EXECUTIVE SUMMARY OF POLICY RECOMMENDATIONS

I. Accelerate the Deployment of Intelligent Transportation

Reduce Vulnerability to Cyberattack and Build Assurance in the Security of New Technologies: Address security and privacy requirements for “internet-of-things” technology, specifically those that are unique to transportation. Expand efforts to respond to emerging cybersecurity threats with regards the testing and deployment of automated vehicles and automated driving systems. Expand support at the State and Local levels to address cybersecurity of infrastructure. Address security at the Federal level where it makes sense, especially where it can convene and resolve approaches and agreements to address vulnerability. Resist uncoordinated efforts by or requests for Federal agencies to impose disparate requirements, such as a recent petition for the Federal Communications Commission (FCC) to regulate Vehicle-to-Vehicle (V2V) and Vehicle-to-Infrastructure (V2I) security and privacy in a way that conflicts with National Highway Traffic Safety Administration (NHTSA) and Federal Trade Commission (FTC) activity.

Establish the Foundation for the Deployment of Automated Vehicles: Build public confidence by achieving broad industry participation in the NHTSA policy, guidance and standards development process. Engage with industry, states and local authorities, safety regulators, and advocates to address their concerns about safety such as testing, as well as to help them in establishing processes that would help the transition from testing to larger scale deployment. Advocate for changes or clarifications to Federal Motor Vehicle Safety Standards or other authorities to support new technologies (e.g. for Automated Vehicle, ADAS, visibility, lighting, etc.). Support legislation in Congress that advances the deployment of automated vehicles in a safe manner and would maintain the balance of responsibilities between state and local government and the federal government in reference to operational safety laws and regulations of motor vehicles and their operators after automated vehicles have been introduced on public roadways. Support legislation in Congress that expand of National Highway Traffic Safety Administration’s (NHTSA) authority in granting exemptions to Federal Motor Vehicle Safety Standards (FMVSS), specifically expansion of the number and duration of exemptions allowed under the law, understanding that real-world data can be generated to inform the safe deployment of automated vehicles.

Work with Industry and Policymakers to Advance Applied and General Artificial Intelligence (AI) to Improve Transportation: Advocate for appropriate applied AI research and data sharing in reference to safety and security engineering, and identify and address rare dangerous or ethically challenging AI scenarios. Monitor progress with general AI, directing attention to potential long-term positive and negative disruptive economic impacts.

Establish the Foundation for the Deployment of Vehicle-to-X Safety and Mobility Communications: Advance a Federal standard for passenger vehicle V2V and push USDOT guidance on V2I to ensure smooth deployment of Dedicated Short Range Communications (DSRC) by addressing vehicle interoperability, security, and privacy. Advance same standards for trucks and buses. Explore vehicle communications requirements beyond short range crash avoidance and driving automation. Establish paths for upgrading V2V and V2X standards when next generation wireless systems, such as 5G, are deployed in telecom networks over the long term, addressing same issues as above.

Build Broadband Infrastructure and Secure Spectrum to Support Advanced Vehicle and Transportation Infrastructure Technologies: Include broadband networks in any infrastructure legislation, including broadband funding for rural or otherwise hard-to-serve areas. Explore opportunities to expand “smart cities” transportation technology deployment along with deployment of small cell 5G deployment in urban and suburban areas. Support a technology-driven approach to spectrum sharing between Wi-Fi and DSRC that allows Wi-Fi use in the 5 GHz band, but in a way that preserves the safety and utility of DSRC without unduly burdening road users and transportation infrastructure operators.
Upgrade our Infrastructure to Accommodate New Automotive Technologies: Encourage more operational research in addressing how infrastructure upgrades will complement new vehicle technology deployment, such as connected/automated vehicles and alternative fuel vehicles. Upgrade road technology infrastructure—such as power, communications, and security—to ease expansion of vehicle-to-infrastructure mobility and safety applications. Upgrade and integrate energy infrastructure, such as charging stations for electric vehicles and encourage distributed energy resource (DER) management. Advocate updates to uniform traffic control device standards and traffic codes where helpful.

