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

Re: Docket No. FMCSA-2018-0037: Request for Comments Concerning Federal Motor Carrier Safety Regulations (FMCSRs) Which May Be a Barrier to the Safe Testing and Deployment of Automated Driving Systems-Equipped Commercial Motor Vehicles on Public Roads.

Uber is pleased to respond to the Federal Motor Carrier Safety Administration's (FMCSA) request for comment (RFC) regarding existing Federal Motor Carrier Safety Regulations (FMCSRs) that may need to be updated, modified, or eliminated to facilitate the safe introduction of automated driving systems (ADS) equipped commercial motor vehicles (CMVs) onto our Nation's roadways. We appreciate FMCSA's timely initiative and collaborative spirit in engaging on these important topics by seeking input from the public and stakeholders, including developers of ADS, to help inform the agency's approach to supporting development and deployment of these important new safety technologies. As a technology company that facilitates the movement of millions of people and goods every day, Uber shares the vision of many policymakers that self-driving vehicles will help to make transportation safer, more efficient, more affordable and more accessible for more people. To facilitate safe testing and integration of ADS into the national trucking fleet, we encourage FMCSA to:

- Confirm that the FMCSRs do not require a human "driver" while underway.
- Support state efforts to serve as testbeds by providing funding and regulatory flexibility.
- Stand ready to consider requests for additional guidance and exemptions as needed.
- Engage with industry to build data and insights to guide eventual rulemakings.

I. Background on Uber Self-Driving Truck Development

Uber Advanced Technology Group (Uber ATG) is developing automated driving systems for both light and heavy vehicles to make vehicle operation safer and more efficient. Uber tests through simulation, private track, and on-road testing in multiple states. Collectively, Uber test vehicles have travelled over 2 million miles with prototype automated driving systems engaged and a professional vehicle operator behind the wheel. For the trucking industry, Uber believes the future involves combining conventional human-driven trucks and self-driving trucks to move freight ever more efficiently across the nation's highway network, and Uber is developing two related products for commercial motor vehicles — a technology-forward freight brokerage (Uber Freight) and automated driving systems for heavy trucks.

Uber is testing CMVs equipped with prototype advanced driver assistance systems (ADAS) as part of its effort to develop fully driverless trucks. All Uber test CMVs have an experienced professional driver with a commercial driver's license (CDL) behind the wheel responsible at all times for on-road safety. Uber's development efforts for CMVs are focussed on highway driving, which is a more constrained domain for operation where the safety and efficiency benefits of automation can be more quickly realized. Uber cooperates closely with state enforcement officials in jurisdictions in which it tests. With months of careful preparation and partnership with Colorado state officials, an Uber test truck pulled the first commercial load carried by self-driving truck (with a human driver onboard) in October 2016.[1] In February 2018, Uber test trucks in Arizona demonstrated a model for delivering loads through a network of self-driving trucks and conventional human carriers, by dividing delivery routes into highway and surface portions and exchanging loads at transfer hubs adjacent interstate highways, with the self-driving trucks covering only an all-highway portion of the route.

Uber's development approach is to build technology that will navigate *existing* infrastructure. We imagine that for the foreseeable future drivers and self-driving vehicles will share the road, and it will take considerable time and investment before connected vehicles and connected infrastructure are ubiquitous. To realize the promise of self-driving vehicles for safety, efficiency, mobility and environmental gains as soon as possible, Uber is working to build vehicles that can navigate *today's* roads and interact safely with *today's* ordinary vehicles driven by members of the public.

[1] Uber acquired Otto, an early leader in developing ADS technology for CMVs. The Colorado demonstration was carried out under the Otto name.

II. Introduction and Summary of Key Recommendations

We were pleased to see publication of a preliminary review by the U.S. Department of Transportation's John A. Volpe National Transportation Systems Center (Volpe) of the FMCSRs to identify regulations that may relate to the development and safe introduction of ADS (Volpe Report).[2] Commissioning this review represents an important step by FMCSA toward identifying regulatory areas that require interpretive attention and may require update as ADS are integrated into the CMV fleet. We agree with the Volpe Report that the FMCSRs do not expressly require a human "driver"[3] while a vehicle is underway, and believe that, addressed on a provision-by-provision basis, the rules can accommodate initial safe integration of ADS through regulatory interpretations, depending on FMCSA's approach.

