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August 28, 2019

The Honorable Raymond P. Martinez
Administrator
Federal Motor Carrier Safety Administration
1200 New Jersey Avenue, SE
Washington, DC 20590

Re: Advance Notice of Proposed Rulemaking, *Safe Integration of Automated Driving Systems-Equipped Commercial Motor Vehicles*, Docket No. FMCSA-2018-0037

Dear Administrator Martinez,

Waymo appreciates the opportunity to provide these comments in response to the above-referenced Advance Notice of Proposed Rulemaking on the *Safe Integration of Automated Driving Systems-Equipped Commercial Motor Vehicles* (the "ANPRM"). Waymo commends the Federal Motor Carrier Safety Administration ("FMCSA" or the "Agency") for beginning a regulatory process aligned with the policy principles outlined in *Preparing for the Future of Transportation: Automated Vehicle 3.0* ("AV 3.0"). As AV 3.0 notes, "[t]he best way to accomplish FMCSA's core mission of reducing fatalities and crashes involving large trucks and buses is to avoid unnecessary barriers to the development of [automated driving systems ("ADS")] in commercial vehicles" (8). The ANPRM demonstrates the Agency's commitment to avoiding unnecessary barriers and enabling the safe development and deployment of ADS-equipped commercial motor vehicles ("CMVs").

The ANPRM reiterates the Agency's position that existing Federal Motor Carrier Safety Regulations ("FMCSRs") do not require a human driver and that the Agency will not read the FMCSRs in a manner that assumes "that a human is present on board 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 [operational design domain ("ODD")] (in the case of Level 4)."¹ Waymo commends the Agency for confirming that current regulations do not require a human driver in those circumstances. As discussed further below, we encourage the Agency to codify a statement to that effect in the regulations.

Waymo appreciates the Agency's focus in this ANPRM on removing barriers to driverless, Level 4 and 5 ADS-equipped CMVs. As noted in the ANPRM:

¹ ANPRM at 24453.

Generally, FMCSA does not believe there is a need to revise the FMCSRs to accommodate the integration of Levels 1-3 equipment because a licensed CMV operator must be present at the controls of the vehicle at all times. FMCSA's driver-related rules would thus apply. The Agency reminds interstate motor carriers of their responsibility for having safety management controls in place to ensure the safe operation of such ADS-equipped CMVs, in full compliance with the applicable safety requirements. For example, for drivers of CMVs at Levels 1-3 (and obviously at Level 0) the Agency's CDL, controlled substances and alcohol testing, physical qualifications, driver distraction, and HOS rules would be applicable.²

We encourage the Agency to maintain this point of view and concentrate on enabling driverless, Level 4 and 5 CMV operations.

In considering all of the specific topics outlined in the ANPRM, we encourage the Agency to preserve as much of the existing FMCSRs as possible. This approach will enable the Agency to efficiently facilitate the deployment of driverless ADS-equipped CMVs, while continuing to achieve its safety objectives. As described further below, we believe that a few simple revisions to the FMCSRs could resolve most of the questions raised in the ANPRM. There are, however, a few regulations, identified below, that may need substantive review and amendment to better accommodate driverless ADS-equipped CMVs.

I. Waymo's Trucking Program

At Waymo, our mission is to make it safe and easy for people and things to move around. Improving road safety is at the heart of Waymo's mission and culture, and it informs every decision our company makes. Indeed, building technology that could help reduce traffic fatalities is what motivated the start of our development in 2009, when we were founded as the Google self-driving car project. Since then, we have spent a decade on research and development. All of our vehicles are put through an extensive safety and testing program.

Our light passenger vehicles have self-driven over ten million miles across more than 25 U.S. cities, and we have simulated more than ten billion miles of self-driving in our virtual world. Since 2017, Waymo has provided rides to thousands of individuals in metro Phoenix in our ADS-equipped Chrysler Pacifica plug-in hybrid minivans. In late 2018, we launched Waymo One, our self-driving ride-hailing service.³

While our initial focus has been on making it safe and easy for people to move around, we have increasingly turned our attention to moving goods. In 2017, Waymo began testing our self-driving system in Class 8 trucks in Arizona and California,⁴ where we continue to test today, with a fully-trained driver behind the wheel. In early 2018, we completed a pilot

² ANPRM at 24451.

