

II. MODEL STATE POLICY

A. Introduction

Vehicles operating on public roads are subject to both Federal and State jurisdiction. This section defines Federal and State regulatory responsibilities and outlines a Model State Policy that if adopted can create a consistent, unified national framework for regulation of motor vehicles with all levels of automated technology, including highly automated vehicles (HAVs). Some States have already begun to pass laws and develop regulations concerning HAVs, and the national discussion to date has benefited from their efforts to begin addressing the complex issues posed. The Model State Policy issued at this point builds on the collective knowledge gathered thus far, and can help to avoid a patchwork of inconsistent laws and regulations among the 50 States and other U.S. jurisdiction, which could delay the widespread deployment of these potentially lifesaving technologies.

This Model State Policy outlines State roles in regulating HAVs, and lays out model procedures and requirements for State laws governing HAVs. NHTSA, member States of the American Association of Motor Vehicle Administrators (AAMVA) and other safety stakeholders formed a collaborative partnership to provide valuable information, individual advice and input regarding the role of States in the regulation of HAVs.⁴⁹ Based on that information and input and the Department's own research and experience, DOT developed this Model State Policy. NHTSA is also issuing today a Request for Comment on this entire Policy—including the Model State Policy—to obtain public input concerning these matters.

DOT strongly encourages States to allow DOT alone to regulate the performance of HAV technology and vehicles. If a State does pursue HAV performance-related regulations, that State should consult with NHTSA and base its efforts on the Vehicle Performance Guidance provided in this Policy.⁵⁰

NHTSA is prepared to assist with challenges that States face with regard to HAVs both now and in the future. For example, the Agency recognizes the need for driver education and training regarding HAV systems, and is prepared to partner with States to address this need. NHTSA has already begun research to evaluate the ability of drivers to stay engaged while HAVs are performing part (or all) of the driving task. The results and recommendations from this research will be shared with the States and used to refine the Model State Policy and NHTSA's Vehicle Performance Guidance. NHTSA also hopes to partner with the States to identify and mitigate other human behavior issues such as misuse and inadequate maintenance of HAVs.

B. The Federal and State Roles

The division of regulatory responsibility for motor vehicle operation between Federal and State authorities is clear. NHTSA responsibilities include:

- Setting FMVSS for new motor vehicles and motor vehicle equipment (to which manufacturers must certify compliance before they sell their vehicles);⁵¹
- Enforcing compliance with the FMVSS;
- Investigating and managing the recall and remedy of non-compliances and safety-related motor vehicle defects and recalls on a nationwide basis;
- Communicating with and educating the public about motor vehicle safety issues; and
- Issuing guidance for vehicle and equipment manufacturers to follow, such as the Vehicle Performance Guidance for HAVs presented in this Policy.

States' responsibilities include other aspects of motor vehicle regulations:

- Licensing (human) drivers and registering motor vehicles in their jurisdictions;
- Enacting and enforcing traffic laws and regulations;
- Conducting safety inspections, where States choose to do so; and
- Regulating motor vehicle insurance and liability.

These general areas of responsibility should remain largely unchanged for HAVs. DOT and the Federal Government are responsible for regulating motor vehicles and motor vehicle equipment, and States are responsible for regulating the human driver and most other aspects of motor vehicle operation. As motor vehicle equipment increasingly performs "driving" tasks, DOT's exercise of its authority and responsibility to regulate the safety of such equipment will increasingly encompass tasks similar to "licensing" of the non-human "driver" (e.g., hardware and software performing part or all of the driving task).

The Vehicle Safety Act expressly preempts States from issuing any standard that regulates performance if that standard is not identical to an existing FMVSS regulating that same aspect of performance.⁵² If NHTSA issued an FMVSS setting performance requirements for HAVs, then a State could not have its own performance standards on the same aspects of HAV performance unless they were identical to NHTSA's standards. The Supreme Court has also found that State laws may be preempted if they stand as an obstacle to the accomplishment and execution of a NHTSA safety standard.⁵³

C. Model State Policy

States are charged with reducing traffic crashes and the resulting deaths, injuries, and property damage (Highway Safety Act, 23 U.S.C. § 401 et seq.). States may use their authority to establish and maintain highway safety programs addressing issues including: driver education and testing; licensing; pedestrian safety; law enforcement; vehicle registration and inspection; traffic control; highway design and maintenance; crash prevention, investigation, and record keeping; and emergency services.

States should evaluate their current laws and regulations to address unnecessary impediments to the safe testing, deployment, and operation of HAVs, and update references to a human driver as appropriate. States may still wish to experiment with different policies and approaches to consistent standards, and in that way contribute to the development of the best approaches and policies to achieve consistent regulatory objectives. The goal of State policies in this realm need not be uniformity or identical laws and regulations across all States. Rather, the aim should be sufficient consistency of laws and policies to avoid a patchwork of inconsistent State laws that could impede innovation and the expeditious and widespread distribution of safety enhancing automated vehicle technologies.

