Comprehensive Management Plan for Automated Vehicle Initiatives

U.S. Department of Transportation

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INTRODUCTION

On March 23, 2018, President Trump signed into law the Consolidated Appropriations Act, 2018 (2018 Omnibus Bill).[1] This legislation, among other things, directs the U.S. Department of Transportation (DOT) to conduct research on the development of Automated Vehicles (AV) and provides necessary funding. As noted in the Joint Explanatory Statement (JES) accompanying; the act, the legislation reallocates $100 million from motor carrier safety grants in the Fixing America's Surface Transportation (FAST) Act[2] "to remain available until expended, for a Highly Automated Vehicle (HAV) research and development program to fund planning, direct research, and demonstration grants" for HAV technologies and Advanced Driver-Assistance Systems (ADAS).[3,4]

The JES also requests "the Secretary to develop a comprehensive plan to better manage departmental initiatives related to AV in response to the Government Accountability Office (GAO) recommendation for executive action included in the November 2017 report (GAO–18–132)[5] within 90 days of enactment of this Act. The Secretary is directed to specify within this plan goals, priorities, steps to achieve results, milestones, and performance measures to track progress."[6]

This *Comprehensive Management Plan for Automated Vehicle Initiatives* responds to this request by discussing the Department's general management approach regarding all automation initiatives. Consistent with its letter to GAO on January 26, 2018, the Department continues to believe that "due to the nature of these technologies and the stage of development of the regulatory structure . . . it would be premature to publish a fully comprehensive plan at this time." Instead, the Department continues its work on "an iterative systematic framework to address the interdisciplinary ecosystem of AVs," and remains fully committed to its statement that the "first iteration of this framework will be developed in 2019 and will incorporate leading principles of comprehensive planning.[7]"

Thus, in this *Comprehensive Management Plan*, the Department makes clear that it has established and is implementing a plan to manage departmental initiatives related to AV within the Office of the Secretary and across its various modal administrations—National Highway Traffic Safety Administration (NHTSA), Federal Highway Administration (FHWA), Pipeline and Hazardous Materials Safety Administration (PHMSA), Federal Motor Carrier Safety Administration (FMCSA), Federal Railroad Administration (FRA), Federal Transit Administration (FTA), Federal Aviation Administration (FAA), Saint Lawrence Seaway Development Corporation (SLSDC), and Maritime Administration (MARAD). The plan focuses on reinforcing and deepening knowledge of the Department's iterative, adaptive, and

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[1] Pub. L. 115–141.

[2] Pub. L. 114-94.

[3] 164 Cong. Rec. H2875 (2018).

[4] Through the publication of *Automated Driving Systems 2.0: A Vision for Safety*, DOT formally adopted terminology established in SAE J3016: *Taxonomy and Definitions for Terms Related to On-Road Motor Vehicle Automated Driving Systems.* These include the use of the term Automated Driving System or ADS to describe automation at levels 3, 4, and 5, as well as the terms driving automation system, driving automation technology, or simply "automation" to describe the broad set of systems, technologies, and applications captured by SAE levels 1 through 5.

[5] U.S. Government Accountability Office, Automated Vehicles: Comprehensive Plan Could Help DOT Address Challenges, GAO-18-132 (Washington, DC, 2017), accessed April 30, 2018, https://www.gao.gov/assets/690/688676.pdf

[6] https://docs.house.gov/billsthisweek/20180319/DIV%20L%20THUD%20SOM%20FY18%20OMNI.OCR.pdf

[7] https://www.gao.gov/products/GAO-18-132

collaborative approach to identify and manage AV priorities. This document includes the following sections:

- **THE APPROACH FOR DEFINING GOALS AND OBJECTIVES**
  - This section describes the Department's approach to developing automation goals and objectives through conducting stakeholder engagement activities and developing foundational policy and planning documents. Each activity or document includes a description of its purpose, the participating agencies, and how it ties into developing departmental goals and objectives related to automation.

