



Owner-Operator Independent Drivers Association

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The Honorable Raymond Martinez
Administrator
Federal Motor Carrier Safety Administration
U.S. Department of Transportation
1200 New Jersey Avenue, SE
Washington, D.C. 20590

Re: Docket # FMCSA-2018-0037, "Safe Integration of Automated Driving Systems-Equipped Commercial Motor Vehicles"

Dear Administrator Martinez:

The Owner-Operator Independent Drivers Association (OOIDA) is the largest trade association representing the views of small-business truckers and professional truck drivers. OOIDA has more than 160,000 members located in all fifty states that collectively own and operate more than 240,000 individual heavy-duty trucks. OOIDA's mission is to promote and protect the interests of its members on any issues that might impact their economic well-being, working conditions, and the safe operation of commercial motor vehicles (CMVs) on our nation's highways.

OOIDA members have a keen interest in the development of autonomous vehicles (AVs) and Automated Driving Systems-Equipped (ADS) CMVs as these technologies have the potential to drastically change the trucking industry, in particular its workforce. While we are still years away from fully automated trucks, decisions made today will have a significant impact on how AV technologies are deployed, and ultimately, on the livelihood of professional truck drivers and the economy at large. Elected officials, federal regulators, and our industry partners must ensure AV policies are developed in a responsible manner that takes into account the perspective of American truckers.

OOIDA understands necessary changes must be made to the Federal Motor Carrier Safety Regulations (FMCSRs) to accommodate AVs, including training, licensing, and inspection standards. However, many of the proposals discussed within this Advanced Notice of Proposed Rulemaking (ANPRM) are hypothetical in nature. In this sense, OOIDA questions why the Agency has chosen to focus on regulations that may or may not be necessary depending how the technology performs. Most of the questions laid out in the ANPRM are based on assumptions, many of which are nothing more than marketing ploys from ADS developers, rather than actual

safety performance. Currently, it is difficult to fully understand what role AVs will have on the trucking industry. Without more concrete data about how AVs will function and their impact on the industry, our feedback on the ANPRM is generally speculative. As the practical impacts of the technology evolve, so too will our recommendations.

OOIDA is hopeful that the ANPRM will provide some additional information relating to the safety of AVs, especially from companies involved with their development and testing. However, we believe that mandatory data transparency from these manufacturers would be the best way to gather the information necessary to modify the FMCSRs effectively. This would also help educate consumers, the industry, and regulators about the actual reliability of autonomous technology. Unfortunately, the U.S. Department of Transportation's *Preparing for the Future of Transportation: Automated Vehicles 3.0* guidelines reaffirmed a voluntary self-reporting approach as the preferred policy to achieve safety.

As autonomous technology develops, OOIDA is concerned that federal regulators will put on blinders and push for more technology as the answer to the industry's problems without considering the negative impacts of these technologies. Regardless of their potential, it is important to understand the implications that AVs will have on public roadways. Despite the various claims that AVs will lead to zero deaths, there have been real-world situations in which automation has devastatingly failed. While AVs might improve safety under certain conditions, they create new risks with dangerous outcomes. Beyond ensuring that the FMCSRs provide appropriate standards for the safe operation of AVs, FMCSA must consider unforeseen concerns and practices that might offset the potential safety, mobility, and sustainability benefits from the technology.

OOIDA provides the following responses to the questions listed in the ANPRM. Other industry stakeholders can better address any questions that have been omitted.

1. Do the FMCSRs Require a Human Driver?

OOIDA fundamentally disagrees with FMCSA's interpretation that the FMCSRs should no longer assume that the CMV driver is always a human or that a human is present onboard a commercial vehicle during its operation, provided that the vehicle is equipped with a Level 4 or Level 5 ADS and is operating within its Operation Design Domain (ODD) (in the case of Level 4). While FMCSA and most experts acknowledge automated trucks are years away from reality, this proposal may signal that DOT does not value the human driver as a necessary operator in the transportation industry. Given the fact that 3.9 million commercial drivers deliver 70 percent of all freight worth \$11.7 trillion¹ annually while collecting \$700.1 billion in gross revenue², DOT must more fully consider the practical implications that eliminating the human driver from the FMCSRs might have on the economy.

FMCSA must also take into account all the various regulations that require human functionality.

