



April 13, 2026

Dr. Cem Hatipoglu
Associate Administrator, Vehicle Safety Research
U.S. Department of Transportation,
1200 New Jersey Avenue SE
Washington, DC 20590

RE: Agency Information Collection Activities; Notice and Request for Comment; Distraction: Modern Voice Command Interfaces [Docket No. NHTSA-2025-0059]

Dear Dr. Hatipoglu,

The Alliance for Automotive Innovation (Auto Innovators) appreciates the opportunity to provide comments in response to the National Highway Traffic Safety Administration's (NHTSA) notice and request for comments on a request for OMB approval of a new information collection to understand the effects of currently or near-to-deployed (modern) voice command interfaces (VCIs) in vehicles.^{1,2}

Auto Innovators supports NHTSA research to evaluate driver inattention. According to the agency, distracted driving claimed more than 3,000 lives on our roadways in 2023.³ However, as noted in a separate NHTSA report on the societal impact of motor vehicle crashes, this number is likely to be underreported due to the challenges in the collection of distracted driving data.⁴ More specifically, it is often difficult during crash investigations to determine whether drivers were engaged in non-driving tasks like talking, texting or using apps on a phone, eating or drinking, or using in-vehicle systems.

Driver distraction and inattention are not new issues. However, they remain an evolving challenge. How people interact with technology in their everyday lives is changing, not just in the car. People are more connected than ever and there are increasing demands on their attention – whether it is related to work, social media, or connecting with friends and family. And with the increased proliferation of mobile devices, demands on their attention are present 24/7. Despite these challenges, technology also plays an important role in managing drivers' attention so that they can remain focused on the driving task. This includes technology to help minimize potential sources of distraction and the development of driver support features that help refocus drivers on the driving task. The automotive industry has been proactive in each of these areas.

¹ Auto Innovators represents the full auto industry, including the manufacturers producing most vehicles sold in the U.S., equipment suppliers, battery producers, semiconductor makers, technology companies, and autonomous vehicle developers. Our mission is to work with policymakers to realize a cleaner, safer, and smarter transportation future and to ensure a healthy and competitive auto industry that supports U.S. economic and national security. Representing over 5 percent of the country's GDP, responsible for supporting nearly 11 million jobs, and driving \$1.5 trillion in annual economic activity, the automotive industry is the nation's largest manufacturing sector.

² 91 FR 5984

³ National Center for Statistics and Analysis. (2025, April). *Distracted driving in 2023* (Research Note. Report No. DOT HS 813 703). National Highway Traffic Safety Administration.

⁴ National Highway Traffic Safety Administration. (2023). *The economic and societal impact of motor vehicle crashes, 2019 (revised)* (Report No. DOT HS 813 403). U.S. Department of Transportation. p. 131.

In 2006, the automotive industry published comprehensive voluntary guidelines – also known as the human machine interface (HMI) guidelines or industry guidelines – to help inform the design of in-vehicle systems to ensure they do not impair the driver’s ability to perform the driving task.⁵ These guidelines include criteria around the location, functionality and available applications, interface design and controls, and system behavior, including limiting content not intended for use while driving, and provide a foundation for how modern vehicle interfaces are designed today.

Since these guidelines were first established, there have been significant changes in how consumers interact with technology. However, the fundamental principles of the original guidelines still apply even advances in touchscreen technology, ergonomic button designs, and voice-based interfaces create new opportunities for innovation. In other words, the guidelines’ technology-neutral approach has enabled automakers to develop and integrate new third-party applications that provide drivers with access to information in a manner that is more consistent with the driving environment. However, there are limitations in terms of how much control manufacturers have over portable devices connected to the vehicle beyond the information that is displayed through the instrument cluster. Advances in occupant-compartment sensor technology also create new opportunities to assist drivers by issuing alerts or managing interactions with the in-vehicle system when inattention is detected.

Auto Innovators supports NHTSA research to better understand driver engagement with VCIs, and we provide the following comments to help enhance this overall utility of this information collection.

NHTSA should more clearly define the study’s primary objectives and ensure that any conclusions adequately account for variability between systems.

NHTSA should more clearly define the study objectives, as it is currently unclear whether the intent is to assess the overall effects of VCIs on driver inattention, compare how different system designs influence driver performance, or both. Since voice interaction is being tested across multiple systems and vehicles, the system effects may be strongly confounded. This may influence how the results can be interpreted. To the extent that the agency is unable to standardize certain aspects of the simulator setup, there may be limitations in how the data can be used to support general recommendations and conclusions.

NHTSA should provide more information about the tasks that will be evaluated as part of this study.