ADS-equipped trucking is in its infancy. In the long run, updates to the FMCSRs will be needed as the technology and operations scale, and FMCSA should undertake the reviews and evidence development needed to support thoughtful updates to its rules. In the near term, FMCSA can support safe testing and initial integration of ADS through guidance and exemptions as needed, while preserving flexibility for developers, manufacturers and carriers to explore a variety of technology, operational and business approaches. To this end, we encourage FMCSA to:

- Confirm that the FMCSRs do not require a human "driver" while underway.
- Support state efforts to serve as testbeds by providing funding and regulatory flexibility.
- Stand ready to consider requests for additional guidance and exemptions as needed.
- Engage with industry to build data and insights to guide eventual rulemakings.

Further, given the pace of technology development, we believe FMCSA must prepare for fully driverless operation of some CMVs. Advances in automation will not necessarily be incremental. In light vehicles, multiple companies are presently seeking permission to test fully driverless vehicles on California roads.[4] While all Uber road test vehicles are manned, Uber is developing CMVs that will not rely on a human as an emergency fallback. The future will involve both human-driven and driverless trucks playing complementary roles, with driverless trucks specialized for certain tasks (such as long haul highway driving).

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[2] "Review of the Federal Motor Carrier Safety Regulations for Automated Commercial Vehicles: Preliminary Assessment of Interpretation and Enforcement Challenges, Questions, and Gaps," Volpe report number MCSA-RRT-17-013, August 2017.

[3] Volpe Report at 36 ("In its review of the FMCSRs, the Volpe Center did not encounter specific language that explicitly requires a CMV to have a human driver present in the vehicle while underway.").

[4] "Second company applies for driver-free autonomous car permit," Curbed San Francisco, 30 April 2018, available at https://sf.curbed.com/2018/4/30/17303652/driverless-car-autonomous-permit-second-company.

The distinction between human-driven and driverless vehicles is critically important to interpreting application of the FMCSRs and assigning responsibilities under the rules. This RFC is focussed on Society of Automotive Engineers (SAE) automation levels 3 through 5.[5] Level 3 automation *always* require a human driver to provide safety assurance and therefore is best grouped with levels 1 and 2 for analysis. Vehicles operating with a level 4 or 5 automated driving system engaged *never* require a driver within their operational design domain (ODD), even if a human may be onboard. As FMCSA considers the path ahead, clearly distinguishing systems that rely on a human driver from those that do not will prevent conceptual and practical confusion about application of rules.

As ADS are integrated into the CMV fleet, FMCSA will play an important role in monitoring carrier safety and building the evidence base for standardized national rules for ADS-equipped CMVs. FMCSA receives collision, inspection, and safety information for carriers across the country. This data will provide an important baseline for FMCSA to track carrier performance as ADS-equipped CMVs are gradually integrated into the national fleet. FMCSA should work with developers, manufacturers, carriers, state enforcement partners and other stakeholders to build expertise and data based on the learnings of early adopter states. In support, FMCSA should stand up a robust system for ensuring confidential business information is protected to deepen communication with industry. We encourage FMCSA and NHTSA to work closely to ensure that approaches do not conflict, particularly regarding eventual development of standards for ADS-equipped vehicles. Further, FMCSA and NHTSA might encourage the convening of industry and safety experts to identify possible test scenarios and discuss the types of metrics that may prove useful in monitoring performance of ADS-equipped CMVs.

III. Comments on Volpe Preliminary Review of FMCSRs for ADS-Equipped CMVs

We agree with the Volpe Report's observation that the FMCSRs do not expressly require a human "driver" to be present in a vehicle while under way,[6] and that the extent of regulatory "challenges could depend significantly on how FMCSA interprets certain definitions in the current FMCSRs."[7] We believe that, addressed on a provision-by-provision basis, the rules can accommodate initial safe integration of ADS-equipped CMVs through regulatory interpretations. Below, we consider the application of "driver" and several of the interpretive challenges identified by Volpe to illustrate the way a provision-by-provision approach can accommodate initial integration of self-driving technology.

