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**U.S. DEPARTMENT OF TRANSPORTATION  
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION  
DOCKET # NHTSA-2018-0092**

**Advance Notice of Proposed Rulemaking Comment:  
Pilot Program for Collaborative Research on Motor Vehicles with High or Full Driving  
Automation**

**SUBMITTED BY:**

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The American Trucking Associations, Inc., (ATA) submits these comments to the National Highway Traffic Safety Administration (NHTSA) in response to the agency's advance notice of proposed rulemaking (ANPRM) for a *Pilot Program for Collaborative Research on Motor Vehicles with High or Full Driving Automation*.<sup>1</sup>

As the national representative of the trucking industry, ATA has a strong interest in matters affecting our nation's transportation system and is committed to advancing connected and automated vehicle (AV) technology in ways that benefit the common good, including improving roadway safety for all motorists and vulnerable road users, reducing traffic congestion and vehicle emissions, as well as facilitating the efficient movement of freight. Directly and through our affiliated organizations, ATA's united federation of motor carrier and allied members, state trucking associations, and national trucking conferences and councils represent more than 40,000 industry stakeholders in the United States—encompassing every type and class of motor carrier operation. Our diverse membership also includes original equipment manufacturers, supply chain and logistics companies, retail corporations, and technology firms engaged in the testing and development of AV technologies.

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<sup>1</sup> 83 Fed. Reg. 50872 (October 10, 2018).

Employing about 7.5 million people and moving 10.8 billion tons of freight annually,<sup>2</sup> trucking is the industry most responsible for moving America's economy. The trucking industry moves 70.2 percent of our nation's domestic freight and is a critical player in the safety of our nation's roadways, spending \$9.5 billion per year on safety training, technology, equipment, and management. Additionally, the trucking industry is a significant contributor to the highway trust fund. Despite being less than 13 percent of the vehicles on the road, trucking pays nearly half of the money from user fees that goes into the highway trust fund each year,<sup>3</sup> which is nearly \$18 billion that goes toward the construction, operation and maintenance of the roads that all vehicles share.

As these statistics demonstrate, trucking is an integral component of our nation's transportation system and economy, and the industry has a substantial stake in the success of connected and AV technology. While we appreciate the opportunity to comment on this notice, we are nevertheless disappointed that NHTSA states in the ANPRM that, "...at this stage, NHTSA is only considering a pilot program for light-duty vehicles; to the extent the agency will consider establishing future pilot projects for other motor vehicles, such as truck tractors or buses, it will do so in coordination with the other relevant operating administrations within the Department."<sup>4</sup> Should NHTSA take the step to propose a pilot program, ATA urges the agency to coordinate with the Federal Motor Carrier Safety Administration (FMCSA) to create a proposal for a pilot program that would be open to commercial motor vehicles (CMVs).

Automated and connected vehicle technologies have the potential to dramatically impact nearly all aspects of the trucking industry. These technologies can bring benefits in the areas of safety, environment, productivity, efficiency, and driver health and wellness. Automated driving technology is the next step in the evolution of the safety technology currently available and will help to further improve driver safety and productivity, as well as the safety of other motorists and road users. NHTSA's planning for a pilot program should include commercial vehicles, consistent with the multi-modal approach taken by the U.S. Department of Transportation (DOT) in the development of "Automated Vehicle 3.0: Preparing for the Future of Transportation" (AV 3.0).

Following are ATA's responses to select questions presented in the ANPRM.

### **Responses to Questions**

*Question 1. What potential factors should be considered in designing the structure of a pilot program that would enable the Agency to facilitate, monitor and learn from on-road research through the safe testing and eventual deployment of vehicles with high and full driving automation and associated equipment?*

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<sup>2</sup> ATA, American Trucking Trends 2018.

<sup>3</sup> Highway Statistics 2016, Federal Highway Administration, U.S. Department of Transportation, and ATA, American Trucking Trends 2018.

<sup>4</sup> 83 Fed. Reg. 50877 (October 10, 2018).

A pilot program for AVs should be structured to facilitate the inclusion of CMVs and other types of vehicles equipped with automated driving systems (ADS), not just light-duty vehicles. Automated vehicle technology and the business models that will bring them to market are developing rapidly. At this time, it is difficult to predict what vehicle type will be ready first for AV deployment at high, SAE Level 4 (L4), or full, Level 5 (L5), or if there will be any appreciable lag time between initial L4/L5 deployments of different vehicle types.

