



## US DOT issues groundbreaking proposals for regulation of automated driving systems, seeks input

### Transportation Alert

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The National Highway Traffic Safety Administration (NHTSA) has initiated an important proceeding seeking ideas and input on proposals for a regulatory framework for automated driving systems (ADS).<sup>[1]</sup> This is the first time the federal government has proposed affirmative regulation of ADS, commencing an important new chapter in autonomous vehicle development and commercialization in the US. The proceeding offers a rare opportunity for interested parties to help to shape a new regulatory approach in its formative stage, before an agency's views and policy course have crystallized and while the general parameters of such regulation remain amenable to creative and different ideas and approaches.

The new initiative is a significant step toward the establishment of a new structure and approach for ADS safety regulation and policy. The nature and extent of that regulatory approach, as well as its specific provisions, will be important determinants of the course and pace of deployment of autonomous vehicles in the US. To date, the absence of specific federal safety standards or requirements for ADS has allowed the industry to develop and validate automated driving technologies and systems unconstrained by specific mandatory engineering, design or performance requirements. But NHTSA's new initiative serves as an acknowledgment that public policies designed to ensure safe functioning of ADS will be necessary to allow and facilitate widespread deployment of AVs on US public roads. Significantly, the new proposal

proceeds from the assumption that NHTSA's conventional standards approach alone is inadequate to timely ensure the safety of systems that perform the complex driving functions previously conducted by a human driver. Accordingly, the agency seeks to identify new and alternative approaches and methods to ensure ADS safety, and it requests input on proposed alternative and supplemental measures and other creative ideas to form a new "framework for ADS safety."

ADS are different in kind from the vehicle equipment and features that the NHTSA has previously regulated, and appropriate regulation of ADS safety may be correspondingly different. The agency's central and unprecedented challenge is to develop a workable regulatory approach to ensure that complex new systems safely execute the driving tasks currently performed by human drivers in a near-infinite variety of circumstances, without materially impeding innovation. A further challenge that NHTSA does not highlight is that any regulatory approach it adopts must fit within the bounds of its limited statutory authority.

As outlined below, NHTSA suggests a variety of alternative regulatory and policy ideas, broadly covering what should be regulated, in what manner and through what measures and processes, when, and by whom. Some suggested measures and approaches would be marked departures from existing practice, while others are variations on established methods and practices. Significantly, NHTSA proposes to continue and expand its reliance on voluntary measures to promote and assure ADS safety, and to defer adoption of mandatory safety standards.

At this stage, interested parties are not confined to the options NHTSA has proposed and may take this opportunity to propose other measures and approaches.

### **NHTSA's proposed safety framework and its elements**

NHTSA envisions a new approach to vehicle safety regulation and policy consisting of a combination of different measures, methods and mechanisms – both governmental and non-governmental – that together would form a "safety framework" for ADS. NHTSA's rulemaking notice summarizes its aspirations for a new approach:

[R]ather than elaborating and prescribing by rule specific design characteristics or other technical requirements for ADS, NHTSA envisions that a framework approach to safety for ADS developers would use performance-oriented approaches and metrics that would accommodate the design flexibility needed to ensure that manufacturers can pursue safety innovations and novel designs in these new technologies. This framework could involve a range of actions by NHTSA, including [non-binding] guidance documents addressing industry best practices . . . as well as more formal regulation, from rules requiring reporting and disclosure of information to the adoption of ADS-specific FMVSS . . . NHTSA seeks comments on the appropriate role of the Agency in facilitating ADS risk management through guidance and/or regulation.

The agency describes a variety of different elements, measures and mechanisms it might use or endorse as part of such a framework. Significant components of the safety framework on which NHTSA seeks comment are outlined below.

