 2-1 and 11-8 from the compilation of 16 policy white papers
- *Current Federal Policies:*
 - 23 U.S.C. 167, *National Freight Policy*
 - 49 U.S.C. 70103, *Interim National Multimodal Freight Network*
- *Issue:* The definition and limitations of the Primary Highway Freight System (PHFS), National Highway Freight Network (NHFN) and the National Multimodal Freight Network (NMFN) will not allow states to attain the comprehensive goals set forth in MAP-21 and the FAST Act and do not take into account the geographic and economic differences in states, including the challenges of rural, large, land based states and other concerns of states. The PHFS network currently consists of 41,518 centerline miles, including 37,436 centerline miles of Interstate and 4,082 centerline miles of non-Interstate roads. The designation of PHFS roads in various states has resulted in a limited and disconnected network. The ability of a state to designate some additional mileage to the NHFN as critical urban and rural corridors still leaves an unduly limited and disconnected network. For the NMFN, the current draft network is limited and does not include all of the National Highway System (NHS) roads nor critical rural and urban transportation links. Since states are required to complete state freight plans, which must then be approved by U.S. DOT, a framework exists to identify and define the freight network in any given state.
- *Recommendations:*
 - Expand eligibility of the National Highway Freight Program to include all of the NHFN. Eliminate the 2% rule so states can spend funds on any NHFN route (to include Critical Urban Freight Corridors and Critical Rural Freight Corridors).
 - Expand the PHFS to include all Interstate System roadways regardless of how much freight funding a state receives. Freight program eligibility should include all Interstates by default.
 - Remove restrictions on state authority to add mileage to the PHFS, NHFN and NMFN, including but not limited to mileage caps on critical urban and critical rural corridors.
 - Add eligibility to use funds on any portion of a state's multimodal freight network as defined in a state's freight plan.

TIER 2

ISSUE 2: Expand Eligible Activities through National Highway Freight Program

- Combines 2-2 and 9-4 from the compilation of 16 policy white papers
- *Current Federal Policies:*
 - FAST Act Section 1116; 23 U.S.C. 167 establishes a National Highway Freight Program (NHFP) that funds activities that “must contribute to the efficient movement of freight on the [NHFN] and be identified in a freight investment plan included in [the state’s freight plan.]”
 - FAST Act Section 1105; 23 U.S.C. 117 establishes the Nationally Significant Freight and Highway Projects (NSFHP) program to provide financial assistance—competitive grants, currently now known as Infrastructure for Rebuilding America (INFRA) grants, or credit assistance— “for nationally or regionally significant freight and highway projects.”
- *Issue:* The use of the nation’s transportation system for freight is increasing, and with it the need for integrated solutions to better move freight throughout the country. Currently, no more than 10% of

NHFP formula funding may be used for intermodal, freight rail, or water transportation. Integrated freight management solutions, freight safety programs, and research supporting future investments should be codified as eligible for NHFP and INFRA funds in new surface transportation reauthorization legislation.

- *Recommendations:*
 - Reform the National Highway Freight Program, both the formula program to states and the discretionary program (INFRA), to more clearly include eligibility for investment in integrated freight technology, management and operations strategies and solutions, freight safety programs (including for emergency responders), and research supporting future investments.
 - Remove the 10% multimodal cap to provide flexibility for states to use discretion in determining the amount of NHFP formula funding to go toward multimodal freight projects identified in the state's freight investment plan and to invest more in multimodal projects if appropriate for that state. Eligibility should include multi-state proposals and projects, for regions and corridors to improve freight intermodal connectivity.

ISSUE 3: Changes to Infrastructure for Rebuilding America (INFRA) Discretionary Grant Program

- Proposal 2-3 from the compilation of 16 policy white papers
- *Current Federal Policy:* FAST Act Section 1105; 23 U.S.C. 117
- *Issue:* The FAST Act established a new discretionary grant program for Nationally Significant Freight and Highway projects. Grant eligibility is limited to highway projects on the NHFN, highway or bridge projects on the NHS, railway-highway grade crossing or grade separation projects, or intermodal or rail projects, including those within the boundaries of public or private freight facilities. Under the FAST Act, not more than \$500 million in aggregate of the \$4.5 billion authorized for INFRA grants (previously known as FASTLANE grants) over fiscal years 2016 to 2020 may be used for grants to freight rail, water (including ports), or other freight intermodal projects that make significant improvements to freight movement on the National Highway Freight Network.
- *Recommendations:*
 - Reauthorize the program and remove the caps used for grants to freight rail, water (including ports), or other freight intermodal projects.
 - Add eligibility to use funds on any portion of a state's multimodal freight network as defined in a state's freight plan.
 - Minimize annual changes to Infrastructure for Rebuilding America (INFRA) Discretionary Grant Program for consistency in grant applications and award criteria.

ISSUE 4: Reinstate the National Cooperative Freight Research Program

- Proposal 2-5 from the compilation of 16 policy white papers
- *Current Federal Policy:* To maximize the effectiveness of state DOTs' research and training activities, FHWA carries out or funds a host of activities necessary to support a vibrant nationwide research and training program including research administration, communication, coordination, conferences, and partnerships with other national and international organizations.
- *Issue:* Throughout its history, a core element of the FHWA Research, Development, and Technology Transfer's (RD&T) mission has been to promote innovation and improvement in the highway system. Over the last decades, this critical mission element has developed into a broad array of research and technology activities covering the spectrum of advanced research, applied research, technology transfer, and implementation. The National Cooperative Freight Research Program, however, was last authorized under SAFETEA-LU. MAP-21 and the FAST ACT provided much more emphasis on freight, while simultaneously reducing funding for freight research at the national level. States are

concerned that freight research needs are not being met solely through the National Cooperative Highway Research Program (NCHRP). A dedicated national freight research program is needed.

- *Recommendation:* Reestablish the NCFRP to provide research products to assist states in their delivery of freight transportation projects with funding beyond the amount prescribed for the federally managed Research Technology & Education programs and State Planning & Research funded programs.

Rail Transportation

TIER 1

ISSUE 1: High-speed, Intercity, Passenger, and Freight Rail Grants

- Proposal 5-3 from the compilation of 16 policy white papers
- *Current Federal Policy:* 49 U.S.C. §11301, §11302, §11303
- *Issue:* A total of \$2.2 billion is authorized for FY 2016 – 2020 for rail funding in the FAST Act through the Consolidated Rail Infrastructure and Safety Improvements Grant (CRISI, §11301), The Federal-State Partnership for State of Good Repair Grant Program (SGR, §11302), and the Restoration and Enhancement Grant Program (R&E, §11303). The bullets below highlight authorized fund amounts, program eligibility requirements, and recommended language to support cross border investment as State DOTs need the ability to expand the grant funds over the border in Canada to enhance intercity passenger rail service:
 - The Consolidated Rail Infrastructure and Safety Improvements Grant Program authorizes \$1.1 billion for projects that aim to enhance safety, efficiency and reliability of passenger and freight rail transportation systems. There is broad project eligibility that focuses on capital, regional and corridor planning, research, workforce development, training projects, and environmental analyses including plans or analyses that would extend services into Canada.
 - The Federal-State Partnership for State of Good Repair Grant Program authorizes \$997 million for capital projects to replace or rehabilitate qualified railroad assets and ultimately reduce the current state of good repair backlog. Projects may include enhancements to commuter rail service, however, each project, at a minimum, must demonstrate enhancements to intercity passenger rail service or assets. The eligible activities include capital projects to replace existing assets in-kind or with assets that increase capacity or service levels; ensure that service can be maintained while existing assets are brought into a state of good repair; and bring existing assets into a state of good repair.
 - The Restoration and Enhancement Grant Program authorizes \$20 million each year from FY2016 – 2020 for operating assistance to initiate, restore, or enhance intercity passenger rail service. The grants are limited to three years of operating assistance per route and may not be renewed. It is recommended that the program priorities include new frequencies on pre-intercity passenger rail corridors and service restoration expansion into Canada.
- *Recommendation:* Reauthorize the Consolidated Rail Infrastructure and Safety Improvements Grant Program, State of Good Repair Grant Program, and the Restoration and Enhancement Grant Program at no less than FY19 funding levels and support cross border investment.

TIER 2

ISSUE 2: States as Railroads

- Proposal 5-1 from the compilation of 16 policy white papers
- *Current Federal Policy:* 49 U.S.C §270
- *Issue:* The System Safety Program works to improve railroad safety through structured, proactive processes and procedures developed and implemented by railroads. It applies to "Railroads that operate intercity or commuter passenger train service on the general railroad system of transportation and railroads that provide commuter or other short-haul rail passenger train service in a metropolitan or suburban area (as described by 49 U.S.C. 20102(2)), including public authorities operating passenger train service." (49 U.S.C. §270.1) State DOTs are committed to safety, service quality, and reliability of the rail network; however, it is important to clarify that States, and political

subdivisions of States, who sponsor, but do not operate intercity passenger rail services, are not railroads nor are they railroad carriers. This clarification is critical as States do not need to endure additional regulatory burdens as they endeavor to utilize the rail mode as part of the nation's multimodal transportation network.

- *Recommendation:* In 2017, Senator Deb Fischer (R-NE) introduced the Railroad Advancement of Innovation and Leadership with Safety (RAILS) Act. Section 225 of the bill includes language that clarifies that States are not rail carriers if they do not operate a rail service. AASHTO recommends the language be incorporated into reauthorization:

SEC. 225. APPLICABILITY TO STATES.

Not later than 180 days after the date of the enactment of this Act, the Secretary shall revise part 270 of title 49, Code of Federal Regulations, to exclude a State, or a political subdivision of a State, that provides equipment, track, right-of-way, or financial support for intercity passenger service pursuant to section 209 of the Passenger Rail Investment and Improvement Act of 2008 (division B of Public Law 110-432; 49 U.S.C. 24101 note) if such State or political subdivision does not directly operate such service.

ISSUE 3: Amtrak National Network and Amtrak Northeast Corridor

- Proposal 5-2 from the compilation of 16 policy white papers
- *Current Federal Policy:* 49 U.S.C. §11101
- *Issue:* In December 2015, for the first time in U.S. transportation legislation history, Amtrak reauthorization was included as part of the federal surface transportation bill. A total of \$8.05 billion of funding is authorized for Amtrak grants for FY2016 – 2020. The FAST Act departs from the previous Amtrak funding allocation method of capital and operating grants and now provides funding that corresponds with Amtrak's main business lines – the Northeast Corridor and the National Network. A total of \$2.596 billion is authorized for Amtrak projects along the Northeast Corridor and \$5.454 billion for projects along the Amtrak National Network. Amtrak operates a nationwide rail network, serving more than 500 destinations in 46 states, the District of Columbia and three Canadian provinces, on more than 21,400 miles of routes. It is essential to maintain Federal financial support sufficient to enable the operation of the long distance passenger train network at least at current levels, which would help ensure that many states and regions are connected to the rail and transportation system and maintain a national passenger rail network. It is also important to maintain Federal financial support for Amtrak's Northeast Corridor as it is the busiest railroad in North America, with approximately 2,200 Amtrak, commuter and freight trains operating over some portion of the Washington-Boston route each day.
- *Recommendation:* Reauthorize funds for the Amtrak National Network and the Amtrak Northeast Corridor in order to continue efficient and effective passenger rail mobility.

Connected and Automated Vehicles

TIER 1

ISSUE 1: The Future of Transportation Includes Connected and Automated Vehicles

- Proposal 6-2 from the compilation of 16 policy white papers
- *Current Federal Policy:* None
- *Issue:* While there has been significant focus on automated vehicles (AV) and the benefits they may bring, there has been less attention on a future that includes connected vehicles (CV). Establishing a strong foundation for AVs requires ensuring robust connectivity for V2V and V2I communication. State and local agencies are committed to leading, supporting, and fostering the testing and deployment of these new technologies. To date, 33 locations in the US are deploying CV technologies under sponsorship of USDOT and seventeen locations are deploying the technologies without sponsorship from USDOT. Combined, this represents 72,000 vehicles on the road and 65,000 devices installed on the infrastructure.

To further these efforts, AASHTO is supporting a national traffic signal phasing and timing (SPaT) challenge, which is challenging state and local public sector transportation infrastructure owners and operators to achieve deployment of dedicated short-range communications (DSRC) 5.9 GHz infrastructure with SPaT broadcasts in at least one corridor or network (approximately 20 signalized intersections) in each of the 50 states by January 2020. As of August 30, 2018, at least 26 states have committed to the challenge. More than 200 signals are broadcasting SPaT and more than 2,000 additional signals are planned. States and local transportation agencies have invested millions of dollars in DSRC, and they do not want that investment to be wasted. However, the lack of federal direction regarding communications between V2V and V2I communication standards, including whether to use DSRC, 5G, or both for communications, is creating uncertainty among state and local agencies. This uncertainty slows the advancement of this technology and future integration into our fleet and facilities.
- *Recommendations:*
 - Require USDOT to ensure that its effort to establish a nationwide standard for V2V safety communications continues unimpeded such that other connected vehicle applications can be developed and deployed.
 - Require using the DSRC spectrum for connected vehicle applications. Also, require that DSRC be used solely for vehicle-to-everything (V2X).
 - While DSRC is the only viable technology available now to support V2X applications, any standards developed that occurs now should not impede technological innovation and implementation in the future.
 - Require the federal government to lead development of a universal, seamless approach to security management and CV communication through standardization and appropriate research and technology demonstration programs. This will enable states to better understand when and how to make appropriate investment decisions.

ISSUE 2: Safely Deploy Cooperative and Automated Transportation Technologies

- Combines 1-1 and 6-1 from the compilation of 16 policy white papers
- *Current Federal Policy:* None
- *Issue:* With the emergence of cooperative and automated transportation (CAT), the highest priority for AASHTO and state DOTs is the safety of transportation system users. It is estimated that over 90 percent of fatal vehicle crashes are a result of human error, some of which could be significantly

mitigated through CAT technologies. CAT has the potential to positively influence the safety of vehicle occupants, transportation maintenance and construction workers, bicyclists, and pedestrians. There is however a recognition that innovative technology is inherently accompanied by uncertainties, which increases risk and makes the safety of these new technologies paramount. Although connected and autonomous vehicles are currently emerging, there are other existing, proven automated technologies, such as headlamp designs, that should be increasingly deployed while connected and autonomous vehicles are being developed and tested.

- *Recommendations:*
 - Additional data must be developed, collected and analyzed on the safety of connected and automated vehicles, including data regarding the ability of vehicles to detect and stop for pedestrians and bicyclists. Non-proprietary data generated by automobile manufacturers, technology developers, research organizations, and public agencies should be shared with the public and decision makers.
 - While CAT technologies are being developed and tested, increase efforts to deploy existing proven automation technologies.
 - Government regulators and lawmakers should revise and/or remove outdated safety laws, regulations and guidance when the data unequivocally demonstrates a technology's ability to provide an equivalent or higher level of safety. However, the legislative and regulatory framework that reflects the mix of vehicle styles, ages and technologies throughout the transition to new technologies should be kept in place.

TIER 2

ISSUE 3: Provide Additional Funding and Flexibility to Deploy CAV Technologies and Accommodate CAV Vehicles

- Proposal 6-5 from the compilation of 16 policy white papers
- *Current Federal Policy:* None
- *Issue:* States are struggling to find the fiscal resources to maintain their current infrastructure, so having to invest in new technology to retrofit existing roads, bridges and other infrastructure to accommodate CAVs will be difficult with current funding. Consequently, benefits will not accrue unless states can afford to make the necessary investments. There are a number of test bed and pilot connected vehicle programs taking place where there is much learning about CV hardware deployment. As with all technology, costs can change rapidly as the new developments occur.

State DOTs know considerably less about the cost of ensuring automated vehicles are able to operate on the roadways. Currently, state DOTs (and other infrastructure owners) are uncertain, at least at a detailed level, which roadway characteristics are critically important to the safe and efficient operation of AVs: pavement condition, signage, detailed GPS base maps, or striping. We know some of the developers' needs in a general way as industry has filed comments at USDOT identifying the importance of signage, lane marking, and striping. In fact, one state has responded to this concern by going from 4-inch to 6-inch stripes to help the technology developers with their sensors and lane departure warning systems. Other states, however, are not as willing to modify their lane striping widths because this is seen as a major investment. Further, there is uncertainty whether or under what circumstances replacing pavement marking for purpose of AV deployment is a capital investment (eligible under FHWA programs) or a maintenance activity and not eligible for reimbursement.

- *Recommendations:*
 - Make the deployment of connected and automated vehicle infrastructure needs eligible for funding beyond the historical aspect of funding only capital expenses to include maintenance activities necessary to the proper and safe operation of CAVs.

- Flexibility is needed in the federal-aid procurement rules as they relate to both the purchase, installation, and maintenance of CAV technologies by a state DOT. The procurement and maintenance of CAV equipment is not the same as procurement for a more traditional civil infrastructure project and that other considerations need to be made. States need flexibility in procuring the services and equipment needed to install and maintain the computer technology assets.
- Provide additional federal funding for building new testbeds and maintaining existing ones to allow industry and technology developers to test their hardware and applications on such testbeds. This will enable infrastructure owners and technology developers to better understand each other's requirements, resulting in better standards and better infrastructure.

ISSUE 4: Expanding Research Grants and Funding to Explore Mobility Opportunities Through Connected and Automated Vehicle Technology

- Proposal 4-9 from the compilation of 16 policy white papers
- *Current Federal Policy:* None
- *Issue:* State DOTs hope that the Federal Transit Administration's Strategic Transit Automation Research (STAR) plan results in greater innovation and improvements in transit service delivery to urban and rural communities and for those most in need of mobility assistance. Connected and Automated Vehicle (CAV) technology deployment is an unprecedented opportunity to improve service delivery. Notwithstanding, state DOTs are looking to FTA to research, test and safely deploy these emerging technologies. FTA research should also include an assessment of the impact of CAVs on labor; opportunities to retrain existing employees and train the employees needed in the future to maintain and support these technologies; and assess the infrastructure needed to support deployment. State partnerships with FTA are critical to success of the STAR plan's implementation.
- *Recommendation:* Provide funding for; expand research in; and facilitate the deployment of CAV technology to enhance mobility alternatives for individuals that may be unable to use or are not served by traditional public transportation services.

Operations

TIER 1

ISSUE 1: Strengthen Eligibility for Investments in Transportation System Management and Operations (TSMO) and Related Technology

- Proposal 9-1 from the compilation of 16 policy white papers
- *Current Federal Policy:* Eligibility for funding TSMO and related technology from National Highway Performance Program (NHPP), Surface Transportation Program (STP), Surface Transportation Block Grant (STBG) Program, Congestion Mitigation and Air Quality Improvement (CMAQ) Program, and Highway Safety Improvement Program (HSIP)
- *Issue:* The use of TSMO strategies and technologies is expanding. The states have dramatically increased the use of TSMO and it is difficult to continue to increase investment in TSMO due to overall budgetary constraints. Additionally, funding is sometimes split by planning partner region (e.g., controlled by a Metropolitan Planning Organization, or MPO) when the states would like to use it statewide.
- *Recommendation:* States should have broader control to use existing funding sources on TSM&O activities.

ISSUE 2: Public Safety Radio Communication Spectrum

- Proposal 9-7 from the compilation of 16 policy white papers
- *Current Federal Policy:* 47 CFR 90, Private Land Mobile Radio Services “states the conditions under which radio communications systems may be licensed and used in the Public Safety, Industrial/Business Radio Pool, and Radiolocation Radio Services.”
- *Issue:* Specific radio frequency bandwidths are reserved for public safety use through §90.16 Public Safety National Plan, §90.19 Nationwide Public Safety Broadband Network, and §90.20 Public Safety Pool. However, there are interested parties who want to reassign portions of these bandwidths for commercial wireless purposes. DOTs use the Low band to UHF radio spectrum (42 MHz through 800 MHz Bands) and microwave systems (1GHz through 23 GHz) for their normal daily activities and for incident and emergency response.
- *Recommendation:* These frequencies should remain dedicated to public safety. More than half of the state DOTs utilize FCC §90 regulated wireless services for last-mile ITS device communications – including variable message signs (VMS), closed circuit television (CCTV) cameras, road weather information systems (RWIS), and highway advisory radios (HAR) – all of which are critical parts of traveler information and traffic incident management systems. Furthermore, as connected and automated vehicles (CAVs) become more prevalent, the need for vehicle-to-infrastructure (V2I) communications increases. AASHTO, as well as several member states, have previously filed comments supporting this position in FCC dockets.

Performance-based Management

TIER 1

ISSUE 1: Federal Funding Apportionment Should Not Be Tied to Target Achievement

- Proposal 10-1 from the compilation of 16 policy white papers
- *Current Federal Policy:* The Federal-aid Highway Program is a Federally-assisted state program that is rooted in Article 1, Section 8 of the United States Constitution and confirmed by 23 U.S.C 145. Currently, approximately 90 percent of the Federal highway program funds are distributed to the states by formula. This approach of emphasizing formula funds has a decades-long track record of success in supporting long-term capital improvements across the United States. This approach enables funds to be distributed to states in a stable and predictable manner and allows the Federal program to efficiently deliver projects that have been identified and prioritized through the statewide and metropolitan planning processes.
- *Issue:* 23 CFR 490 implemented the new performance management statute so that state DOTs are required to establish performance targets for federal performance measures and report on how they have made progress on achieving those targets. Current performance management regulations—correctly—do not require making substantial progress towards meeting the federal performance management targets to federal funding apportionment.
- *Recommendations:*
 - Ensure performance measures and the achievement of federal performance management targets are not related to apportioning or allocating federal funds among the state DOTs.
 - Clarify in legislation that the federal performance management requirements were established to provide an authoritative source to communicate with decision-makers and the public on the condition of the national highway system as a whole and be part of a larger story to communicate the unmet transportation needs, and will not be related to apportioning or allocating federal funds among the state DOTs.

ISSUE 2: Performance Management Regulations Should Be Improved to Reduce the Burden on State DOTs, Including Data Collection

- Combines 10-3, 11-7, and 7-1 from the compilation of 16 policy white papers
- *Current Federal Policy:* 23 CFR § 490, *National Performance Management Measures*
- *Issue:* State DOTs have only recently begun to understand and appreciate the resources required of them to implement the Federal performance management regulations. First there is the direct and indirect cost of setting performance targets for the federal performance measures. In some cases, like the safety measures, State DOTs were already collecting and analyzing the required data and it was not a heavy lift to address the new federal safety performance management regulations. However, for other performance measures, specifically system performance, the state DOTs are now required to collect, manage, and analyze a significantly larger data set; calculate performance measures that are new to the industry; and establish targets having little or no historical trend data. While the NPMRDS data from FHWA may be free, the resources required to analyze it requires real effort and specialized expertise.

Second, there is the burden placed upon state DOTs to be held accountable for assets they do not own or manage but must set targets for. For example, state DOTs are responsible for meeting targets for all NHS bridges and pavement condition regardless of who owns and maintains the asset. In some cases, the state DOT has no control over establishing the targets for these assets and must incorporate them into the state-based targets. However, the state DOT is held accountable for

target achievement and not the asset owner. Also, rural states are now required to report on congestion on rural highways, including very low volume routes that could become congested only due extreme weather, unusual accidents or other non-routine events. In this case, the resources required to conduct the analysis are a misdirection of planning effort.

The performance management provisions place a lot more burden on the state DOTs to coordinate with many other transportation agencies regarding the development of planning documents, establishing targets and assessing performance. While the incremental changes required by the various performance management provisions may seem small, taken all together the amount of additional work is significant and costly.

Finally, the new performance management regulations create a data intensive environment where state DOTs are having to collect, store, analyze, and report significantly more data and information. Implementation of the national-level performance measures has been dependent on the availability of quality data and many state DOTs and MPOs have determined that the cost associated with the data collection is significantly more than estimated by FHWA

- *Recommendations:*
 - Identify and implement ways to reduce the burden associated with the development of performance measures (including collecting and setting targets) for current performance measures:
 - Provide additional financial resources to state DOTs to analyze data.
 - Require that less data be collected and do not require reporting on targets on certain less critical roadways such as low volume roads.
 - Assess data collection requirements and recommend the elimination of non-useful data.
 - Require that state DOTs are only held accountable for those assets within their control.
 - Consistent with recommendation Issue 6-1, look for opportunities to reduce the scope and/or amount of data required to be collected and handled by state DOTs, including but not limited to:
 - Use a collaborative approach to develop more consistent and/or streamlined or simplified data collection, analysis, and management practices. FHWA should work collaboratively with state DOTs to establish less burdensome methodologies for collecting data related to implementation of the planning and performance management requirements in MAP-21.
 - Allocate additional funding (from accounts other than apportionments for programs) to state DOTs specifically to mitigate the cost of data collection, analysis and management.
 - Create legal safe havens as appropriate to facilitate sharing of data across safety organizations without concerns for the legal and litigation concerns associated with 23 USC 409 and 23 USC 148(h)(4).
 - Add eligibility to use funds on any portion of a state's multimodal freight network as defined in a state's freight plan.
 - All proposed data policy and legislative requirements must provide sufficient resources beyond simply providing for federal eligibility or flexibility to use existing transportation funds.

TIER 2

ISSUE 3: Minimum Condition Levels for National Highway System (NHS) Bridges and Pavements Could Encourage a Worst-First Asset Management Approach

- Proposal 10-5 from the compilation of 16 policy white papers
- *Current Federal Policies:*
 - 23 USC § 119, National Highway Performance Program
 - 23 CFR § 515, Asset Management Plans

- *Issue:* Current federal law requires states utilize and document an asset management plan for the NHS. State DOTs must also manage the transportation system well beyond the designated NHS. One of the principles of asset management is to focus on reducing life-cycle costs, not on addressing the “worst first” for the transportation network. FHWA’s current guidance states that a successful asset management program “must have moved away from a ‘worst first’ investment strategy, and instead have adopted investment principles that are based on life cycle costing and incorporate life-cycle planning principles.” Current federal law set minimum condition levels for NHS bridges in poor condition and also requires USDOT to establish a minimum condition level for Interstate System pavement. If the minimum conditions are not met, the State would be required to redirect certain funds to improve those conditions until the minimum conditions are met.

A core principle of transportation asset management is to provide the right treatment at the right time in the life cycle of the asset. This may mean the option not to treat the worst item or segment first may be the most cost effective for the system. State DOTs are concerned that the minimum condition requirements for NHS bridges and Interstate System pavement may force state DOTs into adopting a worst-first approach to asset management.

- *Recommendations:*
 - Eliminate the minimum condition requirements written into law for both NHS bridges and Interstate System pavement.
 - If the minimum condition requirements are not eliminated, do not use the achievement of meeting the minimum condition requirements for NHS bridges or Interstate System pavement as the basis for apportioning or allocating federal funds among state DOTs.
 - Ensure that the minimum condition requirements for NHS bridges and Interstate System pavement do not force a state DOT to adopt a worst first approach to asset management.

ISSUE 4: Continue to Focus on Implementation of the Performance Management Regulations

- Proposal 10-2 from the compilation of 16 policy white papers
- *Current Federal Policies:*
 - 23 USC § 134, *Metropolitan Transportation Planning*
 - 23 USC § 135, *Statewide and Nonmetropolitan Planning*
 - 23 CFR § 490, *National Performance Management Measures*
 - 23 CFR § 515, *Asset Management Plans*
- *Issue:* The new and updated performance management regulations were developed and published over a six-year time period beginning in 2013 and ending in 2018 with the publication of the final rule regarding 23 CFR § 490, *National Performance Management Measures, Subpart H* and FTA Safety final rule in July 2018. State DOTs are currently working to implement the first required aspect of these provisions, which is to establish targets for the federal performance measures, incorporate those targets into the planning process, and report on progress towards achieving targets. The first comprehensive report document for the first reporting cycle will not be developed and published until CY2022 at the earliest. AASHTO has recommended that no consideration be given to changes to existing regulations that would increase requirements until after at least two full reporting cycles in order to give the state DOTs time and experience in addressing the regulations. To the extent a state or an MPO wants to pursue any additional steps in performance management, it is free to do so without additional federal rules or statutes
- *Recommendations:*
 - No new additional federal performance measures, associated performance management requirements, or other new complexities should be established.

- Any changes made to existing performance management regulations should reduce the burden of performance measurement and management on state DOTs, rather than increase burdens.

Planning

TIER 1

ISSUE 1: Maintain the Existing Balance of Authority among State DOTs, MPOs, and Rural Planning Organizations

- Proposal 11-3 from the compilation of 16 policy white papers
- *Current Federal Policies:*
 - 23 USC § 134, *Metropolitan Transportation Planning*
 - 23 USC § 135, *Statewide and Nonmetropolitan Planning*
- *Issue:* The FAST Act generally maintained the balance of authority as updated in MAP-21 with the option of State DOTs to establish Rural Planning Organizations and to maintain the existing relationships between State DOTs and MPOs. The performance management regulations implemented in 23 CFR § 490 added some additional requirements for state DOTs and MPOs to work more closely together in terms of establishing performance targets and incorporating those targets into the various short and long range plans. However, the performance management regulations did not make any significant changes to the balance of authority between the state DOTs and MPOs.
- *Recommendation:* Maintain the existing balance of authority among state DOTs, MPOs, and rural planning organizations.

ISSUE 2: Fiscal Constraint and Related Environmental Requirements

- Combines 11-4 and 13-9 from the compilation of 16 policy white papers
- *Current Federal Policies:*
 - 23 USC § 134, *Metropolitan Transportation Planning*
 - 23 USC § 135, *Statewide and Nonmetropolitan Planning*
 - Various FHWA Guidance
- *Issue A:* Update Laws, regulations and/or guidance so that “fiscal constraint” requirements do not impede the ability of state DOTs to develop and deliver transportation projects. Programming of federal transportation dollars is based on the four-year window through the STIP. FHWA has decided, by interpretation, to impose a duplicative fiscal constraint requirement, not included in statute or rule, on completing the National Environmental Policy Act (NEPA) process for a project. Specifically, FHWA has interpreted that, to receive NEPA approval a project must come from a fiscally constrained STIP or Transportation Improvement Program (TIP). See FHWA website, “Transportation Planning Requirements and Their Relationship to NEPA Process Completion.” Yet it is impractical to estimate cost and include a project, or even a phase of a project (such as preliminary engineering), in a fiscally constrained STIP or TIP until the NEPA process is complete, as that process helps define the final project (and in some cases the NEPA process results in a no build decision). So, the fiscal constraint requirement for projects undergoing NEPA review creates instability in the STIP or TIP, as an overestimate of costs keeps other projects out of the STIP or TIP and an underestimate results in excess projects being included in the fiscally constrained STIP or TIP: at least until the NEPA process is completed and any adjustment made. USDOT should revise its current practice and allow the completion of the NEPA process for a project regardless of whether the project or a phase of it is included in a fiscally constrained STIP or TIP. This will expedite environmental review. It will not violate the principle of fiscal constraint because, even with this recommended change, the project cannot advance to construction unless it is in a fiscally constrained STIP or TIP. In addition, for projects located in air quality nonattainment and

maintenance areas, FHWA must make an air quality conformity determination (i.e., a finding that the project conforms to the state's plan for achieving federal air quality standards per 42 USC 7506(c)). The conformity determination, in turn, requires a finding that the project is included in a "fiscally constrained" metropolitan transportation plan and transportation improvement program (TIP). 40 CFR 93.108. These findings are required prior to completion of the NEPA process under current EPA and FHWA regulations and guidance. This requirement creates a Catch-22 for many large projects: without NEPA approval, it is difficult to confirm funding sources, but the NEPA process cannot be completed until funding sources are identified. The timing of the fiscal constraint determination can be especially challenging for large P3 projects and other innovative-finance projects, where funding and financing plans are not (and cannot be) resolved until after the NEPA process is complete.

- *Recommendation:* Allow flexibility to complete the NEPA process with approval conditioned on making an air quality conformity and fiscal constraint determination before proceeding to construction. This approach would not change any substantive requirements related to fiscal constraint and project level conformity, it merely changes the timing of making these determinations. This change would be implemented with legislation directing FHWA and FTA to update their joint environmental and planning regulations (23 CFR Part 771 and Part 450), and directing EPA to make a corresponding change to its conformity regulations.
- *Issue B:* Reconsider more broadly the extent of "fiscal constraint" requirements. In addition to the recommendation made above (#4a), the entire concept of "fiscal constraint" regulation in planning warrants reconsideration. Simply, a state cannot spend or obligate more funds than it has. Programming of federally funded transportation projects is subject to "fiscal constraint" rules which are a complex set of rules measuring projects against budget resources at multiple points in the planning process. Fiscal constraint of TIPs and STIPs by year is not required in statute but is required by USDOT rules. States, MPOs and transit agencies should be allowed to develop and implement STIP plans based on realistic financial assumptions. The complex technical "fiscal constraint" rules are not what prevent excessive spending, rather it is the limited resources that keep spending in check. The rules, however, limit flexibility and impose excessive requirements, especially when they must be applied in the context of unpredictable rescissions and delayed appropriations. Federal decision makers need to reduce the inflated workload for USDOT as well as for regulatory-burdened states.
- *Recommendations:*
 - Reexamine fiscal constraint requirements and reducing them, such as by applying them to fewer decision points and shortening the applicable time frames.
 - Remove fiscal constraint regulatory requirements that are not compelled by statute and by reconsidering statutory requirements, such as by shortening the applicable time period to one where resources can reasonably be anticipated, such as the four year STIP cycle.

TIER 2

ISSUE 3: Do Not Increase Any Regulatory Burdens Related to Planning but Rather Look for Opportunities to Reduce Burdens and Unnecessary Requirements While Maintaining a Thorough Planning Process

- Combines 11-1, 11-7, and 7-1 from the compilation of 16 policy white papers
- *Current Federal Policies:*
 - 23 USC § 134, *Metropolitan Transportation Planning*
 - 23 USC § 135, *Statewide and Nonmetropolitan Planning*
 - 23 CFR § 490, *National Performance Management Measures*
 - 23 CFR § 515, *Asset Management Plans*

- *Issue:* The new and updated performance management and performance-based planning regulations were developed and published over a six-year time period beginning in 2013 and ending in 2018 with the publication of the final rule regarding 23 CFR § 490, *National Performance Management Measures, Subpart H*. As of May 2018, state DOTs are now required to implement the performance-based planning process articulated in the updated 23 CFR § 450, Subpart B, *Statewide and Nonmetropolitan Transportation Planning and Programming*. Further, state DOTs are currently in the middle of completing the first aspect of performance management provisions requiring them to establish targets for the federal performance measures, incorporate those targets into the planning process (Statewide Transportation Improvement Program [STIP] and long range transportation plan [LRTP]), and report on making progress towards achieving targets. The first comprehensive report documenting the first reporting cycle will not be developed and published until CY2022 at the earliest. AASHTO has long cautioned against complicating changes to these regulations until after at least two reporting cycles to give the state DOTs time and experience in addressing the regulations. As set forth more fully in this paper, AASHTO opposes any complicating changes or additions to the updated performance-based planning regulations and would welcome opportunities to simplify or eliminate processes and requirements, reduce administrative and regulatory burdens, expedite project and program delivery, and increase state flexibility. This can be done while leaving in place a thorough planning process. The new performance-based planning regulations create a data intensive environment where state DOTs are having to collect, store, analyze, and report significantly more data and information. Implementation of the national-level performance measures has been dependent on the availability of quality data and many state DOTs and MPOs have determined that the cost associated with the data collection is significantly more than estimated by FHWA
- *Recommendations:*
 - AASHTO opposes any complicating changes or additions to the updated performance-based planning regulations included in 23 CFR § 450, Subpart B. There should be time to implement and evaluate recent changes.
 - Within that framework, AASHTO would welcome opportunities to simplify processes and requirements, reduce administrative and regulatory burdens, expedite project delivery, and increase state flexibility.
 - To the extent a state wants to pursue any additional steps related to improving its performance-based planning process, it is free to do so without additional federal rules or statutes.
 - Look for opportunities to reduce the scope and/or amount of data required to be collected and handled by state DOTs, including but not limited to:
 - Use a collaborative approach to develop more consistent and/or streamlined or simplified data collection, analysis, and management practices. FHWA should work collaboratively with state DOTs to establish less burdensome methodologies for collecting data related to implementation of the planning and performance management requirements in MAP-21.
 - Allocate additional funding (from accounts other than apportionments for programs) to state DOTs specifically to mitigate the cost of data collection, analysis and management.
 - Create legal safe havens as appropriate to facilitate sharing of data across safety organizations without concerns for the legal and litigation concerns associated with 23 USC 409 and 23 USC 148(h)(4).
 - Add eligibility to use funds on any portion of a state's multimodal freight network as defined in a state's freight plan.
 - All proposed data policy and legislative requirements must provide sufficient resources beyond simply providing for federal eligibility or flexibility to use existing transportation funds.

