

12.10.2018

Docket Management Facility
National Highway Traffic Safety Administration
U.S. Department of Transportation
Room W12-140
1200 New Jersey Avenue, SE
Washington, DC 20590-0001

Re: Docket no. NHTSA-2018-0092; ANPRM for Pilot Program for Collaborative Research on Motor Vehicles With High or Full Driving Automation

Zoox, Inc. submits these brief comments in response to NHTSA's interest in potentially advancing "a pilot program for collaborative research on motor vehicles with high or full driving automation." Zoox is pleased to know that the agency is further contemplating ways to help usher in automated technologies on U.S. roads.

The need for policies enabling technology to help improve safety on our roadways is mission critical for NHTSA. According to the agency's own data, 37,133 individuals were killed on U.S. roadways in 2017. More recently, the World Health Organization found that 1.35 million individual lives are lost on roads globally. These numbers should be unacceptable to everyone.

Safety is foundational to Zoox's mission. For the past four years, our experienced electro-mechanical and vehicle engineering teams have been hard at work developing and integrating a fully autonomous battery electric vehicle, the software system to make the vehicle drive, and the service to operate at scale in increasingly dense urban environments. Today, Zoox tests its systems autonomously on conventional Toyota vehicles with safety drivers in the San Francisco Bay Area—across suburban environments, on freeways, and in complex urban areas. We drive autonomously in these domains in the dense fog and heavy rain, during the day and at night. We do this as we simultaneously develop an SAE Level 5 vehicle to operate under SAE Level 4 limitations¹ optimized for public safety and machine vision instead of human vision.

¹ Fully automated vehicles, without any traditional human controls, will first deploy in ridesharing fleets in constrained geographical environments (likely cities). Because of inherent operational constraints, and the control which fleet operators will have over vehicles and the system, traceability and the ability to remedy safety issues will occur faster than today's traditional vehicle ownership models allow. The automated mobility as a service model is indeed itself a safety innovation that the agency should bear in mind as it sets safety parameters. The model is a departure from the way the agency has traditionally considered motor vehicle safety.

The agency already encourages safety innovation in the development of automated driving systems. It also has the existing legal authority to continue to do so, and to place checks on actors in the event of safety critical issues regardless of whether it implements a pilot program. Indeed, the agency has taken a holistic and encouraging approach with the release of three versions of "Automated Driving Systems" over as many years.

NHTSA can and must do its part to ensure that the U.S. maintains leadership in the safe testing and deployment of this exciting paradigm shift in mobility. It can do this using existing authority to issue letters of interpretation to current Federal Motor Vehicle Safety Standards (FMVSS), by issuing exemptions from current FMVSS, by promulgating a holistic view on how the technology develops in the annual policy pronouncements, by using its defects authority, or by initiating a pilot program as contemplated here.

At the same time the agency puts forward the pilot proposal, we note that other industry actors have attempted to make use of existing agency authorities to bring the technology safely to market. Yet while the agency has already received petition requests, it has not acted on them to date, or stated when it would conclude evaluation. When it has commented on past requests, it has noted that it seeks the data and testing procedures to properly evaluate requests. If it is test procedures and data that the agency is seeking, NHTSA should engage with stakeholders to develop criteria around those data requests. The agency has a unique opportunity to capture data and work with developers to contemplate test procedures that account for, among other things: (1) what makes an automated system reliably perceive and detect objects and drive in appropriate operating domains; (2) the redundancies in place so systems are fail operational; and (3) the ways in which novel vehicle designs account for crash prevention and occupant protection to ensure public safety.

We as a society should not accept the current state of road safety. The overarching public policy goals should zealously favor safety innovation. The agency should put in place a regime that encourages data-sharing and collaboration among government, industry, and safety stakeholders, make use of its existing authorities, and have the agility to evolve along with new safety technologies.

Sincerely,



Bert E. Kaufman
Head of Corporate and Regulatory Affairs