

Is This the End of the Wild West? NHTSA Issues Autonomous Vehicle Guidelines

On September 20, 2016, the National Highway Traffic Safety Administration (NHTSA) released its highly anticipated [guidelines](#) for the design, manufacture, and regulation of autonomous vehicles (read the related Policy Fact Sheet [here](#)). Although it recognized both the inevitability of this new technology and its potential for improving vehicle safety, personal mobility and city infrastructure, NHTSA also asserted its mandate to ensure that autonomous vehicles are introduced and deployed in a manner that protects the public. While the guidelines are focused on highly automated vehicles (HAV) – vehicles that can take full control of the driving task – some of NHTSA's guidance may also apply to driver-assistance systems that are already on the market.

NHTSA also issued an Enforcement Guidance Bulletin for publication in the Federal Register (read [here](#)). This bulletin sets forth NHTSA's view on its enforcement authority, including its view that when vulnerabilities in automated safety technology or equipment pose an unreasonable risk to safety, those vulnerabilities constitute a safety-related defect. The bulletin also suggests guiding principles and best practices for manufacturers to follow in designing and testing HAVs.

Vehicle Performance Guidance

The key component of NHTSA's guidelines is an outline of best practices for manufacturers and other entities designing HAV systems to follow as they design, test, and deploy HAVs. The best practices – which NHTSA refers to as a “15-point safety assessment” – are categorized as follows:

- **Data recording and sharing:** Manufacturers should collect and analyze event, incident, and crash data, and should develop a plan for sharing its data with other entities (including NHTSA) to enhance and extend safety benefits.
- **Privacy:** Manufacturers' privacy policies and practices should ensure that consumer data privacy is protected.
- **System safety:** The design of HAVs should be such that the vehicle will be placed in a safe state even if there are electrical, electronic, or mechanical malfunctions or software errors.
- **Vehicle cybersecurity:** HAV system design should follow established cybersecurity best practices.
- **Human machine interface:** At a minimum, an HAV should be capable of informing the human operator or occupant that the vehicle is: (1) functioning properly; (2) currently engaged in automated driving mode; (3) currently “unavailable” for automated driving; (4) experiencing a malfunction with the HAV system; and (5) requesting control transition from the HAV system to the operator.
- **Crashworthiness:** In addition to meeting NHTSA crashworthiness standards, a HAV should be able to use its advanced sensing technologies to provide enhanced protection.
- **Consumer education and training:** Manufacturers should develop consumer education and training programs to address the anticipated differences in the use and operation of HAVs.
- **Registration and certification:** Manufacturers should submit information to NHTSA regarding their HAV systems' features and capabilities, and human operators should be able to view information regarding such features and capabilities when inside an HAV.
- **Post-crash behavior:** Manufacturers should have a documented process for the assessment, testing, and validation of how an HAV is reinstated into service after being involved in a crash.
- **Federal, state and local laws:** Manufacturers should have documented plans detailing how they intend to comply with all applicable Federal, State, and local laws, and should also have processes to update and adapt systems to address new or changed legal requirements.
- **Ethical considerations:** Manufacturers, working cooperatively with regulators and other stakeholders, should address scenarios in which an HAV is confronted with a decision that can result in ethical consequences.
- **Operational design domain:** Manufacturers should define and document the specific operating domains in which each HAV system is designed to operate.
- **Object and event detection and response:** An HAV's OEDR function is expected to be able to detect and respond to other vehicles, pedestrians, cyclists, animals, and objects that could affect safe operation of the HAV.

- **Fall back (minimal risk condition):** HAVs should be capable of detecting that their HAVs systems have malfunctioned, are operating in a degraded state, or are operating outside of their operational design domain, and of informing the human driver in a way that allows the driver to regain proper control of the vehicle or allows the HAV system to return to a minimal risk condition independently.
- **Validation methods:** Manufacturers should develop tests and validation methods to ensure a high level of safety in the operation of autonomous vehicles.

NHTSA requested that manufacturers voluntarily provide reports regarding how these guidelines are being followed, and hinted that it may make such reporting mandatory in the future.

Federal Jurisdiction, State Roles, and Model State Policies and Jurisdiction

The guidelines include a model state policy that aims to create a consistent, unified national framework for the regulation of vehicles with all levels of automated technology. As NHTSA states, “a manufacturer should be able to focus on developing a single HAV fleet rather than 50 different versions to meet individual state requirements.”

