



Washington Office
607 14th Street, NW, Suite 200
Washington, D.C. 20005
202/942-2050
FAX: 202/783-4788

July 22, 2019

The Honorable Tim J. Johnson, Acting Associate Administrator for Vehicle Safety Research
National Highway Traffic Safety Administration
U.S. Department of Transportation
1200 New Jersey Avenue, SE
Washington, DC 20590

RE: Advanced Driver Assistance Technologies Research Data Collection [Docket No. NHTSA–2019–0037]

Dear Acting Associate Administrator Johnson:

AAA appreciates the opportunity to review and provide feedback on NHTSA’s proposal to perform research involving the collection of information from the public as part of a multi-year effort to learn about drivers’ use of and behavior in interacting with certain advanced driver assistance technologies. This effort will be an important research undertaking that will yield new insights into how motorists engage with new vehicle technologies. As adoption rates increase, insights from NHTSA’s research can help the auto industry ensure the potential safety benefits of advanced driver assistance technologies are realized.

As NHTSA works to understand how drivers interact with advanced vehicle technologies, industry and consumer advocates are steadily working to assist policymakers and vehicle developers in thinking through the myriad of safety issues that will impact deployment. Specifically, AAA is engaged in research and engineering, public policy and consumer education. AAA tests and evaluates emerging vehicle technologies, including automated vehicle features, with the goal of educating consumers on the safety benefits, capabilities and limitations of these applications and to provide feedback to industry. Examples include:

- Recent AAA research highlights the need for standardization of terms and definitions for advanced driver assistance systems (ADAS) and proposes terminology that is intended to be simple, specific and based on system functionality.¹

¹ AAA. (2019). *Advanced Driver Assistance Technology Names: AAA’s recommendation for common naming of advanced safety system*. Retrieved from: <https://www.aaa.com/AAA/common/AAR/files/ADAS-Technology-Names-Research-Report.pdf>

- AAA conducted primary research in 2018 to characterize the performance of SAE International Level 2 autonomous vehicle (AV) systems currently available in the United States.²
- Many recent and ongoing research projects at the AAA Foundation for Traffic Safety examine driver perceptions and understanding of, and their interactions with new in-vehicle technology.^{3,4}

AAA clubs have followed suit, embarking on testing initiatives involving AVs that may inform the request for comment.

- AAA Northern California, Nevada and Utah (NCNU):
 - Collaborated with the City of Las Vegas to introduce the nation's first autonomous shuttle available to the public.⁵
 - Partnered with Torc Robotics to examine AV safety assessment criteria⁶ and to test an AV against such criteria.⁷
 - Operates GoMentum Station, one of the largest AV testing facilities in the U.S., where comprehensive closed-track testing can take place and vehicle and infrastructure technologies can be evaluated.⁸
 - Acted as a convener and hosted a workshop in March 2019 on safety metrics for ADS-equipped vehicles. In this workshop, participants discussed how AV safety metrics should be valid, reliable, feasible, and non-manipulatable.
- Automobile Club of Southern California (ACSC) – Automotive Research Center (ARC):
 - Tested Level 2 automated vehicles to better understand the capabilities and limitations of these vehicles and published results to inform AAA members and the motoring public.
 - Tested individual ADAS technologies including blind-spot warning, rear cross traffic warning, adaptive cruise control, and forward automatic emergency braking, and published the results to educate AAA members and the motoring public on system capabilities.
- AAA Club Alliance:
 - Facilitating public outreach and education about AV testing, technology and safety through its “Technology Takes the Wheel” events in partnership with universities in Ohio, Connecticut, Kansas and other states across its footprint.

²AAA. (2018). *Level Two Autonomous Vehicle Testing: AAA propriety research into the performance of SAE Level 2 autonomous systems*. Retrieved from: <https://newsroom.aaa.com/2018/11/americans-misjudge-partially-automated-driving-systems-ability-based-upon-names/> .

³ Benson, A., Tefft, B.C., Svancara, A. M. & Horrey, W. (2018). *Potential Reduction in Crashes, Injuries and Deaths from Large-Scale Deployment of Advanced Driver Assistance Systems*. AAA Foundation for Traffic Safety. Retrieved from: <https://aaafoundation.org/potential-reduction-in-crashes-injuries-and-deaths-from-large-scale-deployment-of-advanceddriver-assistance-systems/>

⁴ McDonald, A., Carney, C. & McGehee, D.V. (2018). *Vehicle Owners' Experiences with and Reactions to Advanced Driver Assistance Systems*. AAA Foundation for Traffic Safety. Retrieved from: <https://aaafoundation.org/vehicle-owners-experiences-reactions-advanced-driver-assistance-systems/>

⁵ <http://www.AAA NCNUhoponlasvegas.com/>

⁶ <https://torc.ai/aaa-partners-torc-robotics-on-self-driving-car-safety-criteria/>

⁷ <https://torc.ai/torc-and-aaa-northern-california-nevada-utah-run-self-driving-car-through-hazardous-traffic-scenarios/>

⁸ <http://gomentumstation.net/aaa-and-gomentum-station-announce-exclusive-partnership-agreement/>

As driver assist technologies become more commonplace on the road, AAA will continue to educate drivers about ADAS features and limitations and caution consumers not to take vehicle system names at face value. Lack of understanding or confusion about the proper function of ADAS technologies can lead to misuse and overreliance on the systems.