ISSUE 4: Make More Flexible the Projects that can be Funded through the Congestion Mitigation and Air Quality (CMAQ) Improvement Program

- Proposal 11-6 from the compilation of 16 policy white papers
- *Current Federal Policy:* 23 U.S.C. 149
- *Issue:* The projects eligible for CMAQ funding are limited by a variety of conditions. For example, prior to MAP-21, FHWA guidance set a three-year cap on the use of CMAQ funds for operating assistance. Updated guidance allows new transportation services (e.g., transit and passenger rail services, traffic operation centers, etc.) to “taper down” the last year of operating assistance over two additional years (i.e., to spend 3 years of operating assistance over a 5-year period). Beyond five years, operating costs are not eligible for CMAQ funding.
- *Recommendation:* Increase the flexibility in the use of CMAQ funds, including:
 - Increase flexibility and decrease restrictions on the use of CMAQ funds for ITS and Transit operations. Allow states to continue to use CMAQ for these projects as long as they continue to demonstrate net air quality benefits.
 - Require obligation of CMAQ funds in PM 2.5 non-attainment and maintenance areas only when it is determined that the non-attainment issue results from transportation activities.
 - Make explicit that technology deployments such as Connected and Automated Vehicles are eligible for funding under CMAQ.

ISSUE 5: Streamline, Simplify and Make Consistent the Development and Updating of the Multitude of Transportation Plan Documents and Performance Based Planning Documents Currently Required of States

- Combines 2-4, 11-9, 10-4 from the compilation of 16 policy white papers
- *Current Federal Policies:*
 - 49 USC Section 70202, *State Freight Plans*
 - 23 USC Section 119, *National Highway Performance Program*
 - 23 U.S.C. Section 135, *Statewide and Nonmetropolitan Planning*
 - 23 CFR Section 515, *Asset Management Plans*
- *Issue:* Certain Federal surface transportation programs are subject to significant planning requirements and processes. In particular, certain planning documents require a financial plan tied to a certain number of years in the future. For example, the Statewide Transportation Improvement Program (STIP) under 23 USC Section 135 requires a fiscally constrained four-year program of projects. The State Freight Plan under 49 USC Section 70202 requires a five-year financial plan for the projects listed in it. The asset management plan regulations impose a non-statutory ten-year financial plan requirement for the projects listed in it. Currently, the significant uncertainty associated with federal funding results in the financial planning requirements associated with the STIP, State Freight Plan, and asset management plan have far less value for decision making with risk and uncertainty being multiplied.

In addition, the new performance management provisions and updated performance-based planning provisions have required state DOTs to develop, update, and modify a host of transportation planning documents. What began with the Intermodal Surface Transportation Efficiency Act (ISTEA) in 1991 simply as a short range plan (STIP) and long range plan (LRTP) has mushroomed into a family of plans that focus on different topics, durations, update cycles, and level of detail. It appears many of these planning documents have now conflated long-term visionary planning documents with short-term implementation plans. For example, several federal plans mandating states must complete are required to be updated every 4 or 5 years. These include Freight, Rail, and Safety. In the case of Freight and Rail, the requirements also call for a list of

planned investments over the next 4 or 5-year period. Freight, for example, required the inclusion of a project list—the same list as a programming document of the STIP. It makes little sense that states are required to list programmed projects in two different places and requires valuable resources (time and money) to develop to different plans with similar information.

- *Recommendations:*
 - AASHTO recommends all financial plan requirements associated with any federally-required plan be on a consistent with the four-year duration that has been historically required of the STIP. Any longer duration would be at the election of a state DOT
 - Performance management regulations should be improved to reduce the unfunded mandate burden on state DOTs.
 - Make consistent the duration, updating cycle, and content of numerous planning documents required of state DOTs and eliminate redundancy among these documents.
 - Allow states to consolidate these and other plans as needed and appropriate to reduce the burden.

Project Delivery—Engineering

TIER 1

ISSUE 1: Buy America

- Combines policies 12-8, 4-5, 9-5, and 14-6 from the compilation of 16 white papers
- *Current Federal Policy:* 23 USC 313, Buy America; 23 CFR 635.410, Buy America Requirements
- *Issue:* The Buy America provisions of the Surface Transportation Assistance Act of 1982, 23 USC 313, state that the Secretary of Transportation “shall not obligate any funds authorized to be appropriated to carry out the Surface Transportation Assistance Act...unless steel, iron, and manufactured products used in such project are produced in the United States.” While state DOTs support the tenets of the Buy America Act, they need a more common-sense application of the provisions in law and regulation to ensure project delivery is not delayed. Currently, there is no consistent guidance from FHWA at a national level, which leaves states and FHWA Division Offices to interpret the rules, often varying widely from state to state. Without specific guidance, states can be left with a strict interpretation, meaning that every single nut, bolt, washer, tie wire, etc., has to meet Buy America: and in many cases, the documentation does not exist to track the origins of those items, so states end up spending vast amounts of time on very small items.

In addition, components of specialty equipment used on movable bridges, cranes, ferries, bridge inspection equipment, bridge preservation work, research, etc., often contain parts not produced in the United States, and transportation agencies are not a large enough market to compel the companies producing this equipment to comply with Buy America. In one state, the inability to find American producers combined with the extreme delay in receiving waiver responses has resulted in a shift in focus away from extremely beneficial projects, such as purchasing sweeping and flushing equipment (CMAQ), to other types of work. The effectiveness of the nation’s surface transportation program is dependent on the availability of construction materials and equipment, some of which is sourced through global supply chains; thus, the Administration’s approach to reauthorization needs to address the competing needs of supporting American producers and the impact of increased delays in project delivery and the associated costs in terms of the safety and efficiency of the transportation system.

Another problematic issue is related to the application of Buy America to utility relocations. Buy America should not apply to compensable utility relocations, as relocations are an entitlement provided by CFR. Forcing utility companies to comply with Buy America delays relocations for highway projects because transportation work is a small portion of their business, and many utility companies have existing contracts with national and international suppliers that do not allow them to purchase materials elsewhere.

Also the Buy America requirements have had the unforeseen consequence of limiting DOTs’ abilities to carry out innovative research and testing of preassembled products or equipment not readily available within the United States. The waiver process outlined in the above law and regulation is an impractical burden for the DOTs to carry out and has resulted in less innovative product testing and research. On April 17, 2018 FHWA granted a [Buy America Waiver for 955 vehicles](#) and equipment for 151 state DOT projects requested in 2016. In that waiver, the Agency acknowledged that “...FHWA is aware that in today’s global industry, vehicles are assembled with iron and steel components manufactured all over the world. The Agency also understands the difficulty of identifying vehicles that have 100 percent components made in the U.S.” This same finding could be said for assembled specialty items in the research and laboratory equipment industry.

Finally, the Buy America program mandates, according to 49 CFR 661 (§ 661.13 Grantee responsibility), that all funding recipients of the Federal Transit Administration (FTA) purchasing vehicles must verify that the manufacturer has complied with Buy America program requirements, including pre- and post- award inspections. However, prior to transferring ownership of the vehicle(s), bus manufacturers must also submit to the Model Bus Testing Program or the Altoona Test (49 CFR Part 665).

- *Recommendations:*
 - USDOT should improve the Buy America definition, waiver application, exceptions, policies, and processes to ensure timely consideration and consistent application of the law across the country to reduce costs to state transportation projects.
 - Implement the exceptions to Buy America proposed previously by FHWA in Federal rule making, and reinstate the waiver process to ensure transportation projects are progressing without significant delays.
 - Implement an exemption from Buy America for utility companies that are required to relocate their facilities as part of a transportation project.
 - Implement an exemption from Buy America requirement for research related equipment and materials for transportation research projects.
 - Establish a new pilot program that would require the manufacturer to directly provide a single certification to the Federal Transit Administration demonstrating compliance with Buy America and Altoona Test requirements.

ISSUE 2: Right of Way Acquisition

- Combines 3-5, 12-3, 12-2, 12-20, 13-10 from the compilation of 16 white papers
- *Current Federal Policy:* 23 USC 108; 23 USC 106; 23 CFR 710
- *Issue:* Right of way procurement is consistently one of the top reasons for delay in transportation project delivery. While many changes to laws and regulations as part of MAP-21 and the FAST Act have improved and streamlined the acquisition process, additional flexibilities could still provide benefit, including cost savings and delay reductions. Section 108 of Title 23 allows right-of-way to be acquired for a transportation project, under certain conditions, prior to completion of the NEPA process for the project itself. FHWA's right-of-way regulations (23 CFR Part 710) impose restrictions that are not required by the statute, in particular an absolute prohibition on early acquisition of property protected by Section 4(f)—i.e., any historic property, and publicly owned land within a park, recreation area, or wildlife or waterfowl refuge. This prohibition applies regardless of whether the Section 4(f) status of the property (e.g., its eligibility for the National Register of Historic Places) was known at the time the property was acquired, and the regulations allow no flexibility for FHWA to make exceptions. As a result, inadvertent acquisition of Section 4(f)-protected properties can permanently deprive a project of eligibility for federal funding.
- *Recommendations:*
 - Streamline the right of way acquisition process in numerous areas to simplify the process and speed acquisition without compromising the rights of the property-holder, including : allowing state procurement procedures to be used on federal-aid projects; allowing protective purchases with preliminary engineering funding (to be returned if not utilized in final design); increasing the waiver valuation threshold, or removing the threshold with the only qualifier being whether the assignment is complex or not; removing the 4(f) restriction on the Early Acquisition process (23 CFR 710.501) as it will better align itself with the Advance Acquisition process and a 4(f) review will still be conducted through the required acquisition-specific NEPA review; allowing states the option to use the “short form” for appraisals, which is quicker and less expensive.

- New legislative authority should be established for states to voluntarily assume some or all of FHWA's responsibilities for approval of right-of-way acquisitions, subject to the same legal protections that currently apply to the right-of-way acquisition process.
- US DOT should establish a set process and timeline, to include templates or model agreements, for acquiring right-of-way from federal agencies to promote fairness and speed up project delivery.

ISSUE 3: Reduce Federal Regulation of State Policies and Procedures through Reduction of Requirements, Less Frequent Reviews, and Delegation

- Proposal 12-7 from the compilation of 16 policy white papers
- *Current Federal Policy:* Stewardship and Oversight Agreements
- *Issue:* Attachment B to the standard Stewardship and Oversight Agreement requires FHWA review and approval for many state policies and procedures, such as a state's standard specifications; pavement design policy; value engineering policy and procedures; liquidated damage rates; quality assurance program; and other matters. Attachment B also requires, in some cases, pre-approval of changes in such state policies and procedures even though statute does not call for pre-approval. Many of these FHWA reviews of state policies are annual and many of these requirements, including pre-approval of changes, are not specified by statute. These requirements should be reduced and made less frequent than annually.
- *Recommendation:* States should be authorized to approve modifications to these procedures without preapproval by FHWA, subject to FHWA's ongoing oversight of the state's compliance with federal requirements. Attachment B's requirements should be reduced by authorizing states to modify their policies and procedures without preapproval, with review of those changes conducted no more frequently than every two years.

ISSUE 4: Emergency Relief (ER) Program

- Combines 12-5 and 16-3 from the compilation of 16 policy white papers
- *Current Federal Policy:* 23 USC 125, Emergency Relief; 23 CFR 668, Emergency Relief Program
- *Issue:* Certain federal requirements slow the delivery of projects using Emergency Relief funds in declared emergencies. More flexibility is needed with regard to contract requirements as well as with environmental and right of way reviews, as damage is often limited to repair of existing facilities to pre-damage condition, which in essence is replacing a previously-approved project. In addition, requiring a new letting for emergency projects often delays emergency repairs while expecting states to include federal requirements in state funded projects. Thus, for ER projects, state DOTs should be allowed to change-order all federal requirements into a previously-let, state-funded project that did not contain the federal provisions. Finally, reimbursement of ER funds can be onerous and lengthy.
Current procedures require unnecessarily lengthy and inefficient administrative burdens on states, with reimbursement of ER funds typically taking two to three years. System disruptions are increasing and it is important for the ER program to be structured and administered as efficiently as possible.
- *Recommendations:*
 - Streamline federal requirements for transportation projects related to declared emergencies
 - Conduct a comprehensive assessment of the ER program to identify where improvements can be made to: 1) allow advance planning for ER project implementation to include of a range of project strategies, 2) efficiently administer program funds, and 3) return the system to

functional operation as quickly as possible and provide opportunities to incorporate resilience strategies into project design.

- Allow ER projects to include actions that increase the resilience of the replacement project to future hazards.
- Allow ER funds to be used for actions outside of the right-of-way and/or for other strategies that improve the resilience of the damaged asset and/or facility.
- Allow more flexibility with contract requirements and NEPA review as part of the ER program. For example, emergency projects should receive expedited clearances or waivers for environmental, right-of-way, and railroad certifications in order to recover from a disruption.
- Allow DOTs to change order all required federal requirements into a previously-let, state-funded project that did not contain the federal provisions. Requiring a new letting for emergency projects often delays emergency repairs, while expecting states to include federal requirements in state-funded projects is unrealistic.

TIER 2

ISSUE 5: Roadside Hardware

- Proposal 12-9 from the compilation of 16 policy white papers
- *Current Federal Policy:* FHWA procedures for reviewing crash tests and issuing federal-aid eligibility letters.
- *Issue:* FHWA has proposed to cease issuing federal-aid eligibility letters for roadside hardware as of December 31, 2019. The potential termination of these letters greatly impacts how the state DOTs will approach the certification process going forward. State DOTs are committed to upgrading roadside hardware systems to the latest, safest standards in the Manual for Assessing Safety Hardware (MASH), and to providing a safe environment for errant vehicles on our roadsides. However, as the states and AASHTO have worked to implement a joint agreement made with FHWA in 2015 and meet the deadlines for transitioning to MASH-compliant devices, FHWA has announced that it is stepping back from its traditional role of reviewing crash tests and providing “eligibility letters” for roadside safety hardware. This is a concern for most states, as they have relied on these letters to certify compliance with the crash-test standards. In addition, if individual states took on this role of reviewing and certifying crashworthy devices for use on the nation’s roadways, the result could be as many as 50+ individual interpretations, leading to inconsistencies from state to state and increased costs from manufacturers who must now seek approvals from multiple entities.
- *Recommendation:* Ensure that FHWA continues to oversee the review and approval process for crash testing roadside safety hardware for use on the nation’s road and highway system.

ISSUE 6: Emergency and Tow Vehicles

- Proposal 12-6 from the compilation of 16 policy white papers
- *Current Federal Policy:* FAST Act, Sec. 1410, Interstate Weight Limits; 23 USC 127, Vehicle Weight Limitations—Interstate System, subsections (m) and (r)
- *Issue:* The FAST Act increased the maximum gross vehicle weight allowance of an emergency vehicle on the Interstate System (and routes that provide reasonable access to the Interstate System) to 86,000 pounds and exempted heavy-duty tow and recovery vehicles (regardless of weight) from Federal Interstate weight limits. These vehicles can create greater load effects in certain bridges than the previous legal loads. If not appropriately rated and posted (i.e., restricted), bridge safety, serviceability, and durability may be compromised by these vehicles. States recognize the safety and mobility benefits of facilitating prompt movement of emergency and tow vehicles. However, these two new weight-limit exemptions are not subject to state permit authority and are considered

“unrestricted” exceptions; thus, every state is now required to re-evaluate the load rating for all Interstate bridges (and those that provide access to the Interstate) and post restrictions on those bridges that cannot safely carry these new maximum unrestricted vehicle loads.

An unintended consequence of the FAST Act is that hundreds—or potentially thousands—of bridges *in each state* now must be load-rated for the higher limits and “posted” with any applicable load restrictions. Furthermore, while the provision for emergency vehicles includes a stated maximum gross vehicle weight of 86,000 pounds and requirements as to axle limits, the heavy-duty tow and recovery vehicle provision does not state a weight limit and allows for the unspecified weight of a towing and towed vehicle combined, making it impossible for states to determine how to load rate the bridges and determine which ones must be posted. The unexpected additional costs associated with load-rating and posting thousands of bridges will cause financial burdens on state and local transportation agencies. Additionally, posting load restrictions on thousands of bridges on the nation’s Interstate System (and reasonable access roads) will likely create confusion among drivers that could affect the safety of the traveling public and operators of said emergency and heavy-duty tow and recovery vehicles. If these vehicles were to be subject to state permit authority, states would be able to designate appropriate routes, reducing the number of posted bridges, reducing costs for state and local governments, protecting bridges, and continuing to facilitate prompt movement of emergency vehicles to the scenes of emergencies and prompt clearance of disabled vehicles from roads.

- *Recommendation:* Rescind the FAST Act provisions concerning emergency vehicles and heavy-duty tow vehicles (23 USC 127(m) and (r)) and allow states to accommodate these vehicles as they have done successfully prior to the FAST Act, through real-time permitting or other methods. Another option is to modify 23 U.S.C. 127 (m) and (r) to allow states to apply for FHWA authority to use a permit system for subsection (m) and subsection (r) vehicles over 80,000 lbs gross vehicle weight.

ISSUE 7: Adoption of Public Rights-of-Way Accessibility Guidelines (PROWAG)

- Combines policy issues 1-5 and 12-1 from the compilation of 16 policy white papers
- *Current Federal Policy:* 28 CFR 36
- *Issue:* The Americans with Disabilities Act strives to ensure access to the built environment for people with disabilities. To facilitate this access, the US Access Board is responsible for developing and updating design guidelines known as the ADA Accessibility Guidelines (ADAAG), which focus primarily on facilities. These guidelines are adopted in regulation and used by the US Department of Justice and the US Department of Transportation in setting enforceable standards that the public must follow. However, ADAAG is intended for vertical (buildings and facilities) rather than horizontal (sidewalks and street crossings) construction, which has created uncertainty in transportation agencies regarding ADAAG application. In addition, several state DOTs are being required, as the result of litigation, to implement suboptimal accessibility solutions that were truly intended for buildings, not transportation facilities.

As such, the Access Board determined more than a decade ago that additional guidance was necessary to address conditions and constraints unique to public rights-of-way. The Access Board collaboratively developed guidelines for facilities within the public rights-of-way – the Public Rights-of-Way Accessibility Guidelines (PROWAG) – which address transportation-specific issues, including access for blind pedestrians at street crossings, wheelchair access to on-street parking, and various constraints posed by space limitations, roadway design practices, slope, and terrain. Adoption of PROWAG in regulation would provide transportation agencies with solid, researched solutions for accessibility within their transportation corridors and ensure consistency across the country in the application of accessibility features within the streetscape.

- *Recommendation:* Finalize in regulation, the Public Rights of Way Accessibility Guidelines (PROWAG).

ISSUE 8: Federal Bridge Inspection Program Audit

- Proposal 12-4 from the compilation of 16 policy white papers
- *Current Federal Policy:* FHWA Bridge Inspection Program Audit Cycle
- *Issue:* Currently, FHWA performs a formal audit of each state's Bridge Inspection Program on an annual basis. The state DOTs receive FHWA's assessment, including compliance ratings for each of the 23 Federal metrics, at the end of the calendar year in which the audit was performed. The state DOT response, including Plans of Corrective Action and Improvement Plans, are due back to FHWA in February or March of the following year, meaning the inspection cycle for that year could be as much as a quarter of the way completed by the time corrections are put into place. Such a schedule does not allow sufficient time to implement corrective action before the following year's audit period commences. If FHWA moved to a two-year audit cycle, state DOTs would have sufficient time to implement Plans of Corrective Action and Improvement Plans before the next audit cycle begins.
- *Recommendation:* Modify FHWA's audit cycle of states' bridge inspection programs to two years (or more) to allow time for the meaningful implementation of improvements and corrections recommended in the previous cycle.

ISSUE 9: Preventive Maintenance

- Combines 12-13 and 12-19 from the compilation of 16 policy white papers
- *Current Federal Policy:* 23 USC 135, Statewide and Nonmetropolitan Transportation Planning, subsection (f)(8); 23 USC 116, Maintenance, subsection (e)
- *Issue:* Including preventive maintenance projects in the STIP and State Transportation Plan slows down the application of maintenance techniques to the road system. Delays caused by the STIP process can lead to pavements deteriorating past the point at which a given maintenance process is a viable improvement.
Under 23 USC 116(e), a state may use Federal-aid highway funds for a preventive maintenance project "if the state demonstrates to the satisfaction of the Secretary that the activity is a cost-effective means of extending the useful life of a Federal-aid highway." Because this is a statutory requirement, FHWA cannot currently assign to states the authority to determine that a preventive maintenance project qualifies for federal reimbursement.
- *Recommendations:*
 - Allow preventive maintenance projects to be conducted outside the STIP process. Alternately, allow for a general statement of preventive maintenance work in the STIP to promote needed flexibility in applying the most appropriate treatments at the best time and in the best locations.
 - Allow states to assume the authority to determine that a preventive maintenance project meets the applicable criteria for federal reimbursement. This change would require an amendment to 23 USC 116(e).

ISSUE 10: Relocation of Utilities

- Combines 12-17 and 13-8 from the compilation of 16 policy white papers
- *Current Federal Policy:* 23 USC 123, Relocation of Utility Facilities
- *Issue:* Utility relocations are a common source of delay in project schedules. Utility relocations tend to be time-consuming because they often require other regulatory approvals and involve property acquisition outside the transportation right-of-way. Utility relocations required for FHWA-approved projects also become subject to Buy America requirements, which may create further delays if

compliant products are not readily available. In addition, utility relocations require extensive coordination and agreement with the utility companies, which generally are responsible for carrying out the relocations. To avoid project delays, it would be highly beneficial to allow utilities to begin relocating utilities before the NEPA process for the transportation project is complete. However, under FHWA's NEPA regulations, construction work on the project-including the utility relocations, generally is not allowed to begin until after the NEPA process is completed. 23 CFR 771.113(a.)

- *Recommendation:* Direct FHWA to amend its NEPA regulations to allow utility relocations to begin prior to NEPA completion, with appropriate limitations to ensure the integrity of the NEPA process, and allow federal funds to be used for such relocation. Appropriate limitations would include (1) treating the utility relocation as a separate federal action, so that it's subject to its own NEPA review before the utility relocation occurs; (2) allowing the utility relocation to occur only after a preferred alternative has been identified in the NEPA process for the transportation project, and prohibiting the utility relocation itself to be considered as a factor in approving an alternative; and (3) if federal funds are used for the utility relocation, requiring the state to reimburse those funds to FHWA if the transportation project is not approved and implemented within a defined time period (e.g., 20 years). This flexibility would apply to a utility relocation using an Environmental Impact Statement, Environmental Assessment, or Categorical Exclusion.

ISSUE 11: Coordination with Railroads

- Proposal 12-15 from the compilation of 16 policy white papers
- *Current Federal Policy:* 23 CFR Part 646, Subpart B, Railroad-Highway Projects
- *Issue:* Restrictions and delays imposed on transportation agencies by railroad owners, either intentionally or unintentionally, significantly affect the timely delivery of public works projects, including pedestrian, bicycle, road and highway projects. Obtaining fair and equitable railroad agreements as well as ensuring the commitments are made in a timely manner are often a struggle and adds time and cost to these projects.
- *Recommendation:* Establish, or authorize USDOT to establish, consistent requirements, commitments, and time frames across 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. Require USDOT to establish template/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.

ISSUE 12: Drones/Unmanned Aircraft Systems (UAS)

- Proposal 12-16 from the compilation of 16 policy white papers
- *Current Federal Policy:* 14 CFR 107, Small Unmanned Aircraft Systems
- *Issue:* Current restrictions on the use of drones are impeding the development of significant potential beneficial uses in such areas as preliminary design, right of way, bridge inspection, safety, and operations. The full potential of this continually evolving technology is not being realized, in part because regulation is unable to keep pace with the developing technology. Current restrictions include where and when drones can be flown, the amount of pre-planning needed, and the inability to fly over traffic. An example of a currently restricted use is the documentation of a crash site, which would allow for quicker clearing of the incident and potentially reduce secondary crashes.
- *Recommendation:* Expand flexibilities for transportation agencies to use drones in broader applications and with fewer restrictions when reasonable safety measures can be accommodated to help realize the full potential of this continually evolving technology.

ISSUE 13: Outdoor Advertising: Nonconforming Signs

- Proposal 12-11 from the compilation of 16 policy white papers
- *Current Federal Policy:* 23 CFR 750.707, Nonconforming Signs, subsections (d)(3) and (d)(5)
- *Issue:* Typically, when a highway project necessitates the relocation of an outdoor advertising sign (i.e., billboard), the sign is allowed to be moved perpendicularly off the right of way using relocation assistance funds. This move does not require a new outdoor advertising permit, and the sign owner is “made whole.” However, under current federal regulations, “nonconforming signs” (e.g., billboards greater than 825 sq. ft.) are treated differently and cannot be similarly moved. Rather, for nonconforming signs, a new *conforming* location has to be found or just compensation (i.e., paying for the “total loss” of the sign) must be paid to the permit holder. This is a time consuming, costly, and contentious process: and the cost of nonconforming sign removal can be in the hundreds of thousands of dollars. In addition, for signs on a Scenic Byway or All American road, the law doesn’t allow for reconstruction or relocation, only maintenance and upkeep. The unintended consequence is that federal law is protecting these nonconforming signs, which are personal property of private companies, essentially in perpetuity. However, case law indicates that outdoor advertising sign permits are a privilege, not a right, and there is no fundamental right for them to be seen from the interstate. Thus, the solution is to change the above-mentioned federal regulations to allow for the movement of a nonconforming sign perpendicularly off the right of way by indicating that such movement is not considered a “new location” (since the mile marker does not change) and that the sign can only be moved in-kind, hence preserving their nonconforming structure status. This would allow highway projects to move forward at less cost.
- *Recommendation:* Revise federal law/regulation to allow the relocation of nonconforming billboards to essentially the same “location” perpendicular to the right of way, with permission from the landowner, when impacted by a highway project.

ISSUE 14: Outdoor Advertising: Bonus Act Program

- Proposal 12-12 from the compilation of 16 policy white papers
- *Current Federal Policy:* 23 USC 131, Control of Outdoor Advertising, subsection (j); 23 CFR 750.713, Bonus Provisions
- *Issue:* There are 23 state DOTs that must still comply with the antiquated outdoor advertising control regulations of the Bonus Act of 1958. The Bonus Act is incongruent with the Highway Beautification Act (HBA) in many aspects and disrupts national uniformity in the erection and maintenance of outdoor advertising of signs/displays in areas adjacent to the Interstate: a basic program objective of the HBA. Applying the tenets of the Bonus Act often requires a state DOT to regulate outdoor advertising on sections of roadway that are no longer state highways. Additionally, the relocation of outdoor advertising signs as a result of highway projects within those sections of roadway that have been transferred to the local jurisdictions cost Federal dollars to relocate and compensate for loss. States that voluntarily participated in the Bonus Act (for an additional ½ of 1 percent of funding) are currently afforded only one avenue of exit from the program: the repayment of federal funds received during the early years of the program, as is stated in Bonus Act agreements signed between state DOTs and FHWA. It is understood that an FHWA Division Office administrative waiver could nullify the Bonus Act stipulations on a case-by-case basis (unless a nationwide blanket waiver was issued). However, it is recommended that federal law and regulations be amended so that the remedy would apply to all states seeking an exit from the Bonus Act agreement, which is outdated and causes problems for state DOTs in their regulation and control of outdoor signs along the Interstate.

- *Recommendation:* Allow States to exit the Bonus Act Program without penalty. The following sections should be amended:
 - Section 131(j) of Title 23, United State Codes, should be amended by striking “shall be entitled to receive the bonus payments” and all that follows through “provided in this section” and by inserting “shall no longer be bound by such agreement.”
 - 23 CFR 750.713 should be amended by striking § (j) and by inserting, “Specifically provides that any state which had entered into a bonus agreement before June 30, 1965, will no longer be bound by such agreement.”

Project Delivery—Environmental Protection

TIER 1

ISSUE 1: Make All Categorical Exclusions Available for Use by Any Federal Agency

- Proposal 13-3 from the compilation of 16 policy white papers
- *Issue:* Under current NEPA regulations, each federal agency adopts its own list of categorical exclusions (CEs) applicable to actions that the agency carries out. If multiple federal agency approvals are needed for the same project, and only one agency has an applicable CE, then that agency can issue as CE, but the other federal agencies must prepare an EA - slowing down the process unnecessarily. An existing law—49 USC 304—allows any USDOT agency to use any other USDOT's agency's CE, but this authority has two important limitations: (1) applies only to "multimodal projects," which are defined as projects that require approval from two or more USDOT agencies, and (2) it does not apply to agencies outside the USDOT. These restrictions are unduly limiting.
- *Recommendation:* Amend 49 USC 304 or enact new legislation authorizing any federal agency to apply a CE that had been adopted by any other federal agency; this authority would make CEs interchangeable among all federal agencies. For example, the Corps could apply a CE from FHWA's CE list. If this change is not made, Congress should at least amend 49 USC 304 to allow any USDOT agency to use any other USDOT agency's CE, regardless of whether the project is "multimodal."

ISSUE 2: Establish Project Delivery Innovation Pilot Program

- Proposal 13-7 from the compilation of 16 policy white papers
- *Issue:* The NEPA process requires compliance with a host of other federal environmental laws, each of which is implemented by separate regulations, under the jurisdiction of different agencies. Streamlining the NEPA process alone will not be successful without also streamlining compliance with the other federal laws that also must be addressed as part of the same process. Yet efforts to amend or improve those other laws have not been successful, at least to date. Because other federal environmental laws are subject to complex and prescriptive regulations, agencies are highly restricted in their ability even to consider innovative practices that could yield "win-win" solutions for infrastructure development and the environment. One possible solution is to borrow from the "SEP-15" model used by FHWA - an experimental program that allows the agency to waive certain requirements on a project-specific basis as a way to test innovative approaches, which can inform future changes to the agencies regulations. This same flexibility should be provided to other agencies.
- *Recommendation:* Establish a pilot program, modeled on SEP-15, that would allow USDOT modal administrations and federal environmental agencies to waive or otherwise modify their own requirements to develop innovative practices to streamline project delivery and achieve positive environmental outcomes. The flexibility provided under this framework would include appropriate safeguards—including interagency consultation and public notice and involvement—to ensure adherence to federal environmental laws, regulations, and policies. For example, all federal agencies required to consult on a project would need to agree to the inclusion of the project in the pilot program, consulting resource agencies would need to determine that equal or improved environmental outcomes would be achieved, and no agency would be allowed to override or modify requirements that fall within another agency's authority.

ISSUE 3: Allow Programmatic Air Quality Conformity Determinations

- Proposal 13-12 from the compilation of 16 policy white papers
- *Issue:* Currently, air quality conformity determinations must be made when an MPO updates or amends its plan or TIP—regardless of whether the changes being made are likely to have any material effect on air quality. In addition, conformity determinations are required for every project (with the exemption of certain ‘exempt’ projects), even when there is no realistic chance that the project will cause the region to violate applicable air quality standards.
- *Recommendation:* Direct EPA to amend the transportation conformity regulations (40 CFR Part 93) to allow the USDOT, in consultation with EPA, to make programmatic conformity determinations that can be relied upon as the basis for demonstrating conformity for individual plans, programs, and projects. The programmatic conformity determinations could be made at a national, state or local level. Conditions could be specified in the regulations so that the programmatic determinations can be used only for plans, programs, and projects that meet specified criteria. If emissions budgets are exceeded, the state and MPO would need to resume making individualized conformity determinations.

ISSUE 4: Require Air Quality Conformity Only for the Current Air Quality Standards

- Proposal 13-11 from the compilation of 16 policy white papers
- *Issue:* As required by the Clean Air Act, the EPA periodically reviews and updates the National Ambient Air Quality Standards (NAAQS), typically by replacing an old standard with a new, more stringent standard. When a new NAAQS is adopted, EPA issues rules for transitioning to the new standard. In a recent court decision, *South Coast v. EPA*, the U.S. Court of Appeals struck down an EPA rule that provided for the transition from the 1997 ozone standard to the stricter 2008 standard. The court held that even though the 1997 standard had been revoked and replaced by a stricter standard, states and MPOs still were required to continue making conformity determinations for the revoked 1997 standard. This decision will result in wasteful effort of demonstrating conformity to plans for achieving an air quality standard that has already been met.
- *Recommendation:* Require that when a new standard is established for a pollutant, transportation agencies only need to conform to the most recent standard for that pollutant. This would require an amendment to 42 USC 7506.

TIER 2**ISSUE 5: Enhance Role of Lead Agency in Managing the NEPA Process**

- Proposal 13-1 from the compilation of 16 policy white papers
- *Issue:* Section 139 requires lead agencies to prepare a “coordination plan” when an Environmental Impact Statement (EIS) or Environmental Assessment (EA) is prepared and requires the plan to include a “schedule for completion of the environmental review process for the project.” Section 139 requires both the initial schedule and any changes that “shorten” the schedule to be adopted by the lead agency with “concurrence” of all participating agencies and the project sponsor. As amended by the FAST Act, Section 139 now also requires the “status and progress” of all projects requiring an EA or EIS to be posted on the Permitting Dashboard; this requirement ensures that a current schedule showing key project milestones is posted on the Dashboard.
- *Recommendation:* Eliminate the requirement to obtain “concurrence” from other agencies in project schedules, and clarify that posting on the Dashboard satisfies the requirement to maintain and update the project schedule under Section 139. Retain the existing requirement for lead agencies to consult with participating agencies and project sponsor in setting the schedule, for project schedules to be consistent with applicable legal requirements, and for schedules to be

posted on the Dashboard. If disagreements arise about schedules, they can be resolved through elevation to the Council on Environmental Quality (CEQ) and/or the Permitting Council. These changes will help to ensure efficiency, flexibility, and transparency in setting project schedules, while minimizing the risk of bogging down the process over scheduling issues.

