

AMERICAN ASSOCIATION  
OF STATE HIGHWAY AND  
TRANSPORTATION OFFICIALS

**AASHTO**

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

**Surface Transportation Investment Needs**  
**of the United States**

BEFORE THE

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

ON

**November 28, 2018**

American Association of State Highway and Transportation Officials  
444 North Capitol Street, N.W., Suite 249  
Washington, D.C., 20001  
202-624-5800  
www.transportation.org  
[info@ashto.org](mailto:info@ashto.org)

## **INTRODUCTION**

Chairman Barrasso, Ranking Member Carper, and Members of the Committee, thank you for the opportunity to appear today and address the surface transportation investment needs faced by our country.

My name is Carlos Braceras, and I serve as the 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 as a registered professional engineer and a geologist. 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. I am also the current Chair of the Board of Directors of the Intelligent Transportation Society of America.

My testimony today will emphasize four main points:

- Ensuring a strong federal role and investment in surface transportation by preparing for the next long-term surface transportation bill;
- Examination of surface transportation investment needs;
- Maintaining a strong federal investment in surface transportation by stabilizing the Highway Trust Fund; and
- Preparing for and harnessing significant technological advancements.

## **ENSURING A STRONG FEDERAL ROLE AND INVESTMENT IN SURFACE TRANSPORTATION BY PREPARING FOR THE NEXT LONG-TERM SURFACE TRANSPORTATION BILL**

Throughout the history of our country, transportation has played an integral role in the success of our economy. Transportation is the foundation of the economy and quality life for every state in the nation. A well-functioning safe transportation system will help ensure the United States maintains its leadership position in the world. States have done an admirable job of addressing transportation within their boundaries, but there is clearly a need for a cohesive national transportation system. Take for instance, AdvancePierre Food Services, whose plant in Oklahoma ships throughout the country to other plants and retailers. Their success would not be possible without an effective interstate transportation system. While AdvancePierre's plants may

be in Oklahoma and other states throughout the country, Utah's transportation system needs to be able to support businesses such as this; nearly a quarter of the traffic on Utah's interstate system is commercial freight vehicles, carrying goods like AdvancePierre's food products to Utah and through it. Just as AdvancePierre depends on a reliable, effective, well-maintained, and safe transportation system in Utah, the businesses located in Utah also rely on effective national transportation system to move its products across this country and around the world.

This 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 surface transportation infrastructure. It drives home the point that our nation's transportation system is one of the key foundational elements necessary to ensure the economic vitality of our country.

The state departments of transportations (DOTs) have the utmost appreciation for your Committee's leadership, along with your Senate and House peers in partner committees to shepherd the Fixing America's Surface Transportation (FAST) Act in December 2015. This legislation has ensured stability in the federally-supported passenger rail, freight, safety, highway, and transit programs through 2020. While the five years authorized under the FAST Act has given us a temporary reprieve—thanks to over \$140 billion of General Fund transfers since 2008—from recurring deep cuts in obligations due to the annual gap between Highway Trust Fund receipts and outlays expected to grow to \$26 billion ten years from now, the case for maintaining a strong federal role and investment in transportation remains as important as ever.

To further build on the federal surface transportation's solid foundation, we believe that it is now time for all transportation stakeholders—led by Congress and the President—to begin work on reauthorizing the FAST Act, and to ensure a smooth transition upon the FAST Act's expiration on September 30, 2020, without the need for disruptive extensions of the program. Under the direction of AASHTO's Transportation Policy Forum, the state DOTs earlier this year initiated an extensive 18-month effort to develop and adopt reauthorization policy recommendations by October of next year. It is a bottom-up process, where we are currently in the process of gathering expert input from our wide range of technical committees comprising leaders from all state DOTs. We're also seeking our industry partners' input during this process prior to our formal adoption later next year, in order to maximize the inclusivity of perspectives in our policy recommendations to come.