As a result of AAA's and the AAA Foundation for Traffic Safety's experience in designing studies similar to the research NHTSA proposes to undertake, we offer the following feedback based on NHTSA's notice and request for comments.

- As part of the study, NHTSA should gather more information beyond make/model as this in most cases is not sufficiently indicative of the tech features available on vehicles. Moreover, NHTSA should consider collecting information on the variables or dimensions with which they plan to match the groups of drivers. This effort could include experienced users who might be distinctly different from a representative driving population (e.g., early adopters of new automotive technologies, higher socioeconomic status, etc.).
- Based on AAA's experience, NHTSA will need to collect much more information than described in the notice and request for comments to distinguish between experience levels. Simple indication of ownership is a very coarse measure and one that is subject to many potential issues. For example, some drivers may own vehicles with a particular technology, but they do not use it; other vehicles may contain a feature, but the owner is not aware of it; and others may think their vehicle has a feature when it does not. Ideally, the investigators in the study can clearly relate the technology of interest to the respondent and glean whether their vehicle has the feature and how often they use it, but NHTSA should collect as much information as possible on this front to aid in the process.
 - To classify drivers as "experienced" versus "inexperienced" in the study, AAA recommends NHTSA consider incorporating amount of experience with a relevant vehicle into eligibility criteria, e.g., comparing drivers who have no experience at all with the technology versus drivers who have at least approximately XX hours (or miles, or months) of experience with it. A driver who has driven such a vehicle only a few times arguably would be a poor fit for either group.
- The notice indicates that participants in the study are required to drive 14,000 miles annually. For the target age group, 14,000 miles/year would place the eligibility cutoff within the top quartile of all drivers nationwide with respect to annual driving mileage per the 2017 National Household Travel Survey.⁹ If NHTSA intends to restrict eligibility to only drivers who are in the top quartile of all drivers nationwide with respect to annual driving mileage, this should be explained and justified. Drivers who are not in the top quartile of all drivers nationwide might also encounter these technologies, and their experiences might differ. AAA's experience with other studies indicates that many people overestimate their annual driving mileage and are recruited into studies despite driving less than the minimum threshold for eligibility. As a result, NHTSA should consider relaxing eligibility with respect to driving mileage. We

⁹ NHTSA. 2017. National Household Travel Survey. Retrieved from: <https://nhts.ornl.gov/>

recommend excluding infrequent drivers (e.g., perhaps people who drive less than one or two days a week) to make the sample of drivers used for the study more representative of habits found in the wider motoring public.

- AAA's testing has shown that the efficacy of the advanced driver assistance systems varies dramatically between automakers, so study results will likely only speak to the performance of the two vehicle types tested. Extrapolating the data to all vehicles with similar systems is challenging. NHTSA should ensure that the methodology used for comparing vehicles accounts for the system variations, while tabulating the number and reason for disengagements of the system. This information can be very useful in understanding where systems fall short or human drivers prefer to intervene given the driving task at hand. Additionally, the naturalistic driving course should entail a variety of road conditions including divided limited access highways, two lane rural roads and surface streets, as appropriate. Varying traffic conditions should be included as well. AAA's research found the systems work best in light traffic and stop and go conditions, but struggle in moderate traffic at typical highway speeds.
- Before moving forward with experimental design, NHTSA should provide the public and industry an opportunity to conduct a design review. This step could be critical in ensuring that automakers who design and deploy advanced driver assistance technologies can provide appropriate feedback and highlight important information to NHTSA to optimize research results.

As NHTSA undertakes this important public research, AAA urges the agency to continue refining the parameters of the study to ensure the results have the widest impact possible. More new vehicle technologies will be introduced in the coming years, which will lay the foundation for highly automated vehicles (HAVs). Understanding driver engagement and interaction with these systems will be critical to ensuring the safety benefits these new technologies offer will actually save lives. AAA looks forward to continuing to work with NHTSA as it develops this study and discussing its important results when released.

Sincerely,



Jill Ingrassia
Managing Director
AAA Government Relations and Traffic Safety Advocacy