- **DEVELOPING, REFINING, AND IMPLEMENTING PROGRAMS**
  - This section describes the plans that inform the Department's automation activities. These plans include the FAST Act-required Annual Modal Research Plans prepared by each DOT operating administration (and coordinated by the Office of the Assistant Secretary for Research and Technology); the annual budget and spending plans developed by the operating administrations, which include automation-related activities; and the 2018 Holistic Automated Vehicle Research Spend Plan, which allocates funding designated in the 2018 Omnibus Bill for direct research on automation.

- **MANAGING PROGRESS AND RISK**
  - This section describes the coordination activities on automation that are occurring both within and outside of the Department. Multimodal coordination within the Department will help ensure operating administrations continue working towards common goals while avoiding duplication of effort. Similarly, coordinating with external stakeholders will ensure that the Department's goals and objectives align with expectations that surface transportation system users have for vehicle automation.

THE APPROACH FOR DEFINING GOALS AND OBJECTIVES

This section focuses on the Department's approach to identify its goals, objectives, and priorities for automation. Automation offers unprecedented potential to transform our transportation system. Rapidly improving technologies could soon offer solutions to some of the biggest challenges in transportation, leading to dramatic improvements in safety, mobility, and productivity. DOT's goal is to prepare for this new era of transportation by engaging with these new technologies to ensure safety without hampering innovation. To achieve this goal, we will modernize transportation policies and regulations to respond to these rapidly evolving technologies, without prejudging these technologies and their capabilities.

Stakeholder engagement plays an important role in informing the Department's approach to automation as well as in creating planning and policy documents that can serve as a foundation for future activities. Organizationally, communication across DOT operating administrations ensures a holistic view of automation, and helps avoid siloed activities. Encouraging innovation throughout these efforts will ensure our country remains a global leader in transportation automation technology.

Secretary Elaine L. Chao spoke at the March 1, 2018, Public Listening Summit on Automated Vehicle Policy and described six preliminary principles the Department uses to ensure a clear and consistent approach to policy development[8].

1. DOT's commitment to safety directs every action and decision.
2. Be flexible, technology neutral, and let the market determine effective solutions.
3. When regulations are needed, make them as non-prescriptive and performance-based as possible. In all regulatory actions and policy decisions going forward, do not assume that a vehicle's driver is a human.
4. Work with States and other authorities to avoid a regulatory and legal patchwork that could inhibit innovation and make it difficult for AVs to cross State lines.
5. Provide stakeholders with guidance, best practices, pilot programs, and other assistance to facilitate the safe integration of AVs into our transportation system—and prepare for complementary technologies that enhance the benefits of AVs, such as vehicle-to-vehicle and vehicle-to-infrastructure communications.
6. Recognize that AVs will need to operate side-by-side with traditional vehicles, in both rural and urban areas. Do not assume universal implementation.

Stakeholder Engagement Activities

DOT is committed to fostering an open and transparent policy development process. Several high-profile stakeholder engagement activities have been undertaken to inform the development of the Department's AV policy. The Department continues to explore new opportunities to solicit and share knowledge. Stakeholder engagement activities are designed to obtain feedback on current and proposed activities, communicate information in a timely and iterative manner, and ensure the inclusion of perspectives from a diverse range of internal and external partners, both traditional and non-traditional. The _USDOT Automated Vehicles Activities_ webpage[9] provides stakeholders and the public with a central location to easily view specific AV-related issues currently being addressed by DOT's operating administrations at a holistic level. Recent and ongoing events include:

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[8] Chao, Elaine L., Remarks at AV 3.0 Summit Event, March 1, 2018, https://www.transportation.gov/briefing-room/av-30-summit-event.

[9] https://www.transportation.gov/AV

Roundtable on Data for Automated Vehicle Safety

In December 2017, DOT hosted the *Roundtable on Data for Automated Vehicle Safety* as part of an effort to accelerate the safe integration of AVs by facilitating the mutually beneficial exchange of data between private sector entities, infrastructure operators, and policy-makers.[10] The roundtable convened over 60 participants from Federal, State, and local governments businesses, nonprofit organizations, universities, and research centers to provide feedback on the Department's *Guiding Principles on Voluntary Data Exchanges to Accelerate the Safe Deployment of Automated Vehicles* and the *Framework for Voluntary Data Exchanges to Accelerate the Safe Deployment of Automated Vehicles.* Participants also identified near-term priorities for voluntary data exchanges that will support AV deployment.