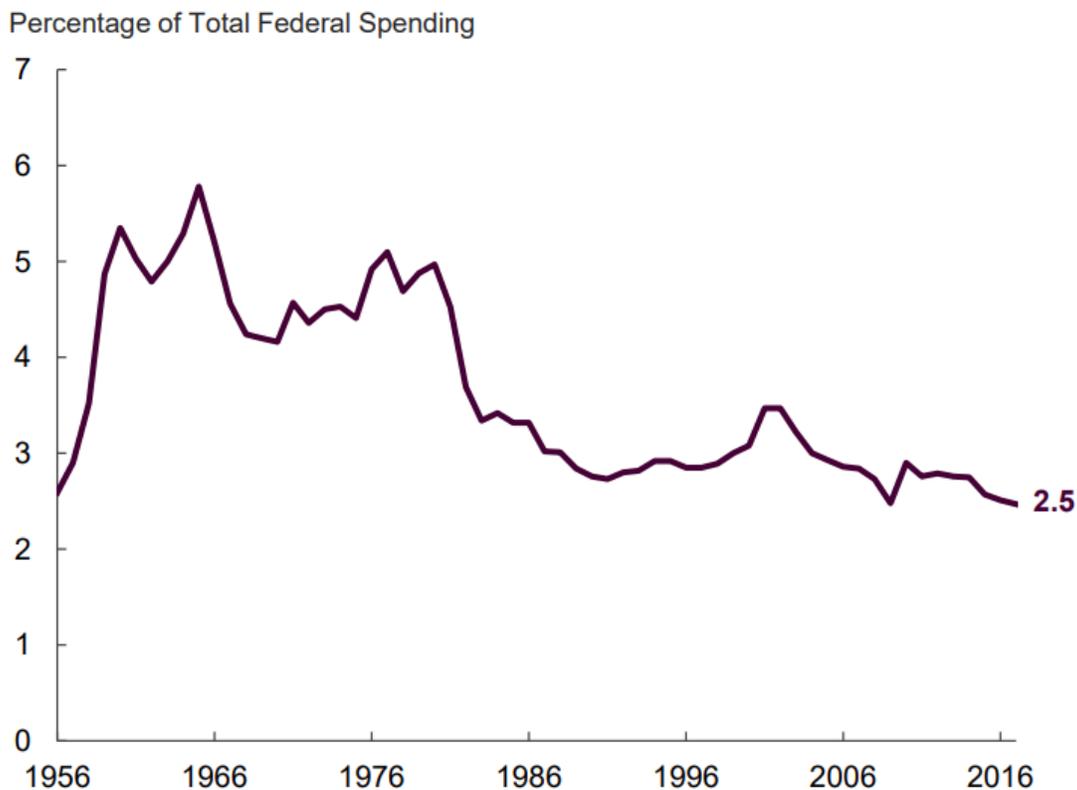
As FAST Act reauthorization gets under way, we strongly recommend that federal funds to continue to be provided through the existing formula-based program structure directly to states rather than looking at untested new approaches that will require more time and oversight. For over one hundred years, we as a nation have enjoyed the fruits of the federal government's highly successful partnership with state DOTs to build and maintain our surface transportation system. Beginning from the Federal-aid Road Act of 1916 establishing the foundation of a *federally-funded, state-administered* highway program that has been well-suited to a growing and geographically diverse nation like ours, federal investment in all modes of transportation have allowed states and their local partners to fund a wide range of projects that serve the interest of the nation as a whole. The federal surface transportation program's inherent flexibility defers

project selection and investment decision-making to state and local governments based on extensive public input from local communities and businesses to address their needs and ensure goods get access to a larger market than ever before. Putting the formula program framework that built the Interstate Highway System and the National Highway System—the backbone of our national network of roads and bridges that drive our national economy—into work again to underpin the next surface transportation legislation represents the optimal approach to serve all corners of our country, improving mobility and quality of life in urban, suburban, and rural areas.

**EXAMINATION OF SURFACE TRANSPORTATION CAPITAL INVESTMENT NEEDS**

Despite substantial funding challenges for 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 US Department of Transportation’s (USDOT) *2015 Conditions and Performance Report*. Similarly, the American Society of Civil Engineers has identified a \$1.1 trillion funding gap for surface transportation between 2016 and 2025. Despite these growing needs, federal investment in transportation and water infrastructure has declined substantially from almost six percent of total federal spending in the 1960s to only 2.5 percent by 2017.