¹ Bureau of Transportation Statistics, *Transportation Statistics Annual Report 2016*, Department of Transportation (2016) pg. 58

² *American Trucking Trends 2016*, American Trucking Association, <http://www.trucking.org/article/ATA-American-Trucking-Trends-2016>

For example, 392.7 requires drivers to inspect the vehicle before they begin driving. While it may be possible for an AV to have sensors that can tell when there is a light out or other potential problems during an initial pre-trip inspection, there are certainly other duties currently required by a human driver while en route. No one is suggesting that an automated truck without a driver can check to make sure emergency equipment (392.8) is ready for use. A driverless truck cannot stop after 50 miles and make sure all cargo securement devices are indeed secure (392.9). Nor can such a vehicle periodically check its load securement devices during the course of transportation (392.9). If drivers have a mechanical problem, they are required to stop on the roadside and place warning devices outside the truck at certain intervals depending on the type of roadway (392.20-392-21). This is just a small sample of the duties and regulations that drivers must obey at the federal, state, and local level, and drivers are given violations for not following them. How will AVs be held to the same standards? Adapting the definitions of “driver” and “operator” to recognize that such terms do not refer exclusively to a human, but may include an automated system, overlooks the countless and necessary functions performed by human drivers on a daily basis.

All of the above regulations were designed to ensure safety for the motoring public. If those required tasks are not based on safety, then they should be removed from the regulations entirely. If they were indeed based on safety, then those regulations and any other regulations requiring actions from the driver must also be applied to AVs.

1.1 Should FMCSA establish a rule that would prohibit an ADS-equipped CMV from operating outside its designated ODD?

FMCSA should prohibit AVs from operating outside the designated ODD, however there could be exceptions in cases of detours, inclement weather, and other unforeseen conditions that CMVs encounter. FMCSA should also consider unexpected maintenance and repair scenarios that can and do happen on any road regardless of whether it falls into the ODD. These exceptions should be mentioned within the defined ODD of individual AV vehicles or fleets.

1.2. What are manufacturers’ and motor carriers’ plans for when and in what way Level 4 and 5 ADS-equipped CMVs will become commercially available?

This will depend on the practicality and performance of AV technology. The vast majority of driving jobs are unlikely to ever be fully automated and the industry is decades from automating jobs in a safe manner.

1.3 Should FMCSA consider amending or augmenting the definition of “driver” and/or “operator” provided in 49 C.F.R. § 390.5 or define a term such as “ADS driver” to reduce the potential for misinterpretation of the requirements?

Yes, there should be a definition for “ADS driver” and/or “ADS operator,” that reflects whatever duties the position will require. However, this definition should be completely separate from the current language in 390.5.

2. CDL Endorsements

OOIDA would support a required CDL endorsement for individuals operating an ADS-equipped CMV. If given additional information from original equipment manufacturers and software developers, FMCSA could better establish uniform knowledge and/or skills tests to adequately assess a CDL holder's understanding of the vehicle's ADS and the specific operating scenarios under which human control may be needed, versus those scenarios where relying solely on the ADS is appropriate. Additionally, FMCSA must consider varying types of endorsements depending on the standards and software for different AVs.

2.1. Should a CDL endorsement be required of individuals operating an ADS-equipped CMV?

Yes, a CDL endorsement should be required. The endorsement should be comprehensive for all automated aspects of the CMV in case of automation failure. A CDL should be initially required with an AV endorsement added, similar to how drivers receive endorsements for longer-combination vehicles.

2.2. If so, what should be covered in the knowledge and/or skills test associated with an ADS endorsement?

Drivers should possess all of the current CDL required knowledge and skills. The ADS endorsement should also cover whatever information is necessary to operate an automated vehicle, including the skills necessary to take back control of the CMV in a safety-critical situation where the ADS disengages. This should include a thorough understanding of all the software systems equipped on the CMV and how to operate the vehicle if the technology malfunctions. The AV endorsement should be specific to the type and/or level of automation as well as the type of software and equipment utilized.

2.4. Should a driver be required to have specialized training for ADS-equipped CMVs?

Yes, again this should be in addition to current training requirements.

2.5. In an operational model that has an individual remotely monitoring multiple CMVs, should the Agency impose limitations on the number of vehicles a remote driver monitors?

Due to various safety and operational concerns, OOIDA opposes the concept of remotely operated CMVs.

If this type of model ever becomes practical, then there should be a limit on the number of vehicles a remote driver can monitor. There should also be contingency protocols in situations when signals between the vehicle and the remote monitor are disrupted.

2.6. Should a dedicated or stand-by remote operator be subject to existing driver qualifications?

Yes, and a remote operator should have additional qualifications since they would not be physically present in the truck and the surrounding environment. The operator would also need

to quickly respond in emergency situations, so they should be equipped with years of driving experience where they have learned crisis management driving skills.

3. Drivers' Hours of Service Rules

There should be a separate set of Hours-of-Service (HOS) regulations for ADS drivers/operators. The specifics of these HOS rules would depend on the role of the driver/operator. At this point, there is insufficient data to determine exactly what duties and functions would be required for an ADS driver/operator.