Public Listening Summit on Automated Vehicle Policy[11]

In March 2018, DOT brought together hundreds of transportation stakeholders, including experts in industry, government, labor, and advocacy, as well as members of the public, to provide feedback on the Department's role in safely integrating AVs into the Nation's transportation system. This summit reinforced the Department's commitment to a multi-modal, unified approach to AVs. The summit consisted of roundtable breakout discussions among stakeholders representing public safety and first responders, disability and accessibility, consumer and public education, insurance and liability, employment issues, and cybersecurity interests, and a panel session featuring speakers from industry, State and local government agencies, and DOT operating administrations.

Stakeholder input from the summit reiterated the need for future AV work to be multi-modal and inclusive. This broader scope will be reflected in Automated Vehicles 3.0 (AV 3.0) document, which will address the full spectrum of surface transportation, including transit, rail, commercial motor vehicles such as large trucks and buses, infrastructure needs, intermodal port facility operations, hazardous material movement, and the interaction between AVs and other road users.

Feedback from the summit informs policy and investment strategies such as Preparing for the Future of Transportation: Automated Vehicles 3.0 (AV 3.0) and the Department's long-term AV strategy.

Requests for Comments and Requests for Information [12]

In early 2018, several operating administrations released requests for comments or requests for information to solicit information on the potential impacts of automation. The intent of these requests has been to identify unnecessary institutional, policy, and regulatory or statutory barriers to automation; identify opportunities and challenges for AV demonstrations and integration; and inform future research needs. Information received from responses to these requests will be used to inform the development of AV policy and plans. These requests include the following:

Operating Administration/ Office	Request[13]	Docket Number	Date Issued	Comments Closed
FHWA	Request for Information on Integration of Automated Driving Systems (ADS) into the Highway Transportation System	FHWA-2017-0049	01/18/2018	03/05/2018

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[10] https://www.transportation.gov/av/data/roundtable-data-automated-vehicle-safety-summary-report
[11] https://www.transportation.gov/AV/avsummit
[12] https://www.transportation.gov/av/publicnotices
[13] https://www.transportation.gov/av/publicnotices

Operating Administration/ Office	Request[13]	Docket Number	Date Issued	Comments Closed
FMCSA	Request for Comments Concerning Federal Motor Carrier Safety Regulations (FMCSRs) Which May Be a Barrier to the Safe Testing and Deployment of Automated Driving Systems-Equipped Commercial Motor Vehicles on Public Roads	FMCSA-2018-0037	03/26/2018	05/10/2018
FRA	Request for Information on Automation in the Railroad Industry	FRA-2018-0027	03/22/2018	05/07/2018
FTA	Request for Comments on Automated Transit Buses Research Program	FTA-2017-0024	01/16/2018	03/02/2018
FTA	Request for Comments on Removing Barriers to Transit Bus Automation	FTA-2017-0025	01/16/2018	03/02/2018
MARAD	Anticipated Request for Information on Challenges and Impacts of Autonomous Vehicles in a Port Environment	TBD	Anticipated Summer 2018	TBD
NHTSA	Request for Comments on Removing Regulatory Barriers for Automated Driving Systems	NHTSA-2018-0009	02/28/2018	03/20/2018
DOT Office of the Secretary (OST)	Request for Comments on Regulations for Repeal, Replacement, or Modification	OST-2017-0069	10/02/2017	11/01/2017
PHMSA	Request for Information on Regulatory Challenges to Safely Transporting Hazardous Materials by Surface Modes in an Automated Vehicle Environment	PHMSA-2018-0001	03/29/2018	05/07/2018

Other Stakeholder Engagement[14]

Operating administrations within DOT are also engaging with stakeholders via studies, meetings and webinars. NHTSA has held listening sessions on the *Automated Driving Systems 2.0: A Vision for Safety* guidance and on the Voluntary Safety Self Assessments, along with a public meeting on its research

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[14] https://www.transportation.gov/av/events

portfolio. NHTSA will have additional engagements at technical conferences and future public meetings anticipated late in 2018 and into 2019. In late 2017, FTA held a webinar to introduce its *Strategic Automation Research (STAR) plan*.