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[5] *See* SAE J3016.

[6] Volpe Report at 36 ("In its review of the FMCSRs, the Volpe Center did not encounter specific language that explicitly requires a CMV to have a human driver present in the vehicle while underway."

[7] Volpe Report at vi.

We further agree with Volpe's conclusion that "FMCSA may want to review and reconsider the sections identified to ensure that (1) agency staff and their state partners are prepared to consistently apply them to emerging automated CMV concepts and (2) technology developers and motor carrier have a clear path for complying with them in a safe manner."[8] But in considering the interpretive — and practical — questions embedded in the Volpe review of the FMCSR, we strongly encourage FMCSA to consult closely with state enforcement partners in early adopter states working with developers to test ADS-equipped CMVs on their roads. We encourage FMCSA to take a pragmatic approach to addressing questions as they arise, and leave near term flexibility for states and developers to explore different approaches to meeting regulatory needs and ensuring safety of operations. A diversity of experience from early mover states ultimately will enable stronger, smarter unified federal rules in the long run.

A. Interpretation of "Driver"

As the Volpe review notes, the interpretation of the term "driver" is particularly critical for carriers seeking to operate ADS-equipped CMVs in compliance with the FMCSRs. We believe interpretation of the term "driver" does not need to pose a barrier to testing and safe deployment of ADS-equipped CMVs.

First, it is important to separate two use-cases of automation: a human-driven truck which requires some degree of driver involvement in the driving task (SAE level 1 through 3) versus a self-driving truck that does not ever require a human to perform the driving task within a system's defined operational design domain (SAE levels 4 and 5). In the former, a human is ultimately responsible for safety assurance; in the latter, the ADS is responsible for safety assurance.

In a natural reading of the FMCSRs, when a human is at the controls of a CMV and responsible for safety assurance of the driving task, that person is a "driver" and must comply with all "driver" rules even when an ADS is engaged. Such an interpretation does not pose a barrier to testing of ADAS-equipped trucks as part of development; rather, FMCSR driver requirements provide additional safety assurance where a human driver remains ultimately responsible for the driving task. All Uber test CMVs have an experienced professional driver behind the wheel, who is always responsible for safety assurance and must comply with all licensing, testing, hours, alcohol, and other driver requirements under the FMCSR, regardless of whether the ADAS systems are engaged.

[8] Volpe Report at 40.

However, if no human is performing or responsible for performing the driving task (as in a fully self-driving vehicle), there is no "driver" for purposes of requirements applicable to a driver engaged in the driving task.[9]

In a driverless scenario, we believe it would be nonsensical and problematic to interpret the term "driver" to include the ADS for purposes of all FMCSR compliance. Many driver-related requirements simply cannot be applied to a machine. For example, a machine cannot be subject to medical fitness or drug testing.[10] Likewise, the FMCSR is clear that CDLs are only available to individuals, and application procedures require characteristics, like a social security number and physical exam, that only belong to natural individuals.[11]

Notwithstanding, the FMCSRs define "driver" broadly as any "person who operates any commercial motor vehicle" and define "person" as "any individual, partnership, association, corporation, business trust, or any other organized group of individuals."[12] Thus, the term "driver" may embrace a motor carrier where a carrier can take steps to comply with a particular provision.[13] For example, where a driver is required to receive and transmit an official form (such as an inspection form), a carrier could take direct receipt of the form (electronically or by mail) and transmit it to FMCSA.[14] Indeed, the FMCSRs expressly contemplate that a carrier can be a driver;[15] additionally, the FMCSRs place the weight of ensuring observance of a driver's duties on a carrier.[16]

Consequently, for scenarios involving a vehicle without a human responsible for performing the driving task, we believe the best approach is to consider the application of each provision individually. Qualifications for a human individual (such as medical testing and CDL

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[9] "Driver means any person who operates any commercial motor vehicle." 49 C.F.R. 390.5T. "Operator. See driver." *Id.*

[10] *See* 49 C.F.R. section 391.45 (persons who must be medically examined) and part 382 (controlled substances and alcohol use and testing).