NHTSA envisions that the deployment of HAVs should not affect the division of regulatory responsibility between federal and state authorities. The US Department of Transportation (DOT) and NHTSA are responsible for regulating motor vehicles and motor vehicle equipment, whereas the states are responsible for licensing, traffic laws and enforcement, and insurance and liability regimes. DOT portends, however, that “[a]s 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).”

In the guidelines, NHTSA has “strongly encouraged” the states to allow the agency alone to regulate the performance of HAV technology and vehicles. NHTSA asserted that its regulatory authority encompasses not only the promulgation of the Federal Motor Vehicle Safety Standards (FMVSS), but also the enforcement of such standards through nationwide recalls.

The Model State Policy framework includes the following key areas:

- **Administrative:** Each state should identify a lead agency responsible for considering requests from manufacturers to test HAVs in the state.
- **Application for manufacturers or other entities to test HAVs on public roadways:** Each manufacturer should submit an application to the designated lead agency in each state in which they plan to test their HAVs.

- **Jurisdictional permission to test:** Each state’s lead agency may choose to authorize testing with restrictions, and/or may prohibit manufacturers from testing in certain areas or locations, such as school zones; construction zones, or other safety-sensitive areas.
- **Testing by the manufacturer or other entity:** The manufacturer’s testing must comply with all applicable federal and state regulations, and only persons designated by the manufacturer may operate HAVs.
- **Deployed vehicles – “drivers”:** States should identify and address gaps in their regulation relating to HAVs, including regulations relating to law enforcement/emergency response, occupant safety; and motor vehicle insurance.
- **Deployed vehicles:** registration and titling: Vehicles that incorporate HAV technologies should use the code “HAV” in their title and registration documentation.
- **Law enforcement considerations:** First responders and law enforcement should be trained regarding the unique hazards they may face when encountering an incident involving an HAV.
- **Liability and insurance:** States should consider how to allocate liability among owners, operators, passengers, manufacturers, and others when a crash involving an HAV occurs.

NHTSA’s Regulatory Tools

The guidelines also summarize the regulatory “tools” that NHTSA currently uses to address the introduction of new technologies and new approaches to existing technologies:

- **Letters of interpretation:** Interpretation letters can help the requestor and others understand how NHTSA believes existing law applies to the requestor’s vehicle or equipment.
- **Exemptions from existing standards:** Exemptions are intended to provide some flexibility to the general requirement that manufacturers must comply with applicable FMVSS and bumper standards.
- **Rulemaking:** NHTSA uses this tool to adopt new standards, modify existing standards, or to repeal an existing standard.
- **Enforcement:** NHTSA has broad enforcement authority to address existing and automotive technologies.

NHTSA also identified several new tools and authorities that it believes could aid its regulation of HAVs, and stated that it will initiate a public dialogue to determine which ones might be worth pursuing. These potential new tools and authorities include: variable test procedures, enhanced data collection, the establishment of an expert network, and the authority to require pre-market approval of new technologies.

Conclusion

NHTSA's guidelines, although not mandatory, provide an overview of the agency's expectations regarding what a safe automated vehicle should look like. NHTSA also notes that they will "conduct significant public outreach to seek input" on the approach they have taken in the guidelines and will issue an update to the Policy within one year. Therefore, it will be important for all entities involved in the manufacture, design, sale, and operation of automated vehicles to familiarize themselves with these guidelines. This will enable such entities to not only understand the potential impact to their business, but also to determine how and to what extent they want to be part of the process of updating the existing policy over the next 12 months.

These guidelines will also be key in relation to worldwide compliance issues. The European Union's Gear 2030 working group is currently reviewing how legislation can keep pace with HAV technology and may propose such legislation to the European Commission as early as 2018. NHTSA's guidelines, which will likely be seen as the "first mover" in HAV regulation, may have a significant role in influencing and informing that non-US legislation.

Next Steps

We welcome you to participate in Squire Patton Boggs' discussion series on autonomous driving being held in San Francisco over the course of this fall. The first event was held on September 19 and focused on the regulatory and ethical challenges of autonomous driving (program video forthcoming). The next session in the series will be held on November 2 and will focus on cybersecurity and data privacy issues. To be notified of our future events in this series, including the one on November 2, please subscribe [online](#) and select "Automotive" under area of interest.

We also encourage you to reach out to us to share your thoughts on what these guidelines mean to you and in what direction you think the policy should go.

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