



We're leading the movement to build a Bicycle-Friendly America for Everyone

1612 K STREET NW, SUITE 1102, WASHINGTON, DC 20006

| phone 202-822-1333 | fax 202-822-1334 |

WWW.BIKELEAGUE.ORG

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James C. Owens

Deputy Administrator, National Highway Traffic Safety Administration
M-30, U.S. Department of Transportation, West Building
Ground Floor, Room W12-140
1200 New Jersey Avenue SE
Washington, DC 20590

Dear Deputy Administrator Owens,

The League of American Bicyclists (League) is pleased to provide comments on the National Highway Traffic Safety Administration (NHTSA)'s proposed Framework for Automated Driving System Safety (Docket No. NHTSA-2020-0106). The League is a membership organization dedicated to Building a Bicycle Friendly America for Everyone and has over 350 advocacy organization members who advocate for the safety of people who bike and walk in all 50 states.

The League supports the development and deployment of automated vehicles. The League believes that automated vehicles will eventually improve the safety of people who bike and walk and provide opportunities for communities to create better places to bike and walk as vehicles become more law abiding and predictable.

The League is primarily concerned with the safety of people who bike and walk, and the ways in which NHTSA's Framework for Automated Driving System (ADS) Safety will ensure that ADS contributes to safer roadways for people who bike and walk. To ensure that ADS contributes to safer roadways for people who bike and walk, it is critical that NHTSA's Framework includes strong testing of ADS for their ability to sense and perceive people biking and walking of all shapes, sizes, ages, ethnicities, genders, and complexions and when biking and walking with a wide variety of clothing and accessories, such as strollers, backpacks, luggage, and mobility aids. Concern for the safety of people outside of ADS-equipped vehicles must be a priority in NHTSA's Framework and not an afterthought.

The League has actively engaged in past comment periods from the Federal Highway Administration (FHWA) and NHTSA. Additional information from past comment periods, and other efforts to ensure that ADS are safe for all people, can be found here: <https://bikeleague.org/content/automated-vehicles>. The League has also engaged with a diverse group of stakeholders to develop AV Tenets that are relevant to NHTSA's Framework for ADS Safety: <https://saferoads.org/autonomous-vehicle-tenets/>.

The following comments respond to the most relevant questions posed by NHTSA in its proposed Framework for Automated Driving System Safety and focus on how the League believes NHTSA can prioritize the safety of people who bike and walk.

A. Questions About a Safety Framework

Question 1. Describe your conception of a Federal safety framework for ADS that encompasses the process and engineering measures described in this document and explain your rationale for its design.

The League of American Bicyclists' conception of a Federal safety framework for ADS is one where the safety of people outside of a vehicle is at least as important as the occupant of a vehicle. People outside vehicles, whether walking, biking, or moving in another manner are not protected by the structure and safety systems of a vehicle. NHTSA's Framework for ADS Safety provides an incredible opportunity to improve the safety of people outside of vehicles, and a Federal safety framework for ADS must put that opportunity at the forefront of its efforts.

Recent decades have shown that bicyclists and pedestrians have not benefitted from vehicle safety improvements. According to NHTSA fatality data, from 2005 to 2019 bicyclist and pedestrian fatalities increased from 13% of traffic fatalities to nearly 20%, a nearly 50% increase. A recent Government Accountability Office (GAO) report, "[NHTSA Needs to Decide Whether to Include Pedestrian Safety Tests in Its New Car Assessment Program](#)" details inaction during this increase in bicyclist and pedestrian fatalities.¹ A Federal Framework for ADS Safety cannot continue this inaction and must strongly prioritize the safety of people outside of vehicles in order to ensure that all Americans benefit from ADS developments.

To adequately prioritize people outside of vehicles in NHTSA's Framework for ADS Safety, the League believes that the framework should include:

- A process that is inclusive of people biking and walking, people with disabilities, people from Black and Brown communities, people young and old; and
- Engineering measures that include public testing of ADS for efficacy in sensing people of all races and ethnicities and modes of transportation, perceiving people of all types outside of vehicles, and planning to avoid and mitigate harm to people of all types outside of vehicles.

