

July 29, 2019

Heidi King
Deputy Administrator
National Highway Traffic Safety Administration
U.S. Department of Transportation
Docket Operations, M-30, Room W12-140
1200 New Jersey Avenue, S.E.
Washington, D.C. 20590

**Re: National Highway Traffic Safety Administration [Docket No. NHTSA–2019–0036]
RIN 2127–AM00, Removing Regulatory Barriers for Vehicles with Automated Driving
Systems, ACTION: Advance Notice of Proposed Rulemaking (the “ANPRM”).**

Deputy Administrator King:

In the ANPRM published in the Federal Register on May 29, 2019, NHTSA asked for comment on the near and long term challenges of testing and verifying compliance with existing crash avoidance (100-series) Federal Motor Vehicle Safety Standards (FMVSSs) for Automated Driving System-Dedicated Vehicles (ADS–DVs) that lack traditional manual controls necessary for a human driver to maneuver the vehicle and other features intended to facilitate operation of a vehicle by a human driver, but that are otherwise traditional vehicles with typical seating configurations. The National Association of Mutual Insurance Companies ("NAMIC") appreciates the opportunity to provide comments regarding the ANPRM and request for comment set forth above.

NAMIC is the largest property/casualty insurance trade association in the country, with more than 1,400-member companies representing 40 percent of the total market. NAMIC supports regional and local mutual insurance companies on main streets across America and many of the country's largest national insurers. NAMIC member companies serve more than 170 million policyholders and write more than \$253 billion in annual premiums. Our members account for 54 percent of homeowners, 43 percent of automobile, and 35 percent of the business insurance markets. Through our advocacy programs we promote public policy solutions that benefit NAMIC member companies and the policyholders they serve and foster greater understanding and recognition of the unique alignment of interests between management and policyholders of mutual companies.

The ANPRM seeks comments on the suitability of various approaches that could be used to address compliance verification challenges that exist for crash avoidance standards to develop a proposal to amend the crash avoidance FMVSSs in ways that address compliance challenges with a continued focus on safety. The ANPRM states that it builds on NHTSA's efforts to identify and address regulatory barriers to ADS technologies.



As it has in past comment letter on related subjects to NHTSA, NAMIC again here questions NHTSA's focus on eliminating motor vehicle safety standards that have proven effective, to address regulatory barriers to the development of ADS. In the ANPRM, NHTSA is "encouraged by the potential for safety improvements" through new ADS technologies being developed by automobile manufacturers and other innovators, and NHTSA "anticipates that ADS-DVs can serve a vital safety role on the Nation's roads." But nowhere has NHTSA taken the position that ADS-DV are now or will be as safe as human drivers. NHTSA cannot take such a position as ADS-DVs are still in the experimental stage and numerous automotive experts¹ do not foresee autonomous vehicles soon.

The premise for NHTSA - the federal agency responsible for the safety of motor vehicles - seeking to exempt proven and reliable safety standards requires acceptance of two separate principles. The first premise is that safety advances from replacing human drivers may have the potential to save lives and reduce motor vehicle crashes and injuries. This ANPRM specifically applies to experimental driverless ADS-DV SAE Level 4 or 5 vehicles, which will be a combination of various hardware and software components that function as a system to perform functions traditionally performed by human drivers, i.e., perceive and interpret the driving environment, the objects in that environment, and their likely future movement, make decisions about accelerating, braking and steering so as to select and navigate safe paths through that environment and around those objects, and implement those decisions. Adding to this monumental and still-unproven task, the ANPRM specifically deals with an ADS with no steering wheel and brake and accelerator pedals, among other manual controls.