[11] "Commercial driver's license (CDL) means a license issued to an individual by a State or other jurisdiction of domicile, in accordance with the standards contained in this part, which authorizes the individual to operate a class of a commercial motor vehicle." 49 C.F.R. 383.5.

[12] 49 C.F.R. 390.5T.

[13] Volpe also considers the idea of an organizational approach to interpreting "driver," but considers only application to an ADS developer rather than to the carriers deploying ADS-equipped vehicles. Volpe Report at 11, n.6. As the locus of operational responsibility, we believe a carrier makes makes a stronger locus of compliance responsibility for a driverless CMV.

[14] *See e.g.* 49 C.F.R. § 325.13 (requiring driver to transmit Form MCS-141 to carrier). *See also* 49 C.F.R. § 390.32 (beginning June 15, 2018, all records and documents required under FMCSRs may be generated and exchanged electronically).

[15] *See* 49 C.F.R. § 325.13 ("A driver, if himself/herself a motor carrier, shall return Form MCS-141 to the Federal Motor Carrier Safety Administration.").

[16] *See* 49 C.F.R. § 390.11 ("Whenever...a duty is prescribed for a driver or a prohibition is imposed upon the driver, it shall be the duty of the motor carrier to require observance of such duty or prohibition. If the motor carrier is a driver, the driver shall likewise be bound.").

licensing) are simply inapplicable absent a human driver. Meanwhile, operational and compliance requirements (such as inspection and record-keeping) are assumed by the carrier. Carriers may arrange for appropriately qualified personnel to carry out particular non-driving duties of a "driver." For example, a carrier may arrange for qualified personnel to carry out pre-trip vehicle inspection before departure. And as with a conventional co-driver scenario, a carrier need not utilize the same personnel over the entire course of a single delivery, and instead can arrange for qualified personnel to perform support tasks as needed at different stages of a delivery.

Consistent with this approach to interpreting "driver," FMCSA can take the following basic approaches to applicability of key parts of the FMCSRs:

- Part 383 (Commercial Driver's License Standards). CDL requirements apply to any person who carries out the driving task. CDL requirements do not apply to machinery, including an ADS.
- Part 391 (Qualifications of Drivers). Qualifications apply to any person who carries out the driving task. Qualifications do not apply to machinery, including an ADS.
- Part 392 (Driving of Commercial Vehicles). Considered on a provision by provision basis. For example, load securement obligations apply directly to carriers (as well as drivers) and must be complied with at all times.[17] However, the prohibition against use of alcohol at certain times applies to any person who carries out the driving task, but is nonsensical if applied to a machine.[18] Likewise, the prohibition against texting applies to any person carrying out the driving task, but is nonsensical if applied to a machine.[19]
- Part 395 (Hours of Service of Drivers). Hours of service rules apply to any person who carries out the driving task. Hours of service rules do not apply to machinery, including an ADS.

IV. Comments on FMCSA Questions Regarding Specific Regulations

A. Inspection, Repair, and Maintenance

The FMCSRs require all CMVs to be systematically inspected, repaired, and maintained, and all parts must be in safe and proper operating condition at all times. This obligation is no different for a fleet of ADS-equipped CMVs and extends to "any additional parts and accessories which may affect safety of operation."[20] Regular inspection, maintenance, and repair are critical to fleet safety, and a carrier may not permit operation of a CMV without confidence it is in safe

[17] 49 C.F.R. § 392.9.
[18] 49 C.F.R. § 392.5.
[19] 49 C.F.R. § 392.80.
[20] 49 C.F.R. § 396.3.

working order. ADS should be self-auditing (that is, capable of detecting sensor and performance abnormalities) and ADS-equipped vehicles should be regularly inspected by persons trained to assess the proper functioning of the ADS equipment. However, given differing technological approach, it is not possible to specify a common set of inspection procedures for all ADS.