Question 2. In consideration of optimum use of NHTSA's resources, on which aspects of a manufacturer's comprehensive demonstration of the safety of its ADS should the Agency place a priority and focus its monitoring and safety oversight efforts and why?

NHTSA must focus on the safety of vulnerable road users because they have been dying disproportionately as vehicle safety has increased. NHTSA must act to stop that trend and ensure that ADS do not lead to further suppression and danger of active travel, which is critical to public health, environmental goals, and economic sustainability.

Question 3. How would your conception of such a framework ensure that manufacturers assess and assure each core element of safety effectively?

The League of American Bicyclists strongly believes that there must be a "vision test" to ensure that ADS are safe for people biking and walking of all sizes, shapes, races, and ethnicities. A "vision test" is an important test of the four primary functions of ADS discussed in this Proposed Rule. It is a critical part of assessing the engineering measures of an ADS to manage risks to people outside the vehicle.

In our conception, a "vision test" should address the following needs:

- A “vision test” requires that an ADS can receive adequate information to “see” a person biking and walking regardless of their size, shape, race, ethnicity, or choice in clothing.
- A “vision test” requires that an ADS has adequate ability to interpret information to recognize a person as a person who should not be hit and who may justify planning and control actions in order to slow down or avoid a potential crash.
- A “vision test” requires that an ADS has adequate ability to make decisions about foreseeable movements and trajectories of a person biking or walking in order to safely avoid them or slow down to reduce potential injury if a crash is somehow inevitable.
- A “vision test” requires that an ADS has adequate ability to execute driving functions in order to safely accomplish whatever maneuver or action is required to ensure the safety of a person biking or walking.

To develop an adequate “vision test” NHTSA should take actions to encourage or require developers of ADS to have a process that is inclusive of a wide variety of people so that the experiences, concerns, and safety needs of people with disabilities, people of many races and ethnicities, and people who use a variety of mobility devices to get around outside vehicles are part of the development of ADS. Failure to include a diverse array of people who will interact with ADS may create safety problems due to assumptions about people and the ways in which they will interact with ADS-equipped vehicles.

Question 4. How would your framework assist NHTSA in engaging with ADS development in a manner that helps address safety, but without unnecessarily hampering innovation?

NHTSA has seen bicyclist and pedestrian deaths increase over the last decade. Bicyclist and pedestrian deaths comprise approximately 20% of all traffic deaths. Including a “vision test” for people outside of ADS-equipped vehicles will assist NHTSA in engaging with ADS development because it shows that the safety of people outside of ADS-equipped vehicles is a core function of any ADS.

If NHTSA does not make the safety of people outside ADS-equipped vehicles a core function and priority in its ADS framework then the only guide to ADS development for the safety of people biking and walking will be through lawsuits, injuries, and deaths due to people being hit by ADS-equipped vehicles. ADS developers may seek to deploy ADS that do not have adequate safety systems for people biking and walking and attempt to mitigate their legal risks through laws that restrict the movement of people biking and walking.

Question 5. How could the Agency best assess whether each manufacturer had adequately demonstrated the extent of its ADS’ ability to meet each prioritized element of safety?

At this point, our concern is that NHTSA assesses each manufacturer for a “vision test” for people biking and walking of all sizes, shapes, and races, and ethnicities. The best assessment is the one that provides comparative information to the public, developers, researchers, and stakeholders so that the safety of people biking and walking can be improved through comparison and iteration of ADS.

Question 6. Do you agree or disagree with the core elements (i.e., “sensing,” “perception,” “planning” and “control”) described in this document? Please explain why.

The League of American Bicyclists agrees with the core elements of sensing, perception, planning, and control described in the Proposed Rule. Our primary concern is that ADS can safely “see” and respond to people biking and walking of all shapes, sizes, races, and ethnicities. Sensing, perception, and planning are

critical elements to an ADS being able to pass a “vision test” for people biking and walking, and control is critical to make sure that a vehicle executes its response safely.

