

May 29, 2020

Deputy Administrator James Owens
National Highway Traffic Safety Administration
U.S. Department of Transportation
1200 New Jersey Ave, SE
West Building, Ground Floor, Room W12 – 140
Washington, DC 20590

RE: Docket No. NHTSA-2020-0014

Dear Deputy Administrator Owens,

Securing America's Future Energy (SAFE) is pleased to submit the following comments in regard to the Notice of Proposed Rulemaking (NPRM) on *Occupant Protection for Automated Driving Systems*.

SAFE is a Washington, D.C.-based advocacy organization. As part of its mission, SAFE is dedicated to supporting policy to reduce U.S. dependence on oil to improve economic and national security so that the U.S. is no longer dependent on a volatile oil market that is manipulated by a cartel for its transportation needs. This mission has been pursued in partnership with the Energy Security Leadership Council (ESLC), which is co-chaired by Fredrick W. Smith, Chairman, President, and CEO of FedEx Corporation, and General James Conway (Ret.), the 34th Commandant of the U.S. Marine Corps. We support policies that will catalyze the deployment of automated vehicle technology and maximize the societal benefits of the technology.

SAFE applauds the National Highway Traffic Safety Administration's (NHTSA) initiative to update legacy standards that present barriers to the deployment of vehicles equipped with automated driving systems (ADS) that have novel and unconventional designs. This includes vehicles that will not have a driver or manually operated driving controls – and even those that will carry property instead of passengers.

SAFE firmly believes that this proposed rulemaking is necessary, urgent, and squarely in the public interest. Modernizing Federal Motor Vehicle Safety Standards (FMVSS), and those that will follow, are essential to realizing the significant potential for vehicle automation to increase traffic safety, efficiency, fuel diversity, economic productivity and growth, and mobility access.

Accelerating the development, manufacturing, and adoption of ADS technology is also vital to U.S. economic competitiveness. The automotive sector is a core driver of the nation's manufacturing power and industrial innovation, directly and indirectly supporting 9.9 million American jobs and contributing

to 3-3.5 percent of U.S. GDP.¹ The global transportation sector is investing in and preparing for the transition to an autonomous and electric future: ADS technology is projected to become an \$8 trillion industry, into which American automakers and technology developers have already invested billions of dollars.² China has made no secret of its ambition to usurp America's commanding lead in automotive technologies in order to dominate the autonomous and electric future of transportation.³ The United States was the global leader in automotive innovation in the last century, unleashing a period of unprecedented prosperity and creating new efficiencies in the movement of goods and people, and must focus its efforts on ensuring that the next generation of automotive technologies are designed, manufactured, and deployed in America.

SAFE appreciates the opportunity to provide comment.

I. Introduction

The past decade has witnessed significant progress in the research and development of automated driving systems (ADS), which are now in early stages of deployment for autonomously transporting both passengers⁴ and goods.⁵ As ADS technology continues to mature, policymakers have been faced with the challenge of developing a regulatory framework that balances the tremendous potential of ADS with one that assures confidence in the safety of these vehicles. SAFE has worked with this Administration on its ADS policy guidance documents including Automated Driving Systems 2.0 and AV 3.0, and provided input on other matters including the FMVSS exemption requests submitted by General Motors (GM)⁶ and Nuro,⁷ and looks forward to continuing to build on this collaboration.

SAFE has a long history of advocating for policies that will not only improve U.S. energy security, but also enable the deployment of emerging technologies that will improve the safety, efficiency, and accessibility of the nation's transportation sector while fostering economic growth. In the last several years, SAFE has taken a leadership role in researching sound policies for ADS and working with government, industry, and stakeholders to advance these solutions.