ISSUE 6: Section 404 of the Clean Water Act: Allow Delegation of Section 404 Permitting Authority for Transportation Projects

- Proposal 13-19 from the compilation of 16 policy white papers
- *Issue:* Under existing law, the Corps is responsible for issuing Section 404 permits, subject to EPA's oversight and veto authority. The Corps has authority to delegate its permitting responsibilities to a state, but this is an all-or-nothing proposition; the state's only option is to take on the entire program, a major burden. As a result, most states are reluctant to take on this responsibility (to date, only New Jersey and Michigan have done so). By contrast, the NEPA assignment program established under 23 USC 327 allows FHWA to assign all or a portion of its environmental responsibilities within a state; the scope of assignment under that program is determined by negotiation between FHWA and the state. To date, six states are participating in the NEPA assignment program and several more are considering it. The flexibility allowed under the NEPA assignment program should be extended to the Section 404 program.
- *Recommendation:* Allow delegation of Corps permitting responsibility to a state department of transportation for a subset of projects or activities as agreed by the Corps and the state, e.g., just for transportation projects. Providing this flexibility would encourage states to take over Section 404 permitting for at least a portion of the projects currently handled by the Corps, reducing the burden on the Corps' staff, while also promoting greater efficiency in the processing of permits for major public projects.

ISSUE 7: Provide a Framework for Exempting Endangered Species Act Projects with Minor Effects

- Proposal 13-21 from the compilation of 16 policy white papers
- *Issue:* Section 7 of the ESA requires consultation for all federal actions with the potential to affect threatened and endangered species, and Section 10 of the ESA prohibits the taking (including incidental taking) of endangered species without a permit or incidental take authorization provided through Section 7 consultation. The existing statute and regulations do allow for exemptions or categorical determinations to be made for routine projects with minor impacts. By contrast, such flexibility is provided under other environmental laws - for example, Categorical Exclusions under NEPA and findings of *de minimis* impact under Section 4(f). Similar flexibility can be achieved through Programmatic Agreements under the ESA, but the negotiation of PAs is a lengthy process and where PAs exist, they often do not cover all of the species affected by a particular project.
- *Recommendation:* Amend 16 USC 1536 to require the Services to establish activities-based exemptions from the ESA, which would avoid the need for Section 7 consultation and incidental-take permits for specific types of routine activities, such as road maintenance projects. The availability of such exemptions could be limited to projects carried out by public agencies, such as state DOTs, where the state has committed to participate in ecosystem-scale efforts to protect and promote recovery of listed and other sensitive species.

ISSUE 8: Allow Alternatives to Providing "Replacement Parkland" under Section 6(f)

- Proposal 13-16 from the compilation of 16 policy white papers
- *Issue:* Section 6(f) and Land and Water Conservation Fund Act (LWFC) prohibits the conversion of property acquired or developed with LWCF grants to a non-recreational purpose without the

approval of the National Park Service. Section 6(f) further directs NPS to approve such conversion only if the converted area is replaced with parkland of equal fair market value, location, and usefulness. These Section 6(f) requirements apply to the entire park for which an LWCF grant was received, even if the grant was used only for a small portion of the park. Consequently, where conversions of Section 6(f) lands are proposed for highway projects, no matter how small the conversion, replacement lands are necessary. Often, local officials would prefer for the state to make improvements to the existing property rather than finding replacement property, which could be at a different site; however, Section 6(f) specifically requires replacement parkland.

- *Recommendation:* Amend Section 6(f) of the LWCFCA to allow flexibility for a public agency acquiring Section 6(f)-protected parkland to compensate for those impacts through enhancements to the existing park or other enhancements acceptable to the parkland owner. This mitigation method would still require approval of the National Park Service; but would simply allow broader flexibility as to the method used to compensate for impacts to parkland.

ISSUE 9: Require Interim Guidance to Be Issued at Time of Species Listing, and then a Full Recovery Plan

- Proposal 13-10 from the compilation of 16 policy white papers
- *Issue:* The ESA requires recovery plans for all species listed as threatened or endangered. However, for most listed species recovery plans are out of date or have not been developed. This creates numerous challenges for project sponsors in addressing threatened or endangered species as there is no guidance regarding species recovery goals or acceptable mitigation tools.
- *Recommendation:* Amend 16 USC 1533 to require Fish and Wildlife Services (FWS) and National Marine Fisheries Service (NMFS) to, issue interim guidance at the time of listing of a threatened or endangered species, and then to issue a full recovery plan within 12 months of listing. The interim guidance would include general species recovery goals and acceptable species survey protocols and mitigation. The Services, federal action agencies, and project sponsors would be required to use the interim guidance in making effect determinations and in determining appropriate measures to avoid, minimize, and mitigate for impacts to the species. The interim guidance would remain in effect until the full recovery plan is developed and approved.

ISSUE 10: Allow Programmatic Approach to Compliance with Section 404(b)(1) Guidelines

- Proposal 13-18 from the compilation of 16 policy white papers
- *Issue:* Section 404 of the Clean Water Act requires the U.S. Army Corps of Engineers to comply with EPA regulations—the “Section 404(b)(1) Guidelines”—when issuing Section 404 permits authorizing projects that impact wetlands and other waters under the Corps’ jurisdiction. The Guidelines require, among other things, that the Corps only issue a permit for the practicable alternative that causes the least impact to aquatic resources; this is the so-called ‘LEDPA’ requirement. In practice, inter-agency disagreements over interpretations of the LEDPA requirement are a frequent source of project delays. When applied rigidly, this requirement can effectively force the choice among alternatives to be based solely on small differences in wetland impacts, rather than a comprehensive and balanced comparison of impacts on all types of natural resources and communities.
- *Recommendation:* Create alternative process allowing approval of Section 404 permit for a surface transportation project to be approved pursuant to programmatic agreement with a state that ensures no-net-loss at watershed level, in lieu of making a LEDPA determination at the project level.

ISSUE 11: Allow Project Sponsors to Serve as “Non-Federal Representatives” in Formal Consultation

- Proposal 13-22 from the compilation of 16 policy white papers
- *Issue:* Section 7 of the ESA allows a “designated non-federal representative,” typically the project applicant, to “conduct informal consultation and/or to prepare any biological assessment” on behalf of the federal action agency. See 50 CFR 203.02 and 402.08. This designation allows a project applicant, such as a state DOT, to initiate the Section 7 consultation process and perform much of the work that would otherwise need to be conducted by the federal action agency, such as FHWA. Under current regulations, the designated non-federal representative’s role is limited to informal consultation. This constraint creates inefficiencies with no offsetting benefits. Federal agencies should have the flexibility to designate a non-federal representative to serve during both informal and formal consultation.
- *Recommendation:* Direct the Services to amend the Section 7 regulations to allow a “designated non-federal representative” to act on behalf of the federal action agency during both informal and formal consultation. This change would promote streamlining by ensuring continuity in agency relationships throughout the consultation process rather than forcing a mid-course change when the process transitions from informal to formal consultation. It would also avoid bottlenecks that can occur when the federal agency’s staff resources are limited, or where officials with necessary expertise are not located in the project area. This change would not alter the Services’ role; it would simply allow a project applicant to consult directly with the Service in all stages of consultation rather than force the federal action agency to serve as an intermediary.

ISSUE 12: Section 404 of the Clean Water Act: Streamline Section 404 Compliance for Routine Road Maintenance Activities

- Proposal 13-17 from the compilation of 16 policy white papers
- *Issue:* Many transportation projects require permits under Section 404 of the Clean Water Act for the discharge of dredged or fill material into “waters of the United States.” Section 404 permitting requirements can be a significant burden on transportation project development, especially for minor maintenance and construction activities that only impact man-made wetlands located adjacent to roads.
- *Recommendations:* Expand exemptions from Section 404 permitting for routine maintenance projects with minor impacts and streamline the use of Nationwide Permits for projects that remain subject to Section 404 as follows:
 - Clarify and expand exemptions in the Corps’ regulations (33 CFR Part 325) for activities involving maintenance and/or construction of roadside ditches, emergency activities, and impacts on wetlands within the highway median or operational right of way.
 - Expand opportunities for using non-reporting national and regional permits to greatly reduce timeframes for obtaining Section 404 permits.
 - Modify permitting requirements so that projects that require a relocation of a roadside ditch that also carries a Water of the US, will not require mitigation above and beyond the replacement of the roadside ditch, assuming no loss of channel occurs.

Research and Innovation

TIER 2

ISSUE 1: Increase Research, Technology & Education Program Funding Levels

- Proposal 14-1 from the compilation of 16 policy white papers
- *Current Federal Policy:* FY 2018 funding request for the Federal Research, Technology & Education Program (RT&E) was \$418 million which is the same amount requested for FY 2017 and is a slight increase from FFY16's \$415 million. The program is anticipated to remain constant for FY 2019 as well, essentially representing a reduction in overall program funding due inflation and other cost increases. *23 U.S.C 505(b)(1) Minimum Expenditures on Research, Development, and Technology Transfer Activities* establishes funding for state research programs, separately from the above mentioned federally managed RT&E funded programs, by mandating a minimum of 25 percent of each state's SP&R funding be dedicated to their respective research programs.
- *Issue:* The FAST Act reduced the flexibility of MAP-21 funding by designating three new efforts to be funded from several federal research funding sources, including Highway Research and Development (R&D) funds, the Technology and Innovation Deployment Program (TIDP), and/or the Intelligent Transportation Systems Research program. These efforts include:
 - A competitive grant program to deploy advanced transportation and congestion management technologies (\$60 million per year) which is a competitive grant program open to local agencies and research institutions;
 - Competitive grants to states to demonstrate user-fee-based alternative revenue mechanisms to ensure the long-term solvency of the Highway Trust Fund (STSFA \$15 million in FY 2016, \$20 million per year thereafter); and
 - A study by the Transportation Research Board on needed upgrades and repairs to the Interstate Highway System to meet the demands of the next 50 years (up to \$5 million for FY2016).

In addition, USDOT is authorized to use up to \$10 million per year to develop, use, and maintain data sets and data analysis tools to assist state and Metropolitan Planning Organization performance management activities. (This was requested in the GROW AMERICA legislative proposal from the Obama Administration, but was not intended to be funded from R&D.)

Because these new activities are mandated in the research title of the FAST Act without a commensurate increase in the overall funding, funding for existing federal research programs have effectively been reduced. After accounting for the three research funding emphasis areas newly specified by Congress, the FAST Act reduces the level of discretionary funding in the R&D, TIDP, and ITS programs by approximately 25 percent, or from about \$292.5 million per year to about \$232.5 million per year.

Assuming the project on advanced transportation and congestion management technologies, \$678 million per year (including 5 percent average annual inflation projected to 2024) is necessary for state DOTs to participate in research and advancing technology solutions to support and improve the transportation system at state and local levels. This assumes only ATCMTD listed above is continued. If the other two sub-allocated programs are reauthorized, then additional funding would be needed to administer these programs.

If the national formula funding were to change in the future, the impacted SP&R funds would need to be accounted for in another way in order to maintain the overall minimum amount of \$678 million necessary for the RT&E program.

- *Recommendations:*
 - Maintain the State Planning and Research program in its current, formula-based configuration and continue the 25 percent set-aside for research, development, and technology transfer

- activities in order for state DOTs to continue their commitments to research and implementation of innovative transportation technologies and processes in across the country.
- o To maintain the current level of effort for federal RT&E programs, a budget level consistent with the current proportioning of funding is requested. Specifically, to account for inflation, reduced program flexibility, and increased project delivery costs since FY2016, a minimum budget of \$678 million per year for RT&E is requested.

ISSUE 2: Recommend Third Strategic Transportation Research Program

- Proposal 14-5 from the compilation of 16 policy white papers
- *Current Federal Policy:* The Strategic Highway Research Program (SHRP) and SHRP2 were widely supported national research efforts with no future Strategic Transportation Research program mandated going forward.
- *Issue:* Since the early 1980s, Congress has mandated two national studies of strategic highway transportation research needs. The original SHRP was initiated in response to a 1986 TRB Special Report titled *America's Highways: Accelerating the Search for Innovation*. This five-year \$150 million program focused on highway infrastructure needs for better materials and asphalt mixes, longer life pavements, cost-effective maintenance procedures, and chemical control of snow and ice on highways. This program has a major positive impact on our ability to construct and preserve the nation's roadway infrastructure.

In 2001, TRB once again responded to a Congressional mandate and published *Strategic Highway Research – Saving Lives, Reducing Congestion, and Improving Quality of Life*. The resulting SHRP2 looked at cost-effective ways to preserve infrastructure but ventured more into operational changes that would provide safer roads with adequate capacity and reliable travel times. Resulting products from SHRP2 included: cost-effective bridge designs for faster, longer lasting replacement; pavement preservation techniques for high-traffic roadways; methods to improve operations and extend highway capacity; innovative strategies for managing large, complex projects; behavioral studies for safer transportation facilities; and training for fast, multi-agency incident response. A large-scale implementation effort ensured that the state DOTs would benefit from these research results.

In 2018, as technology is rapidly changing and impacting transportation more than ever, it is time to take the next step forward and address the major issues that are affecting the transportation system today in order to adapt and fully integrate technology and innovation into the transportation network. Potential focus areas include: advancing connected and autonomous technologies; incorporating safety related technologies; addressing infrastructure resiliency; and meeting the needs of multi-modal connectivity.

- *Recommendation:* AASHTO recommends Congress allocate \$1 million for scoping a third Strategic Transportation Research Program.

Safety

TIER 1

ISSUE 1: Allow Non-infrastructure Eligibilities under the Highway Safety Improvement Program

- Combine 1-4, 14-2, 15-1, and 16-4 from the compilation of 16 policy white papers
- *Current Federal Policy:* 23 USC 148
- *Issue:* The FAST Act (Section 1113) restricted Highway Safety Improvement Program (HSIP) eligibility and eliminated the ability to use HSIP funds for public awareness, education efforts, infrastructure and infrastructure-related equipment to support emergency services, and enforcement of traffic safety laws that are identified in the states' Strategic Highway Safety Plans. Also, preventative actions that reduce the risk of future disruptions should be eligible for HSIP funding. These changes are inconsistent with the intent of state Strategic Highway Safety Plans, which contain a multidisciplinary approach to reducing fatalities and serious injuries on all public roads. There should also be additional flexibility to use HSIP funds for pilot experimental, temporary installations, for example, testing the viability of protected active transportation lanes. The lack of flexibility in safety project selection in the HSIP program, particularly non-infrastructure related activities, stifles innovative safety improvements that lead to crash reductions and reduced highway fatalities.
- *Recommendations:*
 - Allow states to use a portion of HSIP funds for non-infrastructure safety programs such as behavioral efforts, public awareness, education, enforcement, research, improving system resilience, and pilot or experimental projects.
 - Allow HSIP funds to be used for pilot experimental, temporary installations, for example, testing the viability of protected active transportation lanes.

TIER 2

ISSUE 2: Opportunity to Take Corrective Action

- Proposal 15-3 from the compilation of 16 policy white papers
- *Current Federal Policy:* Financial penalties for noncompliance with federal requirements are imposed without an opportunity for states to enact legislation that corrects the issue.
- *Issue:* Injuries and fatalities associated with driving under the influence continues to be a serious concern, which is why states continue to strengthen state laws and policies to effectively address impaired driving. Failure to adhere to those specific federal requirements can result in a significant financial penalty against the state highway program. Due to the complexity of federal laws and regulations, coupled with the nuances associated with state laws, states can inadvertently fall out of compliance with federal requirements. Administration of current federal regulations neither provides states with informed advanced notification, nor an opportunity to take corrective action prior to imposition of financial penalties. As a result, states may not be aware of compliance issues and are unable to take corrective action before penalties are applied.
- *Recommendation:* Provide states with a reasonable opportunity to take corrective action to bring themselves back in compliance with federal impaired driving requirements prior to the imposition of financial penalties to the state highway program.

ISSUE 3: DATA PROTECTION

- Proposal 15-2 from the compilation of 16 policy white papers
- *Current Federal Policy:* 23 USC 409 does not explicitly protect safety partner agencies from discovery when coordinating with the state DOT to analyze and report safety data.
- *Issue:* Under changes outlined by MAP-21 and FAST Act for US 23 148, state highway agencies are required to work with other state and regional safety agencies and organizations in the development of the Strategic Highway Safety Plans, Highway Safety Improvement Programs, and safety performance targets. This differs from the past. The entities include, but are not limited to Highway Safety Offices, transit agencies, partner safety organizations (e.g., health data and safety data linkages) and Metropolitan Planning Organizations. To adequately perform analyses and identify and prioritize safety improvements, data from multiple disciplines, including public health, must be incorporated. 23 USC 409 does not currently provide protection from discovery for the agencies that state DOTs will collaborate with. It is assumed the privilege does already exist, but without specific language in the code or guidance from FHWA, state DOTs' ability to collaborate on analyzing and reporting safety data as openly as possible among the numerous safety partners will be limited. Similarly, this issue exists with data used for public transportation agency safety plans.
- *Recommendation:* Explicitly protect partner agencies' data from discovery when used for safety analysis, reporting, and implementation of safety programs. The intent of this proposed clarification is not to limit availability of data to the general public. Suggested wording:

Notwithstanding any other provision of law, reports, surveys, schedules, lists, or data compiled or collected for the purpose of identifying, evaluating, ~~or~~ planning or reporting the safety enhancement of potential accident sites, hazardous roadway conditions, or railway-highway crossings, pursuant to sections 130, 134, 135, 144, and 148 of this title or for the purpose of developing any Strategic Highway Safety Plan, Highway Safety Improvement Program or highway safety construction improvement project which may be implemented utilizing Federal-aid highway funds shall not be subject to discovery or admitted into evidence in a Federal or State court proceeding or considered for other purposes in any action for damages arising from any occurrence at a location mentioned or addressed in such reports, surveys, schedules, lists, or data. This bar to discovery and admissibility shall apply even if such information was originally created or held by an entity for some other purpose.

Transportation System Security and Resilience

TIER 2

ISSUE 1: National Transportation System Security and Resilience Plan

- Proposal 16-1 from the compilation of 16 policy white papers
- *Current Federal Policy:* None
- *Issue:* Federal legislation has required the development of a National Freight Plan, a National Aviation Plan and a Critical Infrastructure Protection Plan, but no national plan exists for transportation system security or resilience. The intent of such a plan would be to identify the risks to the nation's transportation system from a range of sources, the types of physical, operational, institutional and technology strategies that might be considered by national and state transportation agencies, the effect of those strategies on improving the efficiency and effectiveness of the transportation system, and recommendations on how such strategies can be funded. Note that the Cyber Security Strategy described in Issue #7 below could be subsumed in this effort. Of interest, such an effort was conducted prior to 9/11 where a National Academies panel was empowered to examine potential terrorist attacks against the nation's surface transportation system. This effort needs to be updated with a publicly available plan (it is assumed that such plans exist but are not available for public consumption).
- *Recommendation:* USDOT, DHS and other relevant agencies should be directed, in collaboration with states, transportation system operators, local jurisdictions and users of the transportation system, to develop a National Transportation System Security and Resilience Plan. This plan should identify the major natural and human-caused threats to transportation system performance; the limitations current laws and rules impose on addressing security and resilience; the institutional structure for planning and designing for, responding to and recovering from disruptions; proposed analysis methods that could be used by transportation agencies to assess vulnerabilities and risks; and the types of strategies to enhance system resilience. The Plan would not impose requirements upon states or authorize any federal official to impose requirements upon states, but would be available to state DOTs for their consideration as they implement federal transportation planning statutes and rules.

Chairman Barrasso, Ranking Member Carper, and Members of the Committee:

Thank you for inviting me here today. My name is Max Kuney. I am a highway and bridge builder from Spokane, Washington and currently serve as the Highway and Transportation Division Chairman 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, D.C. AGC members build highways, bridges, airports, transit systems, rail facilities and other transportation projects that keep America running.

In my testimony, I will stress the following themes:

- The time for infrastructure investment is now;
- Failure to reauthorize the FAST Act before it expires will negatively impact addressing our national transportation needs and put the U.S. further behind;
- The U.S. transportation infrastructure system's needs cannot sustain a status quo approach to investment;
- FAST Act reauthorization should provide sustainable, long-term solution to funding the Highway Trust Fund;
- The economic benefits of transportation infrastructure investment are well-documented;
- Continued federal, state and local partnership is critical to the success of our national transportation system;
- A broad infrastructure package must include a sustainable, long-term solution to funding the Highway Trust Fund; and
- Further improving the environmental review and permitting process is necessary.

None of these themes are new. In fact, AGC presented testimony to this committee in November 2018 that addressed these very issues. What has changed since then is that time has gotten shorter and it is unclear if the resolve to address our nation's transportation infrastructure needs is still a top priority.

The Time for Infrastructure Investment is NOW

America's transportation system impacts the daily lives of every American, whether they live in rural communities or in great urban meccas. It affects everything from our ability to get to work to the cost and availability of the products we rely on both in our personal lives and in our businesses. The capacity of U.S. businesses to compete globally starts with a well-functioning transportation network and leads to a strong national economy. Public opinion clearly suggests that infrastructure spending is broadly popular. Recent Gallup polling shows that Americans support substantial infrastructure spending: more than six in ten Americans (64 percent) in March 2017 agreed with the president's statements supporting a \$1 trillion program to improve U.S. infrastructure, including roads, bridges and tunnels.¹ A March 2019 Mellman Group/Public Opinion Strategies national survey indicates that 81 percent of likely voters in the 2020 election say infrastructure should be a top policy priority

¹ <https://news.gallup.com/poll/226961/news-public-backs-infrastructure-spending.aspx>

for the president and Congress.² In addition to winning broad national support, transportation infrastructure renewal sparked majority support from both major parties last year.

As such, investing in our nation's transportation infrastructure has traditionally enjoyed bipartisan support. As you all know, President Trump made infrastructure investment a key issue during his campaign for the White House and congressional leaders have highlighted investing in infrastructure as a top priority. While a broad infrastructure package continues to remain elusive, reauthorization of the FAST Act before its expiration in 2020 would address many of the issues impacting our nation's surface transportation network.

AGC appreciates that the Chairman and Ranking Member have made FAST Act reauthorization a top priority this Congress. With your leadership, this committee has gotten an early start to meeting this deadline. And, we are thankful for all the work you have already done to make a revitalized surface transportation bill reality.

FAST Act Reauthorization Delay Will Negatively Impact Addressing National Transportation Needs and Put the U.S. Further Behind

As previously stated, an important goal of this Congress should be to complete action on FAST Act reauthorization before it expires on September 30, 2020. Because federal-aid highway funding has historically been critical to state-level capital investment in highways and bridges, it is important that this funding continue unimpeded. On average, states use 52 percent of their annual federal-aid allocation for capital investment projects, with that number significantly higher in states with lower population.

Unfortunately, the recent legislative history of passing federal surface transportation bills is one of Congress waiting until the funding authorization has expired and kicking the can down the road with countless short-term extensions. In the past, this uncertainty in the flow of federal-aid funding caused project delays and cancellations, resulting in higher costs and slowed transportation improvements affecting safety, efficiency, and economic development. Uncertainty about long term funding can also cause contractors to defer decisions on hiring and training new employees and investing in new equipment. The longer the uncertainty the more impact on the contracting community.

Prior to FAST Act passage in 2015, 15 state transportation agencies delayed or seriously considered cancelling payments on contracts for transportation improvement projects worth over \$1 billion when reimbursements from the Highway Trust Fund were slowed.³ With a more than \$800 billion backlog of surface transportation investment needs across the country, states can ill afford further delays and unnecessary cost increases.⁴ Delays only cause the backlog to grow. Assurance that transportation funding will continue and be distributed unimpeded among existing FAST Act programs will have a positive impact on our transportation infrastructure network allowing each state to address their unique transportation needs while contributing to our economy.

² <http://americanmanufacturing.org/research/entry/americans-want-action-on-infrastructure>; http://s3-us-west-2.amazonaws.com/aamweb/2019_Slide_Deck_-_Infrastructure_and_Buy_America.pdf

³ <https://www.enr.com/articles/7103-state-dots-plan-ways-to-cope-with-uncertain-federal-funds>

⁴ <https://www.infrastructurereportcard.org/cat-item/roads/>

Uncertainty about long term funding can also cause contractors to defer decisions on hiring and training new employees and investing in new equipment. The longer the uncertainty the more impact on the contracting community.

The U.S. Transportation Infrastructure System's Needs Cannot Sustain a Status Quo Approach to Investment

Americans' reliance upon our transportation systems underscores the necessity to adequately invest in a timely manner. 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.⁵ Vehicle travel growth, which slowed significantly because of the Great Recession and subsequent slow economic recovery, has since returned to pre-recession growth rates. From 2000 to 2018, vehicle travel in the U.S. increased by 19 percent⁶. The rate of growth in vehicle miles traveled has accelerated since 2013, increasing by eight percent between 2013 and 2018.⁷ Travel by large commercial trucks, which place greater stress on paved road and highway surfaces than do cars, continues to increase at a rate approximately double the rate for all vehicles, and 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 additional stress on the nation's roadways.

From coast to coast, major streets and freeways 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 uncover a litany of troublesome facts, including:⁸

- Forty-four percent of the U.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 the U.S.
- Forty-five percent of the U.S.' major urban interstates experience congestion during peak hours. Traffic congestion costs American motorists \$170 billion a year in wasted time and fuel costs.
- The nation's population grew by 15 percent from 2000 to 2017 while new road mileage increased by only five percent.
- Driving on roads in need of repair costs U.S. motorists \$130 billion a year in extra vehicle repairs and operating costs – \$599 per motorist.

With these worrisome facts in mind, we must remember that our transportation infrastructure needs do not discriminate between rural and urban America. Many of the transportation challenges facing rural America are similar to those in urbanized areas. However, rural residents tend to be more

⁵ http://www.tripnet.org/docs/Urban_Roads_TRIP_Report_October_2018.pdf

⁶ https://www.fhwa.dot.gov/policyinformation/travel_monitoring/19aprvt/

⁷ <https://afdc.energy.gov/data/10315>

⁸ http://www.tripnet.org/docs/Fact_Sheet_National.pdf

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. As the Department of Transportation (USDOT) reported:⁹

- 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.

Furthermore, a concern in the rural areas of our country is motorist safety. As TRIP points out, “[t]he 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.

Despite the importance of transportation investment to the U.S. economy, there is much need for improvement and growth. For example, the 2015 American Association of State Highway and Transportation Officials (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 for the nation’s public transit systems to improve conditions and meet the nation’s mobility needs.¹⁰ 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 2025.¹¹

As articulated above, the needs of our nation’s transportation infrastructure system are great and extensively catalogued. Nonetheless, so too are the tremendous benefits of sufficiently investing in this system.

FAST Act Reauthorization Should Provide Sustainable, Long-term Solution to Funding the Highway Trust Fund

Reauthorization of the FAST Act must provide the necessary investment needed to begin a steady reduction in our transportation deficit. To do this, priority should be given to providing the revenue necessary to achieve the long-term solvency and stability of the Highway Trust Fund (HTF). While the FAST Act was a welcome reprieve from the uncertainty created by the many delays and short-term reauthorization extensions 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.

⁹ http://www.tripnet.org/docs/Rural_Roads_TRIP_Report_2017.pdf

¹⁰ <http://bottomline.transportation.org/Documents/Bottom%20Line%202015%20Executive%20Version%20FINAL.pdf>

¹¹ <https://www.infrastructurereportcard.org/cat-item/roads/>

Treasury to supplement an estimated \$208 billion in HTF revenue from existing sources over the five-year duration of the bill. But that stability is soon to be gone.

Shortly after the FAST Act expires, additional revenue in the amount of \$18 -billion per year will be needed just to maintain current funding levels plus inflation. Without action, the Congressional Budget Office projects that the HTF will become insolvent by 2021.¹² And that is a no real growth scenario. Failing to address the HTF's ongoing revenue shortfall leaves open the possibility of disruptive uncertainty for states and the construction industry leading up to and after the expiration of the bill, just as happened in 2015. Without an extension and new revenue stream, AASHTO estimates that states will see about a 40 percent reduction in highway funding from FY 2020 to the following year and \$46 billion to \$28 billion in FY 2021.¹³

AGC appreciates this committee for acting sooner rather than later on this matter. And, we again emphasize the need to get a reauthorization bill across the finish line before the FAST Act expires. We learned the hard way in 2015 that the consequences of failing to meet the deadline were grave, resulting in project delays and cancellations and higher costs. Five years later, with a booming economy, America simply can't afford delays to projects that improve the safety and efficiency of our transportation network and continue to bolster our growing economy.

Federal Motor Fuels and Diesel User Fees

With the hope that reauthorization 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 HTF that supports increased federal surface transportation investments. Additionally, any new revenue should be dedicated solely to surface transportation improvements and preferably distributed through the current federal highway and transit programs.

AGC's preferred method to address the solvency of the HTF is an increase in the federal motor fuels tax—something that has not been done since 1993—of 25 cents for both gasoline and diesel. Recognizing the growing number of electric and hybrid vehicles, we also recommend Congress consider fees or charges that would ensure these vehicles pay into the system they use. For example, consideration should be given to imposing an annual registration fee for electric and hybrid vehicles.

Vehicle Miles Traveled or Mileage Based User Fees

In 2009, the National Surface Transportation Infrastructure Commission concluded that the U.S. needs a new approach to transportation infrastructure financing. The commission specifically notes that “direct user charges are the most viable and sustainable long-term, user pay option for the Federal government.” There, the commission recommended moving to a vehicle miles 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.

¹² <https://www.cbo.gov/system/files?file=2019-01/51300-2019-01-highwaytrustfund.pdf>

¹³ <https://policy.transportation.org/wp/uploads/sites/59/2018/11/AASHTO-FAST-Act-Reauth-Working-Group-White-Papers-2018-11-05-FINAL.pdf>

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. Advancement of a VMT system in the U.S. must include adequate system development, promotion of national awareness and improvement of public opinion, combining state and federal efforts into a unified national concept, demonstration of national leadership, and resolution of the key issues learned from the initial pilot programs.

Public Private Partnerships

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 to the table to address transportation needs – financing that may well 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 one and only answer to the funding shortfall. Only certain types of projects may attract P3 development. These are primarily revenue generating projects based in dense urban areas. While encouragement for P3s should continue, it must be understood that they are an enhancement and not the solution to the funding shortfall.

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, expand 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

Transportation investment also drives technology advancement. 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. 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. 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 quality of life by reducing travel delays and transportation costs, improving access and mobility, improving safety, and stimulating sustained job growth.

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 essential 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 in the absence of new federal investment.

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.¹⁴ 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 is crucial to ensuring the continued success of this long-standing partnership. The certainty of federal investments allows state DOTs to make needed investments in the major freight corridors that drive national and regional economic growth. The one 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.¹⁵

Highway accessibility was ranked the number one 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.

¹⁴ <https://www.fhwa.dot.gov/policy/2015cpr/>

¹⁵ <https://www.fhwa.dot.gov/policy/2015cpr/>

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 current Administration, as we did with prior Administrations, and supports 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 record¹.

In general, what AGC seeks is a prompter environmental review process. We feel strongly that this can be achieved while protecting the environment.

More specifically, three of reforms that we support that would have substantial positive impacts are:

1. 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;
2. 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
3. Develop a reasonable and measured approach to citizen suit reform to prevent misuse of environmental laws.

AGC Policy Recommendations

AGC has produced a list of program improvements that can produce a more efficient and better performing federal-aid highway program. Attached to this written statement are the recommendations from AGC for program improvement. We look forward to working with the committee on including these recommendations in the next surface transportation legislation.

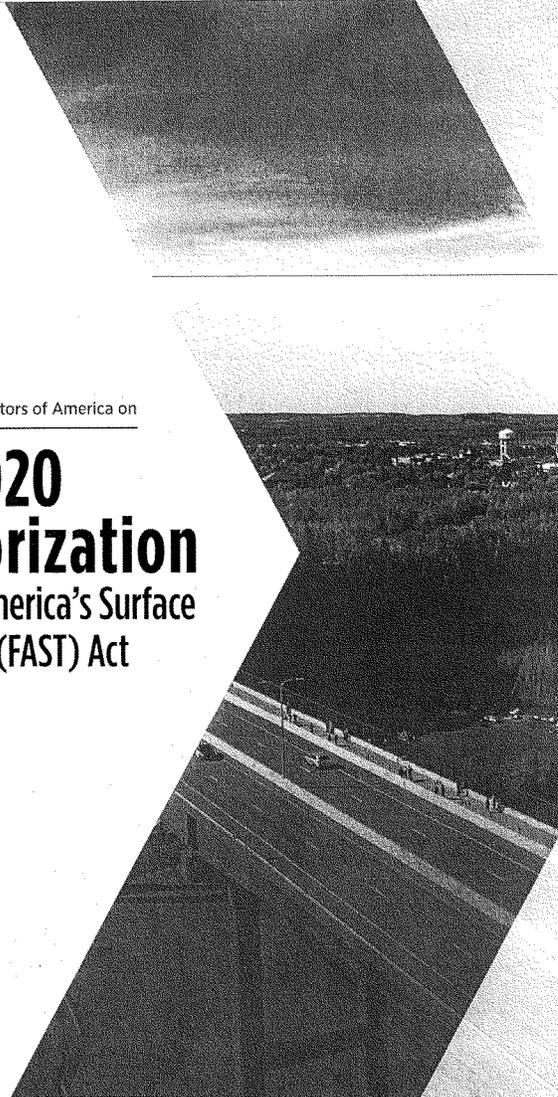
Conclusion

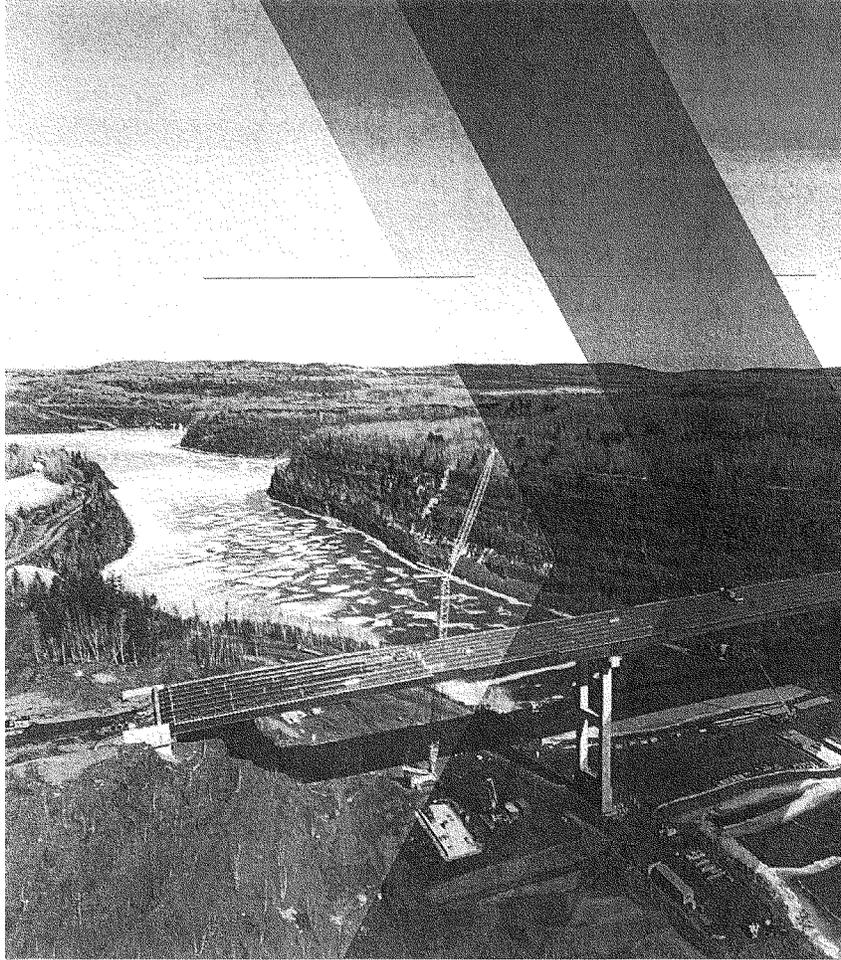
Mr. Chairman, thank you again for convening today's hearing, for your leadership, and for allowing AGC to participate. The role of our national transportation system in supporting U.S. competitiveness and our quality of life cannot be understated. Transportation impacts the daily lives of citizens and 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.