³ For more information about Waymo's safety and testing program, see the Waymo Safety Report (the first voluntary safety self-assessment submitted to the U.S. Department of Transportation) available at <http://waymo.com/safety>.

⁴ Due to California law, our vehicles operated with Level 2 driving automation in California.

program with Google in Georgia, moving goods for Google's data centers. Our growing trucking team is focused on building a Level 4 ADS for Waymo's Class 8 trucks, leveraging the technology and experience we have developed with light-duty vehicles. Our trucking experience to date has given Waymo real-world experience in applying and complying with the FMCSRs, including those related to vehicle inspections and driver fitness.

II. Codifying the Principle that FMCSRs Do Not Require a Human Driver at Levels 4 or 5

Both the ANPRM and AV 3.0 state that the Agency will not read the FMCSRs to require or assume the presence of a human driver onboard a CMV operated by an ADS at Level 4 or 5 and within its ODD. To solidify this interpretation, we urge the Agency to codify a statement to that effect in the regulations. For example, in § 390.3 (General Applicability), the Agency could add a new subsection along the following lines: "The rules in subchapter B of this chapter shall not be interpreted or construed to require that a commercial motor vehicle is driven by a human driver or that a human driver is physically present in the vehicle, provided that the vehicle is controlled by an automated driving system operating with Level 4 or 5 functionality within its operational design domain."

III. Defining Human Roles in ADS-Equipped CMV Operations and Application of Driver Fitness Requirements

The ANPRM asks a number of questions about how the regulations should define the term "driver" and who or what should be subject to requirements currently applied to onboard human drivers (e.g., hours of service, physical qualifications, etc.). The comments in this section: (1) provide a proposed set of terms to describe potential human roles in the operations of ADS-equipped CMVs; (2) suggest clarifying the definition of "driver" to include only human drivers (onboard or remote); and (3) suggest that the existing requirements for driver fitness (e.g., hours of service, physical qualifications, etc.) should apply only to human drivers.

1. Terminology for Human Roles in ADS-Equipped CMV Operations

Throughout the ANPRM, a number of questions address how the Agency should regulate humans who operate or support the operations of ADS-equipped CMVs. While specific duties may vary with system designs and carriers, the essential line to draw is between humans who can control the dynamic driving task ("DDT") for the vehicle and those who cannot. As described in the June 2018 version of SAE J3016, *Taxonomy and Definitions for Terms Related to Driving Automation Systems for On Road Motor Vehicles* ("SAE J3016"), an individual who "performs in real-time part or all of the DDT and/or DDT fallback for a particular vehicle" is a "driver," whether she sits at the controls or in a remote location.⁵

⁵ SAE J3016 distinguishes a "conventional driver" (who "manually exercises in-vehicle braking, accelerating, steering, and transmission gear selection input devices") from a "remote driver" ("A driver who is not seated in a position to manually exercise in-vehicle braking, accelerating, steering, and transmission gear selection input devices (if any) but is able to operate the vehicle").

To distinguish between the different roles humans play in the operations of ADS-equipped CMVs, we suggest the following terms and definitions (which we will use throughout the remainder of these comments):

- Onboard Human Driver: Human who manually exercises in-vehicle braking, accelerating, steering, and transmission gear selection input devices (if any) to perform a part or all of the dynamic driving task for the vehicle.
- Remote Human Driver: Human person not seated in a position to manually exercise in-vehicle braking, accelerating, steering, and transmission gear selection input devices (if any), but who otherwise performs a part or all of the dynamic driving task for the vehicle.
- Onboard Technician: Human person onboard the vehicle who will not at any point during a trip⁶ be called upon or expected to perform any portion of the dynamic driving task.
- Remote Assistant: Human person not physically present in the vehicle who monitors or provides assistance to the ADS installed on an ADS-equipped vehicle, but does not have the means to perform the dynamic driving task for the vehicle. For example, this term would include a human person who does not actually control longitudinal or lateral movement of the vehicle, but who otherwise provides information or advice to the ADS-equipped CMV when it encounters a unique or challenging situation or who proposes a new path to the ADS to guide the vehicle as it self-drives around an obstacle.