Most recently, NHTSA's approval of Nuro's FMVSS exemption request for its R2X vehicle cited the reasoning and research contained in SAFE's comments. As SAFE argued, the ongoing development of ADS technology will also require federal regulatory structures to evolve alongside it. While the approval of the Nuro petition represented a significant milestone for autonomous vehicle policy, it also revealed

¹ "America's automobile industry is one of the most powerful engines driving the US economy," Auto Alliance, available at autoalliance.org/economy/.

² Michael Wayland, "GM's Cruise values autonomous vehicle industry at \$8 trillion," CNBC (Feb. 5, 2020).

³ Heng Ting-Fang and Laily Li, "Huawei steps up ambitions in self-driving vehicles race," Nikkei Asian Review (Mar. 30, 2020).

⁴ See, e.g., Kirsten Korosec, "Waymo's robotaxi pilot surpassed 6,200 riders in its first month in California," *TechCrunch*, September 16, 2019.

⁵ See, e.g., Michael Wayland, "CVS Pharmacy partners with Nuro to test self-driving vehicle prescription delivery," CNBC, May 28, 2020.

⁶ See SAFE's public comment regarding Docket No. NHTSA 2019-0016, *General Motors, LLC – Petition for Temporary Exemption from Various Requirements of the Safety Standards for an All-Electric Vehicle with an Automated Driving System*, May 20, 2019.

⁷ See SAFE's public comment regarding Docket No. NHTSA 2019-0017, *Nuro, Inc. – Petition for Temporary Exemption for an Electric Vehicle with an Automated Driving System ("Petition")*, May 20, 2019.

the imminent need for NHTSA to address the wide range of regulatory barriers to the deployment of ADS-equipped vehicles with novel designs.

The FMVSS exemption process is an important tool for NHTSA, manufacturers, and stakeholders to engage in a collaborative discussion of how ADS-equipped vehicles with unconventional designs can be evaluated and safely deployed. This process will continue to be necessary in the short- to medium-term as NHTSA continues to modernize FMVSS in order to facilitate the wider manufacturing and deployment of ADS-DVs. At the same time, the exemption process will help to inform NHTSA's research efforts into updating FMVSS and lead to real-world findings about the efficacy of ADS-equipped vehicles with novel designs.

However, as discussed below, the promulgation of this proposed rule would implement reasonable updates and modifications to select portions of the FMVSS 200 series pertaining to occupant protection, while continuing to preserve the safety intent of the respective standards. This will help to reduce the number of exemptions that manufacturers must request in order to deploy ADS-equipped vehicles with novel designs, which will improve the efficiency of the exemption process and contribute to the Department's stated goal of creating a predictable and consistent pathway to deployment.

II. Significance of Rulemaking Proceeding

This rulemaking represents a major step forward in modernizing Federal Motor Vehicle Safety Standards (FMVSS) to prepare for the advent of ADS-equipped vehicles with novel designs. The NPRM pertains to vehicles defined by NHTSA as ADS-DVs (ADS-Dedicated Vehicles), which refers to ADS-equipped vehicles that do not have manually operated driver controls such as steering wheels or brake pedals. Also included are ADS-equipped vehicles that are capable of being driven both autonomously by an ADS or manually by a human operator ("dual use vehicles") and ADS-equipped vehicles designed exclusively to carry property ("occupantless vehicles").

NHTSA's safety mission requires prioritizing actions that will reduce collisions, deaths, and injuries on the nation's roadways. Making selective modifications to FMVSS that reduce unforeseen barriers to lifesaving automation technologies is squarely in the public interest, provided that the safety intent of pertinent FMVSS continues to be preserved. These activities will ultimately enable greater innovation in the development of new types of vehicles and business models for the mobility of people and goods, which will maximize the benefits of the converging revolutions of autonomous, connected, electric, and shared transportation technologies.