NHTSA states in the ANPRM that, “[t]o aid in determining how best to foster the safe development and implementation of ADS vehicle technologies on our Nation's roadways, NHTSA believes it is prudent to facilitate the conducting of research and gathering of data about these new and developing technologies in their various iterations and configurations. Thus, NHTSA is seeking comment on creating a national ADS vehicle pilot program for the testing of vehicles and associated equipment and to gather data from such testing, including data generated in real-world scenarios. NHTSA anticipates that this data will provide information needed to help realize the promises and meet the challenges of ADS vehicle development and deployment.”<sup>5</sup> Restricting the pilot to only one type of vehicle as suggested in this ANPRM could create a delay in the opportunity to gather information that would be useful to realize the potential benefits of deploying ADS in other vehicle types. The combinations and configurations of heavy-duty CMVs used in the trucking industry, and the operating environment and applications throughout the logistics system present opportunities and challenges for ADS that are distinctly different than lighter classes of CMVs. Including CMVs in a pilot program will assist NHTSA in gathering data for fully evaluating ADS in real-world scenarios. Before proceeding to a notice of proposed rulemaking or other agency action to initiate a pilot program for collaborative research on motor vehicles with high or full driving automation, NHTSA should follow the multi-modal approach taken by DOT in the development of AV 3.0 and work with the other operating administrations within DOT to create a pilot program that is inclusive of all vehicle types.

*Question 2. If NHTSA were to create a pilot program, how long would there be a need for such a program? What number of vehicles should be involved? Should NHTSA encourage the conducting of research projects in multiple locations with different weather conditions, topographical features, traffic densities, etc.?*

The operational design domain (ODD) of the ADS will determine the types of conditions under which the vehicles in the pilot program should operate. The operating characteristics of an ADS and the specifics of the ODD in which it is intended to operate will vary based on ADS design and level of automation. Manufacturers/developers are in the best position to define and demonstrate the capabilities of their ADS. NHTSA should work with each participant in the pilot program to determine the best mix of locations and conditions for testing their ADS.

*Question 5. Are there any additional elements of regulatory relief (e.g., exceptions, exemptions, or other potential measures) that might be needed to facilitate the efforts to participate in the pilot program and conduct on-road research and testing involving these vehicles, especially those that lack controls for human drivers and thus may not comply with all existing FMVSS?*

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<sup>5</sup> 83 Fed. Reg. 50874 (October 10, 2018).

There must be a great deal of flexibility in allowing new technologies to be developed and tested to determine if they can deliver equivalent or better performance at an equal or better safety/reliability confidence level. It is difficult to anticipate what the need for exceptions, exemptions, or other potential measures might be until a design is conceptualized and brought to a level of development that can be tested. There should be a streamlined and flexible process for granting such waivers, not just at NHTSA for FMVSS, but at all operating administrations within DOT that may have regulations impeding on-road testing of new technology. One example would be a waiver to permit prototyping of electromechanical braking systems for CMVs, which have potential for significant improvement over pneumatic systems in wired or wireless control schemes.

*Question 6. What vehicle design elements might replace existing required safety equipment and/or otherwise enhance vehicle safety under reasonably anticipated operating conditions?*

One example of a design element that could replace existing safety equipment is a camera monitoring system (CMS) to replace side-view mirrors. Current NHTSA regulations require the installation of outside mirrors on all vehicles for rear visibility. In previous comments to NHTSA, ATA suggested that the regulations should be modified to allow CMS as optional equipment as an alternative to outside rearview facing mirrors.<sup>6</sup> Motor carriers and truck manufacturers recognize the potential of CMS for improving both safe operations and fuel efficiency when compared with traditional exterior mirrors. Vehicles capable of operating at SAE Levels 4 and 5 will make use of cameras and sensors to monitor the areas to the sides and rear of the vehicle. These cameras and sensors could also be used to provide information to a human driver when the vehicle is not operating at Level 4 or 5, making the requirement for outside rearview facing mirrors unnecessary.

*Question 8. How should the Operational Design Domains of individual vehicle models be defined and reinforced and how should Federal, State and local authorities work together to ensure that they are observed?*

The operating characteristics of an ADS and the specifics of the ODD in which it is intended to operate will vary based on ADS design and level of automation. Manufacturers/developers are in the best position to define the ODD of their ADS systems, and to program the system to observe its ODD.