2. Definition of “Driver”⁷

The ANPRM asks how the Agency might amend the definition of “driver” in 49 CFR 390.5 or otherwise reduce the potential for misinterpretation. We suggest amending the definition of “driver” to mean “any human person who operates any commercial motor vehicle.” Both Onboard and Remote Human Drivers would and should fall within the scope of this definition.

Throughout the FMCSRs, the term “driver” appears hundreds of times. In those instances, clarifying that a “driver” is a human driver would resolve ambiguity and make clear that the regulation applies only to human drivers. As discussed further below, the requirements that reference or apply to “drivers” today should continue to apply only to human drivers, and not to ADS or ADS-equipped vehicles without human drivers. The simple amendment to the “driver” definition suggested above will clarify that those requirements only apply to human drivers (Onboard or Remote).

⁶ SAE J3016 defines “trip” as “[t]he traversal of an entire travel pathway by a vehicle from the point of origin to a destination.” Section 3.27.

⁷ This section responds to ANPRM question: 1.3. *Should FMCSA consider amending or augmenting the definition of ‘driver’ and/or ‘operator’ in 49 CFR 390.5 or define a term such as “ADS driver” to reduce the potential for misinterpretation of the requirements?*

While this clarification in the definition of “driver” will resolve ambiguity about the meaning of that term, there are a few provisions where, in addition, simple, surgical amendments could help in clarifying how the provision would apply in the case of a driverless ADS-equipped CMV. In the Appendix (see *attached*), we have provided some examples of simple revisions the Agency could make.

We do not suggest adding new concepts (e.g., ADS or ADS-equipped vehicle) to the definition of “driver,” because doing so may create a structure where the term has different meanings, depending on the context.⁸ This could lead to confusion, or to more amendments being made to the FMCSRs than necessary. To the extent the Agency decides to add a requirement that applies specifically to an ADS or ADS-equipped vehicle, that change can be made by inserting new language directly into the relevant provisions.

It is important to note, however, while an ADS would not be a “driver” under the regulations (and, consequently, the FMCSRs directly applicable to drivers would not cover the ADS), the regulations should be interpreted with the understanding that a CMV may be “driven” or “operated” by an ADS. For example, 49 CFR 396.7 provides that a “motor vehicle shall not be operated in such a condition as to likely cause an accident or a breakdown of the vehicle.” This provision would apply equally to human-operated and ADS-operated vehicles.

3. Driver Fitness Requirements⁹

A number of questions raised in the ANPRM ask about how the Agency should apply driver-related requirements to individuals involved in operations of ADS-equipped CMVs. This question arises in the context of Commercial Driver Licensing (Section 2), Hours of Service

⁸ Moreover, because operation of a vehicle by the ADS with no driver is considered “driverless” operation, including the ADS within the meaning of “driver” could sow confusion about the meaning of that term.

⁹ This section responds to the following questions:

- 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?*
- 2.6. *Is there any reason why a dedicated or stand-by remote operator should not be subject to existing driver qualifications?*
- 3.1. *Should HOS rule changes be considered if ADS technology performs all the driving tasks while a human is on-duty, not driving; off-duty or in the sleeper berth; or physically remote from the CMV?*
- 3.2. *Should the HOS requirements apply to both onboard and remote operators?*
 - 3.3. *If so, how should HOS be recorded when an individual is not physically in control of the vehicle?*
- 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?*
 - 4.2. *If so, which of the requirements should be less restrictive for human operators who would take control of an ADS-equipped CMV remotely?*
- 4.3. *Should the Agency consider less restrictive rules for humans who have the benefit of ADS technology to assist them in controlling the vehicle (e.g., technologies that would enable individuals with limb impairments to operate at a level comparable to individuals without such impairments)?*
- 5.1. *How should the prohibition against distracted driving (i.e., texting, hand-held cell phone) apply to onboard operators responsible for taking control of the CMV under certain situations, and to remote operators with similar responsibilities?*

(Section 3),¹⁰ Medical Qualifications (Section 4), Distracted Driving (Section 5), and Controlled Substance and Alcohol Testing (Section 6). Consistent with the Agency's initial positions stated in these sections, Waymo believes that any human who has responsibility for taking control or who drives or operates an ADS-equipped CMV on public roads should be subject to these driver-related requirements. Thus, Onboard Human Drivers and Remote Human Drivers should be subject to all of the existing driver-related requirements. Any individual who might control the driving of an ADS-equipped CMV must be fit to do so, whether located onboard the CMV or in a remote location. This principle applies equally to all CMVs regardless of its level of driving automation, including those equipped with a Level 3 ADS or lower-level driving automation systems.