¹ See, "Ford had overestimated the arrival of autonomous vehicles. At best, we can expect a driverless vehicle that operates within a small, geographically restricted area of a city, like a bus crawling back and forth in a restricted lane at an airport. Anything more is out of the question. Because the problem [of safely navigating self-driving cars through urban environments] is so complex." Ford CEO Jim Hackett. *Ford is walking back its goal to mass produce self-driving car*, TU-Automotive, April 2019, at <https://www.tu-auto.com/weekly-brief-fords-dose-of-reality-to-driverless-dreamers/>; The technology won't be ubiquitous for decades and that driverless vehicles will always have constraints. Self-driving cars will require driver assistance for many years to come. Can't envision a day when the technology operates in all weather conditions and without some sort of "user interaction." - Waymo CEO John Krafcik. *Waymo CEO says self-driving cars won't be ubiquitous for decades*, Property Casualty 360, November 2018, at <https://www.propertycasualty360.com/2018/11/13/waymo-ceo-says-self-driving-cars-wont-be-ubiquitous/>; "Level 5 will never happen globally. You need latest-generation mobile infrastructure everywhere, as well as high-definition digital maps that are constantly updated. And you still need near-perfect road markings," "This will only be the case in very few cities. - VW commercial vehicles CEO Thomas Sedran, *VW exec: 'Level 5 will never happen globally'* Automotive News, March 2019, at <http://www.automotive.news.online-listing.com/2019/03/05/vws-sedran-level-5-will-never-happen-globally/>; "Using Moore's Law as a guiding point, May Mobility CEO Edwin Olson estimated that even with autonomous performance doubling every 16 months, it'll still take 16 years for self-driving vehicles to match that of consumers." <https://www.modeldmedia.com/features/The-road-Level-five-autonomy-still-long-ways-off.aspx>; Fully driverless cars — which don't require anyone in the car at all and can go anywhere — are "not going to happen for many, many decades, maybe never." Daniel Sperling, founding director of the Institute of Transportation Studies at the University of California, Davis, *The road to Level 5 autonomy is still a long way off*, Model D, June 2019, at <https://www.modeldmedia.com/features/The-road-Level-five-autonomy-still-long-ways-off.aspx>; "The vision of "anytime, anywhere, any weather, any speed, by anyone" automated vehicles that has been promoted to the public is greatly at odds with the limited operational design domain being pursued by vehicle developers. "proving an automated vehicle 100 percent safe" is an impossible task. *Mcity ABC Test: A Concept to Assess the Safety Performance of Highly Automated Vehicles*, January 2019, at <https://mcity.umich.edu/wp-content/uploads/2019/01/mcity-whitepaper-ABC-test.pdf>.



To justify the presumption that these complex proposed systems might be safer than human drivers, NHTSA only cites² the oft-misquoted 2015 statistical summary, which sampled 5,407 crashes between 2005 and 2007, and concluded that the drivers were the “critical reason” for 94% of an estimated 2,046,000 crashes. The summary emphasizes – but most citations ignore - that “Although the critical reason is an important part of the description of events leading up to the crash, it is not intended to be interpreted as the cause of the crash nor as the assignment of the fault to the driver, vehicle, or environment. In none of these cases was the assignment intended to blame the driver for causing the crash.” More importantly to the premise that ADS may be safer, there is no reference to automation or ADS in the 2015 summary and there is no inference in that 2015 summary that in any way even suggest that a combination of various hardware and software components would in any way be safer than human drivers.

Even if we concede that an ADS combination of various hardware and software components *could* someday effectively substitute for common and pernicious human driver errors, the same hypothetical combination of various hardware and software components - if less than perfectly designed, programmed or functioning – has the real potential to result in similar or unforeseen problems that could increase traffic accidents and fatalities. Extensive deployment of 100% perfect ADS-DVs has the potential to save no more than the 40,000 existing annual traffic fatalities. The same extensive deployment of flawed or malfunctioning ADS-DVs theoretically could kill millions. When considering vehicles that do not presently exist, the chances of either are unknown.

The second premise for removing proven safety standards is that the elimination of certain FMVSS are necessary for the development and evaluation of this effective and reliable ADS. This ANPRM specifically applies to experimental driverless ADS-DV SAE Level 4 or 5 vehicles with no steering wheel and brake and accelerator pedals, among other manual controls. Advocates for the development of these vehicles argue that by removing human input from the formula, these changes provide the safety advantages of autonomous transportation while ensuring that passengers cannot interfere, purposefully or inadvertently, with the safe operation of the vehicle, and that the development and evaluation of these vehicles is dependent on ensuring passengers do not interfere.