*Question 10. In the design of a pilot program, how should NHTSA address the following issues—*

*a. confidential business information?*

OEMs and developers currently supply confidential business information to NHTSA using the process outlined in 49 CFR Part 512, Confidential Business Information. The basic process is that sensitive information is labeled as confidential and submitted to the NHTSA

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<sup>6</sup> See ATA comments to NHTSA Request for Comment on Removing Regulatory Barriers for Automated Driving Systems (Docket No. NHTSA-2018-0009).

Office of General Counsel. Once the data is reviewed by NHTSA General Counsel and confidential business information status is granted, then the information is given to NHTSA to review, but the information is not placed in the docket or made public. We would expect the pilot program to employ a similar process.

NHTSA could also look to the confidentiality policy employed by the Bureau of Transportation Statistics, which is required by law to protect the confidentiality of the transportation information it collects for statistical purposes to ensure that any identifying, sensitive, or proprietary information is not released to unauthorized persons or organizations.<sup>7</sup>

*Question 11. In the design of a pilot program, what role should be played by—*

- a. The 12 safety elements listed in A Vision for Safety?*
- b. The elements listed below:*
  - i. Failure risk analysis and reduction during design process (functional safety)?*
  - ii. Objective performance criteria, testable scenarios and test procedures for evaluating crash avoidance performance of vehicles with high and full driving automation?*
  - iii. Third party evaluation?*
    - A. Failure risk reduction?*
    - B. Crash avoidance performance of vehicles with high and full driving automation?*
  - iv. Occupant/non-occupant protection from injury in the event of a crash (crashworthiness)?*
  - v. Assuring safety of software updates?*
  - vi. Consumer education?*
  - vii. Post deployment Agency monitoring?*
  - viii. Post-deployment ADS updating, maintenance and recalibration?*

A pilot program should include relevant industry standards development organizations such as ASTM, SAE, ISO, and ATA's Technology & Maintenance Council which currently has a role in developing best practices for inspection, maintenance and repair of AVs, as well as testing and evaluation protocols. The safety critical nature of maintaining ADSs to function at the necessary level of performance will necessitate identification of the diagnostics, equipment, facilities and personnel required. Identification of these maintenance challenges and the related training/skills development that might be necessary, in parallel with the on-highway operational testing of the technologies, could be a useful outcome of a pilot program.

*c. Are there any other elements that should be considered?*

A pilot program for AVs should include a study of the "unusual and unanticipated" driving situations that are all too routine in daily driving. These would include such things as deviations from normal routes due to accidents, emergencies and environmental incidents such as flooding, snow, ice storms, and unannounced lane closures and road maintenance that affect

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<sup>7</sup> 49 U.S.C. 111(i) Bureau of Transportation Statistics, and 18 U.S.C. 1905; The Privacy Act of 1974; and Confidential Information Protection and Statistical Efficiency Act (CIPSEA) of 2002 (Public Law 107-347, Title V, Subtitle A).

lane markings and accessible lanes. The pilot program should assess what overrides and/or manual driving equipment must be present, and who would be authorized to redirect AVs. On-road testing of these situations in actual highway conditions will require close coordination with state and local jurisdictions.

*Question 15. What value would there be in NHTSA's obtaining one or more of the following potential categories of data from the participants in the pilot program? Are there other categories of data that should be considered? How should these categories of data be defined?*

- a. Statistics on use (e.g., for each functional class of roads, the number of miles, speed, hours of operation, climate/weather and related road surface conditions).*
- b. Statistics and other information on outcome (e.g., type, number and cause of crashes or near misses, injuries, fatalities, disengagements, and transitions to fallback mechanisms, if appropriate).*
- c. Vehicle/scene/injury/roadway/traffic data and description for each crash or near miss (e.g., system status, pre-crash information, injury outcomes).*
- d. Sensor data from each crash or near miss (e.g., raw sensor data, perception system output, and control action).*
- e. Mobility performance impacts of vehicles with high and full driving automation, including string stability of multiple consecutive ADS vehicles and the effects of ADS on vehicle spacing, which could ultimately impact flow safety, and public acceptance.*
- f. Difficult scenarios (e.g., scenarios in which the system gave control back to an operator or transitioned to its safe state by, for example, disabling itself to a slow speed or stopped position).*
- g. Software updates (e.g., reasons for updates, extent to which updates are made to each vehicle for which the updates are intended, effects of updates).*
- h. Metrics that the manufacturer is tracking to identify and respond to progress (e.g., miles without a crash and software updates that increase the operating domain).*
- i. Information related to community, driver and pedestrian awareness, behavior, concerns and acceptance related to vehicles with high and full driving automation operation. For example, if vehicles with high and full driving automation operated only in limited defined geographic areas, might that affect the routing choices of vehicles without high and full driving automation? For another example, if vehicles with high and full driving automation are programmed to cede right of way to avoid collision with other vehicles and with pedestrians and cyclists, might some drivers of vehicles without such automation, pedestrians and cyclists take advantage of this fact and force vehicles with high and full driving automation to yield to them?*
- j. Metrics or information concerning the durability of the ADS equipment and calibration, and need for maintenance of the ADS.*
- k. Data from "control groups" that could serve as a useful baseline against which to compare the outcomes of the vehicle participating in the pilot program.*
- l. If there are other categories of data that should be considered, please identify them and the purposes for which they would be useful to the Agency in carrying out its responsibilities under the Act.*
- m. Given estimates that vehicles with high and full driving automation would generate terabytes of data per vehicle per day, how should the need for data be appropriately*