Breathe New Life into our Nation’s Transportation System by Expanding Technology Integration: Provide guidance and support to Federal, State, and Local agencies on the best way to integrate disparate Federal competitive grant programs to achieve broader safety, mobility and accessibility outcomes. Use programs to encourage deployment of smart community technologies to improve access to jobs, healthcare, education, and housing. Besides mobility and safety, advise on how programs can address sustainability and resiliency. Seek programs that can provide better-than-before environmental health—outcomes such as lower emissions and noise. Seek programs that can make transportation networks more resilient to adverse events such as severe weather and to support emergency operations such as evacuations.

Expand Mobility by Establishing Unconventional Systems, such as Ground Delivery “Bots” Unmanned Aerial Vehicles (UAVs), and High Speed Guided Systems as New Modes of Transportation: Address constraints to UAVs in next Federal aviation reauthorization and encourage testing and safety/traffic management models for industry and public sector cooperation. Encourage exploration of operational concepts and partnerships at the state and local level to promote integration of UAVs. For ground delivery unmanned robots, encourage a “complete streets” design approach to their integration. Working with Federal, state and local governments, encourage thoughtful consideration of permitting and safety assurance for unique long-range high-speed guided mobility systems such as Hyperloop.

II. Remove Roadblocks for Deployment of Intelligent Transportation

Build Public Confidence in the Privacy, Security, and Safety of New Transportation Technologies: Expand support at the State and Local levels to address privacy of infrastructure technology solutions, and encourage industry and public sector to establish policies such the auto industry’s recent Privacy Principles for Vehicle Technologies and Services. Work to implement existing architecture and standards for ensuring anonymity for Vehicle-to-X communications using DSRC, and engage with NHTSA, FTC, and FCC if necessary.

Leverage Technology to Address the Problem of Distracted Driving Where There Are Practical Solutions and Work to Change the Driving Culture: Encourage more research to understand the complexity of Distracted Driving and the factors that elevate crash risk (or potentially reduce crash risk as in the case of safety technologies). Where necessary, establish industry guidelines for new types of driver interfaces, such as voice command systems.

Bridge Gaps between Research & Development and Deployment of New Technologies: Advocate for more collaborative investment in high-risk/high-reward R&D and operational testing. Use “challenges” and other competitions to foster innovation in getting new technologies and integrated systems deployed. Establish a clear roadmap for architecture and standards that are needed to accelerate technology deployment from a commercial/public procurement perspective. Identify needs to create or maintain architecture and standards that assure quality, safety, security, accessibility, interoperability, and reliability of products, processes, and services for critical initiatives—such as connected and automated vehicles, or systems that address vulnerable road users (e.g. pedestrians, cyclists, etc.). Examine workforce education and training needs to determine if lack of technical skills is limiting deployment of new technologies, especially in public infrastructure. With government and industry partners, promote the lifecycle of research, development, adoption, performance management and technology
tracking. Support legislation in Congress that would establish technical committees/councils of outside experts to advise the Secretary of Transportation and Congress on rulemakings and standards with respect to automated vehicles. Address issues pertaining to mobility access for disabled communities, mobility access for senior citizens and populations underserved by traditional public transportation, labor and employment issues, environmental impacts, transportation and mobility impacts, vehicle communications with roadway and infrastructure assets, and consumer privacy and security.

Research on Advanced Technologies and Long Term Impacts to our Transportation System: Establish a clear Federal role and list of priorities that can enable a cross-fertilization of ideas, techniques, and discoveries around foundational elements supporting commercialization of connected and automated vehicle new concepts of mobility such as UAVs. Support legislation in Congress that would expand the authority created in the FAST Act to test vehicles not in compliance with FMVSS to universities, new market entrants, technology firms, and automotive parts suppliers. Examine long-term issues such as job dislocation because of technology changes and balance those changes with immediate gains from new technology jobs. Analyze skills and education requirements to facilitate new technical jobs in auto and road technology management and maintenance.