Uber's ADAS test vehicles are inspected more thoroughly than conventional CMVs: Uber's trucks must pass system self-checks, operator diagnostic review, and a physical inspection by an experienced CDL-driver before heading out on the road for a mission. A second physical inspection is completed at the end of each mission and vehicle data is offloaded for analysis by our engineering team.

Carriers must ensure safety critical parts are regularly inspected by persons with appropriate competencies to assess safety and performance. In the short run, ADS developers and manufacturers are best placed to inspect their own vehicles, as they possess technical staff with the requisite specialized expertise in the specific systems. However, ADS developers may not be in the business of directly inspecting vehicles or training inspection personnel as operations scale. Inspection and maintenance roles may be carried out by carriers, suppliers or third parties with the requisite skills and technical information on a specific system. In interpreting and applying inspection requirements, FMCSA should leave flexibility to carriers to ensure ADS features are inspected by persons with the correct skills and knowledge, regardless of who employs them.

ADS system security is a primary responsibility for ADS developers and manufacturers. Developers, manufacturers, integrators and parts suppliers for ADS-equipped CMVs should ensure that their products meet or exceed appropriate and applicable current industry security standards.[21] Carriers and their services providers should train maintenance and operations personnel appropriately for their roles to ensure they are knowledgeable about the systems they maintain and operate, follow current recommendations from system manufacturers, and report abnormal behavior to appropriate technicians.

It is important to remember that for the foreseeable future most ADS-equipped CMVs likely will continue to retain manual controls. If an ADS must be disengaged due to fault or failure, safe operation of the vehicle in manual (by a driver in the vehicle or a rescue driver dispatched by the carrier) will remain an option to return the vehicle to base for repair and

[21] *See e.g.* California light vehicles requirement at Cal. Code Regs. tit. 13, § 228.06(a)(10).

validation of the ADS. Returning a vehicle to base under manual operation should not generally trigger "disabling damage" reporting as defined in 49 C.F.R. 390.5T.[22]

B. Roadside and Annual Inspections

Developers, carriers and the enforcement community should work together to develop appropriate training for enforcement personnel to effectively inspect ADS-equipped CMVs. Roadside inspections by enforcement personnel should continue to focus on existing clearly articulated standards, such as whether required equipment is installed and in good condition, and whether required pre-departure checks have been conducted by the carrier. Enforcement personnel should not be expected to check performance of advanced systems.

FMCSA further requested comment on how enforcement officials could identify CMVs capable of various levels of automated operation. We do not believe there is a clearly demonstrated need to visibly mark ADS-equipped vehicles at this point, but if marking or other indicators are needed, we believe the focus should be on whether a vehicle requires a human driver. CMVs carry a USDOT number and state registration plates that may be used by enforcement to access information about the vehicle and contact the carrier, and information about autonomous capability could be attached to these systems.[23] It is not a straightforward task to assign a level of automation, even for those developing the technologies. Moreover, a vehicle with advanced capabilities can operate at different levels of automation at different times. For example, a vehicle that can operate at Level 4 on the highway may operate at Levels 1 or 2 when a human operator is driving the vehicle. We suggest that instead of attempting to discern a vehicle's theoretical SAE capability, enforcement attention should focus on whether the CMV requires a person behind the wheel to assure safe operation. There are a variety of solutions to communicating information to enforcement officials, and we encourage FMCSA to consider the circumstances in which information about automation would be relevant to enforcement and explore the best ways to meet that need.

Roadside diversion of an unmanned self-driving CMV for surprise inspection may not be practical if it would require the vehicle to depart from its planned route or ODD. FMCSA should support flexibility for carriers operating ADS-equipped CMVs to coordinate with enforcement officials in states in which they operate to establish an inspection plan for their vehicles that will

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[22] Recordable accidents include an on-highway occurrence involving disabling damage. Disabling damage is (1) damage to a vehicle (2) that results from an on-highway occurrence and (3) that requires the motor vehicle(s) to be transported away from the scene by a tow truck or other motor vehicle. 49 C.F.R. § 390.5T. Disengagement of an ADS to return a vehicle to base under manual control does not necessarily involve damage to the vehicle, an on-road "occurrence" or "accident," or tow-away by another vehicle.

