



**California State Transportation Agency**  
**Comments on NHTSA Advance Notice of Proposed Rulemaking:**  
**Framework for Automated Driving System Safety**  
**Docket No. NHTSA-2020-0106**  
**March 4, 2021**

**Introduction**

The California State Transportation Agency (CalSTA), in coordination with its departments, including the California Highway Patrol (CHP), California Department of Transportation (Caltrans), and California Department of Motor Vehicles (DMV), thanks the National Highway Traffic Safety Administration (NHTSA) for soliciting public comments on the development of a framework for Automated Driving System (ADS) safety.

The introduction of ADS-equipped vehicles has the potential to enhance traffic safety and increase mobility. The NHTSA and CalSTA share a common objective of seeing this technology developed, tested, and deployed safely and efficiently on our public roads. Our comments on this Advance Notice of Proposed Rulemaking (ANPRM) reflect this shared interest in creating a federal and state regulatory framework that focuses on safety, while also facilitating the advancement of this technology.

In 2014, the State of California put regulations in place to allow for the testing of autonomous vehicles with a driver. The DMV has since promulgated regulations to allow for testing and deployment of autonomous vehicles on public roads, with and without drivers, including light-duty delivery vehicles. These regulations recognize NHTSA's traditional role in regulating the safety of motor vehicles and require permitted autonomous vehicles to comply with existing Federal Motor Vehicle Safety Standards (FMVSS) or to receive an exemption from the NHTSA.

With 56 companies currently permitted for testing of autonomous vehicles in California, DMV, CHP, and Caltrans meet regularly with manufacturers and other stakeholders. Additionally, the CHP has assisted the National Transportation Safety Board with multiple investigations involving vehicles equipped with Advanced Driver Assistance Systems, which are precursors to ADS-equipped, fully self-driving vehicles.

We support the development of an ADS safety framework that can be used to objectively define, validate, and manage the safety of ADS performance. The safety framework should account for varied software, hardware and sensor suites, use case scenarios and operational design domains, which will provide state and local jurisdictions, and the public, with greater confidence and understanding of how developers of ADS technology are addressing and evaluating the safe operation of ADS on public roads prior to broad commercial deployment.

We appreciate NHTSA's ongoing acknowledgment of the critical role that state and local entities play in roadway safety. State-level efforts, such as licensing drivers, setting and enforcing the rules of the road, and highway design and maintenance, serve as an important complement to the federal government's role related to vehicle safety. As the ADS safety framework is further developed, we would welcome additional conversation on how NHTSA's regulatory and oversight efforts can align with this traditional division of federal and state responsibilities, so that critical public safety functions are protected.

We look forward to continued collaboration with NHTSA and other federal partners, industry, other jurisdictions, and transportation stakeholders to promote the safe operation of automated vehicles on public roadways. CalSTA and our associated departments are available to provide consultation and support as NHTSA continues to develop the ADS Safety Framework. Please do not hesitate to contact Lori Pepper, CalSTA Deputy Secretary for Innovative Mobility Solutions, at [lori.pepper@calsta.ca.gov](mailto:lori.pepper@calsta.ca.gov) or 916-324-7505 for further assistance.

### **Comments**

California appreciates NHTSA's dedication to proven and verifiable safety elements, and rejecting untested or unproven elements such as non-traditional seating configurations, or occupant compartmentalization instead of occupant restraint. **The focus should remain on maintaining the high standards of occupant and vehicle safety, while allowing for ADS development and testing.**

**As existing Federal Motor Vehicle Safety Standard (FMVSS) are modified for ADS, it will be critical that any changes provide for a proven equivalent level of safety.** As definitions and requirements adapt to accommodate ADS, no physical or functional attributes of ADS that lead to a reduction in safety as compared to non-ADS vehicles is acceptable. It is foreseeable, the safety of any ADS will have a correlation not only to its base capabilities, but also to the extent of the conditions surrounding its operation. As ADS manufacturers broaden their operational design domain (ODD) to increase system marketability, the extremes of those ODD conditions are where increased risks may be encountered. An evaluation of fail-safe or fallback safety modes and testing designed to push or exceed ODD limits may serve to identify systems that operate beyond design capacity, or fallback into safety modes that provide inadequate protections.

**California concurs with the defining of core elements as described in the ANPRM document.** Such definition allows for a more targeted approach to identifying and assessing those tasks related to ADS functions, and may also incorporate other standards such as the UL 4600 Safety Standards. Supplementary to those four defined core elements which encompass the ongoing ADS tasks, is a transitional element, which occurs when ADS systems fail, or are required or should be required to disengage. “Edge” scenarios will exist, where environmental conditions will exceed or push ODD limitations or ADS capacities. Under these circumstances, the ADS’ ability to make safety prioritizations is critical, and an evaluation or comparison of safe practices may be necessary. **Questions to consider include: 1) When is it acceptable or necessary for teleoperation to take control of a vehicle (if at all)? 2) When is a fail-safe, low speed “limp-mode” utilized to remove the vehicle from the roadway? 3) When is it reasonable for an ADS vehicle to cease all operations and remain motionless obstructing a traveled portion of roadway?** This transitional element could also include analysis of pre-trip determinations, confirming the ADS will not commit to a route or period of engagement that exceeds mechanical or ODD limitations. This could include: distances exceeding fuel capacity, operation during times of weather severity, or even upon unmapped/unknown routes.