*balanced with the burden on manufacturers of providing it and the ability of the Agency to absorb and use it effectively?*

*n. How would submission of a safety assurance letter help to promote public safety and build public confidence and acceptance?*

*o. For all of the above categories of information, how should the Agency handle any concerns about confidential business information and privacy?*

While proprietary considerations must be addressed, sharing of safety critical knowledge can help accelerate performance and safety improvements for all vehicles. Elements that could be addressed include situational awareness of unusual conditions (edge cases) and cybersecurity vulnerabilities.

*Question 18. To what extent would NHTSA need to implement the program via new regulation or changes to existing regulation? Conversely, could NHTSA implement the program through a non-regulatory process? Would the answer to that question change based upon which statutory exemption provision the agency based the program on?*

The current regulatory process is not well-matched to react to the rapid pace of development that is anticipated. A non-regulatory approach may be the best option for pilot programs and field testing. Once equivalent or better performance is demonstrated for a technology that would otherwise be inhibited or prohibited by an existing regulation, there needs to be an accelerated process for adjusting the necessary regulations or if that is not possible, then an expedited process for issuing an interim waiver or exemption that would be in place until the regulations could be changed.

*Question 22. If there are any obstacles other than the FMVSS to the testing and development of vehicles with high and full driving automation, please explain what those are and what could be done to relieve or lessen their burdens. To the extent any tension exists between a Federal pilot program and State or local law, how can NHTSA better partner with State and local authorities to advance our common interests in the safe and effective testing and deployment of ADS technology?*

NHTSA should work with the FMCSA and other operating modes within DOT to remove obstacles in Federal regulations to the testing and development of AVs of all types. ATA commends NHTSA, FMCSA, and other operating modes for beginning the process of reviewing regulations and seeking stakeholder input on removing regulatory barriers. ATA has provided input in response to requests for comment regarding regulatory barriers to ADS testing and deployment from NHTSA<sup>8</sup>, FMCSA<sup>9</sup> and the Pipeline and Hazardous Materials Safety

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<sup>8</sup> See ATA Comments responding to NHTSA Request for Comment on Removing Regulatory Barriers for Vehicles with Automated Driving Systems, Docket No. NHTSA-2018-0009, March 20, 2018.

<sup>9</sup> See ATA Comments responding to FHWA 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, Docket No. FMCSA-2018-0037, May 10, 2018.

Administration,<sup>10</sup> and will continue to work with the relevant DOT operating modes as technology develops and barriers are identified. Conflicting or duplicative requirements among Federal, State and local agencies will create roadblocks to deployment of AV technology. When conflicts arise between federal and state or local laws and regulations, the federal government must take a clear leadership role, with a goal to create a unified national framework of laws that facilitate the development, testing, and deployment of commercialized automated and connected vehicle technology, and that supports the free flow of interstate commerce.

### **Conclusion**

ATA supports the development of AV technology for all vehicle types. This technology has the potential for improving safety, reducing congestion and vehicle emissions, and facilitating the efficient movement of freight. Should NHTSA determine that a pilot program would provide useful information to the agency to create a regulatory environment that supports the deployment of AVs and the realization of the benefits that they will provide, a formal proposal for a pilot program should include commercial vehicles along with light-duty passenger vehicles.

Thank you for the opportunity to submit these comments. If you have any questions, please contact Ross Froat at (703) 838-7980 or [rfroat@trucking.org](mailto:rfroat@trucking.org).

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<sup>10</sup> See ATA Comments responding to PHMSA Request for Information on Regulatory Challenges to Safely Transporting Hazardous Materials by Surface Modes in an Automated Vehicle Environment, Docket No. PHMSA-2018-0001, May 7, 2018.