In April 2017, FMCSA held a public listening session to solicit information on issues relating to the design, development, testing, and deployment of ADS-equipped commercial motor vehicles.[15] This summer, FMCSA will hold two additional listening sessions allowing all interested parties to share their views on the FMCSRs as they relate to the development and safe integration of ADS onto our Nation's roadways.[16]

Additionally, in July 2018, FMCSA's Motor Carrier Safety Advisory Committee[17] will continue its tasking by the Agency to offer the FMCSA Administrator leading perspectives on safety programs, regulations, and policy development for CMVs equipped with ADS. By soliciting input from representatives of industry, labor, safety, and enforcement, FMCSA can assess the state of ADS and better understand this technology's broad impact for any future departmental policy discussion.

The FHWA has organized a National Dialogue on Highway Automation,[18] which will be an opportunity to engage the public and broader stakeholder community to understand key areas of interest and prepare DOT programs and policies to incorporate automation considerations. The dialogue will consist of a series of meetings that will engage both traditional and non-traditional stakeholders to ensure broad input into DOT's research, policy, and implementation assistance. In addition to soliciting feedback, these meetings will aid in the development of a national transportation community for automation.

As a part of an ongoing "Truck Staging" study with the Intelligent Transportation Systems Joint Program Office, MARAD in partnership with FMCSA is engaging ports and port stakeholders/users to verify if they have conducted any research or investigation of automated trucks or other advanced technologies to help address truck staging challenges and to share challenges related to the use of automated trucks in the port environment. This effort is part of a feasibility study of automated truck (Level 4) queueing.

Foundational Policy and Planning Documents

Automation has been at the center of numerous policy planning efforts within DOT. The documents outlined below have provided an opportunity for the Department to outline its priorities and approaches, deliver guidance to stakeholders, and receive feedback from its partners.

Automated Driving Systems 2.0: A Vision for Safety

In September 2017, DOT released *Automated Driving Systems 2.0: A Vision for Safety*, which provided voluntary guidance that encourages best practices for ADS developers, technical assistance to States, and best practices for policymakers.[19] In addition, to help increase public trust and confidence, the guidance encourages entities engaged in testing and deployment to publicly disclose Voluntary Safety Self-Assessment (VSSA) of their systems to demonstrate their varied approaches to achieving safety.

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[15] [Docket FMCSA-2017-0114] https://www.federalregister.gov/documents/2017/04/17/2017-07723/federal-motor-carrier-safety-regulations-highly-automated-commercial-vehicles-public-listening

[16] https://www.transportation.gov/av/events

[17] https://www.fmcsa.dot.gov/advisory-committees/mcsac/welcome-fmcsa-mcsac

[18] https://ops.fhwa.dot.gov/automationdialogue/index.htm

[19] https://www.nhtsa.gov/sites/nhtsa.dot.gov/files/documents/13069a-ads2.0_090617_v9a_tag.pdf

DOT has recently created an index on NHTSA's *Voluntary Safety Self-Assessment* webpage for links to VSSAs that have been released publicly by automation developers[20].

Through the process of implementing *A Vision for Safety*, DOT has conducted extensive engagement with stakeholders and provided supplementary information in response to questions and requests for clarifications along with the launch of NHTSA's Compliance Assistance Program[21] to help ensure that participants in the motor vehicle and equipment industry—especially new entrants and small manufacturers—have access to information and tools to fully understand and comply with their Federal obligations. This stakeholder engagement informs the development of a broader policy approach to automation across the surface transportation system (see section below on *AV 3.0*) as well as the refinement of automation research priorities within NHTSA.