States are also encouraged to work together to standardize and maintain road infrastructure including signs, traffic signals and lights, and pavement markings. This will support the safe operation of HAVs and ensure the safety of human drivers, who will continue to operate vehicles on the roads for years to come.

The following sections describe a model regulatory framework for States that wish to regulate procedures and conditions for testing, deployment, and operation of HAVs. For purposes of this section, "testing" refers to analyses and evaluations of HAV systems and vehicles conducted by a researcher, manufacturer, entity, or expert third party at the request of one of those entities. Deployment refers to use of HAV systems and vehicles by members of the public who are not employees or agents of researchers, manufacturers, or other entities. For purposes of State traffic laws that apply to drivers of vehicles (e.g., speed limits, traffic signs), States may wish to deem an HAV system that conducts the driving task and monitors the driving environment (generally SAE Levels 3-5) to be the "driver" of the vehicle. For vehicles and circumstances in which a human is primarily responsible for monitoring the driving environment (generally SAE Levels 1-2), NHTSA recommends the State consider that human to be the driver for purposes of traffic laws and enforcement.

NHTSA believes that eventually there should be a consistent set of laws and regulations governing the testing and operation of HAVs. In such an approach NHTSA generally would regulate motor vehicles and motor vehicle equipment (including computer hardware and software that perform functions formerly performed by a human driver)

and the States would continue to regulate human drivers, vehicle registration, traffic laws, regulations and enforcement, insurance, and liability. As discussed above, States also may wish to regulate HAV "drivers" for the limited purpose of enforcement of traffic laws with respect to vehicles with L3-L5 automation. This model framework envisions State regulation of the procedures and requirements for granting permission to vehicle manufacturers and owners to test and operate vehicles within a State.

1. Administrative

- a. Each State should identify a lead agency responsible for consideration of any testing of HAVs.
- b. Each State should create a jurisdictional automated safety technology committee that is launched by the designated lead agency and which includes representatives from the governor's office, the motor vehicle administration, the State department of transportation, the State law enforcement agency, the State Highway Safety Office, office of information technology, State insurance regulator, the State office(s) representing the aging and disabled communities, toll authorities, and transit authorities.
- c. Other stakeholders should be consulted as appropriate, such as transportation research centers located in the State, the vehicle manufacturing industry, and groups representing pedestrians, bicyclists, consumers and other interested parties.
- d. The designated lead agency should keep its state automated safety technology committee informed of the requests from manufacturers to test in their jurisdiction and the status of the designated agency's response to the manufacturers.
- e. The designated lead agency should take necessary steps to use or establish statutory authority to implement a framework and regulations. Each jurisdiction should examine its laws and regulations in the areas of: (1) licensing/registration; (2) driver education/training; (3) insurance and liability; (4) enforcement of traffic laws/regulations; and (5) administration of motor vehicle inspections, in order to address unnecessary barriers to safe testing, deployment, and operation of HAVs.
- f. Each State should develop an internal process that includes an application for manufacturers to test in the jurisdiction as described in sections 2 and 3 below.
- g. The motor vehicle agency should establish an internal process for issuing test vehicle permits as described in sections 2 and 3 below.

- h. The designated lead agency should review State statutes to identify any legal issues that need to be addressed prior to the deployment and operation of automated vehicles.

2. Application for Manufacturers or Other Entities to Test HAVs on Public Roadways

- a. A "manufacturer" is an individual or company that manufactures HAVs for testing and deployment on public roadways. Manufacturers include original equipment manufacturers (OEMs), multiple- and final-stage manufacturers, alterers (individuals or companies making changes to a complete vehicle prior to first retail sale or deployment), and modifiers (individuals or companies making changes to existing vehicles after first retail sale or deployment).
- b. An "other entity" is any individual or company that is not a manufacturer, and is involved with designing, supplying, testing, selling, operating, deploying, or helping to manufacture HAVs.
- c. Each manufacturer or other entity should submit an application to the designated lead agency in each jurisdiction in which they plan to test their HAVs.
- d. The application should state that each vehicle used for testing by manufacturers or other entities follows the Performance Guidance set forth by NHTSA and meets applicable Federal Motor Vehicle Safety Standards.
- e. The application should include the name of the manufacturer or other entity, the corporate physical and mailing addresses of the manufacturer or other entity, the in-State physical and mailing addresses of manufacturer, if different than corporate address, the name of the program administrator/director and the contact information for the program administrator/director.
- f. The application should identify each vehicle that will be used on roadways for testing purposes by VIN, vehicle type, and other unique identifiers such as the year, make, and model.
- g. The application should identify each test operator, their driver's license number, and the jurisdiction or country in which the operator is licensed.
- h. The application should include the manufacturer's or other entity's safety and compliance plan for testing vehicles, which should include a self-certification of testing and compliance to NHTSA's

Vehicle Performance Guidance for the technology in the test vehicles under controlled conditions that simulate the real-world conditions (various weather, types of roads, times of the day and night, etc.) to which the applicant intends to subject the vehicle on public roadways (e.g., a copy of the summary Safety Assessment submitted to NHTSA per the Vehicle Performance Guidance).

