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DATE: April 1, 2021

Steven Cliff  
Acting Administrator, National Highway Traffic Safety Administration  
U.S. Department of Transportation  
1200 New Jersey Avenue SE  
Washington, DC 20003

RE: Comment on NHTSA ANPRM regarding the development of a framework for Automated Driving System (ADS) Safety, published in the Federal Register on December 3, 2020 at 85 FR 78058, Docket Number NHTSA -2020-0106.

Dear Administrator Cliff:

In accordance with the National Highway Traffic Safety Administration's (NHTSA) advance notice of proposed rulemaking (ANPRM) regarding the development of a framework for ADS Safety, published December 3, 2020 at 85 FR 78058, the Shared-Use Mobility Center (SUMC) submits these comments for your consideration.

The ANPRM notes that "NHTSA is looking beyond the existing FMVSS and their application to novel vehicle designs and is considering the creation of a governmental safety framework specifically tailored to ADS." SUMC is pleased that the NHTSA has recognized that the mobility landscape is changing dramatically and that safety rules must change as well. We think that this framework should encompass a larger outlook that includes these elements:

**1. Provide greater attention to road users outside the vehicle.**

Vehicles are getting safer every year only for those inside, and it is shameful that NHTSA doesn't prioritize pedestrian safety. If automated vehicles are to become the vehicles of the future, NHTSA must establish multimodal safety standards that address the safety of people inside and outside vehicles. NHTSA has the opportunity to set the tone for leading innovation at a time when technological changes are upending the business model on which automakers and regulators have long relied. Many pedestrian protection systems are already available, but are optional in vehicles. They should be mandatory.

Our organization wants to ensure that people have freedom to move and options for doing so that are not confined to cars, trucks, and SUVs. Especially as the population becomes more urbanized, bicyclists, scooter riders, and pedestrians—as well as transit users—make up a landscape of choice that helps achieve safety, equity, and climate change mitigation goals.

Pedestrian deaths caused by vehicles increased by 45% over the years 2010-2019. Cyclist deaths have also increased. Over the last 25-30 years, overall vehicle traffic deaths have been trending downward, due in part to the design of vehicles that protect the occupants. Older adults, people of color, and

people walking in low-income communities are disproportionately represented in fatal crashes involving pedestrians—even after controlling for differences in population size and walking rates.

NHTSA should mandate that vehicle automated driving systems interpret the environment to assess whether pedestrians, cyclists, or scooters are present and respond accordingly. Sensors in automated systems can detect potential collisions and vehicles can be programmed to avoid them in scenarios where human operators may err. The systems should be designed to reduce, eliminate, or mitigate any contact with pedestrians, cyclists or scooters, and NHTSA should set the standards requiring them to do so. NHTSA must establish ADS system standards ensuring that sensors operate efficiently under limited lighting and dark conditions, considering that three quarters of pedestrian fatalities nationwide occur in dark conditions [https://www.pedbikeinfo.org/factsfigures/facts\\_safety.cfm](https://www.pedbikeinfo.org/factsfigures/facts_safety.cfm).

With both sensor standards and vehicle design requirements, NHTSA can build pedestrian and cyclist safety with, for example, standards to prevent “dooring” of bicyclists, standards for SUVs that protect visibility for pedestrians, standards for vehicle-to-pedestrian (V2P) communications, and standards that reduce the likelihood that vehicles will kill or severely injure pedestrians. With the current safety record of fatalities for pedestrians and cyclists, such an approach is crucial. Failing to do so is unacceptable and flagrantly disregards the safety of anyone who walks down the street.

## **2. Pay particular attention to potential racial bias in the algorithms that run ADS systems.**

People of color are disproportionately represented in fatal crashes involving people walking—even after controlling for differences in population size and walking rates.

This could be compounded if ADS systems do not “see” black or brown bodies. Research from [Georgia Tech \(2019\)](#) shows such “predictive inequity.” NHTSA must develop a framework for requiring and evaluating the racial diversity of the machine vision and machine learning sample sets if they are to be deployed in ADS systems.

## **3. Develop an approach for safety requirements that places vehicles in a multimodal system.**

In addition to safer vehicle structures that protect people in an envelope around the vehicle, NHTSA must encourage approaches that enable vehicles to safely operate in a multimodal system. The infrastructure in which they operate needs to have designs that are complementary, especially in dense urban areas. Safety requirements must be embedded in a context in which the vehicles are used, and done in conjunction with infrastructure capabilities of the present and requirements for the future. Cities have made strides in making streets accessible for persons with disabilities and those who may need greater infrastructure support for mobility. Curb design, intersection design, and parking design all work together with vehicle design to make mobility safer, or not. Automated vehicle standards should be written in the context of the streets and roads where they will be used and for all types of potential users. If the promise of automated vehicles comes along with reduced parking or smaller lanes, for example, then vehicle standards cannot ignore the redesigned streets.

With a focus on the transportation **system**, not just individual vehicles, NHTSA regulations can improve the safety of transportation system users as a whole, not just the safety of vehicle occupants. New vehicle designs that encourage shared assets and shared journeys can allow for fleet use that enables more rapid turnover and faster implementation of features that reduce air pollution and mitigate climate change. Safety and security should be evaluated in the context of shared AVs, both for shared fleets and shared journeys. Universal design requirements from the beginning will improve mobility, often for those who need it most.

#### 4. Use a “Whole of Government” approach to safety, equity, the environment, and accessibility.

Events during 2020 have enlarged the discussion about the role of government—from the perspectives of equity, the environment, and resilience—and highlighted the dangers that come from a siloed approach that misses issues of concern. The current USDOT leadership is committed to going beyond just looking at the safety of a vehicle in relationship to other road users. The federal government as a whole is committed to addressing climate change aggressively. NHTSA’s place in addressing safety needs is to be responsive to the diverse needs of our communities and economies. As NHTSA develops a framework for ADS, we urge that the safety, equity, accessibility, and environmental status of the transportation system as a whole be a central part of the considerations.

One expression of the [mission](#) of the Department of Transportation is to:

*Serve the United States by ensuring a fast, safe, efficient, accessible and convenient transportation system that meets our vital national interests and enhances the quality of life of the American people, today and into the future.*

Seizing the opportunity to address multimodal safety, along with environmental and equity goals in a more comprehensive manner, will serve that mission better than a narrow focus that disregards the larger transportation system and its place in serving—or dis-serving—equity and climate change goals.

In summary, while this request for comments focuses on the ADS, this approach is too narrow and misses the opportunity to address safety issues that limit the freedom of transportation for pedestrians, cyclists, and scooter riders, as well as seniors and people with disabilities. It misses the opportunity to address system changes that enable wider use of shared assets and shared journeys. NHTSA should not forfeit the chance to take on this opportunity. Enhanced safety will encourage multimodal transportation, with its associated benefits of reduced greenhouse gas emissions and enhanced quality of life. These points are critical:

- NHTSA must develop and enhance standards for all types of vehicles that improve the safety of people outside of vehicles, not just inside, for all times of the day in all weather conditions.
- NHTSA must develop a framework for requiring and evaluating the racial diversity of the sample sets that train machine learning and machine vision algorithms for ADS.
- NHTSA must set standards for vehicle design that can fit within the context of dense, multimodal urban environments and that prioritize shared uses in the public interest for vehicles.
- NHTSA must act in harmony with other parts of DOT to integrate AVs as part of a multimodal network to serve equity and environmental goals.

Thank you for providing an opportunity to comment on the ANPRM regarding the development of a framework for Automated Driving System Safety.

Respectfully submitted,

Ellen Partridge  
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Shared Use Mobility Center