



# NHTSA proposed framework for automated driving system safety

November 25, 2020

The National Highway Traffic Safety Administration (NHTSA) of the Department of Transportation is seeking public comment on the development of a framework to govern the safety of automated driving systems (ADS). NHTSA submitted the [advanced notice of proposed rulemaking \(ANPRM\)](#) to the *Federal Register* on November 19.

The ANPRM marks a departure from previous regulatory notices on ADS. It looks beyond the existing non-binding guidance documents and limited regulatory modifications, and instead contemplates the establishment of a new framework tailored to ADS. The new framework could combine a spectrum of regulatory tools from new, non-binding guidance at one end, to new, performance-based FMVSS at the other. In contrast to prior efforts, this guidance suggests a desire within parts of the Agency to create a more comprehensive set of regulatory measures to monitor, measure, encourage, and/or mandate the safety of autonomous vehicles in the future. Going forward, NHTSA will emphasize a framework approach to ADS safety that may use a variety of approaches and metrics (including a focus on “ADS competence”). Consistent with NHTSA past and current practice, the ANPRM makes it clear that the Agency will not prescribe specific design characteristics or features that could constrain innovation and development.

NHTSA proposes to develop a new, phased-in safety framework that would guide the evaluation and demonstration of the safety of new ADS systems. The framework would include guidance, standards, regulations, and other mechanisms to facilitate development of rapidly developing ADS technology. The ANPRM emphasizes that the phased-in framework approach has two major benefits: First, it avoids setting rules about specific design features or content of ADS that may freeze development in its current state and hamper innovation. Second, the ANPRM indicates that widespread deployment of autonomous vehicles (AV) appears to be years away, and the phased approach allows NHTSA to leverage this long timeline by strategically determining which aspects of ADS safety require attention and when. Like NHTSA’s previous AV guidance documents the framework is intended to evolve as ADS technology evolves.

NHTSA identified four primary ADS functions that will be the focus of the safety framework:

1. **Sensing:** How the ADS receives information about its environment through sensors.
2. **Perception:** How the ADS detects and categorizes other road users, infrastructure, and conditions and predicts their future behavior.
3. **Planning:** How the ADS analyzes a situation, plans the route it will take on its way to an intended destination, and decides how to respond appropriately to the road users, infrastructure, and conditions it detects and categorizes.

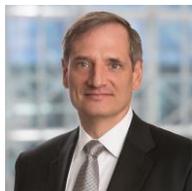
4. **Control:** How the ADS executes the driving functions necessary to carry out its continuously updated driving plan.

The proposed ADS safety framework would include an array of mechanisms for implementation and oversight, including both voluntary programs and formal regulations. Voluntary mechanisms will promote information sharing and encourage best safety practices in the AV industry. These programs could include voluntary disclosures from manufacturers, car assessment programs, and guidance documents describing best industry practices. Regulatory mechanisms would likely be deployed later in the process, after ADS technology has further developed and NHTSA has studied ADS safety needs. These non-voluntary mechanisms could include mandatory reporting and the promulgation of ADS-specific FMVSS. Importantly, NHTSA explains that, like the current FMVSS, future ADS FMVSS will continue to focus on performance outcomes rather than specific technologies or safety systems, which will allow the FMVSS to continue to be applicable and relevant even as technologies change.

NHTSA also explains that future FMVSS will continue to be technologically neutral and performance-focused. By regulating objective vehicle functionality rather than mandating certain safety systems, manufacturers will retain flexibility to use innovative combinations of sensors, software, and other technologies to meet safety performance standards.

NHTSA poses 24 questions to the public about the forthcoming safety framework, NHTSA research, potential administrative mechanisms, and NHTSA's statutory authority. Among other areas, NHTSA is seeking comment on the manner in which the new ADS safety framework can and should be administered (e.g., guidance, consumer information, or regulation) as well as the structure and key elements of this new ADS safety framework. NHTSA has specifically invited comment on the types of engineering and process measures that should be included for evaluation, and what aspects of ADS performance are potentially suitable for safety performance standards. Overall, NHTSA is inviting comment on a broad range of topics related to ADS technology and safety standards that may be of interest to entities in the AV industry and beyond. Written comments must be submitted within 60 days of the ANPRM's publication in the Federal Register, which is expected within the next two weeks.

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