In the ANPRM, NHTSA “agrees that the existing FMVSSs neither have provisions addressing the capabilities of ADSs nor prohibit ADS hardware or software but believes that ... the agency’s focus in this document is on the narrower question of how to amend the FMVSS to safely permit ADS– DVs without traditional manual controls.”

This indicates to us that the FMVSS do not prohibit the development of ADS hardware and software, which has not yet been developed and certainly would seem to be the far more difficult challenge. With so much predicate development existing, it is not at all clear why FMVSS impede the many ADS asks remaining. The experimental driverless ADS-DV SAE Level 4 or 5 combination of various hardware and software components that function as a system to perform functions

² Footnote 12 of the ANPRM, Critical Reasons for Crashes Investigated in the National Motor Vehicle Crash Causation Survey (February 2015), available at <https://crashstats.nhtsa.dot.gov/Api/Public/ViewPublication/812115> .



traditionally performed by human drivers, i.e., perceive and interpret the driving environment, the objects in that environment, and their likely future movement, make decisions about accelerating, braking and steering so as to select and navigate safe paths through that environment and around those objects, and implement those decisions, are all undeveloped at this point. This is further complicated by the proposal that the ADS create and operate new steering, braking and acceleration mechanics, and replace other manual controls. With these immense development and deployment challenges remaining, it is unclear why the focus is on removing safety features.

The ANPRM itself notes that the requirements of the FMVSS have proven benefits for their intended purposes and unintended purposes as well. The ANPRM acknowledges that equipment required under the current FMVSSs can and do “provide safety benefits beyond what the agency had originally contemplated at the time each FMVSS was promulgated. For instance, while the agency may have established rear visibility mirror performance requirements based on the safety need for a driver’s visibility while driving, outside rearview mirrors have come to serve an additional safety function when a vehicle is parked by providing occupants information regarding whether it is safe to exit the vehicle.” The safety of occupants in an ADS-DV that may have taken no notice of driving visibility would be particularly served by mirrors that provide information regarding whether it is safe to exit the vehicle. NHTSA must be particularly mindful of all the unintended safety benefits of FMVSS before allowing broad exemptions.

Again, the software and programming requirements remaining to be addressed to enable a ADS-DV SAE Level 4 or 5 combination of various hardware and software components that function as a system to perform functions traditionally performed by human drivers – perceiving and interpreting the driving environment, the objects in that environment, and their likely future movement, making decisions about accelerating, braking and steering to select and navigate safe paths through that environment and around those objects, and implementing those decisions – are vast and remain undeveloped at this point. FMVSS may be a nuisance to developers, but they are hardly what is holding back the development and deployment of ADS-DV SAE Level 4 and 5 vehicles.

It is not at all clear why FMVSS No. 108: requiring a hazard warning signal flasher or operating unit, is an impediment to that development, or FMVSS No. 114: reference to parking brake, are serious impediments to that software and programming development. Waymo uses Chrysler Pacifica Hybrid vans in its self-driving fleet that presumably comply with FMVSS. In June 2019, Uber announced³ that the new production XC90 will be assembled by Volvo Cars in Sweden and have human controls like steering wheels and brake pedals, but added it has factory-installed steering and braking systems designed for computer rather than human control. There is no indication that the new XC90 design has applied for FMVSS exemptions.

FMVSS have proven safety value and ensuring safety must be the primary NHTSA focus of efforts to address barriers to ADS–DVs and to consider, test and validate the safety purpose of any exemption to safety standards. With the limited NHTSA resources already strained by the regulatory

³ Uber to unveil next-generation Volvo self-driving car, June 12, 2019, at <https://www.reuters.com/article/us-uber-selfdriving/uber-to-unveil-next-generation-volvo-self-driving-car-idUSKCN1TD1GO>



demands of ADS development, eliminating proven safety standards may not be the most effective use of their regulatory focus. All the safety benefits of FMVSS must be considered by the NHTSA and until disproven, their continued necessity on an ADS-DV – with or without traditional manual controls – should be presumed. If a developer can test and verify the safe driving operations of an ADS-DV and verify that safety, then NHTSA should conduct its own safety testing and verification. If a developer can test and verify the safety of an ADS-DV without any specific FMVSS, then NHTSA should conduct its own testing and verification.