Beyond complying with existing driver-related requirements, Waymo also requires our Onboard Human Drivers to complete additional training and instruction tailored to our ADS technology.¹¹ This training includes both classroom and behind-the-wheel instruction (initially on a test track, then on public roads) with trained instructors, during which trainee-drivers learn about: our self-driving hardware and software, how to engage and disengage the technology, defensive driving and evasive maneuvers, emergency procedures, Waymo program policies, and operational best practices. We believe this additional training provides our drivers with information and skills essential for safely operating our vehicles. It would, however, be premature at this time for the Agency to establish prescriptive training program requirements. Training practices and instructional content continue to evolve with the ADS technology, and prescriptive requirements today could quickly become obsolete or unintentionally favor some technologies over others.

In contrast to Onboard Human Drivers and Remote Human Drivers, Remote Assistants do *not* have the means to drive or control the dynamic driving task for an ADS-equipped vehicle and therefore should not be subject to driver-related requirements. Similarly, Onboard Technicians would not be expected to or called upon to take control the dynamic driving task and should thus not be subject to driver-related requirements.

At Waymo, we provide specialized training for Remote Assistants,¹² distinct and separate from our training for Onboard Human Drivers. Because Remote Assistants are never responsible for performing the dynamic driving task for an ADS-equipped vehicle, there is no safety need for maintaining a 1:1 ratio of Remote Assistants to vehicles because the ADS is fully responsible for the dynamic driving task. The ratio will vary depending on the frequency of requests for assistance from vehicles and the nature of the requests. Remote Human Drivers, however, perform remote driving, defined by SAE J3016 as "performance of part or all

¹⁰ As a practical matter, driverless ADS-equipped CMVs may be at times driven by a human driver and at other times driven by the ADS without any expectation that a human driver may intervene. In such arrangements, while the ADS would not be subject to hours of service requirements, carriers may need to log ADS driving time in electronic logging devices. To that end, we suggest: (i) creating a new category of account for ADS, similar to "Exempt Driver" accounts, to indicate clearly that a human driver is not driving at particular times, and (ii) not requiring the human-centric elements of this account (e.g., log-in/log-out, username, legal name, driver's license number, etc.), eliminating the need for an individual human to interact with the telematics system.

¹¹ Waymo does not have such training for Remote Human Drivers because our ADS technology does not incorporate remote driving capabilities, thus we do not utilize Remote Human Drivers.

¹² At Waymo, our Remote Assistants are called "Fleet Response Specialists."

of the DDT and/or DDT fallback (including real-time braking, steering, acceleration and transmission shifting,”¹³ for the ADS-equipped vehicle. Like Onboard Human Drivers, Remote Human Drivers are responsible for performing the dynamic driving task and remaining available at all times for the handover of control from the ADS. Onboard Human Drivers are not expected to play such a role for more than one vehicle at a time.

To implement this principle that the driver-related requirements should apply only to human drivers, as outlined above, the Agency could: (1) revise the definition of “driver” to include only human drivers, and (2) at the outset of each part of the regulations containing driver related requirements (e.g., Parts 380, 382, 383, 391, 395), insert language clearly stating that the requirements in that part apply only to human drivers and not to ADS or ADS-equipped vehicles. For examples of how this language might look, see the attached Appendix.

IV. Operational and Vehicle-Related Topics

While driver fitness requirements would not come into play where an ADS-equipped CMV operates without a human driver (Onboard or Remote), other regulations and related topics highlighted in the ANPRM could affect driverless operations. This section of our comments provides commentary on the following topics identified in the ANPRM: (1) operational rules, (2) operational design domains, (3) markings identifying ADS-equipped vehicles, and (4) inspections.