**EXHIBIT 1. FEDERAL SPENDING ON TRANSPORTATION AND WATER INFRASTRUCTURE, 1956 TO 2017**



Sources: Congressional Budget Office

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

It is also telling to look where our nation stands relative to global peers in infrastructure quality and economic competitiveness. The *2018 Global Competitiveness Report* rankings from the World Economic Forum on infrastructure quality has listed the United States at just ninth place overall.

**EXHIBIT 2. US INFRASTRUCTURE QUALITY RANKINGS**

Index Component	Value	Score *	Rank/140
 <b>Pillar 2: Infrastructure</b> 0-100 (best)	-	<b>89.5 ↓</b>	<b>9</b>
2.01 Road connectivity index 0-100 (best)	100.0	100.0 =	1
2.02 Quality of roads 1-7 (best)	5.9	81.1 ↑	11
2.03 Railroad density km of roads/square km	23.2	58.0 =	33
2.04 Efficiency of train services 1-7 (best)	5.7	78.5 ↑	6
2.05 Airport connectivity score	7,293,521.7	100.0 =	1
2.06 Efficiency of air transport services 1-7 (best)	5.9	81.5 ↑	8
2.07 Liner Shipping Connectivity Index 0-157.1 (best)	86.3	86.3 ↓	7
2.08 Efficiency of seaport services 1-7 (best)	5.8	80.6 ↑	5
2.09 Electrification rate % pop.	100.0	100.0 =	1
2.10 Electric power transmission and distribution losses % output	5.8	98.1 ↓	26
2.11 Exposure to unsafe drinking water % pop.	0.5	100.0 =	1
2.12 Reliability of water supply 1-7 (best)	6.1	84.6 ↓	27

Sources: *The Global Competitiveness Report 2016-2017*

Given that much of the Interstate system has now reached the end of its design life and must be reconstructed or replaced—and there is considerable need for additional capital improvements to the broader federal-aid highway network and the country’s transit system—the federal government should strive to return to this prior level of investment relative to the national economy. States have stepped up in the meantime to fill the funding gap, with 31 states successfully enacting state-level transportation packages since 2012.

In Utah, the legislature recently adopted an increase to the state fuel tax and indexed both the fuel tax and registration fees to the Consumer Price Index to help transportation funding keep pace with inflation. Additionally, for many years Utah’s legislature has dedicated a portion of state sales tax—represented as the percentage of sales tax generated from the sale of automobiles and automobile parts—to help fund the state’s growing transportation needs. The state has also authorized local governments to adopt various local-option sales taxes to help fund local and regional transportation needs across modes. Finally, this year the Utah legislature directed UDOT to develop and implement a Road Usage Charge (RUC) program for certain alternative fuel and hybrid vehicles. Under this program, which begins on January 1, 2020, Utah will join Oregon as one of two states with an operational RUC program. As directed by the state legislature, UDOT will continue to study further expansion of a RUC program beyond the alternative fuel program as a potential future replacement of the fuel tax.

However, efforts by Utah and other states to fund our transportation alone is not enough to meet the large backlog of needs—the federal government must look to step up its share of investment.

