

March 19, 2021

The Honorable Pete Buttigieg
Secretary of the United States Department of Transportation
1200 New Jersey Avenue, S.E.
Washington, D.C. 20554

Dear Secretary Bettigeig,

I am writing in my personal capacity concerning your advance notice of proposed rulemaking (ANPRM) Docket No. NHTSA-2020-0106, which seeks comment on the development of a framework for automated driving systems. I thank the Department for extending the comment period for an additional 60 days.

Currently, vehicles with autonomous driving features and LIDAR have ushered in a new era of potential safety within the realm of automobiles. Given the potential functional utility and safety capabilities of “self-driving cars,” major automakers and technology companies are investing millions into the research and development of autonomous vehicles.

In response to concerns about the safety of “self-driving cars,” the Department seeks proposals on a framework for determining the safety of automated driving systems.

To achieve maximum results while operating within the Department’s capabilities, the Department should focus any framework on a results-oriented basis. Meaning, Autonomous Driving Systems should be reviewed based on a threshold level of safety as determined by experts in the field (For example, Automated Driving Systems must have a failure rate lower than x% when evaluating their ability to detect an object and apply adequate braking force to avoid a collision on the road). In this evaluation, the Department should utilize safety figures from cars on the road as opposed to closed courses. Though this increases unknown variables, closed courses tests would be extremely easy for manufacturers to exploit to provide inflated safety numbers; similar to how Volkswagen exploited the closed tests of its emissions.

To develop acceptable standards for self-driving cars, the Department should use performance standards rather than design standards. In other words, it should develop safety thresholds these systems would have to reach on an annualized basis, as opposed simply imposing a set of criteria each automated system should follow or prescribing how the vehicle should sense, or perceive the world. To evaluate systems on base hardware, or minimum standards of materials would substantially limit innovation, and ignore the working reality that most modern systems are substantially distinct, with similar levels of effectiveness. Rigid criteria regarding programming or decision making with regard to vehicles could also limit innovation and could involve the Department in certain moral and legal issues it should not be involved in.

An example of an area to be avoided is MIT’s 2018 “Moral Machine” experiment. [Add a citation to make it easier for them to find it] The goal of this study was to determine people’s

views on, in instances where one must choose, whom it was preferable for a self-driving car to kill in an unavoidable crash. This analysis discussed how the majority of people believed it would be preferable if a car should strike an older person instead of a younger person, a man instead of a woman, and a criminal instead of a doctor. This study was followed by days of controversy due to the moral and ethical issues involved in making such calculations.

While potentially an aberration (this function may be little-used), in the realm of autonomous vehicles, each manufacturer is tasked with addressing what amounts to a trolley car problem. In the same way a switching station operator must choose who the trolley may hit; the programmers who design these systems decide who the car may hit. The more the Department involves itself in any software criteria or order of operations, it risks involving itself in such a calculation. In doing so the Department may not only receive pushback, it could raise discrimination issues under the Equal Protection Clause.

For example, if the United States Postal Service created a framework for how its drivers should behave in an automobile crash where someone will likely die, and that framework directed drivers to hit a man instead of a woman, or an elderly person instead of a young person, that policy would command heavy scrutiny. By involving itself too deeply in the operations and internals of autonomous vehicles, the Department risks *de facto* making these choices.

While a framework for Automated Driving Systems will be useful to increase safety and consumer confidence, the Department should be careful to avoid overly intrusive frameworks. Thank you for providing the opportunity for comment.

Sincerely,
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