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December 10, 2018
United States Department of Transportation
National Highway Traffic Safety Administration
1200 New Jersey Avenue SE
Washington, DC 20590

Re: National Highway Traffic Safety Administration (NHTSA) Docket No. NHTSA-2018-0092: Pilot Program for Collaborative Research on Motor Vehicles With High or Full Driving Automation

On behalf of the half million supporters of the Union of Concerned Scientists ("UCS"), thank you for the opportunity to provide comments on the National Highway Traffic Safety Administration ("NHTSA") advance notice of proposed rulemaking ("ANPRM") for a pilot program for collaborative research on motor vehicles with high or full driving automation. ("pilot program").

UCS is an independent national nonprofit that combines technical analysis and effective organizing and advocacy to create innovative, practical solutions for the most challenging issues facing our country, including those in the transportation sector.

INTRODUCTION

There are many challenges related to the safe and efficient testing, development, and deployment of automated vehicles ("AVs") or automated driving systems ("ADS"). In recognizing these challenges, UCS has developed principles which should inform policymakers, automakers, and other stakeholders, in how to approach the deployment of these technologies. Specifically, AV policy should seek to improve the safety of all road users, promote driving efficiency improvements that reduce emissions and oil use from AVs with internal combustion engines, leverage electric vehicle technologies to further reduce emissions and oil use, integrate with mass transit, improve equitable access to transportation options, create economic and employment opportunities, share data securely and openly, and make communities more livable.

The development of this pilot program could be a step towards achieving those goals, but UCS encourages NHTSA to periodically, as needed, seek input from a diverse group of stakeholders to ensure that the operation of AVs meet the demands of the public. UCS is pleased to provide responses to select questions below.

RESPONSE TO QUESTIONS

Question 2 – If NHTSA were to create a pilot program, how long would there be a need for such a program? What number of vehicles should be involved? Should NHTSA encourage the conducting of research projects in multiple locations with different weather conditions, topographical features, traffic densities, etc.?

UCS encourages NHTSA to consider operating this pilot through multiple phases conducted over a set period no shorter than one year. A phased approach could allow NHTSA to better evaluate the effectiveness of the technologies being deployed by various participants and set requirements for advancement into subsequent phases of testing. By way of example, in one phase NHTSA could set a certain vehicle mileage or hours-driven threshold with a test engineer in the vehicle before passing the vehicle into a second phase in which the test engineer is not in the vehicle. NHTSA would be free to determine what phase thresholds are appropriate based on safety, miles driven, hours driven, technology performance and technology readiness. Such an approach could allow NHTSA, and participants in the pilot program, to build public confidence in the ADS by not rushing ADS through the pilot program without the proper testing.

In addition, while UCS does not see a need to cap the number of participating vehicles in the pilot program, UCS encourages NHTSA to encourage electrification in these pilot programs, either by prioritizing applications that plan on testing a greater percentage of plug-in electric vehicles or by setting a minimum percent of vehicles that must be plug-in electric vehicles (50% seems appropriate). The purpose of this requirement would be to encourage technology development and operations optimization needed to electrify AVs and reduce greenhouse gas emissions. Current AV options, if deployed widely, have the potential to significantly increase emissions, thereby necessitating the development of electrification solutions to address this possibility and maximize the anticipated benefits of ADS.

UCS also agrees that testing of any or all vehicles should be conducted in multiple locations with different weather conditions, topographical features, and traffic densities.

Question 9. What type and amount of data should participants be expected to share with NHTSA and/or with the public for the safe testing of vehicles with high and full driving automation and how frequently should the sharing occur?

While UCS believes all relevant data should be collected, we encourage NHTSA to prioritize collection of the following types of data from participants:

a) Total miles driven per day by each participating vehicle

b) Total energy demand/energy used per day by each participating vehicle, including but not limited to mileage driven without passengers

c) If participant vehicles are hailed, the number of trips requested per day in the test region

d) Vehicle miles traveled without passengers between pickups

e) Total miles traveled without passengers per day

f) Number of passengers in vehicle per ride, including delineation of pooled rides where passengers of the same vehicle have different origins or destinations

g) Vehicle energy use at various speed intervals

h) ADS energy usage at various vehicle status intervals (e.g. stationary, moving, accelerating, decelerating, etc.)

i) Emissions data from participating vehicles (per day, per week, per phase)

j) Location and temporal data for vehicles, users, to ascertain impacts on congestion

k) Detection data relating to road hazards including, but not limited to, time between hazard detection and vehicle correction and speed of hazard analysis

l) Hazard collision data, including, but not limited to, speed of hazard analysis and vehicle response time.