- **Core elements of an ADS safety framework**

- **Engineering measures.** NHTSA identifies core ADS functions whose safe performance can be readily assessed through testing of finished vehicles. Those essential functions include sensing, perception, planning and control. The proposal also lists several other functions whose safety could be evaluated through engineering measures.
- **Process measures.** NHTSA proposes to use "process measures" – which focus on manufacturers' design and development processes and safeguards – to minimize safety risks that are not readily addressed through engineering standards and tests (including "edge cases"). Examples of such process measures include:
  - ISO 26262: A general process standard for identification of unreasonable safety risks from electrical and electronic system malfunctions
  - ISO 21448: Safety of the intended functionality (SOTIF) standard – a general process intended to mitigate safety risks due to unexpected events and conditions.
  - UL 4600: Draft voluntary industry standard designed specifically to evaluate ADS safety through a safety case approach.

- **Mechanisms for implementation and oversight.** The proposal also discusses possible mechanisms that might be used to apply and administer safety measures.

- **Voluntary mechanisms.** The agency suggests that voluntary mechanisms should continue to serve

important roles in a safety framework by enhancing and encouraging manufacturer transparency, building public knowledge and confidence in new technologies, and making policy measures more flexible and responsive as ADS technologies develop and matures. Examples of voluntary mechanisms NHTSA cites:

- Publicly available ADS manufacturer safety assessments, such as Voluntary Safety Self-Assessments (described in DOT's ADS 2.0: A Vision for Safety) or the agency's "AV TEST" initiative and activities
  - Encouraging development of safety cases by ADS developers and manufacturers, and potentially making such safety cases public
  - Adding ADS performance measures and comparisons (eg, using an obstacle-course performance test) to the voluntary New Car Assessment Program and
  - Using voluntary guidance instead of mandatory standards to establish engineering and process measures and metrics, at least until ADS technology is sufficiently mature to identify and apply appropriate mandatory standards.
- **Regulatory mechanisms.** In addition to voluntary mechanisms, NHTSA plans to ultimately develop and issue mandatory regulatory standards to ensure the safety of ADS. The agency has determined that its conventional FMVSS approach cannot keep pace with the rapid advancement of ADS and innovative technologies. Accordingly, it proposes alternative new mechanisms and asks for additional ideas.
- NHTSA seeks comments on alternative FMVSS or other regulatory mechanisms that will be (i) consistent and reliable, (ii) technology neutral and performance based, (iii) predictable, (iv) transparent, (v) efficient, (vi) equitable, (vii) consistent with market-based innovation and (viii) attainable based on the agency's available resources.
- Examples of alternative mechanisms NHTSA is considering include adoption of an FMVSS for obstacle course-based validation; mandating defense driving/risk-minimizing decision making in ADS programming; and promulgation of simpler and more general and flexible FMVSS and tests designed to validate performance, rather than specific tests for numerous different combinations of technologies, equipment and operational design domains.
- **Phased approach to mandatory standards.** To address concerns that premature regulatory standards could stifle innovation, the ANPRM suggests a phased approach that would prioritize certain standards and defer development of others, and requests input regarding which types of standards should be given priority in order to advance ADS safety.

NHTSA seeks public input on its Safety Framework proposal by posing a series of 24 questions regarding elements, measures, and mechanisms that NHTSA might use or endorse as part of such a framework, including which components of a safety framework – individually or in combination – would best enable NHTSA to carry out its safety mission for ADS without unnecessarily limiting innovation. The questions also ask whether the approaches and measures NHTSA has proposed are within and consistent with its statutory authority.

The proceeding presents an unusual, time-limited early opportunity for interested parties to influence how and to what extent ADS and AVs will be regulated in the US, and the general parameters and principles of that regulation. Comments are due no later than 60 days after the December 3 publication of the notice in the Federal Register, or February 1, 2021.

If you have questions or are interested in participating in this matter, please contact the author or your usual DLA Piper contact.

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[1] See *Framework for Automated Driving Safety*, NHTSA Advanced Notice of Proposed Rulemaking, 85 Fed. Reg. 78058 (Dec. 3, 2020) ("ANPRM")

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