Preparing for the Future of Transportation: Automated Vehicles 3.0
In parallel with DOT's efforts to refine and implement the approach outlined in *ADS 2.0: A Vision for Safety*, the Department is defining a broader, multi-modal approach to the safe integration of automation across the surface transportation system. Through the development of *AV 3.0*, the Department is outlining a set of overarching principles that will guide its actions surrounding automation, as well as a set of strategies it is implementing across surface transportation modes and the DOT agencies that oversee them. The Department expects to release *AV 3.0* later this year.

In defining the approach outlined in *AV 3.0*, DOT has relied extensively on input and feedback provided by its partners and stakeholders, particularly through the *Public Listening Summit on Automated Vehicle Policy,* modal stakeholder engagements, and requests for information and comments described above.[22] The Department will continue to refine and build upon this approach through ongoing consultations and public feedback as it considers subsequent iterations of its AV policy.

DOT Strategic Plan
Automation features prominently in DOT's *Strategic Plan for FY 2018-2022*, particularly in its goal to "Lead in the development and deployment of innovative practices and technologies that improve the safety and performance of the Nation's transportation system." [23] As part of this goal area, DOT articulates the importance of investing in and supporting the development and deployment of automation in the transportation system to help advance the Department's mission of "ensuring our Nation has the safest, most efficient and modern transportation in the world."[24] It highlights several areas of AV research within the Department as well as broader efforts to update departmental regulations, policies, and guidance to support deployment of advancements in technology and innovation. Additionally, the *Strategic Plan* highlights several complementary cross-cutting technology research priorities, including data and cybersecurity.

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[20] https://www.nhtsa.gov/automated-driving-systems/voluntary-safety-self-assessment
[21] https://www.nhtsa.gov/laws-regulations/compliance-assistance-program-cap
[22] https://www.transportation.gov/AV/avsummit
[23] https://www.transportation.gov/sites/dot.gov/files/docs/mission/administrations/office-policy/304866/dot-strategic-plan-fy2018-2022508.pdf
[24] https://www.transportation.gov/mission/about-us

DEVELOPING, REFINING AND IMPLEMENTING PROGRAMS

This section describes the plans that are guiding DOT automation activities. The operating administrations have prepared Annual Modal Research Plans (AMRPs) as well as annual budget and spending plans. The *2018 Holistic Automated Vehicle Research Spend Plan* allocates funding designated in the 2018 Omnibus Bill for direct research on automation. As directed by the 2018 Omnibus Bill, the Department will submit a separate letter to Congress regarding the AV research outlook plan.

Annual Modal Research Plans

The purpose of DOT's AMRPs, as required by the FAST Act, is to report on the Department's proposed research and development activities over the upcoming fiscal year and following fiscal year, and to certify to Congress that there are no duplicative research activities across the Department's operating administrations. Within the context of the comprehensive management plan for AVs, future AMRPs will align with objectives of this document to ensure that research plans from the operating administrations are consistent. All current and future AMPRs will be accessible at RD&T Annual Modal Research Plans website.[25]

Annual Budget and Spend Plans

Automation funding is also determined by preparing and submitting annual budgets and spend plans. The purpose of the annual budget justification submitted by each DOT operating administration to Congress is to provide an overview of how each agency intends to meet modal, departmental, and congressional goals and objectives in the coming fiscal year. Additionally, the annual budget provides a past, present, and future look at agency resource usage—detailing funds spent and planned to be spent for each program that falls under the responsibility of an agency as directed by congressional appropriations, and sometimes proposing new programs for Congress to fund. This is an important step to ensure funding is allocated to automation research that aligns with overall agency and departmental priorities.

2018 Holistic Automated Vehicle Research Spend Plan

In addition to this Comprehensive Management Plan for AVs, Congress provides guidance in the JES on the scope and requirements for the $100 million "highly automated vehicle research and development program" as well as other AV funding delineated in the 2018 Omnibus Bill. These include:

- *$38 million for direct research on HAV and ADAS.* The JES states that "…within 120 days of enactment of this Act, the Secretary shall develop a holistic HAV/ADAS research spend plan that advances DOT's understanding of HAV and ADAS technologies to the benefit of both commercial motor vehicle and light duty vehicle safety, and is consistent with the comprehensive plan developed pursuant to GAO's recommendations…. The Secretary is directed to certify in the spend plan that all funded activities shall be coordinated with ongoing research funded across the Department and shall supplement and not supplant ongoing AV and ADAS research including NHTSA's vehicle safety and connected vehicle research programs." [26]

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[25] Links to each Operating Administration's AMRP can be found at https://www.transportation.gov/administrations/assistant-secretary-research-and-technology/rdt-annual-modal-research-plans.

