



Insurance Institute for
Highway Safety



**Statement before NHTSA's public workshop on
Voluntary Safety Self-Assessments as discussed in
Automated Driving Systems 2.0: A Vision for Safety**

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The Insurance Institute for Highway Safety commends NHTSA's continued support of the deployment of automated driving systems. As the agency expressed in its revised guidance document, automating driving is projected to eliminate 9 out of every 10 serious crashes stemming from human error or behavior. We must seize this unprecedented opportunity to save tens of thousands of lives each year as we take prudent steps to maximize the full safety potential of automated driving technology. In the short term, the actual safety benefits likely will fall short of expectations, just as airbags have not prevented all crash deaths, electronic stability control has not prevented all loss-of-control crashes, and automatic emergency braking systems have not prevented all front-to-rear crashes. To understand how systems are working in the real world, it is imperative that NHTSA collect information that it, other stakeholders, and the public can use to independently assess the safety benefits of automated driving systems and to promote those that are most effective for reducing crash deaths and injuries.

The voluntary safety self-assessment provides the agency and the public with information that could be helpful for evaluating the safety of automated driving systems, but its usefulness depends on what companies deploying the technology choose to submit. We are pleased that Waymo voluntarily submitted its self-assessment to the Department of Transportation and shared it with the public. In its self-assessment, Waymo broadly describes the hardware and software that enables its automated driving system, the vast quantity of simulated and on-road miles traversed, and the steps the company has taken to ensure safety. Although the document is a good general introduction to self-driving vehicle technology and Waymo's approach in particular, it offers no evidence that the millions of miles of testing on public roads, billions of miles of simulated driving, and various safety assessments during the development and deployment of the automated driving system has yielded a system as safe or safer than a human driver within its operational design domain. The Institute expects other companies to follow Waymo's lead and submit safety self-assessments, but, like Waymo, we anticipate that these reports will advertise the safety of the automated driving technology without presenting evidence to support the claim.

Based on the revised guidance document, the agency also has no specific plans for collecting information that could allow it to assess the real-world safety of automated driving systems, validate the claims made by the companies deploying them, or reasonably judge whether exemptions from Federal Motor Vehicle Safety Standards, as contemplated in pending legislation, are justified. NHTSA must take the lead in collecting this information by creating and maintaining a public database of vehicles with automated driving technology and those exempt from Federal Motor Vehicle Safety Standards that is indexed and searchable by the vehicle identification number, or VIN.

Each vehicle sold in the United States has a unique VIN. Researchers have long used VINs to evaluate the safety benefits of vehicle features when VINs can be tied to crash and exposure data. The VIN standard requires certain information to be encoded, but unfortunately it excludes the presence of optional crash avoidance and automation features, making evidence-based evaluation of these features difficult. When evaluating the effects of various driver assistance systems on police-reported crashes and insurance claims, the Insurance Institute for Highway Safety and the Highway Loss Data Institute worked with manufacturers willing to provide special samples of VINs of vehicles fit with these technologies. The studies based on these data were the first ever to document the actual crash and injury preventing benefits of forward collision warning and automatic emergency braking and were crucial in negotiating the commitment by 20 automakers to make automatic emergency braking a standard feature by September 2022. NHTSA has been unable to measure the real-world effect of these systems on its own because it lacks access to similar data. Likewise, the agency will not be able to evaluate automated driving systems unless it begins collecting this information immediately.

Archival crash data allow the real-world safety benefits of technologies to be measured but provide little or imprecise information about the contributing factors in the moments before the crash and vehicle performance afterwards. For this reason, objective information must be collected about the

behavior of automated driving systems in crashes, which can be accomplished using an event data recorder, or “black box.” The Institute has developed a list of data elements that we believe can be collected using an event data recorder and are sufficient for understanding the circumstances of a crash and the contribution of automated driving technology without compromising confidential business information. This information will help determine whether the human or vehicle was in control at the time of a crash and the actions each entity took prior to it. Importantly, law enforcement agencies and insurers need this information to assign liability and settle claims.

In conclusion, the potential safety benefits of automated driving technology are too profound to go unmeasured. Analyses comparing real-world crash experience with and without automated driving systems and different implementations of the technology are fundamental to understanding their effects on safety, and knowing the presence or absence of these systems at the VIN level is the cornerstone for carrying out these evaluations. Creating a public VIN-indexed database listing vehicles equipped with automated driving systems and those exempt from safety standards, as well as mandating event data recorders and the recording of automated driving system information, are crucial for bolstering NHTSA and other stakeholder efforts to precisely measure the real-world safety effects of automated driving systems, fostering public confidence in the technology, and directing its evolution to swiftly realize the anticipated safety benefits.