Data from the pilot projects should be shared daily with NHTSA, and NHTSA should make the data available to the public throughout the duration of the pilot program, and upon the conclusions of the program, with appropriate protections to preserve an individual's privacy. NHTSA should also seek input from participants and develop a standard framework for sharing off-vehicle data collected from off-vehicle sensors including, but not limited to traffic lights, telephone poles, road signs, speed cameras, or any other existing road infrastructure that could become a platform for capturing and sharing data with the ADS. This also includes seeking input from participants of what future infrastructure needs could better facilitate the collection and sharing of off-vehicle data that could be utilized by the ADS. As part of this off-vehicle data collection, NHTSA should seek input from participants as to how such data can be utilized by AVs. As part of this process, NHTSA should also seek input from participants as to how AVs can best share real time data of road hazards such as unsafe road conditions or encountered, or detected, foreign obstacles.

Question 10 – In the design of a pilot program, how should NHTSA address the following issues:

a) confidential business information? and b) privacy?

As part of a larger discussion of the need to protect data, NHTSA should seek input from participants on what kinds of data can be gathered and disseminated without infringing on the intellectual property rights of businesses or privacy rights of users. Included in this discussion should be methods of data aggregation which might address this issue without sacrificing the usefulness of data collected. Upon reviewing participant plans, NHTSA should evaluate whether the proposals maximize the amount of data that can be collected and should consult, as necessary, with independent stakeholders to ensure this principle is followed. The proposed rule should contain NHTSA's plans to address this issue as some data may require different levels of access for the public as opposed to individuals serving in the public's trust.

c) data storage and transmission? and d) data retention and reporting?

As a threshold matter, UCS believes all data pertaining to the pilot should be retained, and the conditions of storage and dissemination be suggested by the participants with the final determination to be made by NHTSA. This includes the potential use of an independent third-party to serve as a data clearinghouse between NHTSA, the participants, and the public. Participants should also be required to provide plans to ensure the security of all data collected from their AVs as well as plans for secure disseminations methods.

Additionally, NHTSA should solicit from participants a description of, and an explanation as to why, certain groups or individuals should or should not have access to the data collected from both the pilot program and general use of AVs. Setting clear parameters of who has access to the data will additionally enable NHTSA to address privacy and confidential business information concerns.

Question 12. Are there any additional critical areas to consider in the design of a safe pilot program for the testing and deployment of vehicles with high and full driving automation?

UCS appreciates NHTSA's efforts to consider additional elements for the pilot program. UCS encourages NHTSA to acquire the following information from participants:

a) Suggested methods for anonymizing user ride data without sacrificing the usefulness of such data to policymakers

b) Plans to remove test engineers from the test environment, either through a mandatory phase requirement or otherwise

c) Plans for safety redundancy when there is no driver in the car

d) Safeguards to ensure the test engineer, or remote monitoring system, is effectively monitoring the test environment. This would include, but is not limited to, suggested technological or procedural solutions to address user/driver/engineer fatigue and boredom

e) Description of methods to be used by the vehicle to communicate with occupants, including occupants that are blind or hard of hearing.

f) What percentage of test vehicles will be electric drive

g) Guidelines for self-reporting vehicle accidents, vehicle instrument failures, ADS failures, unexpected ADS responses, reasons for operator engagement, and any changes made to test conditions by NHTSA or participants.

h) Suggestions for testing platooning options

i) Plans for increasing accessibility to all possible users (disability access), which includes, but is not limited to, suggested technological or procedural solutions to address emergency communications between driver/vehicle/dispatchers

In addition, UCS encourages NHTSA to develop a plan to periodically, but at reasonable intervals, audit the test system. Such audits may include use of on-board cameras or random inspections to determine the effectiveness of the participants in meeting phase goals or other requirements.

Thank you again for the opportunity to submit comments to this advance notice of proposed rulemaking. For more information please contact Pamitha Weerasinghe, Washington Representative in the UCS Clean Vehicles Program at PWeerasinghe@ucsusa.org.

Sincerely,

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