Question 7. Can you suggest any other core element(s) that NHTSA should consider in developing a safety framework for ADS? Please provide the basis of your suggestion.

No response.

Question 8. At this early point in the development of ADS, how should NHTSA determine whether regulation is actually needed versus theoretically desirable? Can it be done effectively at this early stage and would it yield a safety outcome outweighing the associated risk of delaying or distorting paths of technological development in ways that might result in forgone safety benefits and/or increased costs?

Regulation is actually needed. The recent GAO report, “NHTSA Needs to Decide Whether to Include Pedestrian Safety Tests in Its New Car Assessment Program” shows the effects of postponing and avoiding regulation that can save the lives of people biking and walking through NHTSA’s inaction on NCAP and crashworthiness standards. Most experts attribute rising pedestrian and bicyclist deaths to increases in dangerous vehicle designs that could have been prevented through NHTSA action. There is no acceptable path of technological development that includes increased risks or limiting the mobility of people biking and walking due to implementation of ADS.

Question 9. If NHTSA were to develop standards before an ADS-equipped vehicle or an ADS that the Agency could test is widely available, how could NHTSA validate the appropriateness of its standards? How would such a standard impact future ADS development and design? How would such standards be consistent with NHTSA’s legal obligations?

NHTSA should work closely with industry and safety advocates in developing standards, but be steadfast and insistent in their need. It is fine if initial standards are about comparative efficacy rather than an absolute performance standard. It is unacceptable to not test for the safety of people biking and walking because of concern that doing so will create an inappropriate standard.

Question 10. Which safety standards would be considered the most effective as improving safety and consumer confidence and should therefore be given priority over other possible standards? What about other administrative mechanisms available to NHTSA?

No response.

Question 11. What rule-based and statistical methodologies are best suited for assessing the extent to which an ADS meets the core functions of ADS safety performance? Please explain the basis for your answers. Rule-based assessment involves the definition of a comprehensive set of rules that define precisely what it means to function safely, and which vehicles can be empirically tested against. Statistical approaches track the performance of vehicles over millions of miles of real-world operation and calculate their probability of safe operation as an extrapolation of their observed frequency of safety violations. If there are other types of methodologies that would be suitable, please identify and discuss them. Please explain the basis for your answers.

No response.

Question 12. What types and quanta of evidence would be necessary for reliable demonstrations of the level of performance achieved for the core elements of ADS safety performance?

No response.

Question 13. What types and amount of argumentation would be necessary for reliable and persuasive demonstrations of the level of performance achieved for the core functions of ADS safety performance?

No response.

B. Questions About NHTSA Research

Question 14. What additional research would best support the creation of a safety framework? In what sequence should the additional research be conducted and why? What tools are necessary to perform such research?

NHTSA should support additional research on interactions of ADS with people biking and walking. Research on interactions between ADS and people biking and walking should be a high priority.

NHTSA should support additional research on interactions between bicycle and pedestrian infrastructure designs and ADS. Language proposed in the Federal Highway Administration's proposed update to the [Manual on Uniform Traffic Control Devices](#) calls for several changes in bicycle and pedestrian infrastructure practices that do not appear to be supported by public research. NHTSA should support research on the interaction of roadway designs and ADS so that Federal, state, and local governments can ensure they are building roadways that support the safe mobility of people biking, walking, and using ADS-equipped vehicles.

NHTSA should support additional research on human-machine interaction and what best builds confidence and understanding for people biking and walking interacting with ADS-equipped vehicles. Current research is limited and appears to be primarily industry-funded. Research on human-machine interaction has the potential to increase acceptance of ADS-equipped vehicles and increase safety for people biking and walking. NHTSA should specifically support research on the interaction of people with disabilities and ADS-equipped vehicles and ensure that research is inclusive of people from a wide array of contexts, including many races and ethnicities.

C. Questions About Administrative Mechanisms

Question 15. Discuss the administrative mechanisms described in this document in terms of how well they meet the selection criteria in this document.

No response.

Question 16. Of the administrative mechanisms described in this document, which single mechanism or combination of mechanisms would best enable the Agency to carry out its safety mission, and why? If you believe that any of the mechanisms described in this document should not be considered, please explain why.