1. Operational Rules¹⁴

Part 6 of the ANPRM asks whether and how operational rules in Part 392 should apply in operations of ADS-equipped CMVs. As a general matter, when the ADS operates the vehicle, the ADS should be capable of detecting and responding to roadway conditions in compliance with the rules of the road that apply within the system’s ODD. This includes complying with state and local regulations that require pulling over in response to law enforcement officials or moving out of the way of first responders. In *Automated Driving Systems: A Vision for Safety 2.0* (2017), the U.S. Department of Transportation acknowledged that there are situations where it is safe and appropriate for human drivers and ADS to

¹³ SAE J3016 at 3.25.

¹⁴ This section responds to the following questions:

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

engage in behaviors that conflict with a rule of the road (e.g., crossing a double yellow line to safely pass a broken-down vehicle). The same should be expected for ADS-equipped CMVs.

While most operational rules can and should apply to ADS-equipped CMVs, for vehicles without any human onboard (i.e., no Onboard Human Driver or Onboard Technician) the Agency should consider allowing alternative methods for complying with some requirements, including:

(a) 49 CFR 392.22 requires the driver of a stopped CMV to activate the vehicle's hazard lights and place warning devices around the vehicle. An ADS can activate hazard lights. However, the prescribed method of warning approaching vehicles--placing warning devices in the road--contemplates vehicles with a human onboard to complete these tasks. Similarly, 49 CFR 392.8 requires a driver to "make use of" certain equipment (e.g., fire extinguishers and warning devices) "when and as needed."

(b) 49 CFR 392.9(b) requires a driver to inspect the cargo and securement devices before and during a trip. Although a human could inspect these items prior to a trip, a CMV with no human onboard would not be able to accomplish these tasks during the trip.

We encourage the Agency to provide flexibility so that entities can develop alternative solutions that achieve the safety objectives the current requirements are intended to achieve (e.g., effectively warning approaching vehicles of a stopped CMV and ensuring cargo is secure). A technology-neutral approach would enable entities to evaluate various approaches and adopt the most effective and efficient solutions.

2. Operational Design Domains of ADS-Equipped CMVs¹⁵

The ANPRM asks how the Agency can ensure that an ADS-equipped CMV only operates in a manner consistent with its ODD. Consistent with the SAE J3016 definitions referenced in the ANPRM, we suggest considering a requirement that an ADS-equipped vehicle may only operate with the ADS engaged within its ODD (and as a corollary, that the vehicle must be operated by a human driver or achieve a minimal risk condition if it exits its ODD). In the event of an investigation, the carrier would be responsible for demonstrating that the vehicle operated within its ODD at the relevant time.

The Agency could require, as part of its Part 390 requirements for motor carrier registration and biennial updates to the registration information, that a carrier notify the Agency that it has begun integrating ADS-equipped vehicles in its fleet. That notice could include a

¹⁵ This section responds to the following questions:

- 1.1. Should FMCSA establish a rule that would prohibit an ADS-equipped CMV from operating outside its designated ODD?
- 8.1. Should motor carriers be required to notify FMCSA that they are operating Level 4 or 5 ADS-equipped CMVs?
 - 8.2. If so, how should the carrier notify FMCSA?

certification that the ADS-equipped CMVs will not operate with the ADS engaged outside of their ODDs.

3. Markings Identifying ADS-Equipped CMVs¹⁶

In Section 8, the ANPRM asks about identifying ADS-equipped CMVs. For the foreseeable future, ADS-equipped CMVs will be readily identifiable by the sensors affixed to the outside of the vehicle. Nonetheless, to avoid concern or confusion from the public or law enforcement, we believe an identifying marking on the vehicle may be helpful and, if required in a reasonable manner (e.g., a simple decal on the outside of the tractor), should not impose an undue burden on carriers or manufacturers.

4. Vehicle Inspections¹⁷

Sections 7 and 8 of the ANPRM pose questions about inspections and the condition of an ADS-equipped vehicle. For scheduled inspections, we see no reason for why the frequency should change, and inspectors should look for the same safety issues they do for conventional CMVs.

For daily and pre-trip inspections performed by the CMV driver under current regulations (i.e., 49 CFR 396.11 and 396.13), the Agency should consider clarifying that the inspection may be performed by a non-driver agent of the carrier (see attached Appendix for an example of how this language could be amended). Eventually these inspection duties may be fully automated. For those inspection requirements (e.g., for cargo securement) that apply en route, as discussed above under operational rules, FMCSA will need to consider alternatives for CMVs with no human occupant onboard.