3.1. Should HOS rule changes be considered if ADS technology performs all the driving tasks while a human is off-duty or in the sleeper berth, or physically remote from the CMV?

Yes, this scenario would fundamentally change the role of a driver and the HOS regulations would need to be restructured. Greater emphasis and flexibility would likely be needed for “on duty, not driving” time, although recent research has indicated that AV operators are more likely to suffer passive fatigue and are more likely to accept the AV data as accurate even in instances when the information is incorrect.

3.2. Should the HOS requirements apply to both onboard and remote operators?

Yes, HOS requirements should still apply to onboard and remote operators. DOT could potentially review the shifts, schedules, and regulations for air traffic controllers as a model for remote operators.

3.3. If so, how should HOS be recorded when an individual is not physically in control of the vehicle?

OOIDA agrees that any time the ADS driver/operator is working and is not responsible for taking control of the vehicle should be considered on-duty, not driving.

4. Medical Qualifications For Human Operators

4.1. Should some of the physical qualification rules be eliminated or made less stringent for humans remotely monitoring or potentially controlling ADS-equipped CMVs?

All medical and physical qualification should be maintained for humans remotely monitoring or potentially controlling ADS-equipped CMVs. The Agency should consider more stringent physical qualifications if an ADS driver/operator is required to frequently move within and around the vehicle.

5. Distracted Driving and Monitoring

5.1. How should the prohibition against distracted driving apply to onboard operators responsible for taking control of the CMV under certain situations, and to remote operators with similar responsibilities?

Distracted driving has been a common factor in recent crashes involving ADS vehicles, *especially* at levels 0-3. In fact, there is a greater probability of distracted driving due to automation bias. How safe would it be to hand the control of a CMV back to a potentially distracted driver? The prohibition against distracted driving should be applied to onboard and remote operators while they are in control of the vehicle and when they are responsible for monitoring the vehicle. As mentioned above, passive fatigue and a tendency to accept erroneous data from the vehicle are unique to AVs. Furthermore, there have been crashes involving AVs where the operator was found to have self-induced distraction, such as reading or personal electronic device. Certainly, this must be a concern and taken into account.

6. Safe Driving and Alcohol Testing

6.1. Should FMCSA consider revising its rules to ensure that (1) any human exercising control of an ADS-equipped vehicle must continue to comply with all the rules under Part 392, and (2) a CMV under the control of a Level 4 or Level 5 ADS must satisfy the operational rules?

Yes, both the human operator and the ADS-equipped vehicle must be able to comply with the operational rules.

6.2. For example, should FMCSA require that the ADS be capable of identifying highway-rail grade crossings and stopping the CMV prior to crossing railroad tracks to avoid collisions with trains, or going onto a highway-rail grade crossing without having sufficient space to travel completely through the crossing without stopping?

Yes, the ADS must be able to identify dangerous scenarios and take appropriate action.

6.3. For scenarios in which the control of the ADS-equipped CMV alternates, or may alternate, between a human and the technology, should FMCSA require that both the human operator and ADS comply with the applicable operational rules?

Yes, FMCSA should require that both the human operator and ADS comply with the applicable operational rules.

7. Inspection, Repair, and Maintenance

7.1. What qualifications should be required of the individual performing the inspection?

Again, it is difficult to determine what qualifications would be required as there is no transparency among the AV equipment manufacturers for the public to know how and why systems work and what would be the common problems to look for. Until there are standards and transparency for these technologies, the qualifications would also be a patchwork of specific manufacturers specifications that they do not have to share. These “technicians” would have to have an almost continuous learning process as there are upgrades and changes on a routine basis.

7.2. What kind of routine or scheduled inspections should be performed and what types of ADS-related maintenance records should be required?

Maintenance records should be kept for every inspection and upgrade performed. These should be audited on a routine basis by the FMCSA.

7.3. Should the inspection period be more frequent than annual for an ADS-equipped CMV?

Inspections should be more frequent as upgrades and changes seem to be the norm for electronic equipment.

7.4. Should inspections be mileage-based or time-based (e.g., 1,000 miles, 3 months or 1,000 hours of operation)?

Both. Since AVs will supposedly be able to stay on the road longer, there is little opportunity or incentive to stop and make sure systems are operating as intended.

8. Roadside Inspections

8.1. Should motor carriers be required to notify FMCSA that they are operating Level 4 or 5 ADS-equipped CMVs?

Yes, Level 4 or 5 ADS-equipped CMVs should be registered with FMCSA.

8.2. If so, how should the carrier notify FMCSA?

This should be specified when initially applying for operating authority and a USDOT number.