A. Safety Benefits of ADS

ADS technology has the potential to substantially reduce the estimated 94 percent of collisions that are caused by human error or choice. These collisions – the majority of which are caused by speeding, driving under the influence, or distraction – take the lives of 38,000 Americans annually, and injure

millions more. The economic and social harm of these collisions calculates to nearly \$1 trillion per year, which is an immense financial cost in addition to the devastating toll on the families of victims.⁸

SAFE's research has found that, if deployed at scale, ADS-equipped vehicles will deliver tremendous benefits for the nation's economy and society. The combination of reduced collisions, decreased energy consumption in the transportation sector, and a range of social benefits will contribute to nearly \$800 billion in annual social and economic benefits by 2050.⁹

B. Energy Benefits of ADS

The U.S. transportation sector currently depends on oil to provide 92 percent of its energy. This carries significant ramifications for the nation's ability to transport people and goods, as American consumers and businesses are constantly exposed to oil price volatility and do not have readily-available fuel alternatives available at scale. The oil market itself is unfair and unfree with decisions made in far off foreign capitals and within the OPEC cartel which negatively impact the lives of Americans and our economy. In addition, the U.S. Department of Defense spends nearly \$81 billion to protect global oil supplies which remains a hidden tax on American consumers and businesses.¹⁰

There is strong evidence to suggest that ADS technology will initially be deployed through on-demand, shared models that utilize electric vehicle (EV) platforms. In fact, SAFE's research has shown that the majority of vehicles being used to test ADS technology are EVs – suggesting that this trend will continue to lead toward greater electrification of the nation's passenger vehicle fleet.¹¹ SAFE's research has found that the widespread adoption of EVs would substantially reduce the amount of oil consumed in the U.S. transportation sector – yielding approximately \$58 billion in annual benefits to the American public and reducing the national security implications associated with oil dependence.¹²

C. Mobility and Accessibility Benefits of ADS

Access to mobility is a major determining factor in an individual's economic mobility and quality of life. Currently, six million Americans with disabilities experience barriers to mobility such as the inability to drive, limited financial resources for transportation services, and inadequate access to public transportation and paratransit. This leads to a range of ill effects including fewer employment opportunities, poorer health, and social isolation. SAFE's research has concluded that ADS-equipped vehicles can provide people with disabilities with access to 2 million additional employment opportunities and yield \$19 billion in savings from health care expenditures including missed appointments.¹³

⁸ SAFE, *America's Workforce and the Self-Driving Future: Realizing Productivity Gains and Spurring Economic Growth*, June 2018.

⁹ SAFE, *America's Workforce and the Self-Driving Future: Realizing Productivity Gains and Spurring Economic Growth*, June 2018.

¹⁰ SAFE, *The Military Cost of Defending the Global Oil Supply*, September 21, 2018.

¹¹ Robbie Diamond and Amitai Bin-Nun, "Self-Driving Cars: Road to Deployment", Written Testimony to the House Committee on Energy and Commerce, Subcommittee on Digital Commerce and Consumer Protection, February 14, 2017.

¹² SAFE, *America's Workforce and the Self-Driving Future: Realizing Productivity Gains and Spurring Economic Growth*, June 2018.

¹³ SAFE, *Self-Driving Cars: The Impact on People with Disabilities*, January 2017.

Additionally, the proliferation of occupantless vehicles that can conduct autonomous deliveries of groceries, medicine, and other goods could contribute to substantial improvements in quality-of-life for those with insufficient access to transportation. This could substantially benefit residents of food deserts (areas where it is difficult to access affordable, good-quality food), which would contribute to positive nutritional and health outcomes in many underprivileged communities. The current pandemic has demonstrated for all Americans the importance and benefits of contactless delivery.

The full range of activities at the U.S. Department of Transportation (USDOT) pertaining to ADS – including pilot programs, modernization of regulations, and department-wide research – will continue to be instrumental in advancing the safe and expeditious deployment of autonomous vehicles, while also maximizing their full range of social and economic benefits.