While there is much we disagree on in the political realm, fixing our nation's infrastructure must not be a partisan issue. I urge this committee to take advantage of the opportunity it has to make an important first step in investing in future of our transportation system by fixing the Highway Trust Fund. Providing a reliable, dedicated, and sustainable revenue source derived from the users and beneficiaries of the system will not only address the annual funding shortage but will allow for robust future investments. We are excited at the progress this committee has made this Congress and we urge you to continue acting on this issue in an expedient manner. As we have well learned, the longer we wait, the more difficult the solution becomes. Again, thank you for your time and consideration.

Recommendations of the
Associated General Contractors of America on

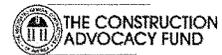
2019–2020 Reauthorization of the Fixing America’s Surface Transportation (FAST) Act





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The Choice: Status Quo or Moving Transportation to the Next Level

The vision of transportation and political leaders in the mid-Twentieth Century to imagine and invest in the Interstate Highway System (IHS) has paid and will continue to pay significant dividends for generations of Americans. A leading factor in our nation's growth since World War II, the IHS helped our nation become the world's economic leader. 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 among state and local road systems and other transportation modes including railroads, marine ports, airports, and public transit.

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

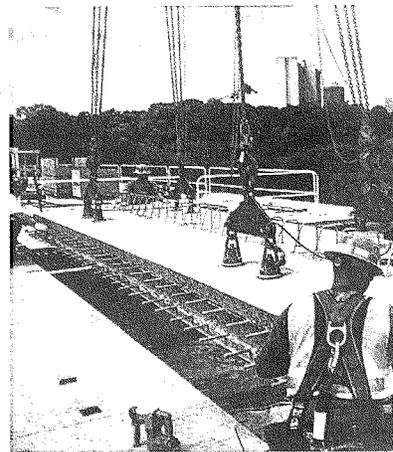
But, just as important, choices need to be made to advance transportation to the next level by modernizing the system and making the best use of available and upcoming technology developments. The transportation network is on the cusp of technological change that will impact how we plan, design and build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

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

At the same time, a technology boom in transportation construction is underway. It is increasing productivity and enhancing construction quality. Contractors make 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. Technology is also enhancing safety on roadways for construction workers and motorists with advances in electronic maintenance of traffic devices, early warning systems for traffic intrusions in construction work zones, enhanced lighting, signage and guardrail systems. States are managing construction projects through e-construction and tracking transportation asset conditions through electronic models. New materials and treatments are under development to lengthen the life of infrastructure

once put in place. Much of this technology is developed and manufactured in the United States.

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



The Challenges

1 UPGRADING CONDITIONS

A persistent and growing backlog of physical and operational deficiencies plagues the highway system. Many segments are decades old, operate well beyond their projected life span—carrying much heavier traffic loads than designed to accommodate—and need major upgrades or reconstruction. This aging and heavily used transportation network is ill prepared to meet projected future growth in automobile use and freight movement. The first challenge is to invest the resources needed to meet these significant construction, maintenance and expansion needs.

As it stands, drivers nationwide lose 97 hours in traffic congestion, which costs Americans \$87 billion annually in time—an average of \$1,348 per driver.¹ Meanwhile, the nation expects to add another 70 million people over the next 20 years.² And, the value of goods shipped annually (in inflation adjusted dollars) is expected to increase by 93 percent by 2045—and by 61 percent for goods shipped by trucking.³

2 MODERNIZING TRANSPORTATION

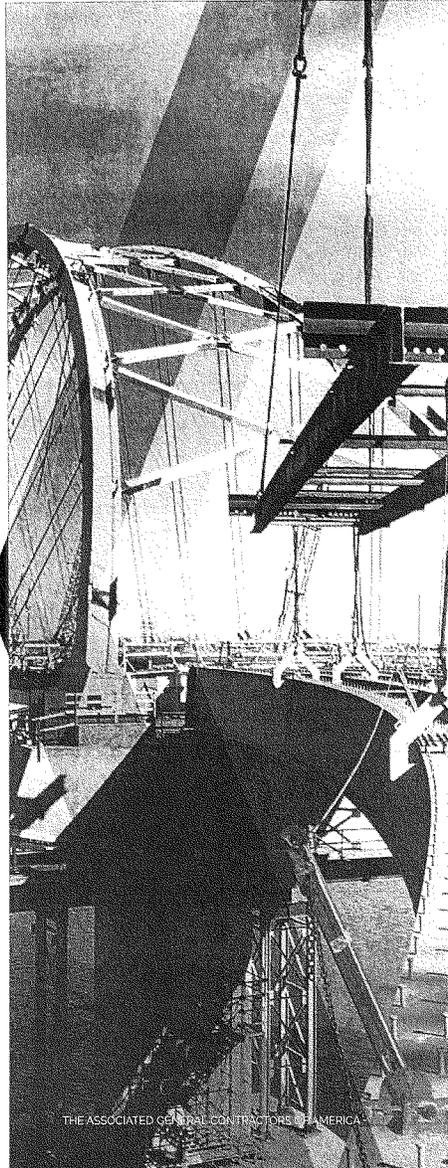
The second challenge is to ensure that the highway system is adaptable and positions the nation to take advantage of newly emerging vehicle, safety and construction technologies. Construction and reconstruction efforts present opportunities to accommodate the technology needs of the future.

Just as the leaders of the day in the 1950s were challenged with a choice of making the investment necessary to carry out the vision of connecting America through a system of limited access, high volume, efficient highways through each state, today's leaders are equally challenged.

¹ Trevor Reed and Joshua Kidd, Global Traffic Scorecard, INRIX Research, Feb. 2019 available at: <http://inrix.com/>

² U.S. Census Bureau, 2017 National Population Projections Tables: Table 1: Projected Population Size and Births, Deaths, and Migration, 2017 available at: <https://www.census.gov/data/tables/2017/demographic/popprojs/2017-summary-tables.html>

³ See Bureau of Transportation Statistics, Freight Facts & Figures 2017—Chapter 2: Freight Moved in Domestic and International Trade, Nov. 15, 2017, available at: <https://www.bts.gov/bts-publications/freight-facts-and-figures/freight-facts-figures-2017-chapter-2-freight-moved>



Recommendations

Reauthorization of the Fixing America's Surface Transportation (FAST) Act—which expires on September 30, 2020—provides the Congress and the Administration the opportunity to advance the nation's global competitiveness and generally improve the quality of life for the average American.

AGC recommendations on issues that will likely be addressed during the legislative process are as follows:

FUNDING

Current annual revenue: Highway Trust Fund (HTF) revenue is approximately \$38 billion—primarily from the federal motor fuels tax (gas 18.3 cents /gallon, diesel 24.3 cents /gallon) and taxes on heavy vehicles and heavy duty tires.⁴

Current annual outlays: Highways \$45 billion; Transit \$10 billion⁵

Shortfall: Starting in fiscal year (FY) 2021, the HTF will require an additional \$18 billion in annual revenue to maintain current, status quo transportation investment funding levels.

Since 2008, Congress has transferred \$140 billion from the federal government's general revenue account—called the "general fund"—to the HTF to maintain annual funding levels with small increases from year to year.⁶ Under congressional budget rules, budget offsets—colloquially called "pay-fors"—must be found to allow for a general fund transfer.

The federal motor fuels taxes have not increased since 1993. Each penny of gas tax produces \$1.401 billion and each penny in diesel tax produces \$0.426 billion annually in HTF revenue.⁷

AGC recommends Congress consider the following funding recommendations to address these issues:

Highway Trust Fund: Increase HTF revenues to meet present and future transportation needs. Efforts to allow for a long-term transition to a mileage-based fee (Vehicle Miles Traveled fee or VMT) should continue. Congress should continue to provide grant funding for state VMT pilot programs. A national pilot program to identify issues related to VMT implementation should be initiated.

Revenue Sources: Support an immediate increase in the federal motor fuels tax of at least 25 cents per gallon for gasoline and diesel. Support other revenue sources that are



recurring, reliable, dedicated, and focused on the users and beneficiaries of transportation, including freight shipping fees, customs user fees, registration fees and driver license fees, energy related fees, and others.

Ensure that all users pay their fair share for use of the system. This includes electric and hybrid vehicle users, who should pay a battery fee to help cover their system usage.

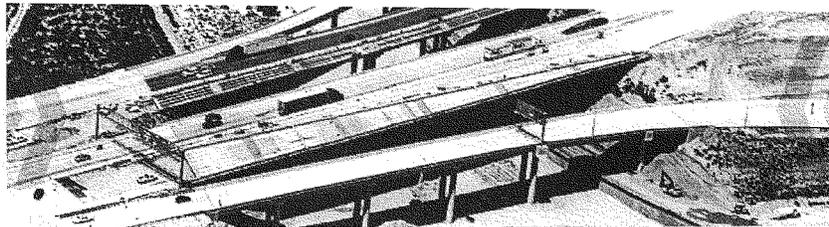
Additional Financing Sources: Support supplemental financing sources, such as: an infrastructure bank; increased tolling (including on the interstate highway system); lifting the volume cap on private activity bonds; private investment; bonding; increased credit assistance; and loans and loan guarantees through a reformed Transportation Infrastructure Finance and Innovation Act (TIFIA) Program.

⁴ Congressional Budget Office, Highway Trust Fund Accounts—CBO's January 2019 Baseline, Jan. 28, 2019 available at: <https://www.cbo.gov/system/files/2019-01/51300-2019-01-highwaytrustfund.pdf>; see also Federal Highway Administration, Publication No. FHWA-PL-17-011: The Highway Trust Fund, Office of Policy and Governmental Affairs, Jan. 2017 available at: <https://www.fhwa.dot.gov/policy/olsp/fundingfederalaid/07.cfm>

⁵ *Id.*

⁶ Tax Policy Center, Key Elements of the U.S. Tax System: What is the Highway Trust Fund, and how is it financed? Available at: <https://www.taxpolicycenter.org/briefing-book/what-highway-trust-fund-and-how-it-financed>

⁷ Jeff Davis, How Much Money Would a Gas Tax Increase Raise? Eno Transportation Weekly, Jan. 31, 2019 available at: <https://www.enotrans.org/article/how-much-money-would-a-gas-tax-increase-raise/>



HIGHWAY & TRANSIT PROGRAMMATIC REFORMS

The Disadvantaged Business Enterprise (DBE) Program

The DBE Program began in 1983, and Congress has reauthorized it in each transportation reauthorization bill since.⁸ Over the past several years, the U.S. Department of Transportation (USDOT) has issued new regulations that have increased the compliance burden for both prime contractors and DBE contractors. Efforts to improve program administration should be implemented.

As such, AGC recommends that Congress direct USDOT to take the following steps:

- Clarify requirements for compliance with complicated, confusing and sometimes contradictory rules, including providing a check list of definitive steps a contractor must take to comply with good faith effort requirements. Establish a percent threshold limit on how much increased cost is required from a DBE subcontractor quote over a non-DBE quote;
- Clarify "commercially useful function" requirements to allow contractors to assist DBEs in subcontract completion;
- Streamline DBE certification procedures and allow for DBE supportive services funds to be used to assist DBEs in hiring necessary professional financial services to assist in completing certification documentation;
- Provide more transparency in disparity study requirements, such as requiring that the methodology and anecdotes used to make availability determinations be subject to public comment;
- Put more emphasis on business development aspects of the program, including broadening eligibilities for supportive services funding to include line of credit financing and technology acquisition; and
- Establish one USDOT-wide definition of "small business concern" based on existing U.S. Small Business Administration (SBA) criteria that applies to all categories of work undertaken by DBEs. All USDOT modes, including the Federal Highway Administration, Federal Transit Administration and Federal Aviation Administration should use the same size criteria.

In addition, AGC recommends that Congress avoid efforts to undermine the DBE program's effectiveness by not expanding the program to include veteran owned businesses or creating separate goals for women owned businesses and minority owned businesses.

Government Mandated Project Labor Agreements

A government-mandated project labor agreement (GMPLA) is a pre-hire agreement that establishes the terms and conditions of employment for the craft workers who will work on a publicly funded construction project before the government has selected the construction contractor(s) that will actually employ those workers. Representatives of one or more of the 15 building trade unions and the public agency responsible for the project usually negotiate the GMPLA. Although they have the greatest stake in the outcome, construction employers are usually excluded from the process.

A GMPLA typically mandates that successful bidders:

- Require recognition of the signatory unions as the exclusive bargaining representatives for the contractor's employees, whether or not the employees are union members;
- Require the payment of union dues or agency fees (instead of dues, in right-to-work states) by the contractor's employees;
- Supersede all other collective bargaining agreements;
- Require hiring through union referral systems;
- Potentially conflict with prevailing wage laws; and
- Mandate contributions to specific union benefit trusts.

Regarding GMPLAs, AGC recommends that Congress:

- Prohibit GMPLAs from being used on federally-assisted transportation construction projects.

AGC holds that neither a public project owner nor its representative should compel any firm to change its lawful labor policies or practices to compete for or perform public work, as GMPLAs effectively do.

AGC also notes that government mandates for GMPLAs can restrain competition, drive up costs, cause delays, lead to jobsite disputes, and disrupt local collective bargaining. If a GMPLA would benefit the construction of a particular

⁸ U.S. Department of Transportation, History of the DOT DBE Program, Jan. 5, 2015 available at: <https://www.transportation.gov/osdbu/disadvantaged-business-enterprise/history-dot-dbe-program>

project, the construction contractors otherwise qualified to perform the work would be the first to recognize that fact and voluntarily adopt such an agreement.

Environmental Reform

While the Moving Ahead for Progress in the 21st Century Act (MAP-21) and Fixing America's Surface Transportation (FAST) Act reauthorization laws included improvements to streamline environmental review to speed up the project approval process, further improvements are needed.

AGC recommends improvements to the process to include:

- Merging the National Environmental Policy Act (NEPA) and Clean Water Act Section 404 permitting processes, with the U.S. Army Corps of Engineers issuing permits at the end of the process using the NEPA-generated information;
- Allowing the monitoring, mitigation and other environmental planning work performed during the NEPA process, and included final Environmental Impact Statement/Record of Decision, to satisfy federal environmental permitting requirements, unless there is a material change in the project; and
- Further shortening and standardizing time limitations on claims for the review of final NEPA documents or an environmental permit, license or approval issued by a federal agency for an infrastructure project (current inconsistencies exist between MAP-21 and Title 41 of the FAST Act) to prevent misuse of environmental laws.

Coordination with Railroads

Transportation construction projects that interface with railroad properties are often subject to significant restrictions and delays imposed by railroad owners. It is often a struggle for contractors to obtain fair and equitable railroad agreements; as well as ensure such agreements are made in a timely manner. That struggle adds time and cost to transportation projects.

To address this issue, AGC recommends that Congress:

- Establishes, or authorizes USDOT to establish, consistent requirements, commitments, and time frames across all public and private railroad owners to facilitate transportation work within and across railroad rights of way. USDOT must also be granted authority to enforce those provisions with the railroads; and
- Require USDOT to establish template/model agreements for standard activities conducted by the state DOTs in railroad right-of-way (and vice versa). As such, USDOT must provide guidance on the establishment of agreements for special or more complex activities.

Utility Relocation

Relocating underground utilities in highway right-of-way (ROW) while undertaking road improvement projects continues to be one of the leading causes of delay in completing projects once construction commences. Unmarked or incorrectly marked underground utilities pose a significant safety risk to the construction workforce, state

DOT employees and the public. Damage to utility facilities can be costly to all parties to the contract, 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 puts forth best practices to address these concerns.

To address issues involving utility relocation on highway projects, AGC recommends that Congress:

- Amend 23 U.S.C. § 123 to 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, and allow federal funds to be used for the relocation;
- Encourage state DOT involvement in efforts such as the CGA to promote shared responsibilities for utility protection and adopting their recommended best practices;
- Encourage DOTs to participate in their local one-call systems or develop in-house capabilities to locate DOT-owned facilities within the ROW;
- Encourage utilities with lines located in highway ROW to participate in a preconstruction meeting with the DOT and contractor;
- 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.

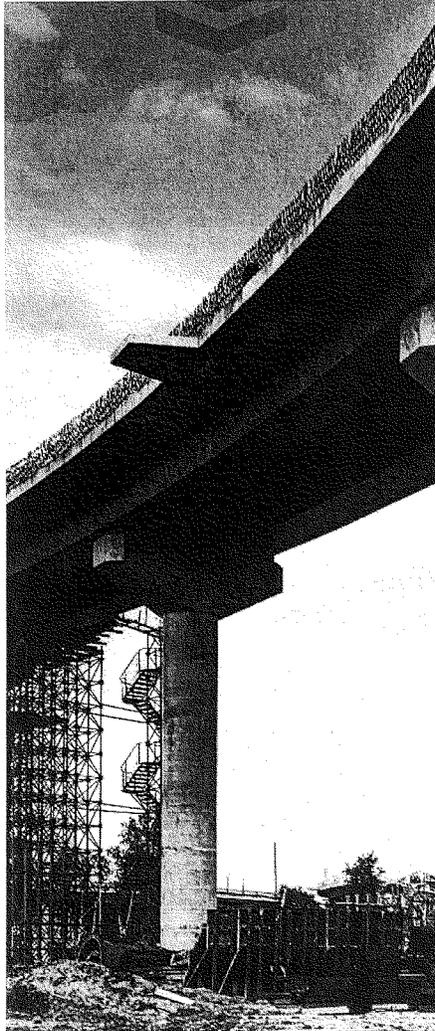
Buy America

Buy America requirements have been part of the procurement process for construction projects funded through the federal-aid highway program and the Federal Transit Administration's (FTA) grant program since the early 1980s. The Federal Highway Administration (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 the 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 rules and institutes requirements for manufactured products, regardless of the material from which they are made. As such, the manufacturing

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processes undertaken within that program must take place domestically and all components of the product must be of U.S. origin.

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.

To help ameliorate delays and costs, AGC recommends Congress consider the following to improve Buy America implementation:

- Manufactured products that consist of 90 percent or more of steel should be domestically 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 materials, including steel, and in assorted 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 one percent to one 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 decision-making by the owner and contractor;
- On the project level, Buy America requirements should be interpreted with a "common sense" approach, ensuring that the burden of compliance on contractors does not lead to the likelihood of cost increases and delays on the project;
- Buy America requirements should not apply to utility and railroad facilities relocated as part of a federal-aid highway project; and
- 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. To do so, the following recommendations may help ameliorate these issues:
 - Directing FTA to develop a standardized audit or certification program for suppliers; and
 - Directing FTA creation of a standardized template to assist suppliers in providing relevant product information and accurately calculating percentage costs, especially related to rolling stock materials.

THE ASSOCIATED GENERAL CONTRACTORS OF AMERICA

Contract Administration

The Special Experimental Project No. 14 (SEP-14) Program allows states to use experimental procurement practices with FHWA approval. As an example, New Mexico developed a prequalification scoring system under this program, about which industry has concerns.

Under SEP-14 there is no opportunity for public comment when these innovative practices are adopted, unless FHWA decides to issue a rule making based on the experimental process.

To address this issue, AGC recommends that Congress:

- Require FHWA to submit SEP-14 initiatives for public comment to help mitigate potential issues on experimental procurement processes during the test period and before final adoption.

Alternative Procurement Risk Shifting

The shifting of ever-increasing risk to contractors (herein "risk shifting") has become a significant issue for those working on projects using alternative procurement methods other than competitive bidding. These methods include design-build and Construction Manager/General Contractor (CMGC). Such alternative procurement methods are also generally used in public private partnership (P3) procurements. In alternative procurement projects, state DOTs, concessionaires and financiers have used contract documents that place all the construction related risks onto the design-build construction contractor.

MAP-21 directed USDOT to develop model contract documents to address this concern for P3 projects. However, the resulting documents are inadequate. Risk shifting unnecessarily increases the cost of construction significantly. State DOTs in their traditional construction programs understand the negative impact on costs due to risk shifting and address the concern through balanced contract documents.

To help move from a model of inordinate risk shifting onto contractors to that of reasonable risk sharing, AGC recommends that:

- Congress revisit standard P3 contract documents and direct USDOT to adopt the Canadian contract document model that has successfully delivered P3 projects there; and
- For design-build and CMGC procurements that are not part of a P3 arrangement, Congress direct FHWA to revise its alternative procurement regulations to clarify which construction risks are most appropriately allocated to the owner, designer and contractor.

Technology

The FAST Act authorized the Technology and Innovation Deployment Program (TIDP) to fund efforts to accelerate the implementation and delivery of new innovations and technologies that result from highway research and development to benefit all aspects of highway transportation. The FAST Act earmarked 18 percent of TIDP funding to accelerate the deployment and implementation of pavement technology. FHWA has been emphasizing adoption of

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e-construction (paperless project administration). Attempts have been made to earmark larger portions of these funds.

In regards to TIDP, AGC recommends that Congress:

- Allow and encourage state DOTs to use TIDP funds for incentive awards as part of the construction contract award process. This would encourage greater utilization of digital construction technology and processes with the goal of gaining productivity, safety and quality efficiencies throughout the project life cycle from pre-planning and construction through operation and maintenance;
- Allow TIDP funding to be available to state DOTs to encourage the adoption and deployment of new technologies; and
- Make eligible TIDP funds to support FHWA's "Every Day Counts" initiatives, including adoption of new technologies as part of the construction process.

Drones/Unmanned Aircraft Systems (UAS)

Contractors are making significant and growing use of drones in many construction applications, including project design, estimating, bidding, material quantity determinations, project progress reports, maintenance of traffic, safety and other uses. Current restrictions limit the full potential of this continually evolving technology. Such restrictions include where and when drones can be flown, the amount of pre-planning needed, and the inability to fly over traffic.

To address issues involving drones, AGC recommends that Congress:

- Expand flexibilities for transportation agencies to use drones in broader applications and with fewer restrictions when reasonable safety measures can be accommodated to help realize the full potential of this continually evolving technology; and
- Allow USDOT the authority to apply for project waivers—which could be delegated to construction contractors—from current restrictions to expedite drone use.

BIM Coordination

Building Information Modeling (BIM) is the use of 3D models to plan, design, maintain and manage the nation's transportation system. BIM holds great potential for cost reduction, efficiencies, safety and system monitoring. BIM models can be used for clearer visualization of what a final project will look like, how it can be constructed, where utilities are located and managing the transportation assets in the future. As the use of BIM begins to spread widely in the transportation arena, it is important to adopt a common data standard.

An August 2018 survey found that 93 percent of the 2,552 construction industry respondents would like to hire new hourly craft personnel to meet their backlog of project needs or to replace retirees, with 79 percent reporting immediate difficulties meeting their workforce needs.

When it comes to BIM integration, AGC recommends that Congress:

- Encourage FHWA to work with industry to continue efforts to create a "Model View" definition to define project information so it can be exchanged using a universal data format. The buildingSMART international (bSI) IFC data format should be the standard used. Once the standard is completed, it should be managed by an industry committee connected to and coordinated with the international standards efforts.

Construction Workforce

For the past five years, AGC has undertaken an annual workforce availability survey. An August 2018 survey found that 93 percent of the 2,552 construction industry respondents would like to hire new hourly craft personnel to meet their backlog of project needs or to replace retirees, with 79 percent reporting immediate difficulties meeting their workforce needs.

The construction workforce issue is both a development and shortage problem. The 2007-2009 recession led to a collapse of the construction market. As the market declined, workers left the industry and moved on to other industries. Attracting those workers back and finding new workers with the necessary skills and interest in construction careers are challenges the construction industry continues to address.

AGC responded to this concern with a Workforce Development Plan in 2016, advocating a skills agenda targeted at bringing new entrants into the industry, and has had success in getting many of the recommendations implemented.⁹ Many AGC Chapters have recruiting and training programs either independently or in conjunction with technical schools. In addition, AGC is working with FHWA, the American Association of State Highway and Transportation Officials (AASHTO) and the U.S. Department of Labor's Employment and Training Administration on a highway construction workforce pilot to identify, train and place individuals in highway construction jobs. The lessons learned from the pilot program are now being compiled and will soon be ready to be implemented.

⁹ AGC 2018 Workforce Survey: <https://www.agc.org/news/2018/08/29/eighty-percent-contractors-report-difficulty-finding-qualified-craft-workers-hire>. For more information on construction workforce needs, policies and programs, visit www.agc.org/workforce

To support efforts to address construction industry workforce needs, AGC recommends that Congress:

- Provide grant funding support for highway construction workforce development (HCWD) initiatives to attract, train and place workers into highway construction careers. Grants may be used for HCWD initiatives to: promote highway construction worker career opportunities; support outreach and awareness efforts; develop education and training materials; provide skill training, including life skills, rudimentary math and other basic skill training; and for related support services.

Local Hire

The use of local (geographic) hiring preferences that require contractors to hire a certain percentage of their workforce for a specific project from the geographic area where a federal-aid highway project is located have been prohibited in the federal-aid highway program since its inception. Recent efforts have been made by some in Congress to overturn these requirements.

AGC supports retaining the prohibition against local hire requirements for the following reasons:

- Local hire mandates address a symptom and do not provide a cure. Contractors want to hire locally when they have workforce needs. However, recruiting locals who have a genuine interest in a construction career and providing them needed training is a better way to accomplish this objective;
- In addition, local preferences discriminate against the fundamental rights of one group of construction workers in order to aid a separate group. Local hire requirements can force a contractor to lay off some current employees in order to hire others to meet contract mandates;
- The construction workforce is typically not temporary. When one project is completed, the workforce is moved to the next project, wherever that may be. Local hire rules interfere with the efficient staffing of projects by contractors;
- A contractor's workforce is one of the key factors in the success of the business. Therefore, contractors invest in their workforce by providing: safety and technical training; wages and benefits that ensure workers and their family's well-being; and most up-to-date equipment and technology. Local hiring mandates undermine this effort;
- Local hiring preferences have been found to be unconstitutional on numerous occasions; and
- New hires who have not received adequate training are typically less efficient and less safe, causing additional project concerns and costs.

As such, AGC recommends that Congress:

- Retain the prohibition against local hire mandates; and
- Provide support for highway construction workforce development initiatives to attract, train and place workers into highway construction careers.

Training and Certification Requirements

Past efforts have been undertaken to create a new federal mandate for worker training and certification of contractors undertaking bridge projects that include coating and corrosion control activities and receive federal funding. These activities are already regulated by federal and state laws and regulations that govern safe application, removal and disposal.

Construction contractors, states and local governments are actively engaged in advancing the safety and longevity of bridges. Most states already have certification programs in place for the activities proposed to be federally regulated by this mandate. The provision undermines efforts to provide states with the greatest amount of flexibility in addressing their own transportation programs.

Consequently, AGC recommends that Congress refrain from including such a provision in reauthorization legislation.

Hours of Service

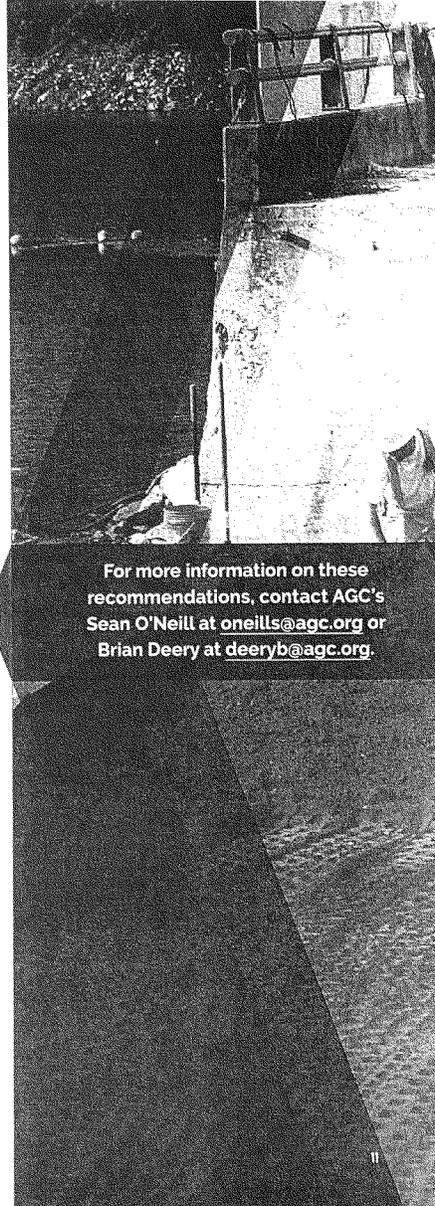
The original intent of the Federal Motor Carrier Safety Administration's (FMCSA) hours of service (HOS) regulations was to prevent accidents caused by driver fatigue by limiting driving time and on-duty time of long-haul drivers. Because FMCSA has generally applied a "one-size-fits-all" approach for HOS rules to all commercial motor vehicle (CMV) drivers, the rules unnecessarily include short-haul drivers transporting construction materials and equipment to active construction sites—even though they are not long-haul drivers.

Congress and FMCSA have acknowledged this concern by providing a variety of exemptions from the rules for various elements of the construction industry. This approach has provided only limited relief and makes the rules more confusing and difficult to administer and comply with.

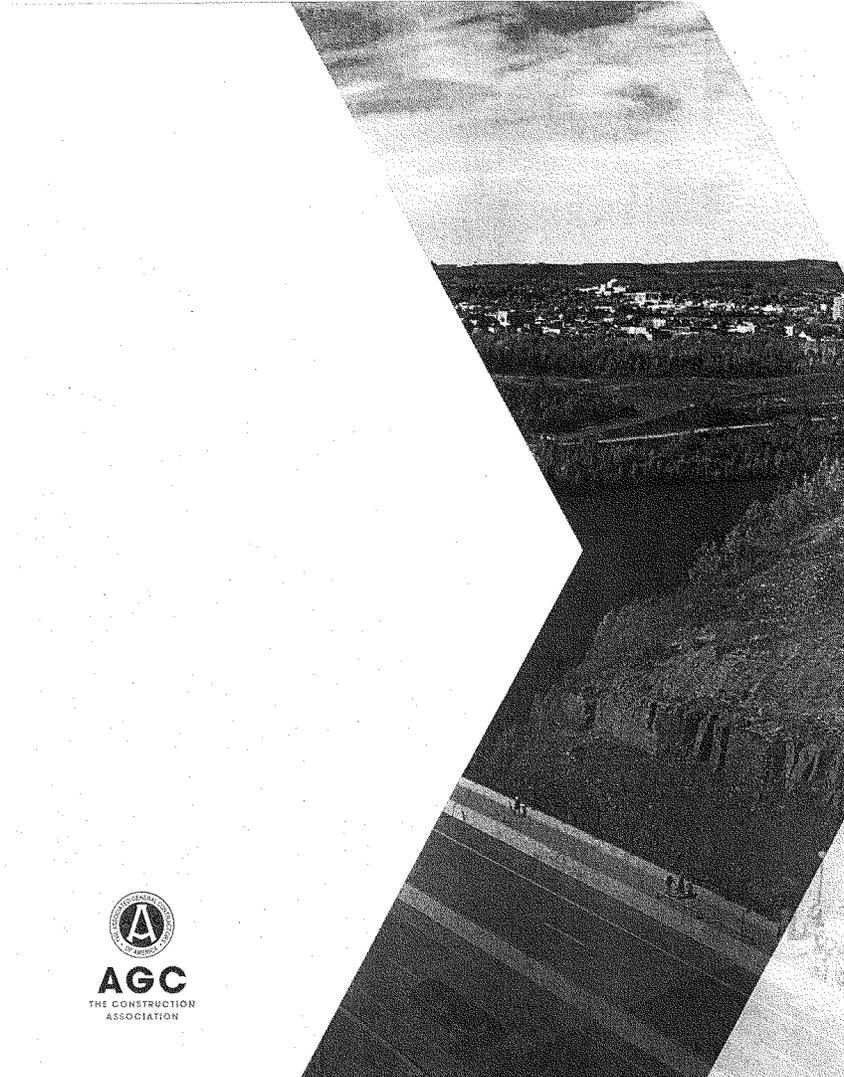
To help address these matters, AGC recommends that Congress:

- Encourage FMCSA to update the HOS rules to ensure safety and promote efficiency; and
- Enact a broad exemption for construction drivers to address these industry specific concerns and to eliminate the confusion created with the various limited exemptions. A construction industry exemption is the best way to eliminate the rule's negative impact on the completion of infrastructure improvements in a safe, expeditious and cost saving fashion. Congress and FMCSA have provided a limited general construction industry exemption for construction drivers who operate in a 75-mile radius, and for drivers delivering ready mix concrete and asphalt paving and related materials and equipment. There are a wide variety of additional construction trucks and truck operations that should also be included.

AGC RECOMMENDATIONS



For more information on these recommendations, contact AGC's Sean O'Neill at oneills@agc.org or Brian Deery at deeryb@agc.org.



Senator BARRASSO. Thanks so much for your testimony.
Ms. WICKS.

STATEMENT OF CAROLANN WICKS, P.E., SENIOR POLICY FELLOW, UNIVERSITY OF DELAWARE, SCHOOL OF PUBLIC POLICY AND ADMINISTRATION

Ms. WICKS. Good morning, Chairman Barrasso, Ranking Member Carper, and members of the committee. Thank you for inviting me here today to give you my perspective on the importance of reauthorizing the surface transportation legislation.

As a previous cabinet secretary for the Delaware Department of Transportation and now as a senior policy fellow at the University of Delaware, I hope my testimony today will be a helpful addition to your deliberations on this critical legislative issue.

I believe the FAST Act provided many positive policy and funding changes that have served us well in delivering needed infrastructure improvements, such as a greater focus on pedestrian and bicycle facilities and safety, funding freight-related highway improvements, streamlining the environmental review process, and increasing funding for public transportation. It is the momentum from this legislation that we need to build on to solve the many transportation challenges remaining.

These challenges are well documented by the American Society of Civil Engineers infrastructure report card. Unfortunately, we have all become too familiar with our infrastructure receiving a D plus based upon ASCE's evaluation of capacity, condition, and funding. The D plus grade means our Country's infrastructure remains in poor condition, mostly below standard, at high risk of failure, and inadequately funded.

