CALIFORNIA SENATE OFFICE OF RESEARCH

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Federal Update

NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION UNVEILS POLICY GUIDANCE FOR AUTOMATED VEHICLES

On September 20, the National Highway Traffic Safety Administration (NHTSA) unveiled a new federal policy designed to govern the development of automated vehicle (AV) technology. The document, "Federal Automated Vehicles Policy: Accelerating the Next Revolution in Roadway Safety," emphasizes NHTSA's intent not only to regulate the development of AV technology, but to actively encourage its advancement.

In outlining the policy, NHTSA highlights the potential for this technology to greatly improve safety, noting that in 2015 alone, more than 35,000 people died on U.S. roadways and that the vast majority of crashes involved some form of human error. The agency notes that while human drivers may repeat the same mistakes as millions before them, AV technology "can benefit from the data and experience drawn from thousands of other vehicles on the road," as well as information gathered from sensors and related technologies. In so doing, it could greatly reduce the incidence of fatalities and serious injuries on the nation's highways. In addition, NHTSA notes the potential for AV technology to "transform personal mobility and open doors to people and communities . . . that today have limited or impractical options."

Since its establishment by Congress 50 years ago, NHTSA has had broad jurisdiction over motor vehicle design, including a mandate to issue and maintain Federal Motor Vehicle Safety Standards (FMVSS) to reduce crashes and associated injuries and fatalities. Under federal law, all motor vehicles and related equipment manufactured for use on public roadways must comply with existing FMVSS established by NHTSA, and manufacturers must notify consumers about any safety-related defects and measures to be taken to repair such defects.

Under federal law, compliance with FMVSS involves a process of self-certification by manufacturers that vehicles and equipment comply with existing standards. Upon such self-certification, there is no federal legal barrier to a vehicle being offered for sale, although all vehicles are and equipment remains subject to NHTSA's enforcement authority with respect to defects, recalls, and mandatory repairs.

NHTSA engages in an ongoing process to update and build on existing FMVSS, accounting for technological and other advances developed by manufacturers. However, in issuing the new policy guidance, the agency acknowledges that advances in AV technology have presented unique challenges because at the time the current governing statutes and regulations were developed, AV technology was little more than a "remote notion."

The new policy indicates that while it is effective immediately upon issuance, it is not mandatory. It is intended to provide manufacturers planning to test and deploy AVs with guidance, industry standards, and best practices to ensure their systems will be reasonably safe under real-world conditions. However, the agency expects to pursue follow-on actions, including various research, public workshops, and information-gathering, and at some point may take regulatory action to make some elements of the guidance mandatory. NHTSA expects to periodically revise and refine the policy, likely annually.

THE GUIDANCE

At the outset, the guidance formally adopts the Society of Automobile Engineers' five-level framework for vehicle automation, as follows.

- Level 0—Human driver does everything
- Level 1—AV system may assist human driver with portion of driving task
- Level 2—AV system may perform some elements of driving task while human driver monitors environment and performs remaining driving tasks
- Level 3—AV system can conduct some portions of driving task and monitor driving environment in some instances, but human driver must be ready to take control when AV system requests
- Level 4—In some environments and under some conditions, AV system can conduct driving task and monitor driving environment without human involvement
- Level 5—AV system performs all driving functions under all conditions

The agency draws a distinction between levels 0–2 and 3–5, based on whether the human operator or the automated system is primarily responsible for monitoring the driving environment. The policy uses the term highly automated vehicle (HAV) to describe those classified as Level 3 or above.

Overall, the guidance covers the following areas:

- Vehicle performance guidance for automated vehicles
- Model state policy
- Potential new regulatory tools and strategies

VEHICLE PERFORMANCE

With respect to vehicle performance, the guidance outlines a series of best practices for the safe pre-deployment design, development, and testing of AVs before commercial sale and for operation on public roads. It notes that this is intended to be an initial step, providing manufacturers, suppliers, and others with reasonable practices and procedures to guide the safe testing and deployment of HAVs in the short term.

The guidance identifies 15 crosscutting areas of concern that it says manufacturers need to address as they work to develop HAV technology. The areas include privacy, data-sharing and cyber-security concerns, human/machine interface challenges, object and event detection, procedures to default to minimal-risk condition in the event of a system failure, and ethical considerations. NHTSA indicates that manufacturers will be asked to provide the agency with a safety assessment letter, essentially a report on how the guidance is being followed with respect to each of the areas of concern. Initially, this reporting process will be voluntary, although the agency indicates that at some point, it will be refined and could be made mandatory through a formal rule-making.

MODEL STATE POLICY

The guidance seeks to clarify federal and state jurisdiction with respect to regulation of HAVs. Broadly speaking, the agency indicates that federal and state authority over HAVs will not differ substantially from regulation of other motor vehicles. NHTSA continues to be responsible for establishment of and revisions to FMVSS, as well as issuing guidance as needed and enforcing compliance with the standards. States' responsibilities include the licensing of human drivers, registration of vehicles, enactment and enforcement of traffic laws, safety inspections, and the regulation of insurance and liability. NHTSA acknowledges that as motor vehicle equipment increasingly performs more driving tasks, there may be some convergence of

responsibilities, and it indicates that the federal role may increasingly encompass functions similar to licensing of the non-human driver (technology.)
The guidance outlines a number of areas in which it recommends states consider modifications to statue or regulation as needed to facilitate deployment of HAVs. These include development of regulations to allow on-road testing of HAVs, licensing and registration of these vehicles, law enforcement considerations, and liability and insurance issues. In addressing these issues, California is largely ahead of many other states due to enactment of SB 1298 (Padilla), Chapter 570, Statutes of 2012. Pursuant to this statute, the Department of Motor Vehicles (DMV) has for several years been developing regulations to facilitate on-road testing and eventually public deployment of HAVs in California. The testing regulations, finalized in September 2014 are posted *here.* The regulations to facilitate the deployment of HAVs in California are currently in draft form and DMV has scheduled a public workshop on October 19, 2016 to solicit public comment. The draft regulations as well as background information and details regarding the workshop are available *here*.

POTENTIAL NEW REGULATORY TOOLS AND STRATEGIES

The policy guidance emphasizes that NHTSA intends to fully exercise its existing regulatory jurisdiction over HAVs, noting that even in the absence of formal FMVSSs applicable to the vehicles, the agency has the authority to identify safety defects and recall vehicles or equipment that pose an unreasonable risk to safety. Nevertheless, the policy acknowledges that rapid advancement of HAV technology likely will require additional regulatory tools and strategies.

New regulatory strategies that NHTSA is considering include the safety assessment and a pre-market approval process for HAVs, either as a supplement to or replacement for the self-certification process. NHTSA acknowledges that pre-market approval would be a substantial change from existing practice that potentially could hinder innovations. It indicates that various questions would need to be explored before such a change could be implemented. Other new tools NHTSA indicates it is exploring include enhancements to testing protocols, increased record-keeping and reporting, expanded data collection, and formation of a network of technical experts to advise the agency going forward.

Written by Ted Link-Oberstar. The California Senate Office of Research is a nonpartisan office charged with serving the research needs of the California State Senate and assisting Senate members and committees with the development of effective public policy. The office was established by the Senate Rules Committee in 1969. For more information, please visit **http://sor.senate.ca.gov** or call **(916) 651-1500.**