[26] Appendix A includes a table that summarizes terms commonly used by DOT and their alignment with terms used in Pub. L. 115-141.

- ***$60 million for demonstration projects***. These are grants or cooperative agreements to fund demonstration projects that test the feasibility and safety of automation deployments. The Secretary is directed to make funding awards within 1 year of enactment of this Act.
- ***$1.5 million for a commercial motor vehicle impact analysis.*** This is a comprehensive analysis of the impact of automation technologies on drivers and operators of commercial motor vehicles, including labor displacement. It is to be accomplished in consultation with the Secretary of Labor and be completed within 1 year of enactment of this Act.

In addition to the $100 million outlined above, the Department has determined to include within the spend plan certain additional automation-related funding to better coordinate internal research:

- $***15 million for vehicle electronics and emerging technologies*** under NHTSA Operations and Research. This includes research of AV technologies.[27]
- ***$5.5 million for the safety data and automated vehicle safety data initiatives*** under the Office of the Secretary's Transportation Planning, Research, and Development activities.[28]

The Department has integrated the planning for these new program activities into its comprehensive, coordinated, and multi-modal approach for Fiscal Year 2018 and is in process of developing 2019 AV programs. This will ensure that new activities will supplement and not supplant ongoing automation research, and will be consistent with the comprehensive plan being developed pursuant to GAO's recommendations.

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[27] 164 Cong. Rec. H2876 (2018).
[28] 164 Cong. Rec. H2872 (2018).

COORDINATING RESEARCH

This section describes the coordination activities on automation that are occurring both within and outside of the Department. Coordination within the Department will help ensure operating administrations work toward common goals. Coordination with outside researchers enables the Department to benefit from research conducted by others. Coordination with State governments, local governments, and other organizations, in rural and urban areas, ensures that the Department's goals and objectives align with expectations that transportation system users have for AVs.

Internal Coordination within the Department

Several ongoing internal working groups established by the Secretary's Office of Transportation Policy (OST-P), Office of the General Counsel (OGC), and Office of the Assistant Secretary for Research and Technology (OST-R) help coordinate automation-related activities across the Department, with membership drawn from the FAA, FHWA, FTA, FRA, FMCSA, MARAD, NHTSA, PHMSA, and SLSDC. These working groups discuss multimodal, comprehensive responses to automation-related challenges and coordinate key decisions. The groups include:

- The *Automated Vehicle Steering Committee,* which meets as needed to address high-level, AV-related decisions and comprises senior departmental leadership.
- The *AV Policy Working Group,* which coordinates Department-wide input and efforts on ongoing policy development for AVs.
- The *AV Research Working Group,* which coordinates AV research projects and policy initiatives across the Department, with key modal representatives regularly reporting on their internal AV research activities and supporting Department-wide AV efforts.
- The *AV and Emerging Technologies Legal Practice Group,* which coordinates legal issues surrounding AVs across the Department.
- The *Automated Vehicle Super Sub-Committee Regulatory Reform Task Force*, which coordinates automated vehicle regulatory issues across the Department.
- The *AV Outreach Working Group*, which coordinates internal and external AV-related outreach efforts across the Department.

In addition to these automation-focused working groups, OST-R leads the long-standing Research, Development and Technology (RD&T) Planning Team, where senior research directors from each of the operating administrations meet monthly to coordinate and leverage research activities throughout the Department. Automation research activities are discussed regularly at RD&T Planning Team meetings both generally and within the context of Department-wide automation research planning and budget development, serving as a forum for inter-agency collaboration on AVs. OST-P and OST-R communicate with each other on their respective working groups and planning teams to ensure that automation policy and research issues are aligned.