[23] For example, California offers "autonomous vehicle" registrations for light vehicles.

ensure safety of operations without requiring unexpected departures from planned routes or ODD.

FMCSA should continue to rely on motor carriers to conduct or arrange for annual inspections. If ADS equipment is eventually included in an annual inspection requirement, it will be important to continue to leave flexibility as to who conducts the inspection so that carriers can ensure that persons with proper skills and knowledge (who may not work for the carrier or manufacturer) conduct any inspection.[24]

C. Distracted Driving (Prohibition Against Texting and Using Handheld Wireless Phones) and Driver Monitoring

We agree with the RFC that this question is appropriately confined to SAE Level 3 and below vehicles. When a level 4 ADS is engaged, any human passengers are not driving and need not be subject to texting or phone use restrictions or driver fatigue monitoring.[25]

D. Medical Qualifications

All existing medical qualification requirements apply to the driver of an ADS-equipped vehicle. However, medical qualifications cannot and do not apply to an ADS (i.e. to the vehicle itself).

E. Hours of Service for Drivers

Hours of service rules for drivers do not apply to machinery, including an ADS, and also should not apply to persons travelling in a vehicle when a level 4 or level 5 ADS is engaged.

F. Commercial Driver's License (CDL) Endorsements

We agree that drivers who operate a vehicle with ADS require detailed instruction on the capabilities and limitations of the particular ADS. Given that each ADS may differ substantially, the training need is unlikely to prove amenable to a standard endorsement. Instead, FMCSA might consider requiring carriers to ensure all drivers of ADS-equipped CMVs are fully trained on the capabilities, limitations, and controls of any ADS-equipped vehicle they pilot.

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[24] *See e.g.* 49 C.F.R. § 396.17 ("In lieu of the self-inspection provided for in paragraph (d) of this section, a motor carrier or intermodal equipment provider responsible for the inspection may choose to have a commercial garage, fleet leasing company, truck stop, or other similar commercial business perform the inspection as its agent, provided that business operates and maintains facilities appropriate for commercial vehicle inspections and it employs qualified inspectors, as required by § 396.19.").

[25] 49 C.F.R. § 392.80 (driver prohibited from texting "while driving").

As explained above, CDL licensing requirements apply only to "individuals," i.e. natural persons, and CDL requirements should not be applied directly to ADS.[26] Further, an ADS should not be misunderstood as behaviorally equivalent to a human driver; a test battery designed for human drivers will not necessarily demonstrate road-worthiness of ADS. Further, different ADS will be designed for different use cases and operational design domains, and may not need or include all capabilities that are reflected on a generic CDL skills test. For example, a self-driving truck built for drayage operations may not need the capability to execute a highway merge.

V. Comments on FMCSA Questions Regarding Current Testing and Operation of CMVs with ADS

A. Data Sharing

ADS technologies generate and synthesize large amounts of data. Much of the ADS data is generated in proprietary formats that would be of little use without company software and engineers to interpret. The data and analyses are trade secret information. Prior to being able to share or discuss detailed data, FMCSA must stand-up a robust confidentiality program that will protect submissions of CBI or trade secret information outside a formal rulemaking, and allow for submission of information in summary form. Beyond any data sharing, we would look forward to working with FMCSA, NHTSA, safety experts and others in industry to discuss other approaches to evaluating and assuring safety of ADS-equipped CMVs.

B. Testing and Interstate Operations of CMVs with ADS on Public Roadways

FMCSA requested comment on what types of ADS-equipped CMVs are being tested, their limitations, and what actions FMCSA should consider to ensure the safe operation of ADS-equipped CVMs. As discussed above, Uber is testing CMVs equipped with ADAS systems. Through this testing, Uber is working to develop the capabilities that will enable a truly driverless CMV. In particular, Uber is working to develop a system where driverless CMVs shuttle freight along key highway corridors to transfer hubs while human-driven conventional trucks handle last mile, surface streets, and loading docks. While the vehicles can use ADAS technologies in many conditions, there are some weather-based and other environmental limitations.