This illustrates the significant backlog of projects needed to address operational problems as well as capacity improvements to meet current and future demands. This backlog of projects also contributes to the significant number of highway, pedestrian and bicycle fatalities and serious injuries we experience each year.

With limited resources, maintaining and rehabilitating existing infrastructure, optimizing the efficiency of the system, and addressing safety issues remains a primary focus of the DOTs. However, climate change has added a new external impact to the transportation system that requires new strategies and technologies to improve our resiliency. A long-term, comprehensive approach is needed to anticipate future impacts to transportation infrastructure and create funding plans that will help mitigate these impacts.

It is also an opportunity to implement policies and focus capital investments on reducing greenhouse gas emissions that contribute to climate change. As an example, DelDOT has embraced these challenges by developing a Strategic Implementation Plan for Climate Change, Sustainability and Resilience. This plan recognizes the need for greater resiliency due to the vulnerability of the State's infrastructure to withstand and recover from weather related incidents.

Transportation is at the heart of a strong economy. Having a reliable multi-modal transportation network is the foundation of economic prosperity and a quality of life we have come to expect. The quality of this network will also influence a State's ability to retain

and attract companies, as well as the work force needed to support these jobs. Businesses need to rely on the commitments made by governments to deliver the needed infrastructure that will not only support the needs of the broader public, but will help determine a company's level of investment into a community. Federal, State and local governments need to work collaboratively on all regulatory processes to be efficient, time sensitive, and deliver high quality improvements that support the environment while addressing safety and capacity issues.

Adopting a partnership mentality between the public and private sectors is also important to funding and delivering improvements. This approach has been the basis for Delaware's successful redevelopment of the Wilmington Riverfront. The transportation improvements became the key to attracting new businesses. What once was a highly contaminated industrial area has turned into a thriving employment and entertainment destination, with new high-density residential areas that are supported by the Joseph R. Biden Railroad Station on Amtrak's northeast corridor.

Investments in wetland preservation and bicycle and pedestrian facilities were integrated into the master plan and are key elements of why this area has become an attractive place to live, work and play. A critical component of this redevelopment initiative was the Federal funding that enabled DelDOT to build new interState connections to support access into the area. These were large financial investments but necessary to provide sufficient roadway capacity. Committing to these improvements and the other infrastructure elements not only brought jobs to the riverfront, but has created the momentum for other redevelopment projects in downtown Wilmington.

Our transportation investments support the welfare and safety of the traveling public, provide healthy lifestyle transportation choices of walking and biking, reduce our greenhouse gas emissions through more public transit services, and are key to our economic prosperity. The timely reauthorization of the surface transportation legislation is critical to addressing our current infrastructure gaps and our future investment needs.

Thank you for your time and I look forward to your questions.
[The prepared statement of Ms. Wicks follows:]

Testimony of Carolann Wicks, P.E.

Senior Policy Fellow, University of Delaware, School of Public Policy & Administration

Senate Committee on Environment and Public Works

Surface Transportation Reauthorization Legislation

July 10, 2019

Good morning Chairman Barrasso, Ranking Member Carper and Members of the Committee. Thank you for inviting me here today to give you my perspective on the importance of reauthorizing the surface transportation legislation. As a previous Cabinet Secretary for the Delaware Department of Transportation and now as a Senior Policy Fellow at the University of Delaware, I hope my testimony today will be a helpful addition to your deliberations on this critical legislative issue.

I believe the Fixing America's Surface Transportation Act (Fast Act) provided many positive policy and funding changes that have served us well in delivering needed infrastructure improvements such as a greater focus on pedestrian and bicycling facilities, funding freight related highway improvements, streamlining the environmental review process and increasing funding for public transportation. It is the momentum from this legislation that we need to build upon to solve the many transportation challenges remaining.

These challenges are well documented by the American Society of Civil Engineers (ASCE) Infrastructure Report Card. Unfortunately, we have become all too familiar with our infrastructure receiving a D+ based upon ASCE's evaluation of capacity, condition, and funding. The D+ grade means our country's infrastructure remains in poor condition, mostly below standard, at high risk of failure and inadequately funded. This illustrates the significant backlog of projects needed to address operational problems as

well as capacity improvements to meet current and future demands. This backlog of projects also contributes to the significant number of highway, pedestrian and bicycle fatalities and serious injuries we experience each year. Operational, safety, maintenance and capacity deficiencies all contribute to this national growing trend. As engineers, scientists, planners, and environmentalists we know how to solve many of our most challenging transportation problems, but we need the federal funding to support those efforts.

Sustainability and Resilience for Transportation

It is the challenge of all DOT's to prioritize limited resources to address the various needs of each state's transportation system. Maintaining and rehabilitating the existing infrastructure, optimizing the efficiency of the system and addressing safety issues remains a primary focus. However, climate change has added a new external impact to the transportation system that requires new strategies and technologies to improve our resiliency to these changes. A long-term, comprehensive approach is needed to anticipate future impacts to transportation infrastructure and create funding plans that will help mitigate these impacts. It is also an opportunity to implement policies and focus capital investments on reducing greenhouse gas emissions that contribute to climate change. As an example, DelDOT has embraced these challenges by developing a Strategic Implementation Plan for Climate Change, Sustainability and Resilience. This plan recognizes the need for greater resiliency due to the vulnerability of the state's infrastructure to withstand and recover from weather related incidents. This vulnerability will impact the State's ability to provide critical transportation services in a timely manner. The future of Delaware's transportation program must also include strategies to make the system more sustainable, ensuring investments are made that support a balance between economic, social and environmental concerns. For example, researching new pavement materials that will better withstand flooding, extend pavement life and expedite maintenance practices are part of this strategic plan.

Pursuing ways to improve stormwater management techniques that protect the community and the natural environment are cited as other examples to improve the sustainability of the transportation system.

In addition to prioritizing alternative modes of travel, their strategy to reduce greenhouse gas emissions will also include alternative energy technologies and low-emission vehicle deployment. This integrated program to address the challenges of climate change are critical to states like Delaware but require additional sources and predictable levels of funding to implement successfully.

Economic Impacts

Transportation is at the heart of a strong economy. Having a reliable multi-modal transportation network is the foundation of economic prosperity and a quality of life we have come to expect. Our welfare and public health are dependent upon accessible transportation options and the timely delivery of emergency services. The quality of this network will also influence a state's ability to retain and attract companies as well as the workforce needed to support these jobs.

Businesses need to rely on the commitments made by government to deliver the needed infrastructure that will not only support the needs of the broader public but will help determine a company's level of investment into a community. Federal, state and local governments need to work collaboratively on all regulatory processes to be efficient, time sensitive and deliver high quality improvements that support the environment while addressing safety and capacity issues. Adopting a partnership mentality between the public and private sectors is also important to funding and delivering improvements.

This approach has been the basis for Delaware's successful redevelopment of the Wilmington Riverfront. The transportation improvements became the key to attracting new businesses. What once was a highly contaminated industrial area has turned into a thriving employment and entertainment destination with new high-density residential areas that are supported by the Joseph R. Biden Railroad

Station on Amtrak's northeast corridor. Investments in wetland preservation became an opportunity for educational experiences and appreciation of our valuable wildlife habitat. Bicycle and pedestrian facilities were integrated into the master plan and are key elements of why this area has become an attractive place to live, work and play.

A critical component of this redevelopment initiative was the federal funding that enabled DelDOT to build new interstate connections to support access into the area. These were large financial investments but necessary to provide sufficient roadway capacity. Committing to these improvements and the other infrastructure elements not only brought jobs to the riverfront but has created the momentum for other redevelopment projects in downtown Wilmington.

Technology and the Future of Transportation

Another benefit of the FAST Act is the availability of grants that encourage implementation of advanced transportation technologies. These grants through FHWA's Highway Research and Development program enabled DelDOT and other states to analyze the benefits of using technology to improve safety and operational performance of the highway system. For example, DelDOT will be expanding its current use of connected traffic signals to enable their traffic management system to better anticipate and respond to unexpected areas of congestion and slowdowns. Their goal is to have real-time data that will improve the management of the system automatically thereby maximizing the operational efficiency of the highway network. Performance improvements of the existing system are critical given the challenges of building new capacity.

Supporting multi-state initiatives such as the I95 Corridor Coalition's Mileage Based User Fee (MBUF) project is a great example of how federal highway funding can help lead us into the future to find a more reliable user fee than the current gas tax. It is unlikely that the gas tax will ever provide adequate funding for the level of transportation investments our country needs given the advancement of electric

vehicle technology, more fuel-efficient gas-powered vehicles and the public's resistance to increasing the gas tax. Exploring the logistical, technical and public policy issues associated with implementing a multi-state MBUF is a forward-thinking initiative. It may also be the answer to funding our growing infrastructure needs more equitably among the users of the highway system.

Conclusion

Our transportation investments support the welfare and safety of the traveling public, provide healthy lifestyle transportation choices of walking and biking, reduce our greenhouse gas emissions through more public transit services and are key to our economic prosperity. The timely reauthorization of the surface transportation legislation is critical to addressing our current infrastructure gaps and our future investment needs.

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

Senator BARRASSO. Thank you so much for your testimony.
Ms. Arroyo.

**STATEMENT OF VICKI ARROYO, EXECUTIVE DIRECTOR,
GEORGETOWN CLIMATE CENTER**

Ms. ARROYO. Good morning. Good morning and thank you, Chairman Barrasso, Ranking Member Carper and committee members. I am Vicki Arroyo, Executive Director of the Georgetown Climate Center and Professor from Practice at Georgetown Law. I also chair the Executive Committee of the Transportation Research Board, and recently chaired the TRB Resilience and Sustainability Task Force, and served on the study of the future of the interState highway system. While I am proud of these affiliations, my comments today are my own.

Since my initial introduction to global climate change as a staffer to Governor Buddy Roemer of Louisiana, my home State, on an NGA task force 30 years ago, the science underlying our understanding of the causes and impacts of climate change has only become more definitive. As our Federal agencies and academies of sciences have determined, multiple lines of evidence indicate that our atmosphere is warming, sea levels are rising, the magnitude and frequency of extreme weather events are increasing, and human activity is the primary driver. The world must rapidly decarbonize, cutting greenhouse gas emissions in half by 2030, and to near zero by 2050.

Despite this, U.S. emissions increased in 2018. The transportation sector is the largest sector and itself is facing impacts from climate change.

There is an urgent need to transition to a low-carbon and more resilient transportation system that would bring additional benefits, including protecting public health by reducing air pollution, providing more mobility options, and driving innovation and economic growth from policy and through public and private investment. U.S. States are seizing the opportunity to transition to a low-carbon transportation solution.

For example, the northeast and mid-Atlantic States launched the Transportation and Climate Initiative, or TCI, in Delaware, 10 years ago, to develop the clean energy economy, improve transportation and reduce emissions. This collaboration of energy, environment, and transportation agencies from 12 States, it is bipartisan, and D.C., is facilitated by our center, but very much led by the States that we serve. TCI States have been working together to design a regional policy that accelerate this low-carbon transition.

Congress has an opportunity to expand on such initiatives, fund innovative programs that expand access to transportation, and support new technologies that offer promise for emissions reduction and economic growth. In the TCI process, diverse stakeholders have offered strategies, including pricing carbon and investing in solutions, such as electrification of transportation, smart growth and transit-oriented development, and improving ports and other freight facilities where communities often face higher levels of pollution. The future of the interState highway system study encouraged consideration of our transportation system as a whole, recog-

nizing the importance of providing alternatives, including support for complete streets and transit to address congestion.

Our highway system connects communities and supports commerce. Federal leadership is needed to shift to low-carbon and more resilient transportation. Reauthorization provides an opportunity to remove barriers to innovative technology deployment, such as barriers to solar power installations and EV charging along highways. Electric cars, like my Chevy Bolt, are more efficient and reduce pollution, even when considering power plant emissions. As the grid shifts to cleaner electricity, they will emit less over time. A robust network of highway corridor fast charging will grow the market for EVs.

The FAST Act encouraged and instructed FHWA to designate alternative fuel corridors but did not provide the funding needed to drive investments in charging stations. This important Federal funding can be strategically invested to maximize impact, including by leveraging existing State and regional partnerships and planning, and provide technical resources to identify gaps in EV charging infrastructure. To allow for innovation and avoid stranding assets, Federal investments could require that charging stations funded by Federal grants be interoperable. Federal investments can be targeted in rural and remote corridor locations underserved by the private market, growing the EV market while spurring economic development.

Decarbonizing trucks and buses is also important. The Federal Government can play a role in enabling deployment of battery electric and hydrogen fuel cell vehicles.

There is also a need to ensure our transportation system can withstand climate change impacts. This year, we have seen a record number of flood disasters, as we have heard from Senator Carper, in Iowa, North Dakota, Oklahoma, Arkansas, Vermont, South Dakota, and even the historic flash flood that just happened here in D.C. Coastal villages in Alaska are losing sea ice and are vulnerable to storms that are causing erosion, leaving communities to face difficult decisions about relocation. Coastal States like Maryland and Delaware are seeing nuisance flooding that is happening on even sunny days.

Federal hazard mitigation grants save \$6 for every \$1 spent, yet many States and cities are struggling to prepare and need more Federal support. Congress should ensure that Federal infrastructure investments are built to withstand flooding, increased heat, and other climate impacts. Recipients of Federal funding should consider how climate change will affect infrastructure and assets in the future.

Our transportation resilience case studies featured in our adaptation clearinghouse highlight State and local efforts, including New York's Community Risk and Resiliency Act and Maryland's Coast Smart program.

In summary, States and communities need tools and technical assistance, and should have incentives to plan and modify codes and standards ahead of disasters to facilitate resilient rebuilding when funds are available. Beyond infrastructure, Federal funding should also support operational improvements, including strategies to help people evacuate safely.

Thank you.
[The prepared statement of Ms. Arroyo follows:]

GEORGETOWN CLIMATE CENTER
A Leading Resource for State and Federal Policy

Written Statement of Vicki Arroyo
Executive Director, Georgetown Climate Center
Professor from Practice, Georgetown Law
Before the U.S. Senate Committee on Environment and Public Works
July 10, 2019

Good morning, Chairman Barrasso, Ranking Member Carper, and members of the Committee. Thank you for inviting me today to discuss the upcoming federal transportation reauthorization bill and opportunities to address the critical threat of climate change.

I'm Vicki Arroyo and I serve as Executive Director of Georgetown Climate Center, which is based at Georgetown University Law Center. I am also a member of the full-time faculty, serving as a Professor from Practice and as Assistant Dean for Centers and Institutes.

The nonpartisan Georgetown Climate Center was established over ten years ago to serve as a resource to states on issues relating to climate change policy and to inform the federal dialogue with the lessons of the states.¹ We work with state and city officials on a bipartisan basis to support their transitions to cleaner energy sources in major sectors, including the power sector and transportation, and to prepare for the impacts of a changing climate.

I am also currently Chair of the Executive Committee of the Transportation Research Board of the National Academy of Sciences,² and recently chaired TRB's Task Force on Resilience and Sustainability, which made recommendations regarding how TRB might incorporate considerations of a changing climate and the role of transportation – and impacts to transportation infrastructure – into its important work, and served on national studies regarding the future of the interstate highway system, reducing greenhouse gas emissions from transportation, and improving the resilience of the transportation sector.

While I am proud of these roles and affiliations, my comments today are my own.

I am here as someone who has worked on climate change for decades and who requests you incorporate climate change considerations in the transportation reauthorization bill. Since my initial introduction to global climate change as a staffer representing Governor Buddy Roemer

¹ *About Us*, GEORGETOWN CLIMATE CENTER, <https://www.georgetownclimate.org/about-us/index.html> (last visited Feb. 19, 2019).

² *TRB Executive Committee*, NATIONAL ACADEMIES OF SCIENCES, ENGINEERING, MEDICINE (2019), <http://www.trb.org/CommitteeandPanels/ExecutiveCommitteeOverview.aspx>.

of Louisiana on a National Governors' Task Force thirty years ago,³ the science underlying our understanding of the causes and impacts of climate change has only become more clear, and our need for action more urgent.

The Fourth National Climate Assessment, released in November 2018, described the serious impacts of climate change already being felt throughout the U.S., and made clear that the risks to communities all across the country are growing rapidly.⁴

These findings, along with those in the 2018 Intergovernmental Panel on Climate Change (IPCC) report should serve as an immediate call to action. Even if we manage to limit planetary warming to just 2 degrees Celsius, the world will still face increased chances of economic and social upheaval from more severe flooding, droughts, heatwaves, and other climate impacts as well as devastating environmental consequences, the IPCC report warns.⁵

The consensus from leading scientific research academies within the United States and internationally is clear: multiple lines of evidence indicate, and have indicated for years, that our atmosphere is warming, sea levels are rising, the magnitude and frequency of certain extreme weather events is increasing, and that human activity is the primary driver of climate change.⁶ As described in the IPCC Special Report, the consensus is that countries around the

³ See, 1990 NGA Annual Meeting report at <https://classic.nga.org/cms/home/about/nga-annual--winter-meetings/page-nga-annual-meetings/col1-content/main-content-list/1990-nga-annual-meeting.html> and policy recommendation "urging that the U.S. join in the international agreement to protect the earth's atmosphere, that U.S. emissions of carbon dioxide be stabilized, that production and recycling of CFCs [chlorofluorocarbons] be stopped, that alternative energy systems be developed and commercialized, that forestry programs be promoted, that planning efforts begin for adapting to a changing climate, and that more aggressive research be conducted to determine what more states could do to control global climate change..."

⁴ *Climate Assessment, Volume II: Impacts, Risks, and Adaptation in the United States—Summary Findings*, NATIONAL CLIMATE ASSESSMENT (2018), <https://nca2018.globalchange.gov/>

⁵ *Global Warming of 1.5 °C*, IPCC (2018), <https://www.ipcc.ch/sr15/>.

⁶ NATIONAL ACADEMIES OF SCIENCE, ENGINEERING, AND MEDICINE, *National Academies Presidents Affirm the Scientific Evidence of Climate Change* (June 18, 2019), <http://www8.nationalacademies.org/onpinews/newsitem.aspx?RecordID=06182019>; ACADEMIA BRASILEIRA DE CIÊNCIAS (Brazil), ROYAL SOCIETY OF CANADA (Canada), CHINESE ACADEMY OF SCIENCES (China); ACADÉMIE DES SCIENCES (France), DEUTSCHE AKADEMIE DER NATURFORSCHER LEOPOLDINA (Germany), INDIAN NATIONAL SCIENCE ACADEMY (India), ACCADEMIA NAZIONALE DEI LINCEI (Italy), SCIENCE COUNCIL OF JAPAN (Japan), RUSSIAN ACADEMY OF SCIENCES (Russia), ROYAL SOCIETY (United Kingdom), NATIONAL ACADEMY OF SCIENCES (USA), *Joint science academies' statement: Global response to climate change* (2005), available at <http://nationalacademies.org/onpi/06072005.pdf>; ACADEMIA BRASILEIRA DE CIÊNCIAS (Brazil), ROYAL SOCIETY OF CANADA (Canada), CHINESE ACADEMY OF SCIENCES (China); ACADÉMIE DES SCIENCES (France), DEUTSCHE AKADEMIE DER NATURFORSCHER LEOPOLDINA (Germany), INDIAN NATIONAL SCIENCE ACADEMY (India), ACCADEMIA NAZIONALE DEI LINCEI (Italy), SCIENCE COUNCIL OF JAPAN (Japan), ACADEMIA MEXICANA DE CIENCIAS (Mexico), RUSSIAN ACADEMY OF SCIENCES (Russia), ACADEMY OF SCIENCE OF SOUTH AFRICA (South Africa), ROYAL SOCIETY (United Kingdom), NATIONAL ACADEMY OF SCIENCES (USA), *Joint science academies' statement: Climate Change Adaptation and the Transition to a Low Carbon Society* (2008), available at https://sites.nationalacademies.org/cs/groups/international/documents/webpage/international_080858.pdf.

world must rapidly decarbonize their economies, cutting greenhouse gas emissions in half by 2030 and to near zero by 2050.⁷ The U.S. Department of Defense, and leaders within the defense and national security communities, have also recognized climate change as a “national security issue” that requires adapting military operations and planning to ensure readiness.⁸

Despite our understanding of the consequences we will face and the urgency to act, U.S. GHG emissions from fossil fuel combustion *increased* by 2.7 percent in 2018, according the Rhodium Group.⁹ Clearly more action is needed.

While we all recognize the importance of transportation in our daily lives and for our economy, it is also important to recognize that the transportation sector is the largest contributor of GHG emissions in the United States,¹⁰ and is already facing significant impacts from climate change.

There is an urgent need, therefore, to transition to a low-carbon and more resilient transportation system. Such a transition would not only reduce emissions and fight climate change, it also would bring additional important benefits, including protecting public health by reducing conventional air pollution, providing more mobility options, and driving innovation and economic growth through policy action and through public and private investment.

Transportation and Climate Initiative

Across the United States and on a bipartisan basis, states are seizing the opportunity to invest in low-carbon transportation solutions to reduce carbon pollution, improve air quality, and stimulate economic growth.

The Northeast and Mid-Atlantic States launched the Transportation and Climate Initiative (“TCI”) in 2010 to work as a region to develop the clean energy economy, improve transportation, and reduce carbon emissions in the transportation sector. This collaboration of energy, environment, and transportation agencies from twelve states and the District of Columbia is facilitated by our Georgetown Climate Center.

⁷ *Id.*; *Climate Assessment, Volume II, supra* note 4.

⁸⁸ See *Report on Effects of a Changing Climate to the Department of Defense*, U.S. DEPARTMENT OF DEFENSE (January 2019), https://media.defense.gov/2019/Jan/29/2002084200/-1/-1/1/CLIMATE_CHANGE_REPORT_2019.PDF; DoD Directive 4715.21: Climate Change Adaptation and Resilience, U.S. DEPARTMENT OF DEFENSE (January 14, 2016), <https://dod.defense.gov/Portals/1/Documents/pubs/471521p.pdf>; UPDATE: Chronology of U.S. Military Statements and Actions on Climate Change and Security: 2017-2019, THE CENTER FOR CLIMATE AND SECURITY, <https://climateandsecurity.org/2019/02/16/update-chronology-of-u-s-military-statements-and-actions-on-climate-change-and-security-2017-2019/>.

⁹ *Final US Emissions Estimates for 2018*, RHODIUM GROUP (May 30, 2019), <https://rhg.com/research/final-us-emissions-estimates-for-2018/>

¹⁰ *Sources of Greenhouse Gas Emissions*, EPA, <https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions> (last visited Feb. 19, 2019).

The states have collaborated through TCI over the years on projects including eliminating barriers to the use of cleaner transportation fuels and technologies; sharing best practices in promoting smart growth; and understanding freight flows into and through the region to consider ways to enhance efficiency and reduce congestion and air pollution.

Since 2012, TCI jurisdictions have explored potential regional policy solutions with analysis that demonstrated the economic benefits of moving to cleaner transportation alternatives. In 2015, the TCI jurisdictions announced plans¹¹ to work together on potential market-based policies and in 2017¹² began to conduct extensive public outreach, which included six regional listening sessions in 2018 that engaged diverse stakeholders—including from businesses, local governments, community groups, and NGOs,¹³ along with extensive outreach by many states.¹⁴

Those efforts led to a landmark announcement on December 18th, 2018, by nine states plus DC to work together on a bipartisan basis to design a regional low-carbon transportation policy proposal. The proposed plan would cap and reduce carbon emissions from the combustion of transportation fuels and allow each TCI jurisdiction to invest the proceeds in low-carbon and more resilient transportation infrastructure.¹⁵

For the past six months, the states participating in TCI have been diligently working to design a policy that will accelerate the transition to a low-carbon transportation future and deliver a better, more resilient transportation system that benefits all our communities, particularly those underserved by current transportation options and disproportionately burdened by pollution.

This policy design process has included extensive engagement with stakeholders and communities through regional workshops to discuss program design options and opportunities to advance equitable outcomes for communities in the region. In addition, TCI states have conducted individual outreach to diverse stakeholders. In addition to this public engagement, TCI states are conducting modeling and analysis to inform policy design so that the proposed

¹¹ *Five Northeast States and DC Announce They Will Work Together to Develop Potential Market-Based Policies to Cut Carbon Emissions from Transportation*, TRANSPORTATION & CLIMATE INITIATIVE (Nov. 24, 2015), <https://www.transportationandclimate.org/main-menu/five-northeast-states-and-dc-announce-they-will-work-together-develop-potential-market>.

¹² *Northeast and Mid-Atlantic States Seek Public Input As They Move Toward a Cleaner Transportation Future*, TRANSPORTATION & CLIMATE INITIATIVE (Nov. 13, 2017), <https://www.transportationandclimate.org/northeast-and-mid-atlantic-states-seek-public-input-they-move-toward-cleaner-transportation-future>.

¹³ *Listening Session Summary Report*, TRANSPORTATION & CLIMATE INITIATIVE (Nov. 13, 2018), <https://www.transportationandclimate.org/tci-news-and-updates>.

¹⁴ Massachusetts, New York, and Rhode Island held state listening sessions.

¹⁵ *Nine States and D.C. to Design Regional Approach to Cap Greenhouse Gas Pollution from Transportation*, TRANSPORTATION & CLIMATE INITIATIVE (Dec. 18, 2018), <https://www.transportationandclimate.org/nine-states-and-dc-design-regional-approach-cap-greenhouse-gas-pollution-transportation>.

policy will reduce GHG emissions from transportation while improving transportation systems and creating economic and public health benefits in the region.

Recently, a diverse coalition of business, environmental, and taxpayer groups in Massachusetts came together to support the opportunity presented by the Transportation and Climate Initiative. The Massachusetts Business Roundtable, the Associated Industries of Massachusetts, the Environmental League of Massachusetts, Ceres, and the Massachusetts Taxpayers Foundation sent a letter to Massachusetts Governor Baker commending his leadership on TCI and recognizing the unique opportunity for the TCI regional policy to meet the goals of reducing GHG emissions, alleviating congestion, and generating proceeds for investments in transit.

We believe that the TCI effort could provide significant benefits to the region and are proud to support the bipartisan group of states undertaking this important initiative, yet we—and the states we serve—realize that federal action and support are vital. Threatened rollbacks of federal policies, including vehicle air pollution and fuel economy standards make this work even more important and more challenging.

Opportunities for Federal Leadership on Climate Change and Transportation

The states working through the Transportation and Climate Initiative have recognized the opportunity to modernize our transportation system while reducing air pollution and greenhouse gas emissions. While this state leadership is critically important, the federal government has an indispensable role in solving these challenges.

In the listening sessions we have held with the TCI states, businesses and community members across the region shared the challenges they face with the transportation system: congestion that is diminishing the efficiency of our economy; severe air pollution affecting those with asthma and other serious health problems—impacts that are often concentrated in communities of color and low-income communities; lack of access to transportation services, both for citizens in urban areas without access to transit, as well as in rural communities where lack of access to basic services like healthcare and jobs is harming wellbeing; and finally, the greenhouse gas emissions from burning fossil fuels that will cause billions of dollars in economic damage and loss of life in more severe storms and fires.

In the upcoming transportation reauthorization, Congress has an opportunity to address these problems by expanding on initiatives underway in the states, funding innovative programs that expand access to transportation, and supporting new technologies that offer great promise for emissions reduction and economic growth. When asked what investments were needed to bring about a more reliable, affordable, fair, safe and clean transportation system, diverse stakeholders who participated in the TCI listening sessions offered many strategies, including, electrification of transportation, smart growth and transit-oriented development, supporting

other alternative fuels, improving ports and other freight facilities, and multi-modal investments to provide greater transportation alternatives.

Similarly, the recent future of the Interstate Highway System study encouraged consideration of our “transportation system” as a whole, recognizing the importance of providing alternative options including support for “complete streets” and transit to address the congestion of the interstate system, especially in urban and suburban areas.¹⁶ The report committee heard about the lack of investment in our system and the need to invest in maintaining it to meet current and future demands, including the challenges of a changing climate that I discuss later in this testimony. These investments will require a strong federal partnership.

Investments to Modernize and Decarbonize Our Transportation System

“Fix-it-First” Investment and Transportation System Management

Transportation infrastructure in the United States requires significant investment to achieve a state of good repair (in the American Society of Civil Engineers 2017 Infrastructure ‘Report Card’, our on-road transportation system received a ‘D’ grade). However, some studies show that significant federal and state funding is going to road expansion rather than maintaining and improving our existing system.¹⁷ The Committee has an opportunity to reevaluate ways in which federal transportation funding can prioritize fixing and maintaining our existing network.

While congestion is a major challenge, analyses have found that road capacity expansion projects will induce additional vehicle demand and have a limited impact on congestion, while increasing greenhouse gas emissions (a recent example in California showed that pre-existing levels of service and congestion returned five years after completion of a \$1.1 billion road widening investment¹⁸).¹⁹ The future of the Interstate Highway System study recognized that highway congestion mitigation, particularly in fast-growing urban and suburban areas, could be pursued through a combination of measures, including managing demand through road and

¹⁶ National Academies of Sciences, Engineering, and Medicine 2019. Renewing the National Commitment to the Interstate Highway System: A Foundation for the Future, 61-63. Washington, DC: The National Academies Press. <https://doi.org/10.17226/25334>.

¹⁷ Smart Growth America’s 2014 Repair Priorities report shows nearly equal investment between road maintenance and new road construction in the United States from 2009 to 2014. This report uses data from the Federal Highway Administration Highway Statistics Series: <https://www.fhwa.dot.gov/policyinformation/statistics.cfm>.

¹⁸ Eric Sundquist, State Smart Transportation Initiative, “Yet more evidence: ‘If you build it they will drive’” (May 2019), <https://www.ssti.us/2019/05/yet-more-evidence-if-you-build-it-they-will-drive/>

¹⁹ Susan Handy, University of California, Davis, and Marlon G. Boarnet, University of Southern California, “Impact of Highway Capacity and Induced Travel on Passenger Vehicle Use and Greenhouse Gas Emissions,” Policy Brief for California Air Resources Board (September 2014), https://ww3.arb.ca.gov/cc/sb375/policies/hwycapacity/highway_capacity_brief.pdf

congestion pricing, high-occupancy vehicle lanes, parallel transit services, and other transportation system management strategies.²⁰

“Complete Streets” with Bicycle and Pedestrian Transportation

The proportion of traffic fatalities involving pedestrians and bicyclists is increasing in the United States.²¹ These forms of active transportation provide significant societal benefits by reducing congestion and air pollution and limiting wear and tear on our roadways. Better street design, including developing “complete streets” that allow for safe and efficient movement of pedestrians and bicyclists in addition to vehicles, can provide significant safety benefits as well as emission reductions. Federal funding programs, including the Capital Investment Grant program, the Transportation Alternatives Program, and the Surface Transportation Block Grant, provide critical support to state, local, and regional governments to enable investments in bicycle and pedestrian transportation infrastructure.

Port Electrification

The United States’ port facilities are a critical part of our national transportation system and are vital to a strong economy. For example, the Port of New York and New Jersey handled nearly \$200 billion in cargo containers in 2017.²² However, these port facilities are often some of the worst sources of air pollution, particularly for communities located near the ports and major transportation corridors. Port authorities across the country are taking steps to reduce emissions through deploying alternative fuels and new technologies, including electrification of port facilities. For example, in the neighborhoods surrounding the Port of Long Beach and the Port of Los Angeles, port-related diesel particulate emissions decreased by 87 percent from 2005 to 2017, due to state and local regulations and the port authorities’ Clean Air Action Plan investments.²³ However, the communities near these ports still suffer higher rates of childhood asthma and exposure to cancer-causing pollution, and more action is needed.²⁴ Federal funding for scaling up pilots and investing in new technology will be critical to accelerating the deployment of zero- and near-zero emission technologies, including for drayage truck and cargo handling equipment.²⁵

²⁰ Renewing the National Commitment to the Interstate Highway System: A Foundation for the Future, 61-66.

²¹ U.S. National Highway Traffic Safety Administration, 2017 Fatal Motor Vehicle Crashes: Overview (October 2018), <https://crashstats.nhtsa.dot.gov/Api/Public/ViewPublication/812603>

²² Port of New York and New Jersey, About Port of New York and New Jersey, <http://www.panynj.gov/port/about-port.html>

²³ San Pedro Bay Ports, Clean Air Action Plan 2017 (November 2017), <http://www.cleanairactionplan.org/documents/final-2017-clean-air-action-plan-update.pdf/>

²⁴ San Pedro Bay Ports, Clean Air Action Plan 2017.

²⁵ See, e.g., Port of Long Beach, Officials Launch Zero-Emissions Port Project, <http://www.polb.com/news/displaynews.asp?NewsID=1716>

Public Transportation and Transit Oriented Development

While I recognize that federal investments in transit systems are outside the jurisdiction of this committee, I do want to express the importance of transit investments to our national surface transportation system. Investment in public transit, including light rail systems, bus rapid transit, traditional bus routes, and new mobility applications such as dynamic-routing micro-transit, provide additional transportation choices while reducing emissions. Cities and states throughout the U.S. are pioneering innovative ways of making transit more convenient and accessible, while harnessing the benefits of transit for community development and economic growth. We should explore ways to improve multi-modal connections and better integrate vehicle travel with our transit services. This improved access to transit can spur economic growth and development. For example, Arlington, Virginia, where I live, has successfully decoupled strong economic growth from greenhouse gas emissions by implementing transit-oriented development, in which mixed use developments are clustered near Metro stations.²⁶

Funding a Low-Carbon National Highway System

The United States Interstate Highway System is one of our great public works projects and is a striking example of how ambitious federal investment leads to job creation and economic growth. While the Interstate Highway System and our national highways are operated and managed through important state/federal cooperation, this national system of roadways relies on federal investment to continue connecting communities and supporting commerce.

Committee members on the Future of the Interstate Highway System Study recognized that we should avoid the sins of our past in our design and expansion of the system, which often cut through cities and disrupted communities, disproportionately impacting low-income communities, often communities of color. Efforts to mitigate those impacts are underway in many cities, including projects where stretches of highway bisecting communities are being taken down or are being “capped”—something that is occurring just blocks away here in the District of Columbia.²⁷

Similarly, the unintended consequences of our expansive highway system on air pollution and climate change should be a focus of this committee given your broad jurisdiction over air pollution and public works projects. Federal leadership is critical as we make the investments necessary to create a low-carbon national highway system. One effective strategy for reducing emissions from the transportation sector is to transition our vehicle fleet to electric vehicles. Electric cars are more efficient and reduce GHG emissions even when emissions from power

²⁶ *Arlington's Framework for Prosperity: Economic Development Strategic Plan*, ARLINGTON ECONOMIC DEVELOPMENT, <https://www.arlingtoneconomicdevelopment.com/index.cfm?LinkServID=0DDC0123-EC51-4DED-8EBB576881FA52F8&showMeta=0> (last visited Feb. 25, 2019).

²⁷ *Renewing the National Commitment to the Interstate Highway System: A Foundation for the Future*, 41-42.

plants that generate the electricity for the electric vehicles are included.²⁸ And the opportunities for emissions reductions from adopting electric vehicles will improve throughout the country as the electricity grid further decarbonizes.²⁹

A robust network of highway corridor fast charging is critical to grow the market for electric vehicles. People need to know that they can charge their vehicles, such as my 2018 Chevy Bolt, Bluebell, before they will use the vehicles for long distance trips.