III. Support New and Long-Term Funding and Financing for Technology-Driven Mobility and Intelligent Transportation Infrastructure Deployment

Increase Overall Investments in Transportation with a Greater Focus on Technology: Support new and long-term sustainable funding and financing for transportation infrastructure and systems including highway and transit that expands technology-driven mobility investments and preserves the broad ITS eligibilities under Moving Ahead for Progress in the 21st Century (MAP-21) and the Fixing America’s Surface Transportation Act (FAST Act) to fund ITS capital projects and operations and maintenance. Advocate for flexible policies regarding Federal/State/Local matching requirements (e.g., 100% Federal funding upfront for technology-driven mobility infrastructure investments).

Achieve Transformative Intelligent Transportation Integration in our Nation’s Transportation Infrastructure through an Infrastructure Plan: Support increased formula funding for FAST Act highway and transit programs, recognizing that Moving Ahead for Progress in the 21st Century Act (MAP-21) and FAST Act clarified that ITS improvements are eligible uses of most formula program funds. Increase funding for the Intelligent Transportation Systems Program (ITS), Advanced Transportation and Congestion Management Technologies Deployment Program, Technology and Innovation Deployment Program (TIDP), and for the Surface Transportation Block Grant program (STBG) and Congestion Mitigation and Air Quality Program (CMAQ) – flexible programs that often fund deployment activities; and increase the federal share for the Advanced Transportation and Congestion Management Technologies Deployment Program. Support a new program similar to the Bush-era Urban Partnership Agreements and include both formula and grant components to support congestion mitigation and mobility improvements. Eligible projects would include capital and operational investments that improve system safety and performance. Examples include priced managed lanes; transportation demand management programs; strategic transit investments; advanced parking, freight delivery, and incident management systems; and programs to support the deployment of autonomous vehicles, including vehicle-to-vehicle and vehicle-to-infrastructure communications technologies. Build on the successes of the 2015 Strengthening Mobility and Revolutionizing Transportation (SMART) Cities Challenge administered by the U.S. Department of Transportation by including direct federal funding to expand opportunities for communities – large and small/urban and rural – to compete for resources that will fund innovative and sustainable smart transportation projects.
Promote Innovative Models in Transportation Funding, Finance, Partnerships and Performance Measures:
Address potential use of a tax overhaul to fund new and long-term transportation infrastructure and systems with a focus on technology-driven mobility investments.

IV. Reinvest in our Communities through Smart Technology

Communicate the Benefits and Facilitate Deployment of Smart Community Technologies: To increase support by elected officials and policymakers as well as the general public, show how ITS can improve everyday life. Use the narrative to inspire and make the business and economic case for a safer, faster, more equitable, efficient, and sustainable transportation system.

Encourage Federal Funding Flexibility and New Funding Mechanisms: Advocate for flexible policies regarding Federal/State matching requirements (e.g., 100% Federal funding upfront with a back-end match by Locals/State for continuing operations) and other implementation provisions in the FAST Act and any new infrastructure bill related to the deployment of smart technology for communities. In any new infrastructure bill, examine requiring that a percentage of all infrastructure funding must be allocated for Smart community/tech-driven mobility. Emphasize performance goals.

Identify Innovation Champions at the Local Level and Educate Them on the Tools for Experimentation: Encourage communities to allow Chief Technology Officers or other appropriate officials to use Other Transaction Authority, pilot programs, and similar programs to bypass onerous, time-consuming procurement procedures. Encourage the FHWA to enable better flexibility in the States by using performance level conditions measures instead of the traditional measures. Examine Federal restrictions on sole sourcing. Study means to add flexibility to communities (e.g. States, Cities, MPOs, etc.).

Support Proposals that Integrate Federal “Smart Communities” Programs and Provide Resources Where Appropriate: Support legislative efforts that would improve coordination of smart community programs across the Federal government. Provide State and Local governments with technical assistance and resources to help foster the deployment of smart community technologies. Support STEM education and training required for the development and operation of smart communities. Support the necessary R&D to enhance the functionality—including cybersecurity and privacy protections—of smart community technologies.