# NHTSA GUIDELINES DRIVE TOWARD AN AUTONOMOUS VEHICLE FUTURE

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Describing autonomous vehicles as potentially the "greatest personal transportation revolution since the popularization of the personal automobile," the National Highway Traffic Safety Administration (NHTSA) on Tuesday released comprehensive guidelines for the regulation of emerging automated vehicle technologies. The guidelines are the federal government's most significant action to date with respect to autonomous vehicles and will likely lead to future legislative, regulatory, and enforcement activity in this area. Interested stakeholders should evaluate the risks and opportunities created by the new guidelines, and monitor areas for further engagement. Our CarTech team and the authors of this alert are available to answer any specific questions you may have about the guidelines and are prepared to assist clients on vehicle technology issues.

The NHTSA guidelines will shape the future of a sector that is growing rapidly. The Boston Consulting Group has estimated that 12 million autonomous vehicles will be on the road globally by 2025, creating a market opportunity for fully and partially automated vehicles worth some $42 billion each year. By improving safety, expanding mobility, and reducing costs, automated vehicle technologies promise to revolutionize the transportation industry. Their transformative effects could extend across the U.S. economy, particularly to the insurance, cybersecurity, and telecommunications sectors, among others.

As summarized below, the guidelines are comprised of four sections, which address (1) vehicle performance guidance for automated vehicles, (2) a model state policy for automated vehicle technologies, (3) an overview of NHTSA's current regulatory tools in this area, and (4) a discussion of new regulatory authorities and tools that NHTSA may seek in the future. NHTSA envisions these guidelines as a starting point for further discussions between regulators and stakeholders and expects that its policy will "necessarily evolve over time to meet the changing needs and demands of improved safety and technology." The guidelines and related interpretative materials can be accessed via the following links:

- Federal Automated Vehicles Policy - September 2016
- Automated Vehicle Policy Fact Sheet Overview
- White House Fact Sheet: Encouraging the Safe and Responsible Deployment of Automated Vehicles
- Federal Register Notice and Request for Comment on Federal Automated Vehicle Policy
- Federal Register Paperwork Reduction Act Notice for Vehicle Performance Guidance
- NHTSA Enforcement Guidance Bulletin 2016-02: Safety-Related Defects and Automated Safety Technologies

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## VEHICLE PERFORMANCE GUIDANCE

NHTSA's vehicle performance guidance identifies 15 factors for manufacturers of highly automated vehicles (HAVs)[1] to consider in determining whether their products meet the requirements of the Federal Motor Vehicle Safety Standards (FMVSS). The guidance requests that, prior to testing and deployment of HAVs on public roadways, manufacturers provide a voluntary self-certification of their satisfaction of each factor. This "Safety Assessment" is intended to aid in safety compliance, as well as to inform NHTSA's broader regulatory efforts. The guidelines note that manufacturers can seek interpretations and/or exemptions of NHTSA regulations as necessary in order to certify that their products meet applicable FMVSS.

The guidance also notes that many of the safety factors identified for HAVs apply equally to vehicles that incorporate lower levels of automation, such as active safety and driver assistance systems. Manufacturers of vehicles incorporating these systems are encouraged to apply the guidance as appropriate, with special attention to the risks of driver complacency and inattentiveness.

As described in the fact sheet accompanying the guidance, the 15 factors of autonomous vehicle Safety Assessment are as follows:

- **Operational Design Domain:** How and where the HAV is supposed to function and operate;
- **Object and Event Detection and Response:** Perception and response functionality of the HAV system;
- **Fall Back (Minimal Risk Condition):** Response and robustness of the HAV upon system failure;
- **Validation Methods:** Testing, validation, and verification of an HAV system;
- **Registration and Certification:** Registration and certification to NHTSA of an HAV system;
- **Data Recording and Sharing:** HAV system data recording for information sharing, knowledge building and for crash reconstruction purposes;
- **Post-Crash Behavior:** Process for how an HAV should perform after a crash and how automation functions can be restored;
- **Privacy:** Privacy considerations and protections for users;
- **System Safety:** Engineering safety practices to support reasonable system safety;
- **Vehicle Cybersecurity:** Approaches to guard against vehicle hacking risks;
- **Human Machine Interface:** Approaches for communicating information to the driver, occupant and other road users;
- **Crashworthiness:** Protection of occupants in crash situations;
- **Consumer Education and Training:** Education and training requirements for users of HAVs;
- **Ethical Considerations:** How vehicles are programmed to address conflict dilemmas on the road; and
- **Federal, State, and Local Laws:** How vehicles are programmed to comply with all applicable traffic laws.

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## MODEL STATE POLICY

The NHTSA guidelines aim to avoid a "patchwork" of inconsistent state laws regarding autonomous vehicles by (1) identifying separate spheres of federal and state regulatory responsibility and (2) encouraging consistency in state regulatory frameworks. The guidelines urge states to defer to federal regulators on matters related to safety standards and vehicle performance (addressed by the federal guidelines described above). However, states are free to address other matters including driver education and testing; licensing; pedestrian safety; law enforcement; vehicle registration and inspection; traffic control; highway design and maintenance; crash prevention, investigation, and recordkeeping; and emergency services, among others.