Because electric vehicles are a new technology with limited penetration in the vehicle market, there are very few viable business cases for investment in DC fast charging—particularly along highway corridors—in the absence of some public sector funding to support early investment. However, once a minimum level of EV fast charging coverage is in place and EV sales increase, increased demand for charging will drive private investments.³⁰ In order to jump-start this critical transition to transportation electrification, targeted public funding is needed.

Countries around the world are making the investment in EV fast charging needed to provide the minimum level of coverage necessary for the market to mature. For example, China has made significant investments in fast charging to support charging corridors between its major metropolitan areas. As of January 2018, China had installed over 66,000 DC fast charging plugs, compared to just over 7,500 in the US at that time³¹ (there are 11,079 fast charging plugs in the United States as of July 2019³²).

²⁸ For example, in Oregon, a recent analysis showed that an electric vehicle in 2018 would be the equivalent of a gas car with 96 MPG rating [David Reichmuth, *New Data Show Electric Vehicles Continue to Get Cleaner*, UNION OF CONCERNED SCIENTISTS (2018), https://blog.ucsusa.org/dave-reichmuth/new-data-show-electric-vehicles-continue-to-get-cleaner?_ga=2.65610987.430581647.1520949632-566757794.1516988670]. Even in Wyoming, where (as of 2015 data) coal power makes up more than 85 percent of electricity generation, [State Energy Analysis Tool, GEORGETOWN CLIMATE CENTER, <https://www.georgetownclimate.org/clean-energy/sea.html>] an electric vehicle would be equivalent to a 46 miles per gallon gas vehicle.

²⁹ As the grid becomes cleaner, an electric vehicle sold this year will effectively become lower- and lower-emitting throughout its life. Decarbonization of the electricity sector is happening due to fuel switching and the falling prices of wind and solar power. See, e.g., Robert Walton, *Xcel Solicitation Returns 'Incredible' Renewable Energy, Storage Bids*, UTILITY DIVE (Jan. 8, 2018), <https://www.utilitydive.com/news/xcel-solicitation-returns-incredible-renewable-energy-storage-bids/514287/>; Press Release, *New Solar-Plus-Storage Projects Set Low-Price Benchmark For Renewable Energy in Hawaii*, HAWAIIAN ELECTRIC COMPANY (Jan. 3, 2019), <https://www.hawaiianelectric.com/new-solar-plus-storage-projects-set-low-price-benchmark-for-renewable-energy-in-hawaii>.

³⁰ Eric Wood, *New EVSE Analytical Tools/Models: Electric Vehicle Infrastructure Projection Tool (EVI-Pro)*, NATIONAL RENEWABLE ENERGY LABORATORY (Jan. 24, 2018), <https://www.nrel.gov/docs/fv18osti/70831.pdf>.

³¹ Michael Nicholas and Dale Hall, The International Council on Clean Transportation, *Lessons Learned on Early Electric Vehicle Fast-Charging Deployments* (July 2018), https://theicct.org/sites/default/files/publications/ZEV_fast_charging_white_paper_final.pdf

³² U.S. Department of Energy, Alternative Fuels Data Center, <https://afdc.energy.gov/stations/#/find/nearest> (Filtered for Fast Charging for electric vehicles)

The largest source of current investment in EV fast charging in the U.S. is an investment of \$2 billion over ten years by Electrify America, a subsidiary of Volkswagen Group that was created as part of the settlement agreement with the U.S. Environmental Protection Agency following the diesel emissions scandal. To demonstrate the total scope of EV fast charging investments needed in the United States, Electrify America staff have estimated that its \$2 billion investment will likely meet only 10 – 15 percent of the charging infrastructure needs in the United States at the end of the company’s mandated investment commitment.³³

Federal Investment in Alternative Fuel Corridors

The Fixing America’s Surface Transportation Act (FAST Act) instructed the U.S. Federal Highway Administration to designate corridors for alternative fuels (including electric vehicles) but did not provide any direct funding for infrastructure investment to support the build-out of designated or pending corridors.³⁴

Potential federal investment could expand on corridor planning efforts underway in states and regional partnerships to ensure that federal funding is strategically invested to grow the market for EVs while spurring economic development and improving transportation. For example, several states, including California, Washington, and New York, have undertaken modeling and analysis to better understand which highway corridors have been developed by the private market and which are the highest priorities for public funding to support a comprehensive network of EV charging.³⁵

One strategy that this Committee might consider is targeting investment in EV charging in rural and remote corridor locations which are currently underserved by the private market, as a business and economic development opportunity for those locations that would also provide access to EVs to a wider range of communities.

Building on Existing Regional Partnerships

The importance of long-distance fast charger corridor planning is reflected in how states are working together to plan for EV corridors in regions around the country.

The Pacific Coast states have collaborated since 2011 to develop the West Coast Electric Highway, a network of DC fast charging stations along Interstate 5 and other major roadways.³⁶ This project was first funded as part of the American Recovery and Reinvestment Act. Since the initial wave of funding, Washington, Oregon, and California have used public-private partnerships and state grant funding to build out EV charging infrastructure along corridors.

³³ From discussions with Electrify America staff.

³⁴ 23 U.S.C. § 151 (2015).

³⁵ *Electric Vehicle Charging Infrastructure*, WASHINGTON STATE DEPARTMENT OF TRANSPORTATION (2019), <http://www.wsdot.wa.gov/funding/partners/evib>.

³⁶ *West Coast Electric Highway*, IDAHO NATIONAL LABORATORY: ADVANCED VEHICLES, <https://avt.inl.gov/project-type/west-coast-electric-highway> (last visited Feb. 19, 2019).

The West Coast Electric Highway effort is notable for its focus on expanding consumer awareness of EV charging through outreach and branding. The states have shared their lessons with other regions, including states participating in the Transportation and Climate Initiative in this region.

TCI states have worked to develop EV charging infrastructure since the start of the regional partnership, and have collaborated since 2016 on regional interstate corridor planning. The focused effort on corridor planning has included engagement with the Federal Alternative Fuel Corridors Program, including a regional nomination resulting in over 2,500 miles of EV corridors designated by U.S. Federal Highway Administration (FHWA) in the first round of designations.³⁷

The Transportation and Climate Initiative has been a valuable forum for electric vehicle corridor planning, due to the leadership of state departments of transportation and given the inherent need to collaborate across state lines to allow residents to travel seamlessly and conveniently between cities, for work, and to tourism destinations. The TCI states have worked together to share best practices, engage with EV charging businesses and electric utilities, and apply together for grant funding programs.

The TCI states have also worked together to conduct a regional analysis to identify priority locations for additional EV charging infrastructure investment. The technical analysis—launched in 2018—includes an Excel-based tool that can be used to identify which highway exits may be good candidates for additional charging infrastructure investment, as well as an interactive GIS map that displays fast charging infrastructure along corridors in the region and priority investment locations.³⁸ This corridor analysis was developed by the Georgetown Climate Center and M.J. Bradley & Associates to support the TCI states.

In the inter-mountain west states, another bipartisan coalition of governors from eight states launched the Regional Electric Vehicle Plan for the West, or “REV West,” with governors signing an MOU with the goal to promote a network of EV corridors.³⁹

A federal corridor funding program would benefit from harnessing the important partnerships between state officials that have been created through these regional collaborations.

³⁷ U.S. Department of Transportation Designates Electric Vehicles Corridors in the Transportation and Climate Initiative Region, TRANSPORTATION & CLIMATE INITIATIVE (Nov. 3, 2016), <https://www.transportationandclimate.org/us-department-transportation-designates-electric-vehicles-corridors-transportation-and-climate>.

³⁸ The regional EV corridor analysis is publicly available at no cost from Georgetown Climate Center. *EV Corridor Analysis Tool for Northeast and Mid-Atlantic States*, GEORGETOWN CLIMATE CENTER (July 26, 2018), <https://www.georgetownclimate.org/articles/ev-corridor-analysis-tool-for-northeast-and-mid-atlantic-states.html>.

³⁹ *Regional Electric Vehicle (REV) West Program*, U.S. DEPARTMENT OF ENERGY: ENERGY EFFICIENCY & RENEWABLE ENERGY, <https://afdc.energy.gov/laws/11874> (last visited Feb. 29, 2019).

Strategic Investment to Avoid Stranded Assets

Federal technical and financial support could also help states and metropolitan planning organizations better identify gaps in EV charging infrastructure. This could include expansion of existing tools; for example the corridor analysis tool built to inform northeast and mid-Atlantic states⁴⁰ or the Electric Vehicle Infrastructure Projection (EVI-Pro) tool built by the California Energy Commission and National Renewable Energy Laboratory to assess charging infrastructure needs.⁴¹ The federal government could support a study (using EVI-Pro or other methodology) of specific charging infrastructure needs to support long-distance trips on a national level. This analysis has already been conducted for California, Colorado, and Columbus, Ohio, through existing programs or partnerships.⁴²

One opportunity for federal investments is to require that charging stations funded by federal grants use charging station hardware, software, and network services that are inter-operable. Interoperability of hardware and software creates a more flexible business market that allows for innovation within the industry and avoids stranded assets. I encourage Congress to engage with states and U.S. national laboratories considering these issues when developing potential infrastructure funding programs.

Using Federal Funds to Create a Convenient Driver Experience

In addition to strategically targeting geographic locations, a federal funding program could also provide additional public benefits by including requirements or incentives that ensure driver convenience and a robust private market for charging stations. There is an opportunity for such a federal program to incorporate lessons learned and policies developed through ongoing state efforts. States participating in the multi-state ZEV Task Force have worked to identify policy outcomes that can be achieved through requirements for EV charging stations installed with public funding.⁴³ For example, states are exploring open payment requirements, to ensure that drivers know how much they will pay for a charge, can easily use a credit card to pay for charging, and are not required to have a charging station network membership. We've all gotten used to driving up to a gas station and knowing that we can pay with a credit card (for example), without the requirement of becoming a member of a fuel provider like Exxon or

⁴⁰ *EV Corridor Analysis Tool for Northeast and Mid-Atlantic States*, *supra* note 38.

⁴¹ *CEC EV Infrastructure Projection (California)*, NATIONAL RENEWABLE ENERGY LABORATORY, <https://maps.nrel.gov/cec/?aL=0&bl=cdark&cE=0&IR=0&mC=36.8708321556463%2C-116.34521484375001&zL=6> (last visited Feb. 19, 2019).

⁴² Eric Wood, *New EVSE Analytical Tools/Models: Electric Vehicle Infrastructure Projection Tool (EVI-Pro)*.

⁴³ See Kathy Kinsey, Elaine O'Grady, and Jesse Way, Northeast States For Coordinated Air Use Management, *Building Reliable EV Charging Networks: Model State Grant and Procurement Contract Provisions for Public EV Charging* (May 2019), <https://www.nescaum.org/>

Shell. But that is not always the case with EV charging, which can create inconvenience and confusion.

Providing Clear and Convenient Signs for Drivers

Currently the federal Manual on Uniform Traffic Control Devices does not allow state DOTs to easily add an EV charging station logo to specific service (food/fuel/lodging) signs. The current manual is somewhat unclear on this subject, which has been vexing to many state agencies looking to develop EV charging signage guidance.⁴⁴ One potential solution would be to create a new category of highway logo (specific service) signs for EV charging. This would improve EV driver convenience and provide a significant consumer awareness benefit. California has already taken this approach, modifying its state manual to create a new category for EV charging station logos, and other states are interested in this issue as well. It is important at a minimum that the federal manual maintain flexibility for states to experiment with the best ways to provide logo signs for electric vehicles as we develop an appropriate federal standard.⁴⁵

Supporting Innovative Technology Deployment

The upcoming transportation reauthorization bill may also provide an opportunity to remove barriers to innovative technology deployments like solar power installations along highways. Roadside solar is an exciting idea that is being pursued by state departments of transportation around the country.⁴⁶ Roadside solar is an opportunity for clean energy investment and might even provide a supplemental source of highway funding moving forward. However, roadside solar projects are being bogged down in significant bureaucracy related to the lack of clarity around the statutory ban on commercial activity in the interstate right of way. State departments of transportation and independent organizations innovating with roadside solar projects—like The Ray in Georgia—have identified these administrative barriers as a major impediment to project development. These restrictions have been identified as a barrier in reports, including the recent Transportation Research Board Report to Congress on the Future of the Interstate Highway report.⁴⁷ The Senate should consider modernizing this statutory provision to provide greater clarity that innovative projects, such as the Ray, can explore opportunities to better leverage our highway system, generate revenue, and bring low-cost, clean energy to the grid without displacing farmland or forests.

⁴⁴ "To qualify for a GAS logo sign panel, a business should have: (1) Vehicle services including gas and/or alternative fuels, oil, and water; (2) Continuous operation at least 16 hours per day, 7 days per week for freeways and expressways, and continuous operation at least 12 hours per day, 7 days per week for conventional roads; (3) Modern sanitary facilities and drinking water; and (4) Public telephone." U.S. DEP'T OF TRANSP., MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES § 2J.01.10 (Dec. 2009).

⁴⁵ CAL. DEP'T OF TRANSP., MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES § 2J.01 (Nov. 2014).

⁴⁶ See, e.g., The Ray, <https://theray.org/>; Massachusetts Department of Transportation, MassDOT Solar Energy Program, <https://www.mass.gov/massdot-solar-energy-program>

⁴⁷ *Renewing the National Commitment to the Interstate Highway System: A Foundation for the Future*, Transportation Research Board (Feb. 6, 2019), <http://www.trb.org/Main/Blurbs/178485.aspx>.

Opportunities for Research and Development

While there are many exciting developments underway that are helping to expand the uses of EVs and other low-carbon transportation options, there are still technical and logistical barriers where federal support of pilot programs, research, or public-private partnerships might be helpful.

As we scale up the use of new transportation fuels and technologies over time, research and pilot deployments can help ensure that federal funds are invested efficiently in projects and technologies that reduce emissions, provide energy security, and stimulate economic growth. Additionally, research programs can effectively identify issues that might arise in the future. For example, the federal government could support additional research into questions on how the different zero-emission or alternative fueling and charging infrastructures complement or interact with one another at individual sites or throughout the transportation system. There is significant investment in hydrogen fueling infrastructure in California and other states, due to the significant opportunity for hydrogen to serve as a fast-refueling, zero-tailpipe emission fuel source for vehicles.⁴⁸

For electric vehicle charging, key questions include the opportunities for managed EV fast charging (e.g., providing options for drivers where the cost and speed of charging vary based on electric grid capacity). A related topic for additional research is the interaction of EV charging with on-site storage to minimize distribution grid impacts. Electrify America and Tesla are making major investments in on-site storage co-located with DC fast charging facilities. This is an area where transportation system research—in conjunction with battery storage research underway at the U.S. Department of Energy and U.S. national laboratories—could prove valuable.

Decarbonizing Medium- and Heavy-Duty Trucks

As the movement of goods on our country's highway corridors continues to increase with the growth of e-commerce, decarbonizing truck transport will be critical to meeting state and national climate commitments. For both long-haul and local delivery by heavy-duty and medium-duty vehicles, a number of low- or zero-emission vehicle and fuel types may serve different use cases.

For reducing emissions of criteria pollutants, natural gas- and propane-fueled vehicles offer a promising and potentially low-cost alternative. For reducing GHG emissions, the federal government could play a key role in enabling the deployment of battery electric and hydrogen fuel cell vehicles.

Many vehicle and engine manufacturers have announced plans to release battery electric trucks over the coming years, and hydrogen truck technology offers a promising alternative. The U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, has

⁴⁸ *California's Hydrogen Transportation Initiatives*, CALIFORNIA AIR RESOURCES BOARD, <https://www.arb.ca.gov/msprog/zevprog/hydrogen/hydrogen.htm> (last visited Feb. 20, 2019).

supported significant research and development efforts for hydrogen and fuel cell technologies, including through partnerships with U.S. national laboratories and private sector businesses, and has set ambitious goals for reducing the price of hydrogen fuel cells.⁴⁹ This investment in hydrogen as a transportation fuel is as part of a broader role for hydrogen fuel in a decarbonized United States energy system.

One critical challenge for both of these zero-emission technology types is the development of sufficient charging or fueling infrastructure along highway corridors. Similar to passenger vehicles, a minimum level of infrastructure coverage needs to be in place in order for the market to grow to the scale necessary to support private investment and unsubsidized growth.

Heavy duty battery-electric trucks provide unique charging infrastructure and electric grid challenges. For example, the electric semi-truck specifications suggested by Tesla might require over 1 MW capacity charging per plug—equivalent to a Walmart Supercenter. A truck stop depot with 10 of these chargers could have a peak electrical load similar to an industrial facility, but will often be located in a rural area far from available electrical power capacity.

The federal government could play a critical role expanding research and pilot programs to determine the most cost effective and efficient means of providing this type of vehicle charging, including the role of stationary storage batteries and co-location of renewable power generation. This work could incorporate the freight corridor planning underway in many states through the FHWA Alternative Fuel Corridor program, and could engage key stakeholders, including electric utilities, the National Association of Truck Stop Operators, and vehicle manufacturers.

Creating a More Resilient Transportation System

Beyond needing to innovate and reduce emissions from the transportation sector and shift to cleaner sources of electricity, we need to ensure that our transportation infrastructure and systems are prepared for storms, floods and other climate change impacts, which are already being observed.

There are numerous examples of the toll that more frequent extreme weather events, sea-level rise, and warming temperatures are taking on communities across states, including those represented by members of this committee. For example, in the first six months of 2019 we have seen a record-setting numbers of declared flood disasters, which have affected many states represented by senators serving on this committee, including Iowa, North Dakota, Oklahoma, Arkansas, Vermont, and South Dakota (where 63 of the state's 66 counties have

⁴⁹ *Fuel Cell Technologies Office Accomplishments and Progress*, OFFICE OF ENERGY EFFICIENCY AND RENEWABLE ENERGY, <https://www.energy.gov/eere/fuelcells/fuel-cell-technologies-office-accomplishments-and-progress> (last visited Feb. 19, 2019).

declared flood disasters in 2019).⁵⁰ These flood events are straining federal funding and personnel resources, which is only likely to become more of a challenge as hurricane season gets underway. Meanwhile, coastal villages in Alaska are losing in some cases dozens of feet of land each year as they are less protected by sea ice and vulnerable to storms that cause erosion; and this is causing these communities to face difficult decisions about the need to relocate entirely.⁵¹ And we all can recall the consequences of the Chicago heat wave of 1995, which caused over 700 deaths and highlighted the need to focus on fostering resilience and preparedness to extreme heat within communities and infrastructure.⁵² We are increasingly seeing record-setting heatwaves, including the one hitting Europe this summer, which is creating health emergencies, melting roads and buckling railways, and even causing German authorities to limit speeds on the Autobahn.⁵³

However, it is not just the increasing and changing extreme weather events that challenge our states and communities, but also the “slow-moving” and chronic stressors of climate change, including increasing average temperatures and incidence of drought, and sea-level rise and related stressors like rising groundwater levels. These changes are requiring communities within your states to plan long-term for increasingly exposed coastal areas, effects on natural resources and agriculture, and changing economic drivers. For example, increasing temperatures and higher incidence of drought will affect many areas of the United States with a strong agricultural economy, as these impacts can cause crops to fail, reduce livestock productivity, and change or increase the types of pests and diseases that affect crops.⁵⁴ In recent years there are several examples of major heat waves and droughts that amounted to “billion-dollar disasters” where significant portions of the costs resulted from agricultural losses.⁵⁵ And in coastal states like Maryland and Delaware, nuisance flooding happening on

⁵⁰ Thomas Frank, E&E NEWS, Record number of flood disasters strains Trump admin (July 2, 2019), <https://www.eenews.net/climatewire/2019/07/02/stories/1060683093>.

⁵¹ Andrea Thompson, SCIENTIFIC AMERICAN, Alaska's Coast Is Vanishing, 1 Storm at a Time (November 30, 2017), <https://www.scientificamerican.com/article/alaskas-coast-is-vanishing-1-storm-at-a-time/>.

⁵² Bonnie M. Rubin & Jeremy Gorner, CHICAGO TRIBUNE, Fatal heat wave 20 years ago changed Chicago's emergency response (July 15, 2015), <https://www.chicagotribune.com/news/ct-chicago-heat-wave-20-years-later-met-20150715-story.html>.

⁵³ Patrick Sawyer & Victoria Ward, THE TELEGRAPH, UK weather: Rails overheat and roads melt as temperatures soar across Britain on hottest day of the year (June 29, 2019), <https://www.telegraph.co.uk/news/2019/06/29/rails-buckle-roads-melt-temperatures-soar-across-britain/>; (Ivana Kottasova, CNN, France endures its hottest day ever as Europe swelters in heat wave (June 28, 2019), <https://www.cnn.com/2019/06/28/europe/france-record-temperature-heatwave-intl/index.html>); William Wilkes & Brian Parkin, BLOOMBERG NEWS, Blazing Heatwave Forces Germany to Limit Autobahn Speeds (June 25, 2019), <https://www.bloomberg.com/news/articles/2019-06-26/blazing-heatwave-forces-germany-to-lower-autobahn-speed-limit>

⁵⁴ See *Climate Assessment, Volume II: Impacts, Risks, and Adaptation in the United States—Agriculture*, NATIONAL CLIMATE ASSESSMENT (2018), <https://nca2018.globalchange.gov/chapter/10/>.

⁵⁵ For example, the 2012 drought and heat wave conditions affected more than half of the U.S. and caused an estimated \$33.6 billion in damages, including widespread crop failure for corn, sorghum, and soybean. Billion-

even sunny days is affecting the ability of residents and visitors to travel, with consequences for their way of life and their local economies.⁵⁶

In the transportation sector, aging roads, bridges, railroads, and other assets are increasingly threatened by extreme heat, sea-level rise and coastal storms, more intense downpours and riverine flooding, changing freeze-thaw cycles and thawing permafrost, among other effects of climate change. We have seen how these changes directly affect our transportation infrastructure and networks, with cascading consequences for regional economies and human health as movement of goods and people and access to services are disrupted. For example, as a result of the 2008 floods in central Iowa, which were caused by extreme precipitation in late May and early June and record-breaking river levels, over 450 miles of the primary highway system was closed and over 300 bridges, 1500 road miles, and railroad track and signal infrastructure needed repairs or reconstruction.⁵⁷ In 2011, Vermont experienced an estimated \$250-300 million in infrastructure damage resulting from Tropical Storm Irene, which washed out numerous roads and culverts.⁵⁸ And the many transportation and related effects within New York and New Jersey from Hurricane Sandy in 2012 are well-documented, and include flooding of New York City tunnels, electrical substations, transit stations, airport runways, and rail yards, causing billions in damage to multimodal systems and assets.⁵⁹ Federal, state, and local infrastructure agencies have learned from such events in preparing, responding, and recovering from these and other disasters, but continue to be challenged by growing risks, policy constraints, and limited budgets.

Transportation Agencies Responding to Climate Change

In the transportation sector specifically, decisionmakers are working to understand the implications of climate change for their systems, to plan and prepare assets, and to modify operations and maintenance practices accordingly; and these agencies are doing so on very

Dollar Weather and Climate Disasters: Table of Events, NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION, <https://www.ncdc.noaa.gov/billions/events/US/2004-2018>.

⁵⁶ See, e.g., Thomas Frank, E&E NEWS, Annapolis parking lot foreshadows future flood losses (March 26, 2019), <https://www.eenews.net/climatewire/stories/1060128369>.

⁵⁷ *Local Office Service Assessment: Central Iowa Floods of 2008*, NATIONAL WEATHER SERVICE (May 2009), https://www.weather.gov/media/dmx/SigEvents/2008_Central_Iowa_Floods.pdf.

⁵⁸ Vermont's challenges of rebuilding culverts more resiliently during the recovery period, due to barriers at the time in federal law and disaster recovery programs, is explored in the report. *Lessons Learned from Irene: Climate Change, Federal Disaster Relief, and Barriers to Adaptive Reconstruction*, GEORGETOWN CLIMATE CENTER (Dec. 20, 2013), <https://www.georgetownclimate.org/reports/lessons-learned-from-irene-climate-change-federal-disaster-relief-and-barriers-to-adaptive-reconstruction.html>.

⁵⁹ See Sarah Kaufman, et al., *Transportation During and After Hurricane Sandy*, RUDIN CENTER FOR TRANSPORTATION: NYU WAGNER GRADUATE SCHOOL OF PUBLIC SERVICE (Nov. 2012), <https://wagner.nyu.edu/files/faculty/publications/sandytransportation.pdf>.

limited budgets. Many of the transportation departments and other state agencies, legislatures, and local agencies within your own states have been leaders in these efforts.

For example, as part of a pilot project, the Maryland State Highway Administration has led efforts in Maryland to map vulnerabilities of the road network⁶⁰ and is now working to integrate those findings into their transportation asset management program.⁶¹ Many other states represented by the members of this committee have similarly worked to understand and prepare for effects of current and future extreme weather events and other climate impacts on their transportation systems, including Alaska, Delaware, Illinois, Iowa, Massachusetts, Mississippi, New Jersey, New York, and Oregon.⁶²

Aside from the technical assistance and other support provided through these pilot programs, states and local governments are taking actions to reduce risks from climate change and extreme weather both within and outside the transportation context. For example, New York State established formal statewide sea-level rise projections by regulation in early 2018,⁶³ implementing an important aspect of the state's Community Risk and Resiliency Act (2014), which is designed to integrate considerations of climate change impacts to proposed projects in certain funding and permitting processes overseen by state agencies.⁶⁴ Maryland expanded its "Coast Smart" program in 2018, now requiring that state-funded local projects (in addition to state capital projects) be sited and designed according to the state's "Coast Smart" criteria, and requiring certain local jurisdictions to develop plans to address nuisance flooding.⁶⁵ Rhode Island passed legislation requiring local planning board members to be trained on sea-level rise

⁶⁰ Maryland State Highway Administration's first pilot project focused on assessing vulnerabilities of bridges and roads in two counties. FHWA Climate Resilience Pilot Program: Maryland State Highway Administration, FHWA-HEP-15-046, FEDERAL HIGHWAY ADMINISTRATION, https://www.fhwa.dot.gov/environment/sustainability/resilience/pilots/2013-2015_pilots/maryland/index.cfm. Using the same process, SHA later expanded the analysis to other counties statewide and to additional types of transportation assets.

⁶¹ Asset Management, Extreme Weather, and Proxy Indicators Pilot Program (2017-2019), FEDERAL HIGHWAY ADMINISTRATION, <https://www.fhwa.dot.gov/asset/resources/pilot.pdf>

⁶² See Resilience Pilots, FEDERAL HIGHWAY ADMINISTRATION, <https://www.fhwa.dot.gov/environment/sustainability/resilience/pilots/>.

⁶³ NY ENVTL. CONSERV. LAW § 490 (2018).

⁶⁴ New York Community Risk and Resiliency Act (S06617B), GEORGETOWN CLIMATE CENTER: ADAPTATION CLEARINGHOUSE (Sept. 22, 2014), <https://www.adaptationclearinghouse.org/resources/new-york-community-risk-and-resiliency-act-s06617b.html>.

⁶⁵ For more information, see Maryland HB 1350/ SB 1006 - Sea Level Rise Inundation and Coastal Flooding - Construction, Adaptation, and Mitigation, GEORGETOWN CLIMATE CENTER: ADAPTATION CLEARINGHOUSE (Apr. 5, 2018), <https://www.adaptationclearinghouse.org/resources/maryland-hb-1350-sb-1006-sea-level-rise-inundation-and-coastal-flooding-construction-adaptation-and-mitigation.html>.

and floodplain development impacts.⁶⁶ And the City of Minot, North Dakota won a grant through the National Disaster Resilience Competition, administered by HUD, to prepare the community for future flood events following the city's 2011 flood disaster.⁶⁷

Our Center's Transportation Resilience Case Studies, which are featured in our Adaptation Clearinghouse database, highlight some of the additional infrastructure-related resilience efforts going on within your states and across the country. These include examples from Oregon like the Pringle Creek community's green streets initiative, which utilized porous pavements and has proven highly successful in mitigating stormwater runoff from rainfall events compared to surrounding communities,⁶⁸ and the Necanicum River flood mitigation project, which has reduced seasonal flooding of portions of Highway 101 by removing a levee and restoring the natural floodplain.⁶⁹ In Alaska, the state DOT has increased monitoring of temperatures,⁷⁰ and has explored the use of insulation materials to improve the thermal stability (and therefore structural integrity) of roads as warming increases the thawing of underlying permafrost.⁷¹ And in Massachusetts, the Port Authority, which oversees critical facilities like Logan International Airport, initiated a resiliency program and developed floodproofing design guidelines to help ensure resilience of new and existing assets to future flooding.⁷²

Support for state and local efforts to prepare for extreme weather and sea-level rise is needed and there are many ways the federal government can and should help.

⁶⁶ STATE OF RHODE ISLAND GENERAL ASSEMBLY, *New law creates flooding and sea rise training requirement for planning boards*, Press Release (Oct. 6, 2017), http://www.rilin.state.ri.us/pressrelease/_layouts/RIL.PressRelease.ListStructure/Forms/DisplayForm.aspx?List=c8baae31-3c10-431c-8dcd-9dbbe21ce3e9&ID=13236

⁶⁷ HUD AWARDS \$1 BILLION THROUGH NATIONAL DISASTER RESILIENCE COMPETITION: 13 states/communities to receive funding for resilient infrastructure and housing projects, News Release (January 21, 2016), <https://archives.hud.gov/news/2016/pr16-006.cfm>.

⁶⁸ Pringle Creek (Salem, Oregon) Green Streets Initiative, GEORGETOWN CLIMATE CENTER: ADAPTATION CLEARINGHOUSE, <https://www.adaptationclearinghouse.org/resources/pringle-creek-salem-oregon-green-streets-initiative.html>.

⁶⁹ Necanicum River – Highway 101 Flood Mitigation, GEORGETOWN CLIMATE CENTER: ADAPTATION CLEARINGHOUSE, <https://www.adaptationclearinghouse.org/resources/necanicum-river-highway-101-flood-mitigation.html>

⁷⁰ Elizabeth Jenkins, KTOO PUBLIC MEDIA, *As the climate changes, Alaska's DOT works to keep up* (Nov. 13, 2018), <https://www.ktoo.org/2018/11/13/as-the-climate-changes-alaskas-dot-works-to-keep-up/>

⁷¹ Alaska Repaving Roads Using Polystyrene Insulation, GEORGETOWN CLIMATE CENTER: ADAPTATION CLEARINGHOUSE, <https://www.adaptationclearinghouse.org/resources/alaska-repaving-roads-using-polystyrene-insulation.html>

⁷² Massachusetts Port Authority Resiliency Program and Floodproofing Design Guide, GEORGETOWN CLIMATE CENTER: ADAPTATION CLEARINGHOUSE, <https://www.adaptationclearinghouse.org/resources/massachusetts-port-authority-resiliency-program-and-floodproofing-design-guide.html>

Federal Opportunities

As the reality of climate change becomes more evident with each catastrophic hurricane, flood, drought, wildfire, or heat wave that strikes, it is more important than ever that our states and communities have the funding and resources they need to prepare.

Investing in Resilience Before Disaster Strikes

The value of hazard mitigation is clear and has been demonstrated for years; the most recent *Natural Hazard Mitigation Saves* report from the National Institute of Building Sciences found that federal hazard mitigation grants (analyzed from FEMA, HUD, and EDA) save \$6 for every \$1 spent, and infrastructure investments analyzed (from utility and transportation case studies) indicated a savings of \$4 for every \$1 spent, while meeting international building code (I-Code) standards can save \$11 nationally for every \$1 spent.⁷³ Meanwhile, our infrastructure systems are failing: the American Society of Civil Engineers' 2017 Infrastructure Report Card assessed the overall grade of infrastructure in the United States a D+, with roads receiving a D, transit a D-, bridges a C+, and levees a D, among other sector grades.⁷⁴ Furthermore, the exposure of the federal government to economic losses from extreme weather has caused the U.S. Government Accountability Office to feature climate change on its High Risk List. In its most recent list published in March 2019 of this year, GAO indicates that "[s]ince 2005, federal funding for disaster assistance is approaching half a trillion dollars (about \$430 billion),"⁷⁵ which amounts to about \$1,300 per person based on current population estimates.⁷⁶ The GAO notes that one of the areas requiring federal action to reduce fiscal exposure to climate impacts is in the federal government's role as owner and operator of infrastructure systems, like transportation infrastructure.⁷⁷ Clearly, significant investments are needed to bring our infrastructure back to a state of good repair, and to ensure that it stays that way and functions as intended into the future despite anticipated impacts of climate change. This will not be cheap or easy, but it's necessary to avoid even greater costs and hardship to our states and communities.

This committee can play an important role in ensuring not only that adequate funding is authorized for infrastructure investments but also that funding is spent wisely on projects, programs, and planning that will result in more resilient assets and systems. Fortunately, there is already a strong foundation to build on, with changes made through MAP-21 and the FAST

⁷³ *Natural Hazard Mitigation Saves: 2018 Interim Report -- Summary Report*, NATIONAL INSTITUTE OF BUILDING SCIENCES, https://cdn.ymaws.com/www.nibs.org/resource/resmgr/docs/NIBS_MitigationSaves2018-Sum.pdf.

⁷⁴ 2017 Infrastructure Report Card, AMERICAN SOCIETY OF CIVIL ENGINEERS, <https://www.infrastructurereportcard.org/americas-grades/>.

⁷⁵ U.S. GOVERNMENT ACCOUNTABILITY OFFICE, *HIGH RISK SERIES: Substantial Efforts Needed to Achieve Greater Progress on High Risk Areas*, at 110 (March 2019), <https://www.gao.gov/assets/700/697245.pdf>.

⁷⁶ <https://www.census.gov/pocclock/>.

⁷⁷ *Supra* note 76 at 116-118.

Act including the transition towards a performance-based and risk management approach to surface transportation planning and programming and resilience planning requirements.⁷⁸ Further, in recognition that investments in hazard mitigation can save substantial taxpayer dollars in costs avoided, the Disaster Recovery Reform Act was an important step towards shifting the focus towards proactive adaptation rather than reactive recovery, when it can be avoided.⁷⁹

Providing Dedicated and Flexible Funding for Resilience

In its recent report, the Committee for the Study of the Future Interstate Highway System highlighted the importance of preparing the Interstate Highway System and other roads and bridges for the impacts of climate change and more intense weather events.⁸⁰ Congress should ensure that major federal infrastructure investments, including but not limited to the Interstate Highway System, are built to withstand flooding, increased heat, and other climate change impacts. To ensure fiscal responsibility, recipients of federal funding should be considering how climate change will affect their infrastructure systems and assets in the future, and ensure that their investments are designed accordingly to withstand future conditions. However, while some existing sources of federal funding may already be used for planning and preparing infrastructure for climate change, many state and local agencies nevertheless find it difficult to do so. Even though the upfront costs to plan and adapt will save money further “down the road,” state and local agency budgets are often already stretched too thin with normal repair, and mounting operations and maintenance costs. States and local agencies could therefore benefit from dedicated funding for resilience planning and implementation of resilient infrastructure projects. They could also benefit greatly from having a broad degree of flexibility in how they can use funds dedicated for resilience, particularly for projects and planning that cross multiple sectors, as planning for future extremes and changed landscapes requires more holistic conversations and solutions (e.g., regarding land use and when and where to make investments). For example, allowing federal funding to capitalize State Infrastructure Banks would be one way to better enable multi-modal, cross-sectoral projects with numerous

⁷⁸ Moving Ahead for Progress in the 21st Century (MAP-21) Act, P.L. 112-141, Div. A., Tit. I, Subtit. B (2012); Fixing America’s Surface Transportation (FAST) Act, P.L. 114-94, secs. 1201-1202 (2015).