III. Modernizing FMVSS in the 200 Series

As NHTSA states in the NPRM, the FMVSS have saved hundreds of thousands of lives over the past 50 years. Modernizing these standards to prepare for the next generation of automotive safety technologies will enable the agency, transportation sector innovators, and the American public to save hundreds of thousands more lives in the next 50 years at an even greater scale.

SAFE applauds NHTSA's attention, first and foremost, to the need to reduce ambiguity and regulatory confusion that inhibits the deployment of ADS-equipped vehicles with novel designs. This NPRM will help to achieve regulatory clarity on an initial set of standards in the FMVSS 200 series and sets the stage for future revisions, including the crash avoidance FMVSSs in the 100 series.

Given the number of FMVSSs that currently refer to human drivers, human-operated controls, and the driver's seat as a point of geometric reference, manufacturers will continue to need to seek exemptions from numerous FMVSS standards in order to deploy ADS-equipped vehicles with unconventional designs in the short term. However, the changes proposed in the NPRM could streamline the exemption process and make the process more efficient without sacrificing overall level of safety and intent of the standards.

GM, for example, requested exemptions from 16 FMVSSs in order to deploy its ADS-DV that would transport passengers autonomously and would not contain manually operated controls. Six of the 16 FMVSS for which GM requested an exemption were within the FMVSS 200 series. As NHTSA states, GM would not have needed to seek exemption for those six standards if this NPRM were finalized before the petition was submitted, as the standards either would not have required exemptions or would have provided alternative pathways to compliance.

As demonstrated by GM and Nuro's exemption requests, the time for NHTSA to make these updates is now: manufacturers are preparing to build and deploy ADS-equipped vehicles. It is in the public interest to create a pathway to the safe and expeditious deployment of ADS-equipped vehicles that are manufactured in the United States. SAFE looks forward to working with NHTSA on these issues in future notices and urges the Department to move forward with these updates as expeditiously as practicable.

A. Updating References to Human Drivers

SAFE is supportive of NHTSA's approach of clarifying the unintentional barriers caused by the use of the word "driver" and related terms throughout the FMVSS. The current assumption that vehicles will have human drivers makes FMVSS certification and compliance verification for ADS-equipped vehicles without manual controls difficult, and in some cases impossible.

We concur with NHTSA's argument that the definition of "driver" and associated terms should not apply to ADS-DVs which will only carry passengers, and that alternative references should be used for such vehicles. We are supportive of mirroring the existing occupant protection requirements for front-left passenger seat to front-right passenger seat (formerly "driver's seat") for ADS-DVs.

SAFE agrees with NHTSA's proposal to create a new definition for "manually operated driving controls" and ensuring that the standards related to those controls should apply only to human-driven vehicles and dual use vehicles when they are being operated by a human driver. Occupant protection standards for manually operated driving controls should not apply to an ADS-DV that does not have a steering wheel or steering column in an ADS-DV. Put simply, an occupant does not require protection from a component that is not even present in a vehicle. Instead, NHTSA should maintain the safety intent and level of safety previously afforded to drivers by applying the same crash test performance requirements for left-front seat outboard occupants as right-front outboard occupants. There should not be a loss in meaning when mirroring these references and requirements.

NHTSA assumes that ADS-equipped vehicles designed to carry passengers will have conventional seating configurations with forward-facing passengers in the near term. While it may be necessary to make revisions to account for different seating arrangements in the future (such as campfire seating and carriage-style seating), SAFE agrees that it is appropriate for NHTSA to proceed with these current expectations until crash test performance requirements are researched and updated to preserve occupant safety in vehicles with unconventional seating arrangements. SAFE appreciates NHTSA's attention to this matter and the agency's commencement of research into this area.