We request that NHTSA provide more information on the VCI study drive tasks, including whether these will align with the visual-manual tasks that drivers will be required to perform (e.g., manually selecting a song from a music library versus selecting a song using VCI). The agency should also specify whether the VCI and manual task instructions will account for differences between OEM and third-party systems – especially if the minimum number of steps required to complete a task varies between systems.

We also ask that NHTSA provide more information on how it will account for differences in how study participants interpret task instructions during testing. The ICR notes that participants will complete tasks using VCI system that they are familiar with in a vehicle they drive regularly. However, there may still be variation in terms of familiarity with the test vehicle and their general use of VCIs while driving. Although the agency seeks to address this by ensuring that participant training before each task drive, these factors should be still measured as part of the eligibility or intake process. Furthermore, depending upon the nature and complexity of the task, the study drive may only provide limited data – especially tasks can be completed using a single voice command. This may limit the overall utility of the data.

⁵ *Statement of Principles, Criteria and Verification Procedures on Driver Interactions with Advanced In-Vehicle Information and Communication Systems, Driver Focus-Telematics Working Group, June 26, 2006*

NHTSA should also provide additional information on how the email subtask will be defined, as this may require multiple steps depending upon how the instructions are provided to participants. This is important because naturalistic language models in VCIs continue to evolve, and the task instructions may not reflect how drivers use the system in the real world. Even among modern VCIs, there is likely some flexibility in terms of how voice-based commands are initiated by the user. This rapid pace of innovation may also have an impact on the long-term utility of any findings. Auto Innovators recommends that NHTSA consider including a post-test questionnaire as part of this study to capture drivers' self-reported assessment of both driving and secondary task performance. This may also provide additional insights to help inform future research.

Finally, NHTSA should provide more information on the safety-critical event (SCE) task and whether this will be consistent among all participants. In other words, while participants will be randomized to complete either a VCI task or visual-manual task during the SCE, the agency should specify whether these tasks will be standardized across all participants. This includes specifying if the SCE task will be randomly selected from the list of tasks performed during previous task drives or if it will be a new task.

NHTSA should provide more information on how “errors” will be addressed during task drives.

The ICR states that NHTSA will “document and classify the types of errors made to answer one of agency's research questions.”⁶ However, it is not clear from the notice what types of errors that the agency is most interested in (e.g., user error, system interpretation errors, execution errors), nor how NHTSA will account for errors encountered during task drives. There may also be differences in error handling and recovery. We request NHTSA provide more information on how it plans to address these issues.

NHTSA should provide more information on the purpose of the driver performance data that it plans to collect during task drives and how this will be compared against “normal” baseline driving behavior.

The ICR includes a comprehensive set of data the agency plans to collect during study drives. These include the standard deviation of lane position (SDLP), standard deviation of speed (SDS), and speed differential (SDf). Driver distraction metrics are gathered from eye-tracking data, including mean glance duration (MGD), total glance time (TGT), and the proportion of long glances (PLG) more than 2 seconds.⁷

However, it is unclear from the proposal how the agency intends to establish baseline metrics for comparing driver performance during test drives against normal driving. We recommend that NHTSA consider including a *lead car following* scenario to evaluate variation in the headway or gap distance as means for assessing driver performance. We also seek clarification on the relevance of pupil diameter (PD) and heart rate variability (HRV) as cognitive workload assessment values.

NHTSA should conduct additional analysis to identify and address potential sample size concerns.

The sample size for both the test track and cone course driving scenarios may be insufficient to detect medium-sized effects, and this may impact the overall utility of the data. We recommend NHTSA conduct an *a priori* power analysis based on comparable studies. As an example, a sample design that includes four (4) groups of 45 participants may be reasonable. It is also crucial that the agency accounts for cumulative alpha error inflation resulting from multiple comparisons. We recommend specifying appropriate correction methods (e.g., Bonferroni or false discovery rate [FDR]) in the analysis plan.

⁶ <https://www.federalregister.gov/d/2026-02598/p-35>

⁷ <https://www.federalregister.gov/d/2026-02598/p-35>

NHTSA should continue to engage with stakeholders on driver inattention

We encourage NHTSA to continue its efforts to convene stakeholders to discuss recent technology innovations, and to identify whether potential industry-led approaches can provide policymakers with the necessary safety assurances that driver distraction and inattention are being addressed.

Thank you for your consideration of these comments. Please contact me if you have any questions.

Sincerely,

A handwritten signature in black ink, appearing to read 'SP' followed by a horizontal line.

Sarah Puro
Vice President, Safety and Technology Policy
Alliance for Automotive Innovation