Routine Coordination and Collaboration with External Stakeholders[29]

DOT has established numerous ongoing channels of coordination with outside stakeholders on technical and policy issues for AVs. The stakeholders include States, regional and local jurisdictions, industry, academia, standards developing organizations, safety and mobility advocates, and international collaborators. The coordination takes many forms including public listening sessions and webinars;

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[29] https://www.transportation.gov/av/events

regulatory activities,[30] joint working groups and research projects; service on technical, research, and advisory panels; and participation in various conferences.

The Department also coordinates with other Federal agencies on numerous topics related to automation. DOT 's Automated, Connected, Efficient, Shared (ACES) Mobility Research initiative is a joint DOT and Department of Energy (DOE) effort to develop collaborative, non-duplicative, interdepartmental opportunities in the areas of automation, connectivity, system efficiency, and shared transportation, and to help connect each Department's external stakeholders where appropriate in order to advance both Departments' interests and priorities in the ACES-space. DOT also collaborates with DOE and other partners on the energy impacts of automated truck transportation, and serves on the panel for two Advanced Research Projects Agency-Energy projects. DOT is working with the Department of Defense and the Department of Homeland Security on closed-track vehicle testing, using facilities owned by those agencies. DOT is also working with the Army's Tank Automotive Research, Development and Engineering Center on AV testing, including truck platooning. DOT is coordinating with the Department of Labor on workforce and disability issues as well as with the White House Domestic Policy Council and the Departments of Justice, Health and Human Services, Commerce, and Education. DOT also coordinates with the Federal Trade Commission on data privacy, and with DHS and the National Institute of Standards and Technology on cybersecurity.

At the State and local level, DOT engages with State DOTs, transit agencies, and with industry organizations such as the American Association of State Highway and Transportation Officials and the American Association of Motor Vehicle Administrators on policies for AV usage, the use of automation in bus transit, and, more generally, on planning for deployment. With the Accessible Transportation Technologies Research Initiative,[31] DOT continues to engage with the disability community to ensure that automation meets the needs of all Americans. The Department also contributes to the National Cooperative Highway Research Program work on the impacts of automation on State and local agencies,[32] and will continue to support infrastructure owner-operators through technical assistance and professional capacity building efforts.

Where appropriate, DOT engages with industry stakeholders on a broad range of issues surrounding AVs. For example, DOT engages with a consortium of automakers via the Crash Avoidance Metrics Partners consortium on testing and deployment activities related to communications technology applications. DOT is engaging with external stakeholders on a review of unnecessary barriers to automation. DOT has also established relationships with several industry stakeholders to enable information exchanges and joint research projects related to AV safety and cybersecurity. DOT and its operating administrations routinely engage with industry-led standards developing organizations such as SAE International and ASTM International, and with international interests through the International Organization for Standardization.

AV research and deployment is a world-wide activity. International activities include participation in the United Nations World Forum of Harmonization of Vehicle Regulations and the Global Forum for Road Traffic Safety. DOT also participates in the EU-US-Japan Automation in Road Transportation Working Group, which has produced technical reports on human factors, impact assessment, and roadworthiness testing. Lastly, DOT has established relationships with various countries to promote the exchange of information and strengthen cooperation and communication on research and policy.

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[30] www.regulations.gov
[31] https://www.its.dot.gov/research_areas/attri/index.htm
[32] https://apps.trb.org/cmsfeed/TRBNetProjectDisplay.asp?ProjectID=4377

CONCLUSION

This *Comprehensive Management Plan for Automated Vehicle Initiatives* presents the Department's management approach regarding automation initiatives. It is the first of several documents being produced to respond to the requirements in the Omnibus legislation. Consistent with its letter to GAO on January 26, 2018, the Department is also continuing work on "an iterative systematic framework to address the interdisciplinary ecosystem of AVs," and remains fully committed to its statement that the "first iteration of this framework will be developed in 2019 and will incorporate leading principles of comprehensive planning."