- i. The application should include evidence of the manufacturer's or other entity's ability to satisfy a judgment or judgments for damages for personal injury, death, or property damage caused by a vehicle in testing in the form of an instrument of insurance, a surety bond, or proof of self-insurance, for no less than 5 million U.S. dollars.⁵⁴
- j. The application should include a summary of the training provided to the employees, contractors, or other persons designated by the manufacturer or other entity as operators of the test vehicles. Approval should be granted by the designated lead agency if evidence of insurance, operator training, and self-certification is demonstrated.

3. Jurisdictional Permission to Test

- a. Each jurisdiction's lead agency should involve the jurisdictional law enforcement agency before responding to the request from the manufacturer or other entity.
- b. The lead agency may choose to grant authorization to test in a jurisdiction with restrictions, and/or may prohibit manufacturers or other entities from testing in certain areas or locations, such as school zones, construction zones, or other safety-sensitive areas.
- c. The authorization may be suspended if the manufacturer or other entity fails to comply with the State insurance or driver requirements, or fails to comply with its self-certification compliance plan.
- d. The lead agency may request additional information or require the manufacturer or other entity to modify its application before granting authorization.
- e. The lead agency should issue a letter of authorization to the manufacturer or other entity to allow testing in the State, and the State's motor vehicle agency should issue a permit to each test vehicle. The authorization and permits may be renewed periodically. The jurisdiction may determine that it is appropriate to charge fees for the application and for each vehicle-specific permit.

- f. The vehicle-specific permit must be carried in the test vehicle at all times.
- g. Each test vehicle should be properly registered and titled in accordance with the State's laws.

4. Testing by the Manufacturer or Other Entity

- a. Manufacturers or other entities must comply with Federal law and applicable NHTSA regulations before operating vehicles on public roadways, whether or not they are in testing or in "normal" operation.
- b. The vehicle used in testing must be operated solely by persons designated by the manufacturer or other entity, who have received training and instruction concerning the capabilities and limitations of the vehicle. The training provided to the persons designated by the manufacturer or other entity must be summarized and submitted to the lead agency.
- c. The operators testing the vehicles must hold a valid State driver's license.⁵⁵
- d. Before being allowed to operate a test vehicle, the persons designated by the manufacturer or other entity as operators of the test vehicles, may be subjected to a background check including, but not limited to, a driver history review and a criminal history check.
- e. The test operators are responsible for following all traffic rules and will be responsible for all traffic violations.
- f. All crashes involving test vehicles must be reported in accordance with the State laws in which the crash occurred.

5. Deployed Vehicles: "Drivers"

- a. States regulate human drivers. Licensed drivers are necessary to perform the driving functions for motor vehicles equipped with automated safety technologies that are less than fully automated (SAE Levels 3 and lower). A licensed driver has responsibility to operate the vehicle, monitor the operation, or be immediately available to perform the driving task when requested or the lower level automated system disengages.
- b. Fully automated vehicles are driven entirely by the vehicle itself and require no licensed human driver (SAE levels 4 and 5), at least

in certain environments or under certain conditions.⁵⁶ The entire driving operation (under specified conditions) is performed by a motor vehicle automated system from origin to destination.

c. In order to make the transition from human-driven motor vehicles equipped with automated safety technologies to fully automated vehicles, gaps in current regulations should be identified and addressed by the States (with the assistance of NHTSA). Some examples are:

- Law enforcement/emergency response
- Occupant safety
- Motor vehicle insurance
- Crash investigations/crash reporting
- Liability (tort, criminal, etc.)
- Motor vehicle safety inspections
- Education and training
- Vehicle modifications and maintenance
- Environmental impacts

6. Deployed Vehicles: Registration and Titling

- a. HAV technologies that allow the vehicle to be operated without a human driver either at all times or under limited circumstances should be identified on title and registration documentation by States, using the code HAV in a new data field.
- b. When HAV technologies that allow the vehicle to be operated without a human driver either at all times or under limited circumstances is installed on a vehicle after the initial purchase of the vehicle, the motor vehicle agency should be notified by the installer. The vehicle registration and title should be marked with the code HAV in a new data field.
- c. Regulations governing labeling and identification for HAVs should be issued by NHTSA.

