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May 29, 2020

Mr. James C. Owens  
Deputy Administrator  
National Highway Traffic Safety Administration  
1200 New Jersey Avenue, SE  
Washington, DC 20590

**Re: Notice of Proposed Rulemaking on Occupant Protection for Automated Driving Systems, Docket No. NHTSA-2020-0014**

Dear Deputy Administrator Owens:

Waymo respectfully submits these comments in response to the Notice of Proposed Rulemaking (“NPRM”) on *Occupant Protection for Automated Driving Systems*, published by the National Highway Traffic Safety Administration (“NHTSA”) on March 30, 2020.<sup>1</sup>

Waymo appreciates NHTSA’s efforts, as evidenced by this NPRM and other rulemaking actions, to remove regulatory barriers to certification of vehicles with automated driving systems (“ADSs”) that do not have traditional manual controls. NHTSA’s proposal would also ensure that those vehicles have the same level of safety provided by the current Federal Motor Vehicle Safety Standards (“FMVSSs”). We urge NHTSA to continue its work on and complete the various rulemaking actions needed to remove these barriers, which will help facilitate the broad deployment of fully automated vehicles and the realization of their potential benefits for safety and mobility.

As proposed, the amended FMVSSs would require that occupants of automated vehicles without manual controls benefit from the same important protections from injury in crashes that the current occupant protection FMVSSs now provide to occupants of conventional vehicles. These protections, which have saved thousands of lives over the years, include seat belts, air bags, and structural crashworthiness requirements that are designed to reduce occupant injury and prevent deaths in frontal, side, rear and rollover crashes. The proposal would not reduce any of these protections in the case of automated vehicles without manual controls. Instead, the NPRM would require that vehicles without manual controls meet the *same* performance criteria as conventional vehicles but would permit manufacturers to

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<sup>1</sup> 85 FR 17624.

certify, and NHTSA to confirm, compliance without use of or reference to manual controls. Waymo strongly supports this approach to amending the FMVSSs.

### **Scope and Applicability Issues**

We appreciate the agency's focus in this notice on the application of crashworthiness standards to conventional occupant seating arrangements. While we look forward to future exploration of novel seating arrangements (e.g., campfire or carriage-style seating) and novel occupant seating postures, we recognize that assessing the safety of these new concepts will require a significant amount of time and effort. We support the agency's decision to first update the FMVSSs for conventionally configured ADS-equipped vehicles without manually operated driving controls, then turn to novel seating arrangements and postures.

Under the NPRM's proposed revisions, standards 201, 205, 206, 207, 208, 214, 216, and 226 would not apply to trucks with no designated seating positions ("DSPs"). Waymo agrees that these standards should not apply to trucks with no DSPs, and with the agency's logic that the safety need underlying these occupant protection standards does not exist for occupant-less vehicles.

### **Definition of "Driver"**

Waymo supports the NPRM's proposal to maintain the existing definition of "driver" in 49 C.F.R. § 571.3: "the occupant of a motor vehicle seated immediately behind the steering control system." As NHTSA explains: "NHTSA proposes to maintain the current definition without change, but to augment this definition with other supporting or clarifying definitions to indicate when the FMVSS is referring to a human driver or an ADS . . ." <sup>2</sup> In the FMVSSs at issue in this NPRM, we agree that no revision to the term "driver" is required to remove barriers to certification of automated vehicles without traditional manual controls.

As the NPRM notes, the terms "driver," "driver's" and "driving" are used over 200 times throughout the FMVSSs. A wholesale revision of "driver" in § 571.3 to include both a human driver and the ADS, which would apply to every use of the term in the FMVSSs (including those not addressed in this NPRM), would simply not result in logical regulatory provisions (e.g., provisions referring to the driver as a spatial reference point could not also use the ADS for that purpose).<sup>3</sup> In subsequent rulemakings relating to automated vehicles and the FMVSSs, rather than amending the definition of "driver," a clearer and more useful approach may be to

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<sup>2</sup> 85 FR 17633.

<sup>3</sup> Of course, outside the context of regulatory definitions, referring to the ADS as the "driver" is consistent with the capability that an ADS must possess, i.e., the ability to perform the entire dynamic driving task within its operational design domain. In fact, Waymo often refers to its mission as "building the world's most experienced driver." However, in the context of technical standards that use "driver" to mean a human, there is reason to make clear when the standard means to refer to an ADS instead.

add a new definition of “ADS,” along with surgical amendments to insert that term where appropriate.