The guidelines also detail a model state policy to address these issues. In considering whether to adopt legislation and regulations based on this policy, NHTSA encourages states to aim for "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 technologies."

## CURRENT REGULATORY TOOLS

The guidelines affirm that NHTSA will continue to use the regulatory tools at its disposal to enable the development and deployment of autonomous vehicle technologies. These tools include:

- **Interpretations** of NHTSA safety regulations to confirm their application to automated systems, such as an interpretation issued earlier this year that provided that autonomous vehicle software could serve as a "driver" for purposes of satisfying the FMVSS.
- **Exemptions** from particular FMVSS, within the constraints of NHTSA's current authority to grant two-year exemptions to no more than 2,500 vehicles per year.
- **Rulemakings** to amend existing FMVSS, promulgate new ones, and issue other regulations.
- **Enforcement authority** to require recalls or other remedies for autonomous vehicle defects that pose safety risks.

Notably, in conjunction with the release of the guidelines, NHTSA also issued an Enforcement Guidance Bulletin (linked above), to provide an overview of its current enforcement approach with respect to autonomous vehicles. The bulletin notes that the extensive use of innovative electronic systems in fully and partially automated vehicles does not relieve manufacturers from their safety obligations. Among other guidance, it provides that "a semi-autonomous driving system that allows a driver to relinquish control of the vehicle while it is in operation but fails to adequately account for reasonable foreseeable situations where a driver or inattentive driver-occupant must retake control of the vehicle at any point may also be an unreasonable risk to safety." This conclusion is notable in light of NHTSA's ongoing investigation of a fatal crash involving a semi-autonomous vehicle, which we described in greater detail in a previous alert.

## FUTURE AUTHORITIES

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Notwithstanding the tools described above, the NHTSA guidelines acknowledge that the special characteristics of autonomous vehicle technology may demand additional regulatory authorities. Specifically, the guidelines note that autonomous vehicle technologies are markedly different from the mechanical systems that power conventional vehicles, and thus may not fit well into the regulatory scheme created by existing statutes. The guidelines identify a number of potential authorities, tools, and other agency resources that NHTSA is contemplating, among them:

- **Additional safety assurances** from manufacturers of vehicles that incorporate autonomous technologies.
- **Pre-market approval authority**, broadly analogous to the processes used by the Federal Aviation Administration for certification of new aircraft.
- **A hybrid certification/approval process**, in which NHTSA or a certified third party exercise pre-market approval over those technology features that are not addressed by the FMVSS.
- **Cease and desist authority**, to empower NHTSA to take immediate action to proscribe activities that create "imminent hazards."
- **Expanded exemption authority**, to allow NHTSA to exceed the current limits to permit expanded testing of autonomous vehicle technologies.

Any one of these options could fundamentally transform the federal regulatory process for motor vehicles. As such, they will likely be the focus of significant attention in the coming public comment period (described below) and could lead to legislative efforts on Capitol Hill. These efforts may intersect with the release of federal cybersecurity best practices for the automotive industry, which are expected in the coming weeks.

## COMMENTS REQUESTED

The NHTSA guidelines were issued as informal guidance rather than as part of a rulemaking subject to normal notice-and-comment procedures, out of a desire to speed the delivery of regulatory direction and "to ensure that premature, static regulatory requirements do not hinder innovation and diffusion of the dynamic technologies that are being developed in the industry." However, NHTSA is very much interested in stakeholder reactions to the guidelines. According to the solicitation, "NHTSA expects and intends the policy document and its guidance to be iterative, changing based on public comment; the experience of the agency, manufacturers, suppliers, consumers, and others; and further technology innovation." Comments on the guidelines are requested within 60 days. As noted above, the K&L Gates CarTech team is available to answer questions about the guidelines and is prepared to assist in the submission of comments.

Separately, NHTSA is seeking comments under the Paperwork Reduction Act in connection with the information collection requirements associated with the proposed Safety Assessment. Among other items, the solicitation recommends that "each manufacturer or other entity should develop a plan for sharing its event reconstruction

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and other relevant data with other manufacturers and other entities." Data sharing may entail competitive considerations that should be weighed carefully in responding to NHTSA's request for comments.

## JOIN US TO LEARN MORE

The NHTSA guidelines will be a focus of our September 30 conference, *Vehicle Technology in the Fast Lane: Regulatory and Policy Outlook*. Presented in conjunction with the Consumer Technology Association, the event will feature keynote addresses by Gregory Nadeau, head of the Federal Highway Administration, and Gary Shapiro, president and CEO of CTA, as well as panel discussions featuring safety advocates, Congressional staff, manufacturers, and other industry participants. We expect that the conference will be an engaging forum to discuss the impact of the new guidelines. For more information or to register, please visit our event page.

## NOTES:

[1] As described in the NHTSA guidelines, HAVs include vehicles "for which there is no human driver at all, or for which the human driver can give control to the HAV system and is not expected to perform any driving-related tasks for a period of time."

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