There is universal support for 100% safe ADS, and these perfectly safe ADS could potentially prevent about 40,000 U.S. traffic fatalities annually. But no one projects that ADS will be 100% safe in all situations. Accepting that ADS will be fallible and subject to problems and external corruption, unsafe ADS representing ½ of one percent of the existing personal autos in the U.S. could result in 250,000 crashes, injuries, and fatalities.

There should be no question whatsoever then that the federal agency with the self-described mission to "Save lives, prevent injuries, reduce vehicle-related crashes" must assess whether an ADS steers, brakes, and accelerates at least as effectively and safely as a human driver. If NHTSA is not sure that an ADS is at least as safe as existing human operated vehicles, NHTSA has no business enabling ADS to operate on the roads, and surely has no business removing federally mandated vehicle safety standards to a vehicle that they do not know if it is as safe as existing vehicles.

NAMIC fully supports the development and deployment of safe ADS, but public confidence in ADS has been found in numerous studies to be low and sometimes dropping. The voluntary safety reports filed by some ADS companies provide little factual basis on which to assess safety to date. The race to autonomy has unfortunately resulted in several well publicized ADS mishaps and the 2018 ADS fatality. The public is enthusiastic about developments in artificial intelligence and machine learning, but also understands that programs are coded and machines are designed and built by human beings. Every technological leap includes a myriad of points of failure and ADS are an amalgamation of innumerable technological and mechanical leaps. The greatest danger to public acceptance and trust in ADS is rushing untested versions into the public domain.

In this case, the focus of the ANPRM must be on validating that ADS will save lives, prevent injuries, and reduce vehicle-related crashes and not on removing safety standards to promote ADS development. The job of ADS proponents should be to develop an ADS permitted on public roads that will – not might - save lives, prevent injuries, and reduce vehicle-related crashes. Only these developers fully understand the new ADS they are developing and only these developers can properly test their ADS to validate safety. Only when these companies can provide clear and convincing data of that safety, should NHTSA review the specific data that the specific developers provide on specific ADS models to then ensure that ADS permitted on public roads will – not might - save lives, prevent injuries, and reduce vehicle-related crashes.



It has been argued that “(e)very day of delay in getting autonomous vehicles safely on American Roads is a day in which we are losing lives that could be saved.” However, the report⁴ most cited concludes that it is unclear at this time whether ADS today are better or worse than the average human driver, many industry leaders believe that the industry is a long way from reaching significant improvements, and even if ADS are judged safer than the average human driver – which they have not been - ADS would still cause many crashes, injuries, and fatalities.

In conclusion, safe ADS should be permitted on public roads only after it has been determined that ADS are safer than human drivers. NHTSA and interested parties – ADS developers, academics, insurance companies, safety advocates – should work together to develop standard data, assumptions, scientific reasoning, and methodologies to validate that an ADS steers, brakes, and accelerates at least as effectively and safely as the average human driver. Only when a vehicle producer can attest and the NHTSA to validate that an ADS steers, brakes, and accelerates at least as effectively and safely as the average human driver should NHTSA consider FMVSS exemptions.

Thank you for your time and consideration. If you have questions or comments, please feel free to contact me at 202-580-6741, tkarol@namic.org.

Respectfully submitted,

A handwritten signature in blue ink, appearing to read 'TKarol', written over a horizontal line.

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⁴ The Enemy of Good, Estimating the Cost of Waiting for Nearly Perfect Automated Vehicles, Rand Corp. (2017), available at https://www.rand.org/pubs/research_reports/RR2150.html .