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

**MAINTAINING A STRONG FEDERAL INVESTMENT IN SURFACE TRANSPORTATION BY STABILIZING THE HIGHWAY TRUST FUND**

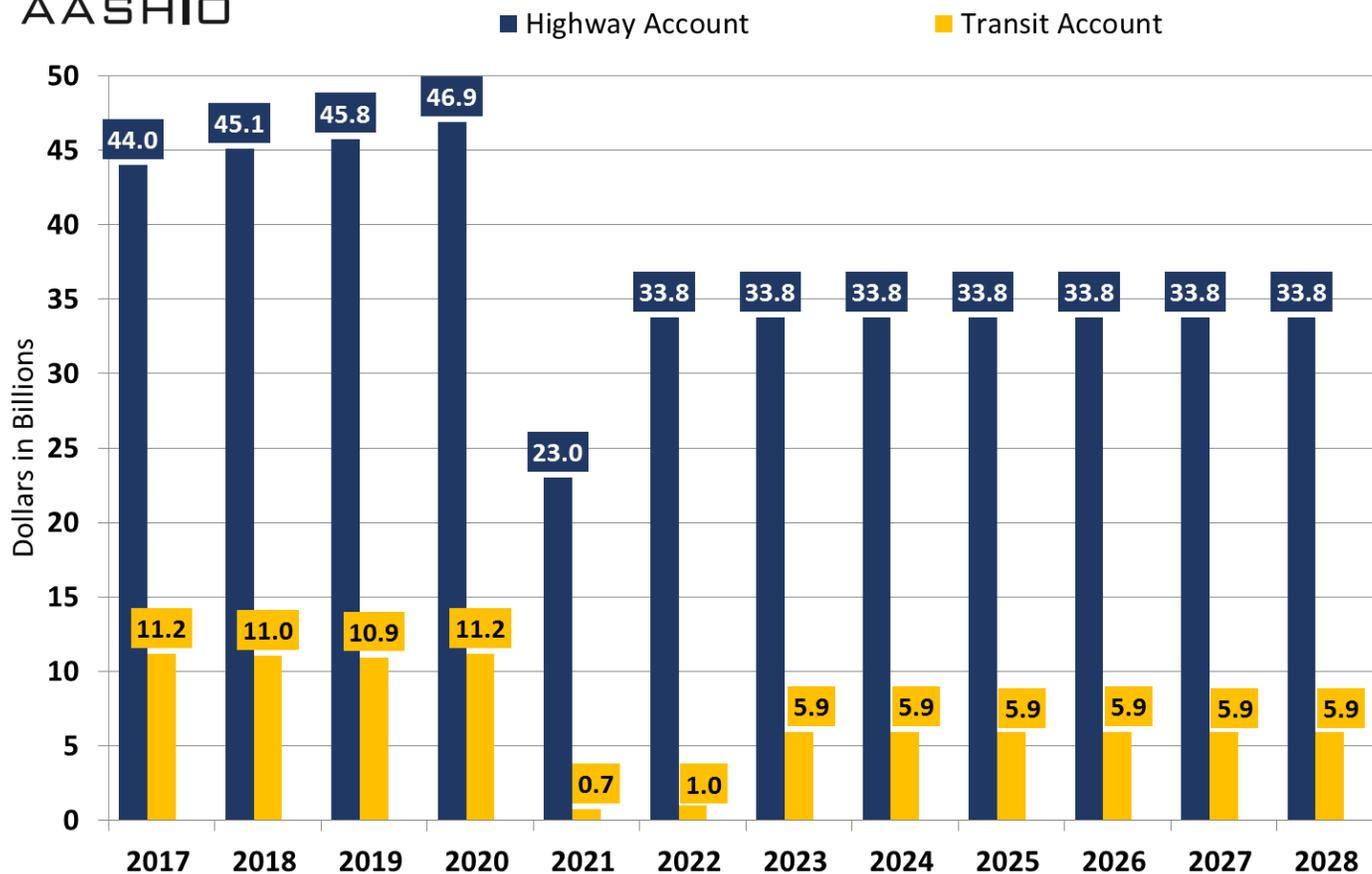
According to the Congressional Budget Office, in order to simply maintain the current Highway Trust Fund (HTF) spending levels adjusted for inflation after the FAST Act, Congress will need to identify \$89.9 billion in additional revenues for a five-year bill through 2025; \$114 billion would be needed to support a six-year bill through 2026. At the same time, the purchasing power of HTF revenues has declined substantially mainly due to the flat, per-gallon motor fuel taxes that have not been adjusted since 1993, losing over half of its value in the last quarter century.

These dire trends mean that absent a revenue fix by 2020, the HTF is expected to experience a significant cash shortfall leading to an estimated 51 percent drop in highway obligations from the year before, or from \$46.9 billion to \$23 billion, and a zeroing out of obligations from the Mass Transit Account in 2021 and 2022 (excluding dollars flexed from the Highway Account). In the past, such similar shortfall situations have led to the possibility of a reduction in federal reimbursements to states on existing obligations, leading to serious cash flow problems for states and resulting project delays. Simply put, this is a devastating scenario that we must do all we can to avoid.