⁷⁹ Federal Aviation Administration Reauthorization Act of 2018, H.R. 302, Div. D, 115th Cong. (2018). For example, the DRRRA also clarifies that pre-disaster hazard mitigation funds may be used to establish and implement the latest hazard-resistant designs and criteria (modifying 42 USC 5133(e)), and it adds new evaluation criteria for pre-disaster hazard mitigation assistance awards, including the extent to which potential grantees have adopted the latest hazard-resistant designs and codes, and “the extent to which the assistance will fund activities that increase the level of resiliency” (modifying 42 USC 5133(g)). It also clarifies that Public Assistance funds can reimburse costs of rebuilding facilities according to “the latest published editions of relevant consensus-based codes, specifications, and standards...” or “in a manner that allows the facility to meet the definition of resilient” (which is to be developed by FEMA rulemaking) (modifying 42 USC 5172(e)).

⁸⁰ *Supra* note 46.

co-benefits.⁸¹ Additionally, as federal funding program requirements can be burdensome for state and local agencies, steps should be taken to ensure that federal infrastructure agencies work together to coordinate across program requirements and definitions whenever possible, such as with defining “resilient infrastructure” and cost-benefit evaluations.⁸²

Providing Technical Assistance, Tools, and Resources

To adequately prepare, states and infrastructure agencies must be provided with the tools, information, and technical assistance they need to adequately integrate these considerations into capital decision-making processes, and given strong incentives to engage in resilience planning and to modify codes and standards ahead of disasters to facilitate resilient rebuilding when funds are available.⁸³ They also need real-world examples and best practices that demonstrate those innovative approaches that are at the forefront of planning and designing for a new normal of extremes. Resources like our Center’s [Adaptation Clearinghouse](#) and [transportation resilience case studies](#) are often used by state and local government practitioners to identify examples from similarly situated jurisdictions or areas challenged by the same climate stressors. Some federal tools and resources (including case studies, technical guidance, frameworks, and more) provide in-depth information and best practices to help agencies integrate resilience considerations into their decisionmaking processes, from assessing vulnerabilities all the way to design and making modifications to operational and maintenance practices. More is needed. Federal infrastructure funding should continue to support not only the states’ infrastructure investments directly, but the production of these kinds of tools and resources that help states and infrastructure agencies find relevant examples and identify where to start and how to get through each step of this process of planning and building more resiliently.

⁸¹ For example, the Rhode Island Infrastructure Bank blends funding from multiple sources to finance infrastructure projects, and the state provides technical assistance to help project proponents address climate impacts in project design and construction. See Rhode Island Infrastructure Bank, Who We Are, <https://www.riib.org/who-we-are>.

⁸² For example, FEMA and USDOT could be encouraged to work together as FEMA develops the new “Building Resilient Infrastructure and Communities” program (implementing changes made by the Disaster Recovery Reform Act, at H.R. 302, secs. 1234, 1235(d) (2018)) and agency guidance and definitions for “resilient” and “resiliency,” and identify opportunities for coordinating with USDOT programs.

⁸³ Standards-setting organizations like the American Society of Civil Engineers have been engaging for several years in discussions about how to modify infrastructure design to account for changing risk profiles as a result of climate change. ASCE’s Committee on Adaptation to a Changing Climate recently published a new Manual of Practice with guidance for engineers and others involved in infrastructure decisionmaking to assist with integrating adaptive design and minimizing lifecycle costs given a changing climate. Climate-Resilient Infrastructure: Adaptive Design and Risk Management, COMMITTEE ON ADAPTATION TO A CHANGING CLIMATE (2018), <https://ascelibrary.org/doi/book/10.1061/9780784415191>.

Emphasizing Emergency Preparedness

In addition to infrastructure, we should understand that resilience to impacts depends on people as well and developing strategies to evacuate safely. In Katrina, when my hometown of New Orleans was flooded and much of my family lost their homes, more than 1800 people who stayed behind died. Some didn't leave because of the difficulty in evacuating the year before during Ivan, when my own father, Sidney Arroyo died during a stressful evacuation. Others who chose not to leave before Katrina did not have affordable options for transportation or shelter. Still others didn't want to leave their pets behind after discovering that public transport and shelter options prohibited animals. Because of those hard lessons, Congress passed the Pet Evacuation and Transportation Standards Act—"PETS"—which no doubt has saved lives of countless pets and people in more recent storms.

New programs like "Evacuteers" in New Orleans have sprung up to make sure people (and pets) can get out of harm's way, and portions of the I-10 twin spans, after sections were knocked out in Katrina, have been elevated.

We learn hard lessons from each major storm and fire, but there is more to be done to translate those lessons into action on the ground where the disaster hit, as well as to other communities to help them be better prepared. There is much more to be done to prepare our communities for the changes we're experiencing now that will only accelerate and worsen over time. It is important to people across the country affected by these disasters. It's also important to ensure that federal dollars are spent wisely towards investments that will last under future extreme conditions and that will deliver the economic, health, and environmental benefits of transitioning to a low-carbon future.

Thank you for the opportunity to share this testimony and for this Committee's important work.

Senator BARRASSO. Thank you so much for your testimony and the testimony of each of you.

We will start with rounds of questions, and I would like to ask the representatives here from Wyoming and Utah and Delaware, if Congress fails to enact a multi-year highway bill and instead passes a series of these short-term extensions, what the impact is going to be on States like Wyoming and Utah and Delaware in terms of planning, in terms of highway construction, in terms of road and bridge maintenance and even safety. Ms. Wicks, if you would like to start.

Ms. WICKS. Thank you, Mr. Chairman. Yes, it is extremely disruptive to programs. Engineering projects take time, whether you are planning, design, funding for construction. All of that becomes very unpredictable if you can't know for sure how much money and resources will be available going forward.

There is also a psychological effect on staff. When you are trying to motivate your staff to continue to aggressively go after projects, work hard, keep them delivered on time, it is difficult to maintain that enthusiasm and that energy level when there is this roller coaster of, maybe we will have it, maybe we won't. So there is even that factor that I think sometimes we seem to forget.

I also think how the public interprets our inability to go back out with confidence and say, yes, it is going to be here in a year, it will be here in two, here is our timeline, here is what we plan to do.

Senator BARRASSO. Mr. Braceras, anything you would like to offer and add?

Mr. BRACERAS. Yes. Just to add that a little bit, Mr. Chairman, a couple of things. One, as a public official, the currency that I have is the public's trust, the trust the elected officials have in me. When we put together a long-term plan, all States put together a State transportation improvement plan, a STIP. It is usually a 4-year plan of projects; we call them the funded 4 years of projects.

If you picture where we are right now, we are looking out in our STIP, out past the FAST Act. So we all make assumptions, what level do we program out past the FAST Act right now. I have made, I have guessed, that it is going to be flat funding. So we have programmed projects out in those out years based on that Congress will reauthorize the program at a flat level.

Now, I could be wrong, I could maybe have over guessed what we have done. You notice that unless we find new money, we are going to be obligating at about 50 percent, 51 percent of what is available in the trust fund. Then what happens is I have to delay or cancel projects. That breaks down that trust. Because every one of those projects is much needed, it is anticipated. They are safety projects; they are projects that will improve the infrastructure.

So having predictability, long-term predictability of funding is really key for us to be able to build the public's trust in order to deliver the right projects.

Now, the other key is, we all want to get the most value out of the investment that you are making from Congress. The way we do that is we advertise; we say we advertise the right project at the right time. So we try to get some competition from our contractors. We can't just dump the same type of projects out onto the contractors at the same time in the same geographic area, because

then we will not get the level of competition that we need to have to assure the public's investment is best served.

So if we can have that predictability, that long-term predictability in these projects, we will deliberately decide that we are going to advertise it, this project, it is an asphalt project, I have this many bidders that will compete for that in this geographic area at this time and I will get the best value. So from the end of the day, Mr. Chairman, if we can keep the public's trust and get more value out of the public's investment, that long-term that long-term predictability is key.

Senator BARRASSO. Thanks. Mr. Reiner, anything to add?

Mr. REINER. Mr. Chairman, thank you. I agree with what Mr. Braceras said. To put a Wyoming spin on it, very frankly, the impact would be a change in how we do business. It will result in slower delivery of smaller projects, because of the funding uncertainty.

Certainly, in times of safety, we will find a way to handle the emergency highway and bridge repairs. But there will be many safety projects and other issues that are simply deferred.

As has been pointed out, planning certainly becomes more complex and uncertain. It would, it would simply have a significant impact on us as a State and how we do business.

Senator BARRASSO. When you use the phrase, slower delivery and smaller projects, it makes me think of what we have heard from a number of State departments of transportation, that the departments of transportation non-environmental requirements could be reduced to give more flexibility and reduce administrative burdens so States can focus on priorities and actually do things faster rather than the slowing down of things.

One idea is to make stewardship and oversight agreements and make them simpler, less prescriptive. The agreements can be unnecessarily complex that we have, often contain numerous Federal requirements and approvals that really shouldn't be required or aren't required by statute.

Could you see opportunities for these kinds of opportunities to be improved by the Federal Government in terms of being more flexible?

Mr. REINER. Mr. Chairman, absolutely. You described it very well. We would say simply that we would request for fewer requirements and more flexible terms, and think there are easy ways to do that.

Senator BARRASSO. Thank you so much. Senator Carper.

Senator CARPER. Thanks, Mr. Chair.

General Reiner, you were Adjutant General, weren't you, in your State, for a number of years? How many years?

Mr. REINER. Senator, I was the Adjutant General for 8 years.

Senator CARPER. That is great. Did you know Frank Vavala?

Mr. REINER. I did. He is a great gentleman.

Senator CARPER. One of the two most popular nominees for appointments I ever made as Governor, we nominated him, I think he served for 20 years.

Mr. REINER. He served us all for a long and faithful time.

Senator CARPER. He sends his best to you today.

I want to start the questioning, again, thank you all for this wonderful testimony. It is very much welcomed. I want to start, if I can, with Secretary Wicks. Almost everybody has said, we need to fund these projects, we need certainty, we need predictability. We can look at the States, the States are being bold in terms of doing their share, of meeting their obligations. I think leading by example for us, we are too timid when it comes to actually funding these projects. Everybody knows we need to spend more money, we need to spend it wisely, we need to make sure that the streamlining provisions we put in, whether environmental or non-environmental, are actually being implemented and the staffs are in place at the Federal level and the local level to actually fully implement those. We need to do oversight to make sure that they are being implemented well.

I want to ask Carolann, if you will, in terms of funding, talk to us a little bit to us about what we have done in Delaware with respect to funding using tolling. Especially as we have gone away from—if you will allow me to stop, I would say to my colleague from West Virginia, I remember as a kid the West Virginia turnpike where you would like, drive 10 miles, stop, put in a quarter, drive 10 miles, stop. People hated that. People hated the Delaware Turnpike, coming up 95, having to stop and pay \$4 for the privilege of going like 15 miles through Delaware and have to wait forever to get through our State. They hated it.

Now we have Express, EZ Pass, Highway Speed EZ Pass. People go through, it is charged to their Master card or whatever, and they are on their way. No muss, no fuss. I think this has really opened up a new opportunity to make tolling a better option for States than maybe we have done in the past. Would you share what we have done with 301? If you come out of Washington heading east on Route 50, go across, pass Annapolis, over the Bay Bridge. You come to a place where you can turn right, so on 50 you go to the beaches, the Delaware-Maryland beaches. If you turn left, you are on 301, which is a beautiful, beautiful, four-lane road through beautiful farm country. And you get to Delaware.

For years, you would go to Delaware and you slowed down. You had traffic lights, you had Middletown and congestion before you could ever get up to I-95. We have done something about it with some partnership. Would you just talk about that?

Ms. WICKS. Yes, Senator, the 301 project that you referenced is really a shining example of how we have, as a State, partnered with the Federal Highway Administration to deliver a project that really, we could not do on our own. We could not do it without really looking at ways to finance that and using the tools that are in the toolbox from FHWA. We were able to use Garvey bonds back when we were looking at accelerating and starting the design and real eState acquisition. So we were able to get out of the gate by being able to have those bonds in place to do that and fund those phases.

We were then able to use some TIFIA loans that also provided us another source of funding to keep ourselves going through the process. Then ultimately, we used revenue bonds, actually a longer term, a 40-year revenue bond that was not as traditional but that

helped us be able to spread out the payments and be able to have a sustainable source to pay back those bonds.

It has gotten off to a great start. It has been a project that has been long heralded as a needed project, not only for safety and removing some truck traffic off of our local roads, but it has also been recognized as something that would be an important way to help the economy and the development of southern Newcastle County.

Senator CARPER. Thank you. Ms. Arroyo, did you say you drive a Chevrolet Bolt?

Ms. ARROYO. A Bolt, which is 100 percent electric.

Senator CARPER. I was at the Detroit Auto Show about a year or two ago, it was named the car of the year. A decade earlier, the Chevrolet Volt was named the car of the year. Volt is a hybrid; the Bolt is all electric.

Ms. ARROYO. Yes.

Senator CARPER. When the Volt was announced as the car of the year, it got about 38 miles on a charge, then it had to go on gasoline. Bolts, when it was announced as car of the year a year or two ago, it was 240 miles on a charge.

Ms. ARROYO. Yes, I am getting over 250.

Senator CARPER. And the folks who are driving the Bolts are fortunately not putting out any pollution. But by the same token, they are not really paying for the use of the roads, highways, bridges, that they are using. The Chairman says that there needs to be some way to collect funds for that.

I think ultimately what we need to move to is a vehicle miles traveled approach. That is maybe by 10 years from now, we ought to be doing that nationally, increasing the large pilot projects leading up to that. Have I lost my mind on this, General, or does this make some sense to you? We will just go down the line, just very briefly, just one sentence. Eventually, does vehicle miles traveled, is that where we ought to get ready to go in terms of the user fee approach?

Mr. REINER. Senator, we certainly see a need for increased revenue. I am not here to tell the Congress how to fund it. But certainly we will put the funding to good use.

Senator CARPER. Mr. Braceras.

Mr. BRACERAS. Yes, Mr. Ranking Member, maybe a little example on what we are doing with our legislative in Utah might be useful. Two years ago, the legislature increased the fees for electric vehicles. It ratcheted it up 30 percent each year, and it is going to top out here in January 2020. This was done in conjunction with directing the department of transportation to develop a voluntary road usage charge program. So we will have that up and operational this January. Folks that drive electric vehicles can choose to continue to pay the increased registration fee, or they can participate in the road usage charge program. If they participate in that program, we have capped it, so no matter how many miles they drive, they will not pay more than they would have paid under the registration fee.

So for us, this is a time to ask some really good questions about how this can work. So we will have an operational road usage charge program coming up here within 6 months.

Senator CARPER. Good. We can learn from you. Max, really quickly.

Mr. KUNEY. When you look long term, VMT is potentially where we might need to be. AGC is very supportive of anything that will fund the Highway Trust Fund for sure. The gas tax is the easy, short-term answer. But when you look long-term, we are supportive of a national pilot to see.

There are some real challenges in collection and the costs associated with it, but you are correct, as you move to more and more fuel-efficient vehicles, more electric vehicles that don't use any gas at all, the gas tax is a diminishing return for a funding source.

Senator CARPER. Very briefly, Secretary Wicks, and then Ms. Arroyo.

Ms. WICKS. I would concur with my colleagues. It is, I think, a very positive future, forward-looking way to look at the funding. It hopefully would be more equitable, because it would focus on who is using the roads and for how long and how much. Working out the technology of it is already underway with pilot projects, with the I-95 Corridor Coalition and other programs throughout the Country. We should be hopeful that will provide us a new source.

Senator CARPER. Thanks. Very quickly, Vicki.

Ms. ARROYO. I agree that I think Congress needs to consider EVs as part of a longer-term strategy for funding the highway system that we all agree is underfunded. Some States, like Oregon and the I-95 corridor States are experiment with mileage-based user fees. Some through the Transportation and Climate Initiative, or in California, are looking at carbon pricing.

Many, as you heard, over 30, have raised their own gas taxes. Some are going to tolling. So there are a lot of different ways that we can raise revenues without only focusing on EVs, which a lot of States are trying to promote right now.

Senator CARPER. Thank you. Mr. Chairman, I like to say there are no silver bullets in this funding issue. Lots of silver BBs, and some are better than others and we need to learn from the States and see which are good.

We now have with us our chair and the ranking member from our Transportation and Infrastructure Subcommittee. I want to salute them and their staffs for the great work and leadership they are providing as we go through this process.

Senator BRAUN.

[Presiding] Thank you, Senator Carper. Senator Boozman.

Senator BOOZMAN. Thank you, Senator Braun. Mr. Braceras, Arkansas recently had, I started to say significant, but it was record-breaking floods, both in height and just the force of the water. Tremendous damage, lots of damage to the infrastructure.

The good news is, like Utah, Arkansas is working very hard, and they are going to recover. Great leadership in our State and all those kinds of things. I guess what I would like to do is, and again, so many of our States have gone through this lately. You experienced it, I believe, in 2015, in that area. Tell us what you learned, how you built back and mitigated perhaps from future floods, to help in that regard.

Mr. BRACERAS. Thank you, Senator, for the question. I think one thing that all State DOTs excel at is responding to emergencies

and disasters. The men and women that work in these departments are amazing people.

Senator BRAUN. They do a tremendous job.

Mr. BRACERAS. They just do a great job responding to that.

I think the partnership that we have with our contracting industry and our consulting industry was key to our ability to respond. We have limited staff, as every DOT does. When a disaster happens, whether it be flooding, whether it be avalanches that we deal with, or lately, some massive forest fires, we rely on our partnerships with our consultants to help give us the answers and for our contractors to respond 24–7 to emergency contracting proposals.

I would say that the challenge isn't over once the public thinks we have mitigated the danger. We get the roads back open; I think that's the time when we need to step back and we need to think about, what are we going to do to help this facility be more resilient to this type of occurrence in the future. That is something all the DOTs are working on right now.

I just picked up yesterday, I was up in Delaware attending the national conference. And a document that we are putting out, with the help of TRB, Transportation Research Board, it is for all DOT directors, talking about resilience, a DOT imperative. What we can do to help make our systems better prepared for this changing environment.

Senator BOOZMAN. In regard to the Federal Government response, what did you learn in that regard? Are there some things that we can do better?

Mr. BRACERAS. First of all, we are blessed in Utah with the partnership we have with our division administrators. I think that is one really important lesson. When you look at USDOT and even some of the other Federal agencies, the Federal Highway Administration, that modal administration, has people, employees on the ground in every State. What we do is we develop these working relationships with them that allow us to get things done.

So when an emergency happens, they are one of the first people we contact, and they are working shoulder to shoulder with our employees. Because if we are going to be turning around and asking the Federal Government to help us, either through emergency relief or through FEMA funds, to help pay back some of the money that we have had to lay out there, and we basically pull it from other projects, much-needed projects, we need to do the right things. We need to document things in the right way.

That is one thing that they do really well. That process could probably be streamlined a little bit. The ability to be able to incorporate more resilient features with the use of some of that emergency money I think would be a much better investment for the public right now. Pretty much, we can replace what is there in kind. That is not, sometimes, the smartest thing to do with the public's investment.

Senator BOOZMAN. Mr. Kuney, Arkansas is a small State, but we are blessed with a thriving trucking industry. I believe we have 5,000 trucking companies. Of those, 90 percent operate with 20 or fewer trucks. We have the bigs and the littles. The transportation industry is critical to our State and critical to the Nation.

Tell us about the impact, if we don't take care of the infrastructure, what that does to the economy, and also what it does to the trucking industry in regard to wear and the cost in that regard.

Mr. KUNEY. Sure. One dramatic instance that I know of where in the trucking industry and not taking care of our infrastructure came together was in 2013, when a truck hit the Skagit River Bridge north of Seattle and collapsed that bridge into the river. My company did the permanent replacement of that on an emergency design build. But that was a very dramatic instance of substandard bridge, too low, the cross members arched down, the truck was in the wrong lane, and hit it and down it went.

Senator BOOZMAN. The really great example there was the fact that they rebuilt it in a year. If they had , again, not skirting any issues in regard to safety, but everybody working together as opposed to, probably 10 or 20 years.

Mr. KUNEY. So actually, there was one company that put up the temporary bridges in about a month, and we did the permanent replacement in 88 days. We were way short of a year.

Senator BOOZMAN. Oh, yes. So why can't we do that?

Mr. KUNEY. Well, that was obviously an emergency. It is Interstate 5; it was the main north-south corridor for the State of Washington. But you are right, every agency came together to make that happen from Federal agencies right down to the dike district, that we had to get access over their levee to get to the site. Everyone was absolutely committed and focused and when you do that, I wouldn't say that is possible in every job, this was a pretty extreme example, but it definitely worked there.

Senator BOOZMAN. Thank you. Thank you, Mr. Chair.

Senator BRAUN. Senator Cardin.

Senator CARDIN. Thank you, Mr. Chairman. First, I want to concur in our Chairman and Ranking Member's initial comments that it is very important that this committee take the lead and pass a multi-year reauthorization. I hope it is at least 5 years. I was whispering to the Chairman, it would be nice to get beyond 5 years, as we have done in the past. But at least a 5-year, to get predictability, so that those that are planning major projects know that there is a dependable Federal partner.

I look forward to working with the Chairman and Ranking Member and Chairman Capito on the subcommittee on getting this moving forward.

There are so many needs out there. There are so many major needs. I think I will start with first, the north-south highway in the western part of my State that connects West Virginia, Maryland, and Pennsylvania, which is critically important for the economic growth of that region of our Country. I could talk about the Howard Street Tunnel, which is critical for freight rail on the east coast of the United States, that needs to be replaced. It is only about 120 years old, that tunnel, and it can't do double-stacking. That needs to be done. I could talk about the bridge between Virginia and Maryland, the Nice bridge that literally needs to be replaced before it falls down and we have another terrible episode that we could talk about. The need for commuter rail, rapid rail transit, the list goes on and on.

I am particularly pleased that we have been able to accommodate not just our State partners, but our local partners. And the Transportation Alternative Program dollars, I hear about that every time I visit a county in Maryland, they tell me how important those funds are for the local community to stay connected, so that they can transverse their community without having to get into cars, or a much more efficient way for safety issues or to accommodate their local development issues.

So for all those reasons, it is important that we move forward with reauthorization, and I very much appreciate the Chairman's candid comments about making sure that it is adequately funded. I think all of us have to step back a little bit, Senator Carper and I, and Senator Whitehouse, are all on the Finance Committee, so we are going to have to deal with it on both committees. But I think we are all going to have to back up a little bit and say, look, we are going to have to compromise here, and figure out a way that we can get a bill to the finish line that has adequate revenues in it. That is going to be one of our challenges.

I want to followup on a point with Mr. Braceras, that you pointed out, about resiliency. We experienced a pretty bad week here in Maryland and Washington. In Frederick County, we had about six inches of rain in 2 hours, which is unprecedented. It has really challenged our infrastructure.

So you mentioned resiliency. What can we do in the Federal reauthorization to put attention to the realities that we have to deal with what has happened out there, with our infrastructure being able withstand the assault that is taking place every day?

Mr. BRACERAS. Thank you for that question, Senator. The realization with most of us in the State DOTs right now is that the infrastructure system that we have built over the last 100 years is not going to be the infrastructure system that we need in our Country for the next 100 years. It needs to change and we need to help it adapt.

One of the things we have been working on within the State of Utah, and we have been working on it within our association, AASHTO, to help all the other State DOTs, is to start to better understand what those risks are associated with our different, we refer to them as lifeline corridors. So we will try to narrow in on our transportation system, identify what are those lifeline corridors, what are those roads that get us to the hospitals and to those critical areas that people need to be. Then design those, basically, to a higher level. So we will design them at a higher seismic level, we are in a high seismic area in Utah. So they will have a higher seismic level. We will also look at it from a flooding perspective, from a wildfire perspective.

Senator CARDIN. And that is important. But how does the Federal program help you do that?

Mr. BRACERAS. Sorry, Senator. I believe that the Federal program first needs to—this is an evolving field right now. This is a research project that just got done at this point. I think the Federal Government can continue to help support our associations and our State partners in helping develop these risk assessments for these facilities. Help us better understand—we need a programmatic way in which to make these decisions. As you mentioned, there are so

many needs out there. If we are not deliberate and strategic about picking which of those areas that we need to focus on to give us the highest return, based on a good risk analysis, then I think we are going to be shotgunning this approach.

So I think helping us identify a good way to approach this from a risk-based statistical analysis would be very helpful. And then as we move forward, States would be able to start to put together a program.

Senator CARDIN. Let me take my last 3 seconds and ask Ms. Arroyo.

Ms. ARROYO. If I could just build on that a little bit, because our center, our adaptation work is led by Jessica Grannis, behind me here. We work with States and cities. They need more guidance and assistance from the Federal Government with expertise, down-scaled modeling to inform what changes are underway. They need pre-disaster assistance so that they can plan for the next disaster, change their codes and standards so they are allowed to build differently when the disaster money flows.

And post-disaster, there could be better coordination across agencies. I think FHWA has done some really great work, but to coordinate with FEMA and align definitions and cost benefit analysis, that would really streamline things quite a bit.

Senator CARDIN. I will just make a very quick comment. I am ranking with Small Business. We are looking at disaster relief funds for planning before disasters occur. We are having that in Transportation. We need to beef up the planning capacity that we have. I think we can play a role in that in the reauthorization.

Senator BRAUN. Senator Capito.

Senator CAPITO. Thank you very much. I want to thank the chairman and the ranking member, and also my cohort on the Subcommittee on Transportation and Infrastructure. Our staffs have been working very well on this. We are very close to a bipartisan bill and we have such mutual desire to get this done. I refuse to be pessimistic.

Some of the things that we have looked at are regulatory improvements to expedite project deployment. Many of the things that you have talked about, supporting utilization of our natural infrastructure, and also other ways to reduce cost and increase resiliency. We have talked about this.

In terms of the pre-disaster mitigation, we did pass—I chair the Homeland Security Subcommittee on Appropriations, which funds FEMA. We did have in there this past year a pre-disaster mitigation fund that I think is going to be very helpful for big and small communities. I would start, I guess, with those that have repetitive issues, which in my State of West Virginia, we have several of those.

I want to talk about economic recovery has had divergent paths for rural and urban America. I live in a rural State. Our biggest city is 50,000, and I wouldn't say that is too urban. A beautiful State, but we have declining tax revenues, we have issues in terms of difficulty getting from place to place, we have a lot of deficient bridges, we are in the top five for our deficiency in bridges. I want to make that a separate question.

Starting with you, Mr. Reiner, where do you see the biggest obstacle for rural America in terms of the next highway bill? You mentioned the capacity it takes to meet all the challenges of the regulatory environment, and that could be streamlined. If you could dig into that a little bit for me.

Mr. REINER. Senator, thank you for that question. We would certainly, as we look to the future, really say that maintaining the formula and the formula funding is important to us in rural States from a standpoint of quick and efficient use of the money.

Senator CAPITO. Right.

Mr. REINER. And then in terms of regulations, we do think there are ways to streamline, specifically in the stewardship and oversight types of agreements, to make them simpler and easier to understand, and less onerous in terms of regulation.

Senator CAPITO. Mr. Braceras, do you have a comment on that?

Mr. BRACERAS. Yes, thank you, Senator. The State of Utah is interesting in that as a State we are doing tremendously well from an economic growth perspective. But that growth is taking place really in our six urban counties. We have 23 counties that Governor Herbert is really focused on that are not doing as well.

So we are looking at aspects of how our transportation planning, we can come in and provide transportation planning services for these communities. We are doing it with State dollars. What we are doing is, we are asking them the question, what can we do to help you become the community of your dreams, and then, how can transportation help facilitate that.

The government is bringing all the State cabinet agencies together on this mission of trying to help these communities kind of develop that uniqueness that might give them that little bit of advantage. We are trying to move State jobs out into rural Utah and provide the opportunity for State employees to telecommunicate more, so that they can still have a State job, but they can do it from rural Utah.

So I think any type of flexibility you can provide in the program to allow States to use the funding to be able to help these communities, because there is not one size fits all. I can go to so many rural counties and it is going to have different issues.

Senator CAPITO. Right. Ms. Wicks, I am going to shift to my bridge question, because I would imagine in Delaware, you have quite a few bridges. We have quite a few deficient bridges. What we have found, I think, and I think we are trying to remedy this in our legislation is, if a Governor has a choice to build a five-mile, four lane highway or fix a deficient bridge, we all know what is going to have a bigger kick back home. Not to say they are ignoring bridges, but you have to set priorities.

What are you finding in Delaware with your bridge reconstruction, and what could we do in this bill to help with that?

Ms. WICKS. I think you are right, rehabbing a bridge and its substructure is not very sexy.

Senator CAPITO. Right.

Ms. WICKS. So another project can certainly seem to get a better headline. We have maintained a rehabilitation approach. We have been able to educate our legislators and our elected officials and the public that preventative care will then yield greater rewards fi-

nancially than having to wait too long and then we have a reconstructive approach to the bridges.

This has served us well, and we are able to have that timely inspection, to be able to act upon that, to use technology to make the assessments and be able to efficiently combine improvements into a package that is either done by our maintenance folks or that we put it out to bid.

So I think trying to be able to communicate the benefits of doing that early, rather than waiting and how much more costly those improvements will be. And just the whole sense of safety to the traveling public, and not seeing the postings and school children having to go around and school buses. That message is something we have just continued to drive home year after year. It has paid off.

Senator CAPITO. All right. Thank you all very much.

Senator BARRASSO.

[Presiding] Thank you, Senator Capito. Senator Whitehouse.

Senator WHITEHOUSE. Thank you, Chairman, and thank you for your work to try to push this forward. I know we don't have a budget, a capped funding agreement with respect to this, which is, I think, a real liability. But as we continue to push forward, I think we are making that more likely. So thank you for doing that.

In the FAST Act, we required the National Academies of Science, Engineering and Medicine to do a report on innovative materials. They did so. It took a while, but it is out. And they came up with three recommendations. I am quoting from page 73 of the report. "A new Federal program to provide incentives for innovation in bridge construction, research needs to develop and evaluate innovative approaches to reducing the installed and life cycle costs of highway bridges, and other actions to encourage innovation to reduce life cycle costs of bridges."

On the program, they describe the Federal program can provide incentives for innovation and bridge construction, they point out the numerous technologies, I am reading again here, "at various stages of development, hold the promise for improving bridge performance and reducing life cycle costs. However, most require further development, evaluation or promotion to increase awareness of their potential among bridge owners. Congress should create a new Federal bridge innovation incentive program, administered by the Federal Highway Administration, to advance such technologies and to promote their use in U.S. highways."

Back in March, Mr. McKenna, an AASHTO witness, said in response to a QFR of mine, "It is important that any infrastructure bill include provisions to encourage the use of innovative materials for not only bridges, but other material as well. The use of new, innovative materials can make a bridge last longer, signs appear brighter from a long distance, or traffic signals operate more efficiently. Innovative materials can improve safety, reduce costs and increase the overall life of the Nation's surface transportation infrastructure. Specific to bridges, AASHTO agrees with the conclusion of the National Academies of Science report that using advanced materials and technologies does reduce costs and construction time, resulting in less impact to the traveling public."

Mr. Braceras, I assume you still agree with that statement?

Mr. BRACERAS. Senator, we absolutely agree that taking a strategic approach to research, innovation and advanced materials is critical for our future. If you look at where the great advances have been in the development of our highway program, you can go back to the Strategic Highway Research program that Congress funded and was carried through by the Transportation Research Board. Then FSHRP and SHRP 2, all the big things that we are doing today have helped and facilitated through that research program.

One of the things that the SHRP 2 program did that was really good is there was money provided to help States implement those types of things. That is really sometimes the difficult leap for States to make, is that implementation piece.

Senator WHITEHOUSE. And the reason is that there might be a spec for legacy material and not a spec for the new material, and it takes a little bit more effort and a little bit of, as you say, kind of intellectual risk, although these tend to be safer materials, to work through it at the bureaucratic level. And that is where the program that the National Academy of Sciences recommends comes in, to help balance the equation toward helping the innovative materials be at least on a level playing field with the legacy materials.

Mr. BRACERAS. And having Federal Highways work in partnership with the States, so that the States still get to choose what to implement and where. If the Federal Government is working in partnership to help mitigate that risk, give the States a little bit of cover, that will help with that implementation decision.

Senator WHITEHOUSE. So let me thank the Chairman and the Ranking Member for their continued work to help get the IMAGINE piece, the innovation materials piece, agreed to under this draft. I also want to thank the Chair and the Ranking Member for getting the Bridge Investment Act in. We still need, obviously, dollars for it, but it is important that it got in.

There are two programs, the Coastal Infrastructure Program, which is obviously very important given Ms. Arroyo's testimony. It is really important for those of us who have coastal infrastructure that is facing basically being overwashed by rising seas and storms. But at the moment, it is not yet subject to Highway Trust Fund dollars. So we are going to continue to work to make sure this is not just an orphan authorization sitting out there, but it actually is an avenue for providing access to Highway Trust Fund dollars. I thank you for showing me the nodding heads in support of that.

Similarly, port electrification, that can be very valuable to nearby communities, when you are not requiring ships to run bunker-fueled engines to keep the power on, that there is in fact enough local electricity to run a clean port. Again, that is part of our very important transportation infrastructure, and I am hoping that can get in to trust fund dollars.

So I guess I conclude with 2 seconds over, with that. Many thanks to many for great work so far, and we look forward to wrapping this up with those issues resolved to our satisfaction. Thank you.

Senator BARRASSO. Thank you, Senator Whitehouse, for all of your help and all your cooperation and contributions.

Senator MARKEY. Thank you, Mr. Chairman. Complete streets are designed to provide safe and accessible options for multiple

modes of travel, as well as for people of all ages and abilities. Streets should accommodate pedestrians, bicyclists and public transit users, not just cars and freight vehicles. Streets should also be safe for children, older individuals and individuals with disabilities.

That is why I am today introducing the Complete Streets Act. My legislation will promote these kinds of neighborhoods by requiring that States set aside a portion of their Federal Highway money to create a competitive grant program to fund Complete Streets projects at the regional and local level. I am proud that my legislation has been endorsed by Uber, Lyft and Via.

Ms. Arroyo, do you believe that a Complete Streets approach to our transportation network is an important priority for surface transportation reauthorization?

Ms. ARROYO. Absolutely. It is really important to give people alternatives. It is something that we covered in the future of the interstate highway system study, especially in urban areas with the congestion, and suburban areas, giving people safe alternatives like Complete Streets, investment in transit, arterial roads is as important as doing things on the highway itself. So thank you for your leadership.

