March 30, 2021

The Honorable Steven Cliff
Deputy Administrator
National Highway Traffic Safety Administration
1200 New Jersey Avenue, S.E. Washington D.C. 20590

Re: Request for comment, Advanced Notice of Proposed Rulemaking Framework for Automated Driving System Safety; Docket No. NHTSA-2020-0106

Dear Deputy Administrator Cliff,

I appreciate the opportunity to comment on the National Highway Traffic Safety Administration's deliberation of automated driving system ("ADS") safety. I am a law student at the University of Richmond School of law, a husband, and father of three young children. My interest in the outcome of ADS regulation is rooted in the safety of my children, family, and loved ones.

NHTSA's approach thus far seems to be concerned with "unnecessary regulatory barriers" and the possibility of "premature . . . performance standards for ADS competency." However, there is a middle ground of minimum standards that comport with NHTSA's purpose to "reduce traffic accidents and deaths and injuries resulting from traffic accidents" without stifling ADS innovation.[1]

I. Statutory Authority.

NHTSA has the statutory authority to, and by statute must, regulate ADS and ADS implementation.

NHTSA's purpose is to reduce traffic deaths and injuries, and to that end NHTSA prescribes safety standards for motor vehicles and motor vehicle equipment in interstate commerce.[2] The standards are merely a minimum which manufacturers must meet.[3] A motor vehicle is one which uses mechanical power and is used primarily on public roads, streets, and highways.[4] Motor vehicle equipment is *any* "system, part, or component of a motor vehicle as originally manufactured."[5]

To be sure, ADS is a new and developing technology which will reshape the way we navigate our world. However, at the end of the day it will still be a system or component of any motor vehicle ADS is installed in. This forces Secretary Buttigieg's hand in that he must prescribe motor vehicle safety standards for ADS.[6]

That does not mean that ADS development need be stifled. On the contrary, there is no reason why reasonable, practicable, and appropriate standards cannot be created. NHTSA need not create these standards in a vacuum and may work in tandem with those developing ADS technology.[7]

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[1] 49 U.S.C. § 30101, (2016).
[2] Id.
[3] 49 U.S.C. § 30102(9), (2016).
[4] 49 U.S.C. § 30102(6), (2016).
[5] 49 U.S.C. § 30102(7), (2016).
[6] 49 U.S.C. § 30111(a), (2016).
[7] 49 U.S.C. § 30111(c), (2016).

II. The Need for Regulation.

Regulating ADS is really about regulating risk. 36,560 people died in car accidents in 2018.[8] The economic harm from car accidents in 2010 alone was $836 billion.[9] 94% of series crashed are due to human error.[10] ADS has the potential to lower that risk and save lives, money, and grow into a $7 trillion industry.[11] But ADS must be guided, and minimum standards must be set so that ADS can do those things.

History has shown that business will lie and mislead the public in pursuit of profit. The tobacco industry knew by 1953 that smoking "had been categorically linked" to lung cancer, and did what they could to hide the truth for years.[12] The sugar industry shifted all health concerns to fats despite knowing how sugar affected health in 1968.[13] The auto industry knew emissions caused climate change in the 1960s and we are reeling from that lie to this day.[14] Not regulating ADS increases the risk that a potentially $7 trillion business will follow suit and either lie or mislead the public to maximize profit.

Even if the ADS industry does not lie or mislead the public, and even if NHTSA were not mandated to regulate ADS, choosing not to regulate will cede the definition of risk to ADS manufacturers. Without a set minimum standard and some oversight, ADS manufacturers will be the ones to decide what type of risk, and how much risk, is appropriate.

III. Mobility As Service.

There is little concern that setting minimum ADS standards will stifle the burgeoning technology.

We are moving towards Mobility as a Service ("MaaS") being the future of transportation.[15] We are already starting to see MaaS with the rise of companies such as Uber and Lyft. MaaS is poised to make

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[8] U.S. Dep't of Transp., Fatality Analysis Reporting System, (2018).
[9] Blincoe, L. J., Miller, T. R., Zaloshnja, E., & Lawrence, *The economic and societal impact of motor vehicle crashes*, 2010, (Revised), NAT'L HIGHWAY TRAFFIC SAFETY ADMIN., 1 (May 2015).
[10] Nat'l Highway Traffic Safety Admin., *Automated Vehicles for Safety*, (Last Visited Mar. 25), https://www.nhtsa.gov/technology-innovation/automated-vehicles-test.
[11] Roger Lanctot, *Accelerating the Future: The Economic Impact of the Emerging Passenger Economy*, Strategy Analytics (Jun. 2017).
[12] Allan M. Brandt, *Inventing Conflicts of Interest: A History of Tobacco Industry Tactics*, 102(1) AM. J. PUB. HEALTH 63 (Jan. 2012).
[13] Cristin E. Kearns, Dorie Apollonio, & Stanton A. Glantz, *Sugar industry sponsorship of germ-free rodent studies linking sucrose to hyperlipidemia and cancer: An historical analysis of internal documents*, PLOS BIOLOGY (Nov. 21, 2017).
[14] Rachel Frazin, Ford, *GM scientists knew in 1960s that emissions caused climate change: report*, The Hill (Oct. 26, 2020).
[15] Eddie Segal, *Why Mobility as a Service Is the Future of Transportation*, IBM Developer: Internet of Things (Nov. 10, 2020); *see*, Inland Transportation Committee, *Transport Tends and Economics 2018 – 2019*, United Nations Econ. Comm'n for Europe (2020).