**EXHIBIT 3. ESTIMATED FEDERAL HIGHWAY TRUST FUND OBLIGATIONS THROUGH 2028**



## ESTIMATED FEDERAL HIGHWAY TRUST FUND OBLIGATIONS



For illustrative purposes, this scenario assumes maintenance of a “minimum prudence balance” of \$4 billion in the Highway Account and \$1 billion in the Mass Transit Account. Highway Account obligations exclude amounts flexed to Mass Transit Account; Mass Transit Account obligations include amounts flexed from Highway Account. ©2018 American Association of State Highway and Transportation Officials

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

We in the transportation industry do everything in our power to build important projects as fast as possible, but due to the nature of large capital programs, including an extensive regulatory process, many of them 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. Major transportation projects around the country will be put to risk near the expiration of the FAST Act if Congress fails to address both the

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

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

In Utah, uncertainty surrounding the rescission and difficulty to determine the amount of contract authority that will be available in the different funding categories is hampering our ability to plan and program projects for the remainder of the FAST Act authorization. This could negatively impact UDOT's asset management program since a key component of the program is having the right funding available to do the right treatment at the right time. By applying surface treatments before major damage occurs we can maintain roads at comparatively low cost. Studies have shown that every dollar spent on preservation can save up to \$10 in rehabilitation and up to \$25 in reconstruction costs. Utah's federal highway funds are a critical component of our asset management program. Cuts to federal funding or even delays to the flow of federal funds to Utah's asset management program could delay preservation treatments, driving up asset management costs and impose long-lasting impacts to the health of the system.

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

## **PREPARING FOR AND HARNESSING SIGNIFICANT TECHNOLOGICAL ADVANCEMENTS**

I believe that we are at an inflection point in the transportation arena that is as significant as when the engine replaced the horse and buggy. Today, the dramatic change underway is the merger of technology between the car, truck and other vehicles with the roadway. This will change the way we move goods, services and people on our roads and highways. In the future, I view data as the new asset that will dramatically enhance public safety, save lives on our roadways, improve mobility, enhance program and operational efficiency, and create jobs. It is important now, more than ever, that we maintain relationships at local, state and federal levels to ensure our transportation system is not a bottleneck of continued innovation.

At UDOT, innovation is part of our culture and we've witnessed the success that innovation can bring. We were the first state to implement a large-scale design build project with the completion of a major reconstruction of Interstate 15 in record time ahead of the 2002 Winter Olympics. We were the first state to implement Construction Manager/General Contractor (CMGC) as a project delivery method that has helped us speed completion of projects and lower costs. We've implemented innovative interchange and intersection designs that save lives and provide more cost-effective solutions. The federal government can be a critical component to innovation, partnering with states to enable and facilitate creative solutions. In Utah, our partners at the Federal Highway Administration's Division Office continue to be an important ally as we

explore and implement innovative solutions to our transportation challenges. As the owners of a significant amount of the highway transportation infrastructure, state DOTs are at the forefront of preparing for deployment of connected and automated vehicles (CAVs), including ensuring that the current infrastructure is in a state of good repair such that any vehicle can operate on it in a safe and effective manner. In addition, many state DOTs are starting to plan, design, deploy, operate, and maintain the technology needed for CAVs, including vehicles equipped with ADS and vehicles connected to each other and the infrastructure.

Traditional investments include providing better lighting, consistent roadway design and better signage—investments that are especially needed on rural roads. A crucial component to improve roadway safety is spectrum for vehicle-to-infrastructure, V2V or as commonly known V2X, which needs to be preserved, and rural broadband expanded. Currently, UDOT is implementing Dedicated Short Range Communication within this spectrum to create a safer and more efficient transportation system. The National Highway Traffic Safety Administration also must move forward with industry on the proposal to establish a Federal Motor Vehicle Safety Standard for vehicle-to-vehicle communications (V2V). Cooperative V2V and vehicle-to-infrastructure (V2I) safety systems are needed to support fully automated vehicles, supported by robust research and deployment. Institutional capacity and workforce skills will need to be upgraded to operate, maintain and secure new smart roads and intelligent vehicles.

