

July 22, 2019

Mr. Raymond P. Martinez
Administrator
Federal Motor Carrier Safety Administration
U.S. Department of Transportation
1200 New Jersey Avenue SE
Washington, DC 20590

Re: Docket No. FMCSA-2018-0037, "Safe Integration of Automated Driving Systems-Equipped Commercial Motor Vehicles"

Dear Administrator Martinez:

The American Association of State Highway and Transportation Officials (AASHTO) is pleased to provide comments on the Federal Motor Carrier Safety Administration's "Safe Integration of Automated Driving Systems-Equipped Commercial Motor Vehicles" Advance Notice of Proposed Rulemaking (Docket Number FMCSA-2018-0037), issued on May 28, 2019. Representing all 50 states, the District of Columbia, and Puerto Rico, AASHTO serves as a liaison between state departments of transportation and the federal government.

AASHTO and the state DOTs appreciate USDOT's continued leadership to help clear the way for the safe and timely adoption of automated vehicles. While there is the potential to improve transportation efficiency and goods movement with automated vehicles, the top priority for AASHTO and the state DOTs is the safety associated with the implementation of automated vehicles. Safety has been, and will remain, at the forefront of AASHTO's policy goals as state DOTs have the primary responsibility for the safe and efficient movement of people and goods on our nation's highways and streets.

AASHTO's attached comments include recommendations from state DOTs on the safe, efficient and practical deployment and use of automated driving systems-equipped commercial motor vehicles. While state DOTs do not have jurisdiction over the design of vehicles or the complex systems embedded on the vehicles, these vehicles will eventually operate on the infrastructure owned and operated by the state DOTs. It is our belief that both the infrastructure and the vehicles will likely include some type of connected vehicle infrastructure applications which will tie into the automated driving systems. Thus, it is important that FMCSA and USDOT keep in mind a broader perspective of the future that will include both connected and automated commercial motor vehicles.

We appreciate the opportunity to provide these comments and look forward to working with FMCSA on the development of the safe integration of automated driving systems-equipped commercial motor vehicles. If you would like to discuss the issues raised in this letter, please contact Avital Barnea, AASHTO's Program Manager for Freight, at (202) 624-8815.

Sincerely,

A handwritten signature in black ink, reading "Carlos M. Braceras". The signature is written in a cursive style with a large, prominent initial "C".

Carlos M. Braceras, P.E.

President, American Association of State Highway and Transportation Officials
Executive Director, Utah Department of Transportation

Comments on Questions in the ANPRM

1. Do the FMCSRs require a human driver?

FMCSA should consider establishing enforcement protocols with relevant state and local law enforcement agencies. ADS-equipped vehicles would likely need to report positional information to a secure government database that could alert FMCSA, carriers, and law enforcement when vehicles deviate from their ODD. FMCSA could be responsible for overseeing and managing the system. The system should be able to flag vehicles violating their ODD as “out-of-service,” and there should be repercussions for repeat offenders.

49 CFR 390.5 defines a driver as “any person who operates any commercial motor vehicle.” FMCSA should consider adding a term defining ADS drivers as those operating CMVs with SAE Level 4 or 5 automation. This would make it easier to make changes to CDL, HOS, and other regulations as needed for drivers operating highly or fully autonomous CMVs. A clear definition would help differentiate ADS drivers from those operating CMVs with driver assistance aides available with lower levels of automation.

2. Commercial Driver’s License (CDL) Endorsements

There should be a CDL endorsement for individuals operating an ADS-equipped CMV just as there is for operating a CMV with air brakes or for driving a school bus. Because ADS technology is responsible for critical safety functions, an operator must understand the limits of said technology. It is impractical to require a new endorsement each time a new technology is released, so careful consideration must go into developing required ADS testing and training.

Operators should be aware of the limits of different types of ADS technologies and understand how to comply with operational laws and regulations, especially as it relates to safety. There are many factors regarding knowledge and skills testing that should be taken into account. More research and discussion is needed to determine which criteria should be included in curriculum and testing standards. Also, consider whether the testing would be conducted by the state or by a third party.

SDLAs would need to develop new training curriculums and testing procedures to educate and evaluate perspective endorsement holders. Evaluators and driver education teachers would need extensive training on ADS technology, laws, and limitations. The curriculum and testing procedures should come from FMCSA and AAMVA.