[26] *See supra* Note 10.

Auto manufacturers self-certify their vehicles prior to first sale. FMCSA should work with NHTSA to continue this approach. While there currently are no standards that apply specifically to ADS, should such standards be developed, manufacturers which plan on selling vehicles and/or equipment should continue (in situations where a standard applies) to be responsible for certifying that, prior to first-sale, the vehicles and equipment they manufacture meet any relevant standards (or otherwise obtain an exemption). FMCSA and NHTSA are the correct agencies to set these types of safety standards; the agencies must collaborate to ensure any requirements do not conflict. As previously noted, we would look forward to working with FMCSA, NHTSA, safety experts and others in industry to discuss approaches to evaluating and assuring safety of ADS-equipped CMVs.

C. Beyond Compliance Program

FMCSA should continue to recognize carriers that invest in innovative safety technology, including ADS, in order to perform at high levels of safety beyond the standard required for compliance, and adjust its enforcement priorities appropriately.

D. Regulation of Manufacturing Versus Operation

The federal role in trucking across both manufacturing and operations presents a unique opportunity that can enable more rapid development of smart, strong, consistent national rules that will ultimately speed adoption and safe deployment of ADS in the nation's trucking fleet and enable consistent coast-to-coast operations — reducing highway crashes and facilitating more efficient flow of goods between the states. FMCSA and NHTSA leadership will be essential to national deployment of ADS technology in the CMV fleet. And as part of this leadership, updates to the FMCSRs will be needed as the technology and operations scale.

In the near term, however, FMCSA can support safe testing and initial integration of ADS through guidance and exemptions as needed, while preserving flexibility for developers, carriers and state enforcement officials to explore a variety of technology, operational and business approaches. Further, FMCSA can continue to encourage efforts by states to support operation of ADS-equipped CMVs within their intrastate jurisdiction.

As ADS are integrated into the CMV fleet, FMCSA will play an important role in monitoring carrier safety and evaluating the evidence base for national operational rules for ADS-equipped CMVs. FMCSA receives collision, inspection, and safety information for carriers across the country. This data will provide an important baseline for FMCSA to track carrier performance as ADS-equipped CMVs are gradually integrated. FMCSA and NHTSA

should work with developers, manufacturers, carriers, state enforcement partners and other stakeholders to build expertise and data based on the learnings of early adopter states.

We encourage FMCSA and NHTSA to work closely to ensure that approaches do not conflict, particularly regarding eventual development of standards for ADS-equipped vehicles. Further, FMCSA and NHTSA might encourage the convening of industry and safety experts to identify possible test scenarios and discuss the types of metrics that may prove useful in monitoring performance of ADS-equipped CMVs.

E. Confidentiality of Shared Information

FMCSA's regulation concerning confidential business information, 49 CFR Sec. 389.9, appears to only cover material submitted in notice and comment proceeding and does not clearly provide for a procedure for granting advance determination of protection under the rule. We encourage FMCSA to consider creating a process for protecting confidential business information voluntarily submitted outside a notice and comment proceeding. Further, we encourage FMCSA to make available a procedure for advance legal review, confidentiality determination, and proper labelling of material considered for submission.

VI. Conclusion

Uber appreciates FMCSA's leadership in sponsoring the Volpe review, and diving deeply into these important questions regarding the future of trucking. We encourage FMCSA to clearly distinguish between human-driven and driverless vehicles as it contemplates the potential of ADS technology. We encourage the FMCSA to take steps in the short term to:

- Confirm that the FMCSRs do not require a human "driver" while underway.
- Support state efforts to serve as testbeds by providing funding and flexibility.
- Stand ready to consider requests for guidance and exemptions as needed.
- Engage with industry to build data and insights to guide eventual rulemakings.

These steps will support safe testing and initial integration of ADS-equipped CMVs and will position FMCSA to develop the data and insights to eventually revise its rules. We look forward to continued engagement with FMCSA and with the Department on these topics.

Sincerely,

/s/ Justin Kintz

Head of the Americas Public Policy
& Communications

Uber Advanced Technologies Group