No response.

Question 17. Which mechanisms could be implemented in the near term or are the easiest and quickest to implement, and why?

NHTSA should take immediate action to modernize the New Car Assessment Program (NCAP) to include tests for the safety of people biking and walking. NHTSA should consider testing that is similar to the testing conducted by EuroNCAP for vulnerable road users, including testing of automated emergency braking systems for their efficacy in responding to people biking and walking in multiple contexts. NHTSA should also consider additional testing to account for vulnerable road users of different sizes, shapes, races, and ethnicities to understand the efficacy of systems given the diverse populations of the United States.

Updating NCAP has been suggested by many organizations and the National Transportation Safety Board for both [pedestrian](#) and [bicyclist](#) safety. Updating NCAP would help the public understand the safety benefits of automation, increase NHTSA's capacity and experience with testing for pedestrian and bicyclist safety, and contribute to manufacturers competing to have safer vehicles for people biking and walking.

Question 18. Which mechanisms might not be implementable until the mid or long term but might be a logical next step to those mechanisms that could be implemented in the near term, and why?

NHTSA should develop comparative frameworks for ADS related to the sensing, perceiving, and planning for the safety of people biking and walking. These frameworks should go beyond the scenario-based testing in the NCAP program based upon research by NHTSA about the best way to assess ADS safety. These comparative frameworks may not be able to be implemented in the near term due to the need for additional research on the best methods to compare ADS safety for biking and walking and accounting for the range of circumstances that ADS might face in a complex and diverse world.

Question 19. What additional mechanisms should be considered, and why?

No response.

Question 20. What are the pros and cons of incorporating the elements of the framework in new FMVSS or alternative compliance pathways?

No response.

Question 21. Should NHTSA consider an alternative regulatory path, with a parallel path for compliance verification testing, that could allow for flexible demonstrations of competence with respect to the core functions of ADS safety performance? If so, what are the pros and cons of such alternative regulatory path? What are the pros and cons of an alternative pathway that would allow a vehicle to comply with either applicable FMVSS or with novel demonstrations, or a combination of both, as is appropriate for the vehicle design and its intended operation? Under what authority could such an approach be developed?

Our primary concern is that the safety of people biking and walking is not an afterthought, as it currently is under the New Car Assessment Program and Federal Motor Vehicle Safety Standards that do not consider the safety of people biking and walking. Sensing, perceiving, and planning for the safety of people biking and walking is a core function of ADS safety performance. We support demonstrations of competence that

are appropriate to recognizing bicyclist and pedestrian safety as a core function if necessary as NHTSA works to develop standards for the safety of people biking and walking.

D. Questions About Statutory Authority

Question 22. Discuss how each element of the framework would interact with NHTSA's rulemaking, enforcement, and other authority under the Vehicle Safety Act.

No response.

Question 23. Discuss how each element of the framework would interact with Department of Transportation Rules concerning rulemaking, enforcement, and guidance.

No response.

Question 25. If you believe that any of the administrative mechanisms described in this document falls outside the Agency's existing rulemaking or enforcement authority under the Vehicle Safety Act or Department of Transportation regulations, please explain the reasons for that belief.

No response.

Question 24. If your comment supports the Agency taking actions that you believe may fall outside its existing rulemaking or enforcement authority, please explain your reasons for that belief and describe what additional authority might be needed.

No response.

Thank you for this opportunity to comment. We sincerely hope that NHTSA will make the safety of people biking and walking a priority in its Framework for ADS Safety. The development and implementation of ADS has the potential to dramatically improve traffic safety and we look forward to those improvements. Action by NHTSA is required to ensure that ADS development benefits all people and reverses the trend of vehicle safety developments only benefiting occupants, sometimes at the expense of people outside of vehicles. To achieve improvements in traffic safety, public health, transportation emissions, and economic sustainability NHTSA must act to ensure safety for people outside of vehicles.

Please contact me at ken@bikeleague.org if you have any questions.

Sincerely,

Ken McLeod
Policy Director