Drivers should have the training necessary to operate an ADS-equipped CMV safely. This could come from state training manuals, driver education courses, and manufacturer-specific training if necessary. The new training curriculum would need to be completed and approved before a driver could be tested to add the new endorsement.

The agency should evaluate and limit how many vehicles a single individual can remotely monitor. Many trucking companies have more trucks than one individual could manage. Future research and comments from manufacturers, carriers, and transportation agencies could be used

to determine the number of vehicles an individual can safely monitor at one time. Oversight and enforcement procedures would also need to be researched and discussed. The agency may wish to develop an oversight system similar to the air traffic control system, where many people each oversee a portion of the vehicles entering a designated area. FMCSA may wish to look to the FAA for initial guidance on this issue.

A stand-by operator should always be certified to operate a truck manually. Earning a commercial vehicle driver license does not require extensive formal training and experience, so this requirement should not be too much of a burden on carriers. Further research may be needed to determine which credentials should be required for a remote operator.

3. Drivers' Hours of Service (HOS) Rules

HOS rule changes should be considered based on recommendations of scientific studies evaluating rest periods for ADS-equipped CMV operators. Until the science is fully understood, each operator's hours should be counted as on-duty when he or she is performing any company duties.

HOS requirements should be required for both onboard and remote operators because of the safety-critical nature of their work. Carriers using remote operators will benefit from the ease at which they can change them out after each shift.

Operators should be considered on-duty whenever they are conducting any company business in the same way that conventional CMV operators log their hours. Any time spent not engaged in controlling, monitoring, inspecting, or loading a CMV should count as on-duty time. Time spent resting in the truck cab without monitoring vehicle operations should count as off-duty time just as it is for team drivers today.

4. Medical Qualifications for Human Operators

Physical qualification rules should be reevaluated and amended for humans remotely operating ADS-equipped CMVs to reflect the physical demands of their work environment. For example, if a person who uses a wheelchair can still operate the remote control system, there should not be a regulation preventing them from doing so.

Requirements related to physical mobility other than what is needed to operate the remote control system should be amended to reflect the nature of the work and be more inclusive. This is also likely required under other state and federal disability legislation.

Requirements surrounding the physical operations of a vehicle should be reevaluated and amended as needed. Physical requirements for other driving tasks like inspecting and securing cargo should stay in place.

5. Distracted Driving and Monitoring

Onboard and remote operators that could be responsible for taking control of a vehicle at any time should be required to be free of distractions during their duty period. Distraction laws

should be less restrictive for operators when vehicles are operating within its ODD, and there is no situation when a human will have to suddenly take control, such as a level 4 CMV operating on a limited access highway.

6. Safe Driving and Drug and Alcohol Testing

The human operator should be required to follow the rules under Part 392. There are no safety benefits to the public for doing otherwise. Drug and alcohol-free work zones should still apply even if the driver is not always in full control of the vehicle. Additionally, the human operator may be responsible for other tasks that an ADS system could not perform, such as inspecting cargo. FMCSA should require that the ADS be capable of identifying and stopping at highway-rail grade crossings until such time that confidence in the technology and from the public is appropriate to do otherwise.

SAE Level 4 ADS-equipped CMVs should not be required to be able to comply with all of the rules in Part 392 but should have a way to alert the driver when they need to perform tasks such as stopping at grade crossings, because the driver may not be paying attention at the time. SAE Level 5 ADS-equipped CMVs should be able to comply with all the same rules as a conventional human operator.

7. Inspection, Repair, and Maintenance

Requirements for individuals performing pre-trip inspections should be the same as they would be for those inspecting a conventional CMV, but they should have additional training in diagnosing ADS systems. ADS systems will likely have unique maintenance and inspection requirements that vary between manufacturers.

Routine and scheduled inspections should be performed in accordance with manufactures recommendations and include functionality and computer diagnostics testing. Inspections and regulations should extend to all ADS equipment, including remote operating systems not physically on board the CMV. Results should be stored by the carrier and be made accessible by regulators during inspections. When critical safety equipment is compromised, this data should be sent to regulatory authorities and be inspected by relevant authorities before the CMV is allowed back in service. FMCSA should evaluate whether or not to mandate that diagnostic information be sent automatically to manufactures, so they could detect trends, provide software patches, and issue recalls as needed. This question will require more research and discussion, especially given the complexity of ADS technology. The state would likely look to FMCSA and industry experts for ADS-related inspection requirements. Existing pre-trip inspection requirements, looking for leaks, tire damage, etc., should remain the same as they are today.