even more of an impact than it already has as less individuals bother to get their drivers license across all age groups.[16] Some believe that MaaS will be cheaper than owning a personal vehicle by 2030.[17]

Ford is continuing to invest $1 billion in ADS through 2022.[18] GM spent $581 million to acquire Cruise Automation, an ADS company, in 2016.[19] Tesla is betting big on its ADS technology.[20] Walmart is expanding driverless trucks operation this year.[21] Between the amount of money already invested in MaaS and the belief that MaaS is the future, ADS research and development will not be abandoned because minimum standards are put into place.

IV. Recommended Regulations & Actions.

(a) NHTSA should begin by creating a committee of specialists who will work solely on ADS matters.

Automotive electronics circulated into use in the 1970s and have grown more common place and in 2009 each typical vehicle contained: over 100 microprocessors, fifty electronic control units, five miles of wiring, and close to 100 million lines of code.[22] Vehicles have only grown more complex in the past twelve years and, particularly with ADS, will only continue to grow more complex.

These growing complications will require more specialization and attention as ADS becomes more commonplace. Monitoring ADS growth will require a council of specialists who are subject matter experts in the realm of engineering, code, law, ADS traffic patterns, and more. As such, NHTSA should begin to assemble some such council now to be proactive about ADS technology and handle currently unforeseen consequences of ADS and safety.

(b) ADS must be able to handle inclement weather.

The core ADS safety functions mark a good starting place for ADS regulation. However, it is important to note that driving conditions can change quickly as rain, hail, windblown debris, or flooding create unforeseen circumstances. On average there are 5,891,000 vehicle crashes a year and approximately 21% are weather related.[23]

It is vital that ADS have the ability to read weather conditions from slick roads, high winds, or flooding. Whether ADS's ability to read the weather be considered perception or its own safety function is not important. What is important is that ADS be adaptable to the weather. If that is not possible at this time then ADS must shut down during inclement weather. ADS vehicles with no driver should be designed to pull over during inclement weather if ADS cannot adapt to inclement weather.

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[16] Michael Sivak & Brandon Schoettle, *RECENT DECREASES IN THE PROPORTION OF PERSONS WITH A DRIVER'S LICENSE ACROSS ALL AGE GROUPS*, U. Mich. Transp. Rsch. Inst. (Jan. 2016).
[17] Leah Nelson, *Understanding Transportation as a Service's potential to reduce car ownership*, Mobility Lab (Dec. 6, 2018).
[18] Ford, *FORD INVESTS IN ARGO AI, A NEW ARTIFICIAL INTELLIGENCE COMPANY, IN DRIVE FOR AUTONOMOUS VEHICLE LEADERSHIP*, Ford Media Center (Feb. 10, 2017).
[19] Doron Levin, *General Motors Discloses Why It Paid $581M for Cruise Automation*, The Street (Jul. 21, 2016)
[20] Lora Kolodny, *Elon Musk to investors: Self-driving will make Tesla a $500 billion company*, CNBC (May 2, 2019).
[21] Tom Ward, *Walmart and Gatik Go Driverless in Arkansas and Expand Self-Driving Car Pilot to a Second Location*, Walmart (Dec. 15, 2020).
[22] Robert R. Charette, *This Car Runs on Code*, IEEE Spectrum (Feb. 1, 2009).
[23] U.S. Dep't of Transp., How Do Weather Events Impact Roads?, (Last visited Mar. 26, 2021).

V. Conclusion.

NHTSA has the statutory authority, and is statutorily bound, to regulate ADS and ADS implementation. Such regulation comes down to risk, both how it is defined and how much is appropriate. To cede that definition to business is to increase the risk of lies by companies. Instead, NHTSA should establish minimum standards that ADS manufacturers must adhere to. These minimum standards will not stifle ADS research and development. MaaS is poised to become a $7 trillion industry and companies have invested too heavily to abandon research over minimum standards.

NHTSA should begin to assemble a council of experts in the realm of ADS to be proactive about ADS regulation and any unforeseen consequences caused by ADS. ADS must be safe in all conditions, including inclement weather. While the core standards proposed by NHTSA are a good start, none of those standards will matter if they fail due to weather.

Thank you,

Sean Barrick