As SAFE noted in its public comments on the GM petition, automation will enable innovative vehicle designs that may lead to the deployment of small electric ADS-DVs in shared models, particularly in congested urban areas.¹⁴ Since 85 percent of household trips only include one or two vehicle occupants, and the vast majority of new vehicles purchased in the U.S. are light trucks with room for five or more passengers,¹⁵ the adoption of these smaller form factors could contribute to reductions in both energy consumption and congestion. Furthermore, a reduction in the number of manually operated driving controls and other components could contribute to more efficient designs and reductions in vehicle weights that may reduce fuel consumption. As ADS technology matures, light-weighting of increasingly safer vehicles may help to achieve even greater energy savings.

¹⁴ SAFE GM comments.

¹⁵ SAFE analysis based on data from 2017 National Household Travel Survey; David Phillips, "U.S. market mix speeds toward 70% light trucks," *Automotive News*, April 8, 2018.

Reducing barriers to the deployment of ADS-DVs will also facilitate the deployment of accessible mobility options that can better serve people with disabilities. Currently, retrofitting vehicles to be accessible for individuals with disabilities is rather expensive – sometimes costing tens of thousands of dollars.¹⁶ The adoption of accessible ADS-DVs in shared fleets could significantly reduce the barriers for people with disabilities in accessing employment, education, and health care, while also reducing social isolation.

As NHTSA notes, this NPRM addressed most of the barriers present in the 200 series pertaining to occupant protection but does not address telltales and warnings (with the exception of front passenger airbags). As the agency acknowledges, it will be essential to proceed with updating those standards in the near future in order to provide greater clarity and regulatory certainty for manufacturers of ADS-DVs.

B. Easing the Path to Deployment for Occupantless Vehicles

As the nation has observed in the past few months, occupantless vehicles can serve a vital role in responding to pandemics like COVID-19. The aforementioned approval of Nuro’s petition for exemption allowed the company to begin manufacturing and deploying occupantless vehicles designed exclusively for carrying property. Nuro’s R2X vehicle presents a vision for the future of transporting food and supplies, wherein smaller, electric purpose-built driverless vehicles provide contactless deliveries. The R2X has already been put to use in responding to COVID-19: In April, Nuro deployed the vehicle to provide contactless delivery of medical supplies to patients affected by the novel coronavirus in an alternative care facility that was set up in Sacramento’s Sleep Train Arena.¹⁷

While the approval of Nuro’s request represented an important first step forward in enabling occupantless vehicles to serve the public, the United States risks falling behind global competitors who have been more agile in providing adequate policy support for the deployment of ADS technologies. China, for example, responded to COVID-19 by using autonomous systems to disinfect city streets¹⁸ and more than 2,000 hospitals,¹⁹ transported goods to hospitals,²⁰ and provided expedited regulatory approval and subsidies to deploy AVs on city streets for food delivery to frontline workers.²¹ This is a small snapshot of China’s larger ambitions to compete with the United States for control of the future of emerging transportation technologies, particularly AVs. Huawei Technologies has adopted an “aggressive” attitude to develop AV technologies in a bid to diversify its portfolio amid allegations that its telecommunications technology presents cybersecurity and privacy threats to consumers and governments around the world.²²

¹⁶ SAFE, *Self-Driving Cars: The Impact on People with Disabilities*, January 2017.

¹⁷ [Dave Ferguson, “Helping the Heroes During COVID-19,” Medium, April 22, 2020.](#)

¹⁸ Alexandria Hein, “Mini tanks deployed to disinfect coronavirus-hit areas in China,” Fox News (Feb. 17, 2020).

¹⁹ Eugene Demaitre, “Coronavirus Fight in China to Get a Boost from UVD Disinfection Robots,” The Robot Report (Feb. 21, 2020).

²⁰ “JD.com Uses L4 Autonomous Driving Solutions to Deliver Goods in Locked-Down Wuhan,” KrASIA (Feb. 7, 2020).

²¹ “Driverless Delivery Van Startup Sees Demand Surge During Outbreak,” Bloomberg News (Mar. 8, 2020).

²² Heng Ting-Fang and Laily Li, “Huawei steps up ambitions in self-driving vehicles race,” Nikkei Asian Review (Mar. 30, 2020).

