

U.S. Department of Transportation Seeks Public Comment on Automated Driving System Safety Principles



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On November 19, 2020, the U.S. Department of Transportation's National Highway Traffic Safety Administration (NHTSA) announced that it is seeking public comment on the potential development of a framework of principles to govern the safe behavior of automated driving systems (ADS) in the future. The advance notice of proposed rulemaking is available [here](#). Written comments are due within 60 days.

Over the past several years, NHTSA has published various reports, guidance documents, and recently issued a notice of proposed rulemaking relating to the development of vehicles equipped with ADS. In general, the work so far has addressed the challenges involved in determining which requirements of the existing Federal Motor Vehicle Safety Standards (FMVSS) are relevant to the safety needs of ADS-equipped vehicles without traditional manual controls. In other words, those notices have focused more on the design of the vehicles that may be equipped with an ADS — not necessarily on the performance of the ADS itself.

The recently published notice marks a notable departure from the previously issued notices on ADS because NHTSA is looking beyond the existing FMVSS and their application to novel vehicle designs and is considering the creation of a governmental safety framework specifically tailored to ADS. Rather 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 guidance documents addressing best industry practices, providing information to consumers, and describing different approaches to research and summarizing the results of research, as well as more formal regulation, from rules requiring reporting and disclosure of information to the adoption of ADS-specific FMVSS. These different approaches would likely build off the three primary ADS guidance documents issued in recent years by DOT (i.e., [ADS 2.0](#), [Preparing for the Future of Transportation: Automated Vehicles 3.0](#), and Ensuring American Leadership in Automated Vehicle Technologies: [Automated Vehicles 4.0](#)).

The notice focuses on ways that NHTSA could approach the performance evaluation of ADS through a safety framework, containing a variety of approaches and mechanisms that, together, would allow NHTSA to identify and manage safety risks related to ADS in an appropriate manner. The notice suggests that NHTSA believes there are four primary functions of the ADS that should be the focus of the agency's attention. First, how the ADS receives information about its environment through sensors ("sensing"). Second, how the ADS detects and categorizes other road users (vehicles, motorcyclists, pedestrians, etc.), infrastructure (traffic signs, signals, etc.), and conditions (weather events, road construction, etc.) ("perception"). Third, how the ADS analyzes the situation, plans the route it will take on the way to its intended destination, and makes decisions on how to respond appropriately to the road users, infrastructure, and conditions detected and categorized ("planning"). Fourth, how the ADS executes the driving functions necessary to carry out that plan ("control") through interaction with other parts of the vehicle. NHTSA anticipates that the safety framework would include both process and engineering measures to manage risks. The process measures (e.g., general practices for analyzing, classifying by severity level and frequency, and reducing potential sources of risks during the vehicle design process) would likely include robust safety assurance and functional safety programs. The engineering measures (e.g., performance metrics, thresholds, and test procedures) would seek to provide ways of demonstrating that ADS perform their sensing, perception, planning, and control (i.e., execution) of intended functions with a high level of proficiency.

NHTSA is seeking comment on the manner in which the framework can and should be administered (e.g., guidance, consumer information, or regulation) to support agency oversight of ADS-related aspects. Since some of the mechanisms described in the notice (e.g., guidance) could be implemented more quickly than others (e.g., FMVSS), the mechanisms could be adopted, when and as needed, in a phased manner, and implementation of some types of mechanisms might end up not being necessary.

Officials from the Department of Transportation assert that this rulemaking will help address legitimate public concerns about safety, security and privacy without hampering innovation in the development of automated driving systems.