Senator MARKEY. Thank you. So the transportation sector is our largest source of greenhouse gas emissions. In fact, vehicles driving on our roads represent 83 percent of those emissions. I have been working with Senator Carper and other members of the committee to focus on establishing goals and standards to reduce greenhouse gas emissions in the Federal Highway program. I have been working on legislation to accomplish this.

It is my hope that these principles can be included in the final Surface Transportation bill that the committee produces. We greatly appreciate the openness from the chairman on these concepts, given the reality our States are facing.

So again, Professor Arroyo, do you believe that reducing emissions in transportation is imperative to avert the worst effects of climate crisis?

Ms. ARROYO. Absolutely. It is the largest source, as you just said, of emissions. We have to tackle it.

Senator MARKEY. Do the States have the resources to accomplish those goals right now?

Ms. ARROYO. No, they do not. Part of why the States have banded together in the Transportation and Climate Initiative is to look at the twin challenges of the lower revenue that the transportation system is getting at the same time that we need to increase investment in low-carbon transportation solutions. So, looking at that together.

Senator MARKEY. So it makes sense then that any bill that we are going to be passing creates incentives to try to accomplish those?

Ms. ARROYO. Yes. If you can help invest in some of those strategies, they would be very grateful.

Senator MARKEY. Thank you. And we must also respond to the impacts of climate change that are happening now, rising temperatures, sea level rise and more powerful coastal storms. Our infrastructure is not as resilient to climate change as it should be. There are only two bridges that connect Cape Cod to the rest of

Massachusetts. Should an extreme weather event strike the Cape, these bridges would serve as vital escape routes for residents and vacationers alike. However, these bridges are currently in a dire State of disrepair and must be replaced.

In response to those concerns, I have introduced the ESCAPE Act, which would provide Federal funding for State, local and tribal governments to strengthen and protect essential evacuation routes, or construct new routes. Professor Arroyo, again, are current evacuation routes in our Country sufficient to deal with extreme weather events?

Ms. ARROYO. No, and on this I can speak from personal experience, in addition to the fact that I work on these issues. Because I am from New Orleans. My father, Sydney Arroyo, lost his life in the evacuation from Hurricane Ivan, which was a very stressful evacuation in 2004.

Senator MARKEY. I am so sorry.

Ms. ARROYO. And the fact that evacuation and the contraflow issues were so severe meant that a lot of people chose to stay at home the next year when Katrina hit, and obviously, over 1,000 people died from that, because they didn't leave, because of the faulty evacuation the year before.

So thank you for your leadership on that as well.

Senator MARKEY. Thank you, and we are so sorry for the tragedy.

So you believe that a surface transportation reauthorization should include substantial direct funding and grants for States and municipalities to improve resilience?

Ms. ARROYO. Yes, we appreciate that.

Senator MARKEY. Thank you. So, I think that is something that we just have to make a priority as we work through the legislation, just to ensure that we protect against what is inevitable, if we don't take action. Thank you.

Thank you, Mr. Chairman.

Senator BARRASSO. Thank you so very much.

Mr. Braceras, the Trump Administration has developed and implemented a one Federal decision policy for large, complex infrastructure projects. Among other things, one Federal decision requires Federal agencies to develop formal processes, as you know, for developing a schedule, for elevating disputes, and then also for working together to complete reviews and authorizations within 2 years. That is the whole goal of this one Federal decision.

Many of these elements are already the law, but some key aspects of one Federal decision, like the 2-year goal, are still missing. So could you, in your view, talk a little bit about this and would State departments of transportation benefit from adding the missing elements of one Federal decision to existing statute? And what else would you recommend?

Mr. BRACERAS. Thank you, Mr. Chairman. Utah and AASHTO applauds the Trump Administration's goal here of trying to make this process more efficient and effective. Any time we can make this process easier and faster, we are going to improve the investment of public dollars.

I believe we have to look at the 2-year goal kind of in the same light that I look at my goal in Utah of zero fatalities. It is a bold

goal. But there is a lot of underlying details that I believe will make attaining that goal more difficult than it may sound initially.

There is also, I think just from a challenge perspective, it makes sense to have one Federal agency take the lead on this and to be a champion for this decision, instead of basically passing you off between different Federal agencies. So we really like what the goal is stating and where it is going. We believe there is a lot of work that needs to be put into it to make that a reality.

Senator BARRASSO. Anyone else want to add to that? Thoughts on that?

Mr. REINER. Mr. Chairman, from our perspective, we are certainly confident that schedules can be shortened, really without reducing environmental protection concerns.

Senator BARRASSO. Good. And also for you, Mr. Reiner and Mr. Braceras, one of the safety issues that disproportionately affects several States with membership on this committee is wildlife-vehicle safety. Not necessarily just in the Rocky Mountain West, but all across the Country.

According to a recent study, Wyoming, West Virginia, Iowa, South Dakota, Mississippi, represent five of the top ten States for incidents of deer-vehicle collisions. In Wyoming, roughly 15 percent of all reported vehicle collisions involve big game animals. This adds up to more than 6,000 annual collisions, costing nearly \$50 million in damages to vehicles, and human injury as a result. As a surgeon, I have taken care of people involved in these situations, wildlife loss, it happens every year.

Fortunately, research shows that effective measures, such as wildlife crossing structures, can reduce wildlife-vehicle collisions, they say by up to 80 percent. So could the two of you, and if any of you have other issues or knowledge about the issue, do you believe this is an area where Federal Government could help States do more to reduce collisions, and what might those be?

Mr. REINER. Thank you, Mr. Chairman. Certainly the short answer is yes, we do think there are some issues that the Federal Government could help with. Wyoming has been a national leader in improving safety for humans and animals alike by building the crossings that you discussed, and upgrading fencing and making some other improvements.

We have game migration and collision data, we have identified or prioritized a top ten list of locations for crossing improvements. In locations where we have installed crossings in the past in our State, we have seen dramatic reductions in collisions. What we lack, and where the Federal Government could assist, is adequate, flexible funding to address these crossing issues and we certainly hope to find help in the committee's bill.

Senator BARRASSO. From AASHTO's standpoint, what do you see?

Mr. BRACERAS. Yes, this is an important area, and it is both from the safety perspective that you mentioned, Mr. Chairman, but it is also from an economic perspective. In the State of Utah, our big game is a very important part of our economy. It is really a defining element of our State. A lot of our families, that is their thing that they look back on that talks about what is important to them.

We just recently completed, using Federal money, we just recently completed a major bridge over Interstate 80, an eight-lane section of I-80, between Salt Lake and Park City. We usually like to tell people that we need 3 years of data before we want to talk about this being a success.

Well, the media started getting some of the pictures of the cameras that we have set up there. And even the wildlife professionals have been shocked at how quickly the game have become accustomed to this. It is wide enough, and it is built in a natural way. We are not letting people or bikers go on that. As a biker, I was disappointed.

[Laughter.]

Mr. BRACERAS. But it is being very successful. We have, with the combination of the crossing in the right place, because you can't force it, you have to look at the migration patterns, that, with the wildlife fencing, we have had a dramatic decrease in crashes. This is moose crashes with cars and deer. And a moose with a car is quite a bit different situation than a deer.

Senator BARRASSO. The moose often walks away, the driver often does not. These are amazing. This is a major collision.

Ms. Wicks, I don't know from a Delaware standpoint, but certainly neighboring States, Pennsylvania, New Jersey, New York, this is not just a Rocky Mountain west issue, is it?

Ms. WICKS. No, and you are right, we don't have the moose. But deer certainly are a part of the issues that we wrestle with as a State. We haven't, to my knowledge, looked directly for an overpass like that. But a lot of the rural roads, it is happening there. You wouldn't have the ability to have the kinds of crossing you are referring to. But the challenge is for all of us.

Senator BARRASSO. And to Mr. Braceras and Mr. Reiner, minor projects in the operational rights of ways often address preventive maintenance, preservation, safety issues, the things that you just need to do as part of the routine maintenance. But before proceeding to construction, often State departments of transportation need to get Federal permits or approvals for these projects in the right of way. Some of the Federal agencies can be slow in terms of evaluating or even to respond to you for the requests.

I don't know if either of you have run into problems in Utah or Wyoming, and what can we do to incentivize Federal agencies to be more responsive to State departments of transportation, working on maintenance and preservation and safety projects?

Mr. BRACERAS. Thank you, Mr. Chairman. Maybe just a few elements on this. This was an important element to the former chairman of this committee, Chairman Inhofe, at the time, on the operational right of way. When we go and build a road, or widen a road, we do an environmental document, we go through a very deliberate process on this, and we clear that for operational right of way. Then if we have to come back and do some maintenance work, we typically have to go back and go through that permitting process again, which seems redundant. What we have done in Utah is we have taken advantage of some of the tools that you have provided to us.

What we have done is, we have taken on NEPA assignment. Through NEPA assignment, we have been able to become the deci-

sionmakers to be able to make those decisions much quicker within that operational right of way. It has saved us time and money, Mr. Chairman.

Senator BARRASSO. I know that Senator Braun is going to be coming back, I will get to you in a second, Mr. Reiner. He is going to be coming back and he has some additional questions. You just heard the buzzer, which means the second vote has started, and he was going to speak, he was going to vote at the end of the first and the beginning of the second, but they didn't close the first vote until Senator Whitehouse got there.

[Laughter.]

Senator BARRASSO. This is known as a transportation program. So this is why we are having this hearing today.

Mr. REINER. Thank you, Mr. Chairman. To add to Mr. Braceras, really in our mind I think allowing other agencies the opportunity to use categorical exclusions which are available to the Federal Highway Administration would help speed up the environmental review process, and would still certainly allow us to protect the environment.

Senator BARRASSO. Thanks. And Mr. Kuney, what has been your experience from the contracting side, when Congress fails to enact a highway bill, States don't know much funding is going to be available? I think we heard from Mr. Reiner, it is slower, smaller projects, I think is the way you put it.

So I am especially interested in understanding how that uncertainty can affect things like what you do in terms of project delivery schedules, costs, equipment, purchases, hiring, how that all plays out when you have so much uncertainty.

Mr. KUNEY. That uncertainty certainly flows right downhill to the contracting community. We look at the STIP, we look at the 6-month projections and different DOTs do different things. But we absolutely are using those to plan what the opportunities are in the future, what projects we are going to chase, where we think the market will be.

If we know that our folks at the DOT aren't sure if they are really going to have any projects, then we are certainly going to be looking at hiring, we are going to be looking at investing in our employees, we are going to be looking at equipment. We are probably going to be cutting back on all of that, because unless we know that there is going to be a market in the future, you can't make those investments.

The other problem, too, and I think Carlos, you said this, but when funding comes, you can't just all dump it in one big chunk, too. Because first of all, now everybody is unprepared. They have been holding off on investments. You dump a whole bunch of work on everybody all at once, and you are going to get higher prices because people are going to have to pick and choose. They aren't going to be geared up for that level of work.

So this up and down thing is really hard on our work force, frankly, both the craft workers and the engineers. Because you can't keep gearing up and down constantly. So the smooth level probably hopefully trending upward line is the best for the contracting community.

Senator BARRASSO. Thanks. Director Braceras, innovations can help save project costs. They can help us do things faster, better, cheaper, smarter, accelerate project delivery. What more can the Federal Government do to support and encourage States to use innovation and technological developments and deployment of the technology that is out there to deliver highway projects faster, better, cheaper? What kinds of things do you see that would work?

Mr. BRACERAS. Mr. Chairman, it is all about partnership. When I talked to Senator Whitehouse's comments, I talked about the risks that States take when we do something different, something new. I mean, we are inherently—we have been trained to be risk-averse. There are very little accolades coming from taking a risk and being successful, but we are pretty good in the media, and I am sure Members of Congress know how this goes, at being punished for perceived mistakes. So we tend not to be the riskiest types of people.

What the Federal Government has done really well, I will give an example. We were the first State to build a bridge off to the side of the highway and then move it into place on an interState over the weekend. When we did that, yes, there was additional cost. When the media came and said, how much extra money is this costing, I was able to say, it is about \$600,000 but the Federal Government gave me a grant to cover that additional cost, that additional risk. I was able to pass that kind of red-face test that you have to do with the media and with my legislators.

So that type of partnership, to help us make that step forward, to implement something new, something exciting, something that is going to benefit the entire Country in the future, would be really good for Congress to do.

Senator BARRASSO. What did you call that, the red-face test?

Mr. BRACERAS. Yes, that is what I tell folks. When you are standing in front of the media or my legislature, if you can pass the red-face test, so you are not getting embarrassed about what you are saying, then you are probably doing something OK.

Senator BARRASSO. We will share with the other members of the committee. They may find it helpful someday.

[Laughter.]

Senator BARRASSO. Thank you very much. Senator Braun.

Senator BRAUN. Thank you, Mr. Chairman. This is when the Senate really moves, when you are in an Aging Committee about 45 minutes ago and you go make two votes, and then you hustle back here. I didn't want to miss it because—and put on a tie.

[Laughter.]

Senator BRAUN. I am setting a new sartorial trend here in the Senate, no ties until you go on the Chamber floor. I don't think anybody has followed suit yet, but maybe in time.

Infrastructure is a big deal to me. I was a State legislator in Indiana and ran for the State legislature for one reason: roads and bridges. I live in the southern part of our State, and we have always been the stepchild of infrastructure in Indiana. We are the crossroads of America. When I had the stark realization, when I went there, to be a proponent for a road in my neck of the woods, I got dressed down quickly; do not come here asking about a road, help us figure out how to pay for it.

So I took that seriously, and in 2017 I served 3 years. We actually passed long-term road funding. I am going to give you a few things that stand out vividly.

Seventy percent of Hoosiers wanted better roads and bridges. Seventy percent did not want their taxes raised to pay for it. That was depressing.

Tolling, we polled that significantly. Everyone was for a toll road if they didn't live near one. So it got to be very complicated as to how you would do it.

We have not raised the gas and diesel tax in many years, I think it was 2002, maybe. That was a stretch of 15 years. Here I think it has been 1993.

So with that being said, I did, along with being a rookie there, and a co-author of the road funding bill, which I was very proud of, we put a stream of cash-flow out, nearly a billion dollars a year, that would get to a billion after three, four, 5 years, and then continue on that plane through 10 years. Then we will have to look at what the next round of funding would be.

We are going to address all of our tier one projects, which includes a bridge across the Ohio, completing Interstate 69. I also authored a bill that I think is going to be the essence of what we do here, and in other places. And that is to somehow figure out how you get skin in the game from all the government entities that are below the Federal Government.

The reason I say that is, I am a finance guy, a Main Street entrepreneur. The balance sheet could not be worse here to take on a project that is anywhere from a couple trillion to four trillion, if you want to really do it right across the Country. I am worried about that. I am worried about that for defending our Country, I am worried about that for infrastructure, and I am worried about that for the three programs that most would think are important here that are going to quickly not fund themselves anymore: Medicare, Social security and Medicaid.

So how do we do it? There I crafted a bill, it was called, it was through a regional development authority. Areas like mine have always been interested in infrastructure, never had any involvement in its own destiny, or a way to pay of it. We got a bill across in 1 year that both the head of transportation and ways and means, both of which I sat on, said it was going to be too complicated to do, but we did it. Because the need was there. We were losing infrastructure to the tune of 5 percent a year in maintenance and deterioration.

Long story short, that was 2017. In 2018, we teed up that bill with a regional development authority, raised \$7 million between local governments, led first by local industry, to shame the local governments into matching it, paid for the EIS, environmental impact study. We are now doing something that we had talked about for 40 years.

We also did something called community crossings grants, and that was cities and counties always asking for the State to do more. Well, someone had a novel idea, and as soon as I heard it, I got with it and said, hey, let's throw \$100 million out there on a 50-50 match. The complaining was, it is your responsibility, we don't want to pay for any of it, over-subscribed in the first year. It is now

into its second or third year, and it is the most popular program there, because we are fixing roads and bridges.

I think you can get where I am coming from. This place, if you are looking to the general fund to pay for anything, you don't have an eighth-grade arithmetic education, you certainly don't know anything about the finance. And transferring from the general fund, when the general fund is running trillion-dollar deficits, that wouldn't fly anywhere else.

So I think the solution is, I have introduced an idea of infra grants, which we will discuss, to where we start letting States that have been responsible to bid for more of the infrastructure bill. Start encouraging skin in the game, especially when you are looking at a place like this that has set a very bad example to defend our Country and pay for it, to take care of infrastructure or entitlement programs.

By virtue of, I think I am the last one here other than Senator Carper, I am going to run a little bit over my time and take advantage of it. I do want to ask the question, do you think in your own mind, and whoever wants to jump in and answer the question, how can we pay for infrastructure with the financial condition that the Federal Government is in, and the only other options are States who have great balance sheets, mostly, the private sector since 2008 has great balance sheets through private-public partnerships, which I know some people don't like.

Aren't we just whistling into the wind if we think that you can continue like we have been relying on general fund transfers without at least doing what the chairman suggested, raising user fees, which we did in Indiana? Forty-eight out of 50 testifiers, other than the Petroleum Institute and the Americans for Prosperity, who I generally would agree with, but I believe a user fee needs to be paid, the tool that you are going to use to pay for infrastructure. Give me your honest opinions, because you can see what mine is.

Mr. BRACERAS. I will be the first to step out, and I will say I am speaking as Executive Director of UDOT right now. AASHTO is working on trying to bring forward—

Senator CARPER. Let me just interject a second. I want to hear all you have to say. We have one more vote, and I have two places I am supposed to be, so I would ask you if you could, just to be brief. Thank you. It is an important question.

Mr. BRACERAS. Thank you. AASHTO is trying to bring forward specific revenue suggestions, but won't have those votes done until our annual meeting later this fall. So I am going to speak from UDOT. I believe we need to be user-based, I believe we need to have it, I believe the gas tax is the right way to go initially, looking at road usage charges in the 10 to 15-year timeframe.

As a State that is only about 19 percent of our program is Federal funded, the rest is State funded. I like the idea of recognizing those States that have been able to self-help. But there is a need for a Federal national transportation system. The State of Utah relies on good roads in Arkansas, it relies on good roads in Mississippi. Our businesses need to have that national transportation system.

So because we have been able to help ourselves, it might not be the same case in other States. I believe, if you want to look at toll-

ing, there are places for tolling. But for us, the challenge is, on the interState we can only go apply for a pilot program. So it is one road versus another road.

I think if we are successful at tolling, we are going to have to toll a system, so that there is a little bit more fairness across the board. So our legislature has given us as a department and our commission the authority to make those tolling decisions. That is my comment.

Senator BRAUN. Thank you.

Mr. KUNEY. AGC certainly supports that the Highway Trust Fund needs to be funded by the users of the system, and a user fee is the best way to do that. The gas tax is obviously the one that is in place right now. But those who benefit from the use of the system need to be the ones to pay for it.

Ms. WICKS. I concur with my colleagues. Being able to support user fees is the way to go. It is not always easy, though, on existing road systems that you already have to do that. Transitioning to mileage-based user fees is something we should not take our eye off the ball, because that may be a more equitable way to generate those funds.

Ms. ARROYO. Thanks for the question. This is something that we looked at in the future of the interState highway system and talked about alternatives, some of which are being piloted by the States, like mileage-based user fees, tolling, even on highways, but the feds would have to allow that, like we are doing now in Virginia in I-66 inside the beltway. States are raising their gas taxes. As you said, it was 1993 since that has been done.

Because I work on climate with the States, I see carbon pricing as a potential solution, because then you are creating a disincentive to have carbon-based fuels. While I am on that topic, I will just mention that there are significant subsidies, still, to fossil fuels in the U.S. The range is from \$5 billion to \$15 billion that could probably be saved. That doesn't factor in the cost, of course, to the military budget or the cost of externalities in terms of air pollution, which is well over \$100 billion.

Then finally, large trucks on the roads, Class A trucks, are probably underpaying their share based on the roadway impact relative to their weight and their use. That might be something else to look at.

Senator BRAUN.

[Presiding]. Thank you.

Mr. REINER. Senator, I would certainly say it is one of the options that needs to be explored.

Senator BRAUN. Very good. And that was one of the hardest things, as a fiscal conservative in Indiana, I got up on the microphone and actually depicted how much it would cost my own trucking company. Every trucking company in the State of Indiana was for the higher diesel tax, which was 20 cents, and the gasoline tax was 10 cents. Thank you.

Senator CARPER. On the proposals for more revenues, including user fees, one of the strongest advocates for that are the trucking folks. And they conditions of the roads, highways, bridges, every day, they are willing to do their part. This actually should be helpful to us and give us the courage to do the right thing.

Senator BRAUN. Exactly.

Senator CARPER. Thank you. One question and then I have to run. Thank you all so much for coming, this has been great. A special thanks to Secretary Carolann Wicks, but all of you as well. It is great to see you.

A question for Ms. Arroyo. How can the highway bill, how can a transportation bill encourage States to try to reduce the climate impacts of driving on the highway system, including reducing vehicle miles traveled in single occupancy vehicles with internal combustion engines? How can we do that, especially with a focus on reducing vehicle miles traveled in single occupancy vehicles with internal combustion engines?

Ms. ARROYO. Sure. So again, price signals like tolling or carbon pricing would make a difference, especially if you reinvest those proceeds in alternatives to internal combustion vehicles. That might include continuing the support for electric vehicles, building up the charging infrastructure, as we discussed, based on what the State and regional folks are already trying to do with interState corridor planning but don't have the funds to actually implement.

Looking at investing in maybe cash on the hood for EVs as opposed to credits later, so that other people, including people who can't afford EVs right now might be able to afford them up front, investing in alternatives like transit-oriented development, Complete Streets, things that allow people to have active transportation as an alternative to conventional highway use.

Senator CARPER. That is a pretty good list. A quick question, if I could, for Carolann Wicks and Carlos. What changes do we need to make in this reauthorization bill to help the public understand what they are getting from highway spending, from transportation spending? Very briefly, please.

Ms. WICKS. I think we mentioned earlier that there is a great recognition by the public when we have community-based improvements. So the TAP program really focuses on things that need, you know, Main Street, USA. And people recognize then that their tax dollars are going to something right in their community, things that are very important to their own safety, to their biking and walking, their businesses, all of those things contribute to a healthy local economy.

I think once you have been able to help the public see those realities, those on the ground projects, being able to then promote and talk about larger projects is going to be an easier way to prove to the public that their investments are going to go to the right places, and that it is a long-term investment. Not everything can be done as quickly. But once you have proven some of the good projects and the things that people want in their own backyard, it will go a long way to being able to convey the entire program's needs.

Senator CARPER. Good. Thank you. The last word, yes.

Mr. BRACERAS. I think we have to do a better job describing why we do what we do. As an engineer, we like to talk about bridge sufficiency ratings, we like to talk about pavement smoothings. I think we need to be talking more directly with the public about why we are doing this project here, what is the benefit they are going to see from this project, will they see less maintenance on their vehi-

cles, will they see a safer facility where there will be less crashes happening.

We just have not tied that to the type of funding that we are providing right now. It is a little bit more difficult to do. Engineers aren't the best communicators in the world. But I believe we can do a better job communicating why transportation is important to our economy and the quality of life and tying the Federal program to that more directly I think will help the public get behind the difficult decisions that have to be made.

Senator CARPER. Good. You said engineers aren't the best communicators. Really, some of you are engineers, and I think you have done a pretty good job communicating today. Message sent and received. Thank you so much. God bless you all, great to see you. Thank you.

Senator BRAUN. With no further questions, members, who are mostly vacated, can submit questions to the record for up to 2 weeks. We did have a lively discussion here, because it is such an important issue. I want to especially thank all of you for great conversation. You can see that we know the need is there. We have to figure out how to pay for it.

Thank you so much for coming in to discuss our Nation's surface transportation needs. This hearing is adjourned. Thank you.

[Whereupon, at 11:38 a.m., the hearing was adjourned.]

[Additional material submitted for the record follows.]



DOUG BURGUM
GOVERNOR OF NORTH CAROLINA
CHAIR

KATE BROWN
GOVERNOR OF OREGON
VICE CHAIR

JAMES D. OGSBURY
EXECUTIVE DIRECTOR

July 9, 2019

The Honorable John Barrasso
Chairman
Committee on Environment & Public Works
United States Senate
410 Dirksen Senate Office Building
Washington, D.C. 20510

The Honorable Thomas R. Carper
Ranking Member
Committee on Environment & Public Works
United States Senate
456 Dirksen Senate Office Building
Washington, D.C. 20510

Dear Chairman Barrasso and Ranking Member Carper:

Western Governors support the creation of more efficient infrastructure permitting and environmental review processes without shortening timelines for state input and consultation, or compromising natural resource, wildlife, environmental, or cultural values. The Fixing America's Surface Transportation (FAST) Act, which expires in 2020, was a significant step in improving the federal infrastructure approval process. The Governors also urge Congress to include funding and provisions in the transportation reauthorization bill state-supported transportation infrastructure projects that support fish and wildlife crossings and habitat connectivity.

Thank you for examining the reauthorization of the FAST Act in your July 10, 2019 hearing on Investing in America's Surface Transportation Infrastructure: The Need for a Multi-Year Reauthorization Bill. To inform the Committee's consideration of this important topic, I request that the Committee include the following attachments in the permanent record of the hearing:

- WGA Policy Resolution [2018-15](#), *Modernizing Western Infrastructure*;
- WGA Policy Resolution [2018-06](#), *Transportation Infrastructure in the Western United States*; and
- WGA Policy Resolution [2019-08](#), *Wildlife Mitigation Corridors and Habitat*.

Thank you for your consideration of this request.

Respectfully,

James D. Ogsbury
Executive Director

Attachments



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

¹ 40 CFR § 1501.6(b).

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 cooperating 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.



Policy Resolution 2018-06

Transportation Infrastructure in the
Western United StatesA. 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

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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.

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SAFE PASSAGES ON WYOMING ROADS

Wyoming's wildlife and roadways are both important resources to the state's economy and heritage, yet they often come into conflict. When big game cross roadways, it can be dangerous for motorists and for the animals. Fifteen percent of all reported vehicle collisions in Wyoming involve big game animals. Although the vast majority of accidents involve deer, vehicles also hit larger animals like elk and moose, and these collisions are usually more dangerous than collisions involving smaller animals.

Every year, more than 6,000 deer, pronghorn, elk and moose are hit by vehicles on Wyoming's roads. These accidents cost nearly \$50 million annually in damages to vehicles, human injury expenses and loss of wildlife.

When vehicles and big game collide, it is not only a safety hazard for humans; it is also bad for the wildlife. Nearly all animals hit by vehicles are killed. Roadway collisions cause avoidable deaths for many big game herds, some of which are already in decline. Traffic and roadside fences make it stressful, difficult or even impossible for animals to cross roads. This interferes with the animals' ability to follow their migration routes or access the food and habitat they need to thrive.

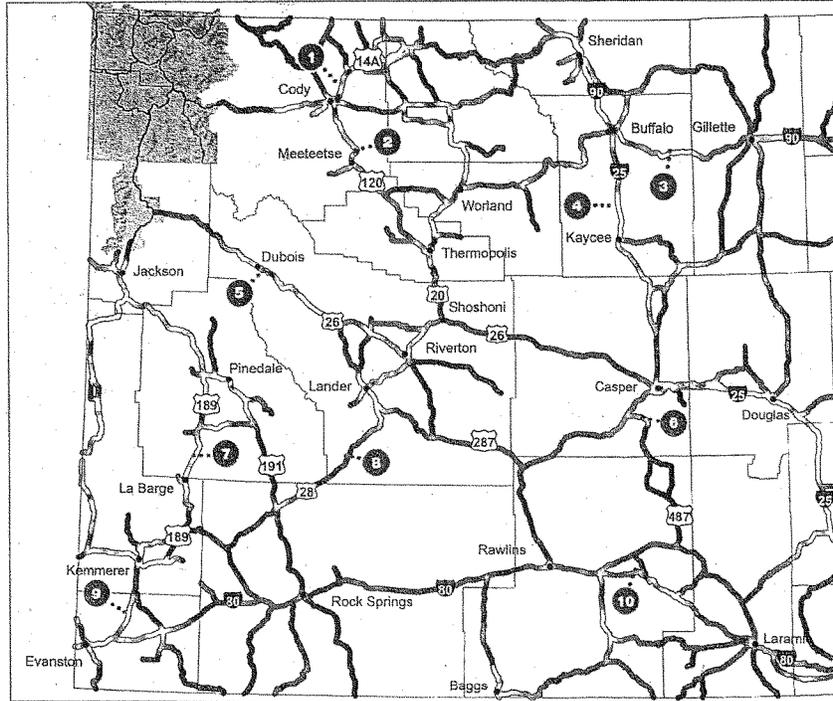
Fortunately, there are steps we can take to reduce the conflicts between roads and wildlife.

NEXT STEPS

The Wyoming Wildlife and Roadways Initiative began in 2017, with the Wyoming Wildlife and Roadways Summit. At this event, more than 130 representatives from government and non-governmental organizations, as well as scientists and members of the public, gathered to share ideas about how to reduce the problem of roads and wildlife. The Wyoming Wildlife and Roadways Initiative Implementation Team was formed to take the summit recommendations forward.

Led by the Wyoming Game and Fish Department (WGFD) and the Wyoming Department of Transportation (WYDOT), the team identified more than 240 sites around the state that are the greatest concern for wildlife and motorists. The two agencies are already working together at a local level to address many of these sites. Using best available data and expert knowledge, the team identified a smaller group of 40 sites that are both high priority and may require more involved and costly solutions such as crossing structures. Ten of these are highlighted on the accompanying map.

EXAMPLES OF HIGH PRIORITY LOCATIONS FOR ACTION



- 1 Cody**

 - Average 31 mule deer collisions per year in the first 4 miles outside of Cody
 - Opportunity to install fencing that directs animals to a safe crossing under an existing bridge
- 2 Meeteetse**

 - Collision hotspots for elk, mule deer, and pronghorn, costing \$324,000 annually
 - Elk-vehicle collisions are particularly dangerous and costly
- 3 Powder River**

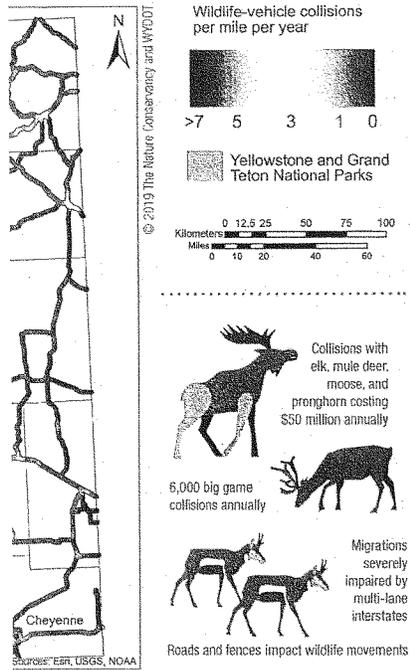
 - Average of 60 deer collisions on this stretch every year
 - Multi-lane interstate is a significant barrier to mule deer and white-tailed deer movement
- 4 Kaycee**

 - Average of 53 animals hit on this stretch every year
 - Multi-lane interstate is a significant barrier to mule deer and white-tailed deer movement
- 5 Dubois**

 - Average of 136 mule deer collisions costing \$746,000 per year
 - Road impairs movements for bighorn sheep and the WGFD priority Dubois mule deer herd
- 6 Bates Hole**

 - High rate of collisions relative to traffic volume
 - Collisions known to be under-reported
 - Road affects pronghorn and a WGFD priority Bates Hole/Hat Six mule deer herd
- 7 Dry Piney**

 - Average of 117 mule deer collisions costing \$646,000 per year
 - Moose also frequently hit
 - Road impacts the WGFD priority Wyoming Range herd
 - Fence impacts pronghorn



- 8 Sweetwater
 - Pronghorn migration is impaired by fencing
 - Mule deer migration from the Red Desert to Hoback – the longest known mule deer migration – also impaired
- 9 Kemmerer
 - Average of 80 deer-vehicle collisions costing \$462,000 annually
 - Road and fence impact the WGF priority Wyoming Range mule deer herd and pronghorn movements
- 10 Halleck Ridge
 - Mule deer and elk migrations severely impaired by the multi-lane interstate
 - Elk-vehicle collisions are a major safety concern
 - Road affects WGF priority Platte Valley mule deer herd

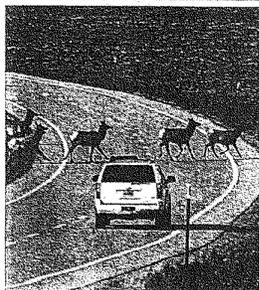
CROSSING STRUCTURES

Crossing structures have already been installed at several locations in Wyoming, where they have dramatically reduced wildlife-vehicle collisions and improved habitat connectivity for big game. There are currently six underpasses west of Kemmerer; six underpasses and two overpasses west of Pinedale; two underpasses north of Baggs; and six underpasses under construction south of Jackson. Studies have shown >80% reductions in wildlife-vehicle collisions and thousands of deer, pronghorn, and elk using these structures every year.

Collisions before underpasses installed at Nugget Canyon, west of Kemmerer

Collisions after underpasses installed at Nugget Canyon, west of Kemmerer

WY Migration: Atlas of Wyoming's Ungulates
Oregon State University Press
© 2018 University of Wyoming and University of Oregon



SOLUTIONS THAT WORK

Wildlife underpasses and overpasses, which allow animals to cross roads below or above the road surface, are highly effective at reducing wildlife-vehicle collisions and ensuring that animals can cross roads safely. These wildlife crossing structures consistently reduce collisions by 80-90% and create more connected habitat for the animals. Wildlife fencing is used to guide animals to the crossing structures.

There are many other potential solutions to wildlife-roadway conflicts, but none are as effective as crossing structures. In some places, crossing structures are not feasible. In these spots, other measures, such as movable message signs that can be set up during peak wildlife crossing seasons, fence modifications, and alterations to roadside vegetation that make animals more visible to drivers may also be part of the solution. Drivers can also help by slowing down and watching out for wildlife in areas that have high rates of wildlife-vehicle collisions.

BENEFITS OF ACTION

Installing crossing structures or other solutions at the 10 highlighted sites would be a significant win for both human safety and wildlife conservation. It would:

- ▲ Reduce wildlife-vehicle collisions at some of the worst collision hotspots in the state by as much as 90%.
- ▲ Save approximately \$3 million per year in collision costs.
- ▲ Provide a safe way for wildlife to cross several highways that are now nearly complete barriers to animal movements.
- ▲ Maintain big game migration passages and reduce mortalities for several priority herds.

FUNDING NEED

Substantial funding is needed to implement the solutions we have identified for the statewide priority areas. WYDOT and WGF Wyoming have a long and productive history of collaboration between agencies and organizations to reduce wildlife and roadway conflicts. State and federal funding has not kept pace with Wyoming's roadways and wildlife needs. Therefore, additional funding is needed to implement the most effective solutions, such as crossing structures.

KEEP UP WITH THE WYOMING WILDLIFE AND ROADWAYS INITIATIVE
<https://arcg.is/Kjarz>

CONTRIBUTE TO SAFER ROADS

You can contribute to safer roads for wildlife and people by purchasing a Wildlife Conservation license plate from WYDOT: http://www.dot.state.wy.us/wildlife_plate



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