The United States remains at the forefront of ADS technology development, but this technical prowess must be matched by supportive policies that will ensure the next generation of transportation technologies are domestically manufactured, designed, and deployed – otherwise, the nation risks losing its lead and ceding control of the future of transportation to China.

To this end, SAFE agrees with NHTSA’s assertion that FMVSSs should be approached differently for occupantless vehicles that will exclusively carry property, versus those that are designed to carry passengers. We concur that occupantless vehicles should not be subject to crashworthiness requirements that are intended to protect human occupants.

NHTSA suggests that occupantless vehicles meet the Part 571.3 definition of a truck, as they are designed primarily for transportation of property. By definition, most vehicles carry “persons,” while “trucks” carry property. FMVSS No. 208 presents a major unintended barrier to compliance for occupantless vehicles, since it includes references and requirements pertaining to designated seating positions (DSPs) in all vehicles, including trucks.

Since occupantless vehicles are considered trucks and do not have DSPs, manufacturers are confronted with requirements that are impossible to meet when deploying vehicles designed exclusively to carry property. As written, airbag requirements would apply to a DSP that does not even exist in an occupantless vehicle – creating a regulatory barrier that is inherently impossible to satisfy within the context of that vehicle class. SAFE agrees with NHTSA’s proposal to make these and similar requirements apply only to trucks with at least one DSP.

However, we encourage NHTSA to reconsider its suggestion that explicit changes to other FMVSS in the 200 series may not be needed. For example, in *FMVSS No. 219 – Windshield zone intrusion*, the performance standards pertaining to windshield displacement may be interpreted to apply to all trucks unless explicitly stated otherwise – regardless of whether or not a truck is an occupantless vehicle without a windshield. While NHTSA suggests that situations such as this may not pose an issue, SAFE recommends making minor modifications to clarify that this standard does not apply to trucks without a DSP or a windshield.

SAFE looks forward to working with NHTSA on its proposed next step of creating a new FMVSS category for occupantless vehicles. We encourage the agency to minimize ambiguity that may emerge from an overreliance on interpretations or assumptions which could inadvertently create new barriers. We urge the Department to proceed with conducting any necessary research and promulgating additional rulemakings as expeditiously as possible.

C. Dual Use Vehicles

SAFE agrees that dual mode ADS-equipped vehicles will need to certify compliance in both the manual operation state and when ADS is active. We concur with NHTSA’s approach of substituting the term “steering wheel” for “steering control” since the manual vehicle controls that may be used in dual-use vehicles may not be circular, and may even more closely resemble airplane yoke controls.

NHTSA requests feedback on the question of whether a dual use vehicle should be inoperable if a child is in the driver's seat. SAFE agrees that the agency should take all necessary steps to reduce potential harm in cases when, as NHTSA states, the risk is both "foreseeable and unacceptable." SAFE recommends gathering specific, detailed feedback from manufacturers who have carefully considered the safety case during research and development.

IV. Conclusion

SAFE applauds NHTSA's approach of pursuing parallel efforts to modernize FMVSS, evaluate potential safety principles for ADS, and reduce inefficiencies and barriers to innovation. The promulgation of this proposed rule is a vital step in the Department's ongoing efforts to modernize the nation's federal regulatory frameworks. We encourage NHTSA to proceed with revising additional standards that present unintentional barriers to ADS deployment, including those in the FMVSS 100 series.

Thank you for considering SAFE's comments. If you have any questions related to these comments, please contact Greg Rogers at grogers@secureenergy.org. We look forward to continuing to work with the Department to advance the safe and expeditious deployment of ADS technologies and maximizing their full range of benefits.

Sincerely,

A handwritten signature in black ink that reads "Gregory Rogers". The signature is written in a cursive, flowing style.

Greg Rogers

Director of Government Affairs and Mobility Innovation
Securing America's Future Energy (SAFE)