8.3. Should FMCSA require markings identifying the ADS Level of a vehicle?

There should be clear markings placed on any AV so that other drivers will be aware that an autonomous truck is operating. The markings should also indicate the ADS level of the vehicle.

8.4. Should the Agency require motor carriers to utilize ADS-equipped CMVs that have a malfunction indicator?

Yes, malfunction indicators should be required to alert motor carrier maintenance personnel, as well as Federal and State enforcement officials, whether the ADS is fully operational or in need of repair.

8.5. Should the Agency require that motor carriers deploying ADS-equipped CMVs ensure the vehicle can pull over in response to Federal and State officials or move out of the way of first-responders?

Yes.

8.6. How might that be achieved, and at what cost?

Technology developers must ensure that AVs can pull over in response to enforcement personnel and first-responders. This should be a basic function of the vehicle, no matter the cost.

9. Cybersecurity

9.1. What types of safety and cargo security risks may be introduced with the integration of ADS-equipped CMVs?

As more technology is integrated into CMVs and their autonomy increases, the opportunity for cyberattacks will escalate. In recent years, there have been notable attacks against the transportation industry, including AP Moller-Maersk, which shut down the Port of Los Angeles and affected some of FedEx's facilities. Attacks like those on AP Moller-Maersk, the world's largest container shipping line, indicate that the transportation industry is a target. Such disruptions in the trucking industry would have disastrous consequences. Additionally, as demonstrated in the successful hacking of an autonomous truck in Michigan³, there is a credible concern that ADS-equipped CMVs could be used as weapons by malicious actors.

Because autonomous trucks will not have a driver to constantly watch their surroundings and report suspicious activity, regulations must be established that require manufactures to prioritize cybersecurity concerns. Commercial trucks haul everything from top-secret military equipment to deadly chemicals that could cripple a city. Currently, drivers can address cargo securement and cargo shifting while en route, so an AV must also be able to recognize potentially dangerous situations.

9.2. What types of rules should FMCSA consider to ensure that motor carriers safety management practices adequately address cybersecurity?

Automated driving systems rely on a wide array of sensors, electronics and computer systems. Since these automated trucks may be traversing our nation's infrastructure, it is imperative that these systems be protected from unauthorized access, malware, criminal hijacking or anything that would compromise safety and security.

We believe a multilayered approach would best serve the motoring public and that comprehensive protocols should be established:

1. A prioritized, risk-based identification and protection process for safety-critical vehicle control systems.
2. Timely detection and rapid response to potential vehicle cybersecurity incidents on America's roads.
3. Architectures, methods, and measures that specialize in cyber resiliency and facilitate rapid recovery from incidents when they occur.

³http://www.salon.com/2016/08/03/as_era_of_autonomous_trucking_arrives_michigan_researchers_prove_how_easy_it_is_to_hack_trucks/

4. Methods for effective intelligence and information sharing across the industry to facilitate quick adoption of industry best practices. The Motor Carrier Safety Advisory Committee should be utilized to vet and assist the Agency with cybersecurity awareness and collaboration across the trucking and passenger carrier industries.

10. Confidentiality of Shared Information

10.1. As the development of ADS technology continues, the Agency believes there is a need to learn about the performance limitations of these systems. FMCSA draws a distinction between information about performance limitations (e.g., how well does the ADS keep the vehicle in its lane and under what environmental conditions, etc.) and details about the system design (e.g., the specific types of sensors, or the arrays of sensors and cameras used for input to the central processing unit for the ADS). To what extent do ADS developers believe performance data should be considered proprietary and withheld from the public?

OOIDA supports mandatory safety reporting and performance assessments from ADS developers. Consumers, industry, and regulators must be fully informed of the actual reliability of autonomous technology. Safety reports from technology developers should be mandatory before large truck and passenger-car drivers are asked to share the road with AVs. OOIDA members are small operators and often rely on used trucks, and they typically repair and maintain their trucks themselves. Without full disclosure of how the truck operates, the owner-operator would be at a severe disadvantage in driving safely and efficiently as well as performing general maintenance on their vehicle.

The potential introduction of AVs on the nation's highways invites more questions than answers. As FMCSA determines how to ensure that the Federal safety regulations provide appropriate standards for the safe operation of these vehicles from design and development through testing and deployment, OOIDA believes necessary changes must be made to the FMCSRs, including autonomous training, licensing, and separate vehicle markings. However, until there is more substantive data available about the practical impacts that autonomous technology will have on the trucking industry, it will be difficult to speculate how the FMCSRs should best be modified. Beyond providing appropriate standards for the safe operation of AVs, FMCSA must consider unforeseen concerns and practices that might offset the potential safety, mobility, and sustainability benefits from the technology.

Thank you,



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