7. Law Enforcement Considerations

It is important for first responders and law enforcement to understand how HAVs may affect their duties. In addition, there will be a growing need for the training and education of law enforcement regarding their interaction with drivers/operators in both the testing and deployment of these technologies.

For vehicles that offer less than full automation capabilities, there is potential for increased distracted driving. Dangerous activities that contribute to distracted driving such as using an electronic device, eating, drinking, and conversing with passengers could significantly increase in HAVs. Regulations to limit these activities, especially in vehicles providing less than full self-driving capabilities, should be consistent across jurisdictions. The States should work together to develop a consistent regulatory scheme to limit potential driver distraction. In addition, States should develop methodologies for enforcement to discourage hazardous vehicle operation for the safety of the motoring public. Once HAVs are deployed and operated on roadways, State regulations need to keep pace with the changing technology.

Although HAVs are expected to provide significant safety benefits by reducing human errors, motor vehicles currently equipped with automation technologies are already involved in traffic crashes and will continue to be, especially during the years of initial introduction and integration with existing motor vehicles. Responders to crashes of HAVs may be placed at risk if they are not trained for unique hazards that they may encounter. These hazards may include, for example, silent operation, self-initiated or remote ignition, high voltage, and unexpected movement. In the interest of safety, it is essential that first responders—including those in police, fire, emergency medical services, and tow and recovery services—receive information and training regarding the potential hazards they may face.

8. Liability and Insurance

States are responsible for determining liability rules for HAVs. States should consider how to allocate liability among HAV owners, operators, passengers, manufacturers, and others when a crash occurs. For example, if an HAV is determined to be at fault in a crash then who should be held liable? For insurance, States need to determine who (owner, operator, passenger, manufacturer, etc.) must carry motor vehicle insurance. Determination of who or what is the “driver” of an HAV in a given circumstance does not necessarily determine liability for crashes involving that HAV. For example States may determine that in some circumstances liability for a crash involving a human driver of an HAV should be assigned to the manufacturer of the HAV.

Rules and laws allocating tort liability could have a significant effect on both consumer acceptance of HAVs and their rate of deployment. Such rules also could have a substantial effect on the level and incidence of automobile liability insurance costs in jurisdictions in which HAVs operate.

In the future, the States may identify additional liability issues and seek to develop consistent solutions. It may be desirable to create a commission to study liability and insurance issues and make recommendations to the States.

D. NHTSA's Enforcement Authority

Several States have sought clarification of DOT's enforcement authority with respect to HAVs.

NHTSA has broad enforcement authority to address existing and new automotive technologies and equipment. The Agency is commanded by Congress to protect the safety of the driving public against unreasonable risks of harm that may occur because of the design, construction, or performance of a motor vehicle or motor vehicle equipment, and to mitigate risks of harm, including risks that may be emerging or contingent. This authority and responsibility extends to cover defects and unreasonable risks to safety that may arise in connection with HAVs. As NHTSA always has done when evaluating new vehicle technologies, it will be guided by its statutory mission, the laws it is obligated to enforce, and the benefits of the technology. NHTSA's enforcement authorities with respect to HAV are discussed in more detail in Section III "NHTSA's Current Regulatory Tools," and in separate enforcement guidance.⁵⁷

E. Next Steps

NHTSA will continue its collaboration with State stakeholders to help inform next steps and future Model State Policy updates. These steps include:

1. **Public comment:** NHTSA is issuing a Request for Comment on this Model State Policy and the entire Policy, to obtain public comment and input regarding the matters addressed in this Policy.
2. **Public Workshop(s):** The Agency plans to hold a public workshop to provide interactive discussions of the Model State Policy and gather additional input for future considerations.
3. **Stakeholder Engagement:** In parallel with the public workshop effort, NHTSA will meet with stakeholders at the State level who would be responsible for implementing the Model State Policy. This will be an opportunity to learn more about what States have learned through their experimentation thus far with HAV regulation.

4. Education: NHTSA recognizes that States may not have the resources to develop a deep understanding of the technologies being deployed. In conjunction with vehicle manufacturers, NHTSA will explore a mechanism to help State officials gain a better understanding of available vehicle technologies and NHTSA's roles and activities.
5. Work Plan: Some elements of the Model State Policy will benefit from specific stakeholder actions. NHTSA will explore potential activities, for example, to convene relevant stakeholders (e.g., environmental groups, disability advocacy groups) to develop a work plan that facilitates policy refinements. In some instances (e.g., insurance and liability), NHTSA may seek to convene a commission to study a particular issue and make recommendations.
6. North American Cross-Border Coordination: NHTSA will explore the opportunity for cross-border consistency by engaging Canadian and Mexican authorities to leverage this Policy within their own regulatory framework.
7. Continual Coordination: NHTSA will coordinate with State partners and other safety stakeholders to ensure that the Vehicle Performance Guidance and the Model State Policy sections continue to complement each other.