With respect to roadside inspections, in the longer term, a viable solution could be developed that involves a combination of terminal inspections and automated, in-motion inspection of electronic systems. We look forward to participating in discussions about how to further define and refine that kind of approach. In the meantime, to continue enabling deployment of driverless ADS-equipped CMVs, we suggest utilizing two technology-neutral tools: (1) a reliable method for the inspector to communicate with the entity deploying the vehicle (e.g., a 24/7 phone number) to enable the inspector to provide directions and obtain information quickly on any aspect of the vehicle's condition that is not readily observable; and (2)

¹⁶ This section responds to the question: 8.3. *Should FMCSA require markings identifying the ADS Level of a vehicle?*

¹⁷ This section responds to the following questions:

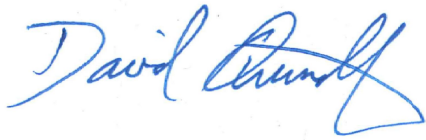
- 7.2. *What kind of routine or scheduled inspections should be performed and what types of ADS-related maintenance records should be required?*
 - 7.3. *Should the inspection period be more or less frequent than annual for an ADS-equipped CMV?*
 - 7.4. *Should inspections be mileage-based or time-based (e.g., 1,000 miles, 3 months or 1,000 hours of operation)?*
- 8.4. *Should the Agency require motor carriers to utilize ADS-equipped CMVs that have a malfunction indicator?*
- 8.7. *How would roadside enforcement personnel know that a vehicle can no longer operate safely?*
- 8.8. *Absent an FMVSS, how could standard indications be provided to enforcement personnel?*

voluntary dialogue between the Agency, relevant state agencies, and carriers, to enable a cooperative, iterative approach.

V. Conclusion

This ANPRM represents an important step in facilitating the deployment of driverless ADS-equipped CMVs. We agree with the Agency that “the integration of ADS-equipped vehicles may provide improvements in transportation safety and the efficient movement of freight and passengers” (ANPRM 16). We appreciate the opportunity to provide these comments, and we look forward to continuing to participate in the Agency’s rulemaking process.

Sincerely,

A handwritten signature in blue ink, appearing to read "David Quinalty". The signature is fluid and cursive, with a large, stylized initial "D".

David Quinalty
Head of Federal Policy and Government Affairs

Appendix

Below we have provided some examples of surgical revisions the Agency could consider making to clarify how these provisions apply to driverless ADS-equipped CMVs. (New text is underlined and ~~text to be struck is in strikethrough.~~)

49 CFR 392.7

(a) No commercial motor vehicle shall be driven unless the driver (or if the vehicle is operated without a driver, the carrier) is satisfied that the following parts and accessories are in good working order, nor shall any ~~driver~~ CMV be driven in a manner that fails to use or make use of such parts and accessories when and as needed: [...]

(b)(1) Drivers preparing to transport intermodal equipment must make an inspection of the following components, and must be satisfied they are in good working order before the equipment is operated over the road. Drivers who operate the equipment over the road shall be deemed to have confirmed the following components were in good working order when the driver accepted the equipment: [...]

(2) If a vehicle is operated without a driver, the carrier is responsible for providing for the inspection of the above components, and must be satisfied the components the ADS will utilize to operate the vehicle are in good working order before the equipment is operated over the road. Carriers who permit the operation of the equipment over the road shall be deemed to have confirmed the above components were in good working order when the carrier accepted the shipment.

49 CFR 392.9

(a) General. No CMV may be operated on public roads ~~A driver may not operate a commercial motor vehicle and a motor carrier may not require or permit a driver to operate a commercial motor vehicle unless --~~

(1) The commercial motor vehicle's cargo is properly distributed and adequately secured as specified in §§ 393.100 through 393.136 of this subchapter.

(2) The commercial motor vehicle's tailgate, tailboard, doors, tarpaulins, spare tire and other equipment used in its operation, and the means of fastening the commercial motor vehicle's cargo, are secured; and

(3) The commercial motor vehicle's cargo or any other object does not obscure the driver's (if any) view ahead or to the right or left sides (except for drivers of self-steer dollies), interfere with the free movement of his/her arms or legs, prevent his/her free and ready access to accessories required for emergencies, or prevent the free and ready exit of any person from the commercial motor vehicle's cab or driver's compartment.