State DOTs strongly believe that the overall benefits will be seen with autonomous vehicles that are also connected with other vehicles and the infrastructure on which they operate. AASHTO is a founding member of the V2I Deployment Coalition, on which I also serve, along with the Institute of Transportation Engineers and the Intelligent Transportation Society of America, and various transportation industry representatives. This began as a concept to create a single point of reference for stakeholders to meet, discuss and collaborate on V2I deployment related matters. In addition, AASHTO recently established the Cooperative Automated Transportation (CAT) Coalition, with the aim of creating a clearinghouse of connected and automated vehicle policy frameworks, identifying funding opportunities and financing models to enable near-term investments, and to identify model regulations that enable near-term pilots and deployments.

States are continuing the initiative to develop policies to accelerate convergence of connected and autonomous vehicles and define industry interactions for full deployment.

For example, in Utah, the state legislature adopted HB 373 allowing UDOT to conduct a connected vehicle technology testing program on its roadways. We partnered with Peloton Technology to test a system which facilitates platooning of two-tractor-trailer rigs on a stretch of I-80. Both drivers continue to steer the trucks but an automated system controls acceleration, responds instantly to changes in speed of the front truck located 50 feet ahead, and respond to road hazards up to 800 feet away. The efficiency of air flow results in a savings of about five percent for the front truck and ten percent for the rear truck. This year, the Utah legislature adopted SB 56 fully authorizing use of this technology on Utah roads. States such as Florida, Michigan and Nevada have taken the initiative of policy changes and the state level, coupled with new guidance and standards at the national level, to effectively prepare for technological advancements that will provide a greater overall public value in the future.

Promising potential abounds when it comes to the use of drones, or Unmanned Aerial Vehicles (UAVs). As of May this year, AASHTO identified 20 state DOTs conducting research regarding the use of UAVs, and another 15 state DOTs are in the research phase—testing drones to determine how they can be utilized. The aircraft have assisted state DOTs with bridge inspections, accident clearance, surveying and identifying, monitoring and mitigating risks posed by landslides, rockslides and flooding.

Another area that has seen rapid gains is the use of “big data,” which refer to volume (large amounts of data), variety (different data being combined), and velocity (the speed at which new data is being produced and added to the analysis), used to analyzed computationally to reveal patterns, trends, and associations, especially relating to traffic patterns, human behavior, and interactions. A great example can be seen in 16 states DOTs—including Utah—partnering with the Waze, a popular driving app. Under its Connected Citizens Program, there has been increased and ongoing partnership between Waze and various governmental agencies to share publicly-available incident and road closure data to facilitate smoother movement of vehicles and people. Recognizing the public value of partnering with the private sector, Utah began partnering with Waze in 2013 and was one of the first states to do so.

An important component to advance roadway technology is the ability to create a digital highway with fiber optics to make our roads smarter and safer, benefiting surrounding communities, including underserved rural areas. In Utah, we believe this is best accomplished through P3s and streamlining federal regulations that provide maximum flexibility to states, which have enabled Utah to successfully support expansion of service provider networks. The property value of linear highway corridors is a major incentive enabling P3s. These partnerships began in the late 1990s when a change in federal law allowed the states to accommodate longitudinal access of telecommunications facilities within interstate rights-of-way under certain conditions. Utah changed our state law to allow companies to lease or barter in-kind for this access. These successful P3s have enabled us to significantly expand highway operations over large, remote expanses of the state as well as enabling private providers to expand their service in both urban and rural areas. The Utah DOT deploys conduit and fiber with every road project that makes sense and coordinates road projects with any telecommunication company that wants to partner. Through these partnerships Utah has realized over 2,600 combined private and public miles of fiber, conduit and circuit, with a total value of almost \$90 million to the public. Utah’s P3 approach to fiber has allowed us to not only expand our traffic management system, but has facilitated the expansion of broadband into rural areas of the state. That fiber system will provide the backbone for the future connected transportation system.

Federal policies need to support P3s such as these by carefully considering the uniqueness of each partnership. The ability to be flexible is what makes these partnerships possible. Rigid regulations or mandates can remove the very flexibility that is needed, complicating implementation and adding unnecessary additional system costs.

**CONCLUSION**

State DOTs remain committed to assisting Congress in the development of policies that will ensure long-term economic growth and enhanced quality of life through federal investments provided to all states under the long-term surface transportation legislation. You can be fully assured that AASHTO and the state DOTs will continue advocating for the reaffirmation of a strong federal-state partnership to address our surface transportation investment needs.

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