Inspection periods should be more frequent because of the critical safety functions trusted to the ADS system.

Inspection intervals should be based on time (equipment hours) to reflect that CMVs operating in congested areas will see more wear per mile than they would otherwise. Time-based maintenance is the standard for all other freight modes.

ADS systems, just like brake systems, are responsible for critical safety functions. FMCSA should impose strict general requirements for personnel inspecting them. The agency should also consider requirements for equipment and inspectors not physically on board the CMV. This could include remote monitoring equipment and the technicians who service it.

FMCSA could require manufacturers to register software updates with the agency and/or relevant state organizations and require wireless technology be built into each vehicle to report whether or not they have installed the update. Carriers who fail to install an update within a specified period could be automatically, warned, cited, or, if the update is critical enough, have their CMVs flagged as out-of-service and remotely disabled. The reporting system would also need to be able to track out-of-service time for CMVs with critical safety malfunctions. Enforcement personnel could use the system to ensure these vehicles are kept off the road and to enforce repercussions for repeat offenders. More research is needed to determine the most effective way to ensure and enforce compliance.

8. Roadside Inspections

Motor carriers should be required to notify FMCSA which SAE levels each vehicle in their fleet is capable of to ensure that safety regulations are being followed.

The motor carrier should notify FMCSA about the SAE level through the same process that they currently register their CMVs.

FMCSA should require standardized markings indicating the ADS level clearly in several conspicuous locations on all sides of the truck and trailer to make it easier for enforcement personnel to enforce current and future regulations. For example, an officer following an ADS-equipped truck from behind would otherwise have no way to tell it apart from a conventional truck.

ADS-equipped CMVs should have visual and audible indications to show if they are malfunctioning regardless of whether or not a human operator is aboard. This would be especially important if a situation were to arise where a remote operator loses communication with the CMV. The visual and audible malfunction warning system should be required to be in place inside the cab, remote operating station, and in several conspicuous locations around the truck and trailer to alert law enforcement and other motorists. There will need to be some sort of threshold for how severe a malfunction must be to trigger the exterior warning systems, so patrol officers are not overburdened.

All vehicles must be able to pull over and yield to emergency vehicles in accordance with state and federal laws. There are currently no exceptions for ADS-equipped CMVs.

The technology needed for this type of detection already exists and is implemented across the country to allow emergency vehicles to pre-empt traffic signals. There are several types of detection in use today, including GPS, infrared, and others. The type of signal devices used by emergency vehicles varies between local jurisdictions so an ADS system would need to be able to work with all types of transponders used in their ODD.

An alert could be sent by the onboard diagnostics system out over vehicle-to-vehicle and vehicle-to-infrastructure communication systems to alert patrol officers to the problem. This technology should be supplemented by visual and audible warning systems located in several conspicuous locations on the outside of the truck and trailer to supplement the communication system and warn other drivers.

ADS-equipped CMVs should be able to communicate with weigh station bypass systems and software. There should be some way for authorities to communicate with ADS operators when the vehicles need to pull in for a safety inspection. Enforcement systems and personnel should be able to call these CMVs into an inspection area as needed.

There must be some type of standardized warning system. An alert could be sent by the onboard diagnostics system out over vehicle-to-vehicle and vehicle-to-infrastructure communication systems to alert patrol officers to the problem. This technology should be supplemented by visual and audible warning systems located in several conspicuous locations on the outside of the truck and trailer to supplement the communication system and warn other drivers.

ADS-equipped CMVs should be able to communicate with weigh station bypass systems and software. There should be some way for authorities to communicate with ADS operators when the vehicles need to pull in for a safety inspection. Enforcement systems and personnel should be able to call these CMVs into an inspection area as needed.

9. Cybersecurity

Safety and security risks would likely stem from someone hacking the system and taking control of the truck to either use it as a weapon, steal its cargo, or smuggle illegal materials. Cargo theft and planting explosives on a truck would be easier with no driver around to patrol the vehicle.

Rules should be established that would ensure beyond a reasonable doubt that the system could not be controlled by someone other than the truck's legitimate operator or a law enforcement officer. FMCSA should test and evaluate security protocols directly from the manufacturer before the technology is deployed and periodically throughout the life of the product. Motor carriers should inspect and report security system status through the same process as all other ADS equipment.

10. Confidentiality of Shared Information

No comment.