(b) Drivers of trucks and truck tractors. Except as provided in paragraph (b)(4) of this section, the driver of a truck or truck tractor must --

(1) Assure himself/herself that the provisions of paragraph (a) of this section have been complied with before he/she drives that commercial motor vehicle;

(2) Inspect the cargo and the devices used to secure the cargo within the first 50 miles after beginning a trip and cause any adjustments to be made to the cargo or load securement devices as necessary, including adding more securement devices, to ensure that cargo cannot shift on or within, or fall from the commercial motor vehicle; and

(3) Reexamine the commercial motor vehicle's cargo and its load securement devices during the course of transportation and make any necessary adjustment to the cargo or load securement devices, including adding more securement devices, to ensure that cargo cannot shift on or within, or fall from, the commercial motor vehicle. Reexamination and any necessary adjustments must be made whenever --

(i) The driver makes a change of his/her duty status; or

(ii) The commercial motor vehicle has been driven for 3 hours; or

(iii) The commercial motor vehicle has been driven for 150 miles, whichever occurs first.

(4) The rules in this paragraph (b) do not apply to the driver of a sealed commercial motor vehicle who has been ordered not to open it to inspect its cargo or to the driver of a commercial motor vehicle that has been loaded in a manner that makes inspection of its cargo impracticable.

(5) With respect to an ADS-equipped vehicle operated with no driver, the carrier shall be responsible for ensuring that the cargo is secure.

49 CFR 392.12

No ~~driver of a~~ commercial motor vehicle shall be driven onto a highway-rail grade crossing without having sufficient space to drive completely through the crossing without stopping.

49 CFR 392.24

No ~~driver~~ person shall attach or permit any person to attach a lighted fusee or other flame-producing emergency signal to any part of a commercial motor vehicle.

49 CFR 392.25

No ~~driver~~ person shall use or permit the use of any flame-producing emergency signal for protecting any commercial motor vehicle transporting Division 1.1, Division 1.2, or Division 1.3 explosives; any cargo tank motor vehicle used for the transportation of any Class 3 or Division 2.1, whether loaded or empty; or any commercial motor vehicle

using compressed gas as a motor fuel. In lieu thereof, emergency reflective triangles, red electric lanterns, or red emergency reflectors shall be used, the placement of which shall be in the same manner as prescribed in § 392.22(b).

49 CFR 392.60

(a) Unless specifically authorized in writing to do so by the motor carrier under whose authority the commercial motor vehicle is being operated, a commercial motor vehicle that is not a bus shall ~~not be used to no driver shall~~ transport any person ~~or permit any person to be transported on any commercial motor vehicle other than a bus~~. When such authorization is issued, it shall state the name of the person to be transported, the points where the transportation is to begin and end, and the date upon which such authority expires. No written authorization, however, shall be necessary for the transportation of:

- (1) Employees or other persons assigned to a commercial motor vehicle by a motor carrier;
- (2) Any person transported when aid is being rendered in case of an accident or other emergency;
- (3) An attendant delegated to care for livestock.

49 CFR § 396.13

Before driving a motor vehicle, the driver or an agent of a carrier shall:

- (a) Be satisfied that the motor vehicle is in safe operating condition;
- (b) Review the last driver vehicle inspection report; and
- (c) Sign the report, only if defects or deficiencies were noted by the driver who prepared the report, to acknowledge that the driver has reviewed it and that there is a certification that the required repairs have been performed. The signature requirement does not apply to listed defects on a towed unit which is no longer part of the vehicle combination.

While not necessary if the definition of “driver” applies only to human drivers, the Agency could further clarify that driver fitness requirements only apply to human drivers by adding language in relevant applicability sections. For example:

§ 395.1 Scope of rules in this part.

(y) The rules in this part apply only to human drivers and do not apply to ADS-equipped vehicles operating without a human driver.

§ 382.103 Applicability.

(d) The rules in this part apply only to human drivers and do not apply to ADS-equipped vehicles operating without a human driver.