We would also encourage continued discussion on specific data points that could be used to evaluate ADS safety and performance, support analysis of the cause of ADS system issues, and build consumer knowledge and understanding. **We would welcome the opportunity to participate in future discussions about standards for data collection, reporting, and sharing, as well as possible data elements, such as total miles driven, thresholds for tracking of near-miss incidents, and ADS system data needed for crash reconstruction purposes.**

The administrative mechanisms described in the ANPRM all constitute options for a comprehensive and initial approach to assessing safety without introducing unintended barriers to ADS development. **At this pre-market stage of ADS development, the described administrative mechanisms could provide for greater consistency among ADS developers and present federal, state, and local agencies with additional valuable information on how ADS safety is being addressed.** These voluntary mechanisms for monitoring and influencing developers include the Voluntary Safety Self-Assessments (VSSA) and adding an ADS competency evaluation as a component of the New Car Assessment Program (NCAP). The proposed addition to NCAP evaluations could be a means to demonstrate satisfactory ADS performance under foreseeable traffic related conditions and provide important safety information to consumers. **Consideration should also be given to including a component of testing in extreme weather conditions.**

These voluntary compliance features, including testing and evaluation, may be easier to implement in the near-term. They can be performed prior to regulatory determinations and serve the joint purpose of determining ADS system capacities and limitations, and encouraging system improvements without any developmental challenges being created by premature regulation. **Questions to consider include: (1) How are manufacturers of ADS technology mitigating risks through software design? (2) What testing and validation methods are required within a specific operational design domain, including, but not limited to: reckless action of other road users, work/construction zones, interaction with emergency vehicles, and varying weather conditions? (3) Any collisions occurring during testing, and measures taken to remediate the cause of any collisions?**

If an alternate regulatory path were to be established for ADS vehicles, it would not be advisable that the alternate path universally exempt FMVSS features, but instead allow for exemption from specific FMVSS features that are deemed non-applicable for the ADS vehicle being tested. **The determination of which FMVSS features may be exempted as non-applicable should be made through consideration for the safety of all persons, not just occupants of the tested vehicle, and ensure at least a comparable level of safety as a traditional vehicle.**

An illustration of that distinction could be removing a non-applicable requirement for occupant restraint systems in a cargo vehicle that is not designed or capable of transporting people, but still requiring FMVSS compliance for safety glass, if that glass provides a safety benefit to pedestrians who could experience an impact with the outside of that vehicle. The alternate path could also allow for a direct focus on ADS-related safety, providing additional ability to address ADS-specific items that would not apply to non-ADS vehicles.

Continuing the Notice of Proposed Rulemaking (NPRM) process, allowing for ANPRM and Supplemental Notice of Proposed Rulemaking (SNPRM) as applicable, complies with United States Department of Transportation (DOT) rulemaking practices. Considering the preemptive component of possible ADS regulation, utilizing Interim Final Rule (IFR) guidelines would allow for manufacturers to formally address any severity of burden or limitations resulting from rulemaking. **The DOT rules concerning enforcement, specific to ADS development and deployment, should continue to prioritize and allow for due process.** New enforcement challenges are presented with, and unique to, ADS, and the rules for enforcement should be evaluated for applicability to these new challenges. These include protection of proprietary data or programs belonging to the manufacturer but stored in the vehicle, data recorded by (and in custody of) the manufacturer leading to privacy considerations for the owner/operator, as well as considerations towards industry standards for data retrieval ports, and requirements that data retrieved and provided is decrypted and in a readable format.

Additionally, there may be new jurisdictional considerations to enforcement such as an incident occurring in a county or state, while an ADS vehicle is being teleoperated or engaged by a person located in a different county, state, or country. **At this time, it is unclear if existing enforcement authorities will be adequate to address the enforcement considerations that may arise with ADS-related incidents. Further determinations regarding these ADS enforcement needs should be considered and will have to be made as regulations and enforcement guidelines are created.**

Similarly uncharted, are new considerations required to address cyber-security in relation to ADS systems, balancing protection of infrastructure and data from malicious attacks, without hindering lawful access for investigative purposes. California encourages NHTSA and its federal partners work closely to ensure the unique cyber-security concerns in this environment are addressed.

Additionally, one of the main challenges to ADS is the need for a defined resilient redundancy within the general architecture of ADS involving any of the major driving functions. **This is second only to the need for a defined minimum operation standard which evaluates all the data receiving and processing systems which feed the ADS decision-making process (reference SAE ISSN 2574-0741.)**

As a final note, we wanted to acknowledge NHTSA's efforts and partnerships to encourage public awareness and transparency regarding the safety and performance of ADS. Making ADS-related information publicly available – whether via the AV Test Initiative, having developers publicly share their VSSA, or including ADS information in an owner's manual – could help to enhance public acceptance and knowledge of ADS. **We would welcome the opportunity to provide input about possible consumer and public engagement strategies and partnerships that could help to educate all road users about ADS capabilities, limitations, and expected behaviors.**

Thank you again for the opportunity to provide comments on this topic. California is committed to addressing public safety during the testing and subsequent deployment of ADS-equipped vehicles and looks forward to future opportunities to work with our traffic safety partners and stakeholders.