We appreciate NHTSA’s recognition of the agency’s 2016 Google Interpretation and how this NPRM relates to it. We believe the proposed definition of “driver” in the NPRM is consistent with Google’s 2015 interpretation request. A fundamental principle underlying Google’s 2015 request was that references to a “driver,” and other language that did not contemplate ADS-equipped vehicles in the FMVSSs, should not preclude certification of ADS-dedicated Level 4 automated vehicles without manual controls. Consistent with this principle, Waymo believes the NPRM’s proposed revisions represent important progress toward removing barriers to such certification.<sup>4</sup>

Colloquially and in some other legal contexts, the term “driver” may be used to refer to the person or technology that performs the dynamic driving task for the vehicle. In the context of the NPRM, it is very clear that NHTSA does not intend for this definition of “driver” to signal that the agency believes a human occupant always will or should perform the dynamic driving task. However, to avoid any confusion on this point, especially if the definition were taken out of context, we encourage the agency to explicitly state in the Notice of Final Rule that the definition of “driver” in § 571.3 should not be construed to suggest that a human occupant will or should perform the dynamic driving task for an ADS-equipped vehicle while the ADS is engaged.

### **Occupant Protection in Vehicles Without Manually Operated Driving Controls**

We support the NPRM’s proposal to require that left front outboard seats in vehicles with no manually operated driving controls (and thus no “driver’s seat”) meet the same crash performance requirements currently applicable to right front outboard passenger seats. The rationale for requiring those protections in the right front passenger seat (e.g., protection of small individuals sitting in those seats) applies with equal force to a left front outboard seat where there are no manual controls.

The NPRM seeks comment on whether NHTSA should develop new occupant protection provisions for vehicles with no front outboard seating positions. Determining how to address this novel issue may require considerable technical research and a new proposed rule. If such seating arrangements are in fact likely, rather than delay the completion of this rulemaking, we believe it would be better to deal with this novel issue in a separate rulemaking.

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<sup>4</sup> Although Google, in its 2015 interpretation request, suggested reading “driver” in some FMVSSs to mean the ADS, Google did not suggest that such an interpretation should be applied to *all* FMVSSs, nor that incorporating “ADS” into the regulatory definition of “driver” would be the appropriate solution when FMVSSs are amended. For some FMVSSs—including the 200 Series FMVSSs included in the request—Google requested that NHTSA interpret “driver” to mean the human occupant in the “left front designated seating position” and apply passenger occupant protection standards to the left front seat. This is conceptually very similar to the approach NHTSA has adopted in the NPRM.

### **Provision Related to Children in Driver's Seat in Dual-mode Vehicles**

The NPRM tentatively proposes to add a new requirement that would make ADS-equipped vehicles that have manual controls incapable of motion if a child is detected in the driver's seat. This new provision would require a system for sensing the presence of a child in the driver's seat similar to the sensor used to detect a child in the right front outboard passenger seat. Under the proposal, this sensor system would also need to be interlocked with the ADS and transmission to prevent the vehicle from initiating movement if a child is in the driver's seat. The NPRM indicates that the purpose of such a requirement would be to "minimize the risk that a child could ride in a front DSP without the protections afforded by advanced air bags."<sup>5</sup>

Waymo recognizes the importance of protecting small children from full-force airbag deployment and that some who might use an ADS-equipped vehicle with manual controls may not recognize that risk, which could result in a small child sitting in the driver's seat. However, we suggest that it may be technically feasible to address that risk by requiring the same advanced air bag protections in the driver's seat of dual-mode vehicles as those that are currently required in the right front outboard passenger seat. In fact, there may be other technical solutions that would obviate the need for the NPRM's proposal that ADS-equipped vehicles that have manual controls should not be capable of motion if a child is detected in the driver's seat. Waymo is confident that auto manufacturers can develop sound technical ways to address this issue.

If, however, NHTSA has concerns related to a child's inability to perform the driving task in a situation that may require a human driver, that would seem to implicate the broader issue of any person not capable of driving being seated in the driver's seat of a dual-mode vehicle. That subject seems beyond the scope of this rulemaking, i.e., removing regulatory barriers to the certification of vehicles without manual controls.

### **Compliance Testing Issues**

In the NPRM, the agency notes that for vehicles without conventional manual controls (e.g., no parking brake switch or gear selector), "how to properly prepare the vehicle for testing may not be immediately obvious." The NPRM recognizes that this challenge is not novel, and in other circumstances where similar questions have arisen (e.g., automated electronic parking brakes and electronic gear selectors), the agency has worked with manufacturers to determine how to prepare the vehicles for testing. We appreciate the agency's willingness to remain technology neutral in the realm of compliance testing, and agree with the line of thinking that "the important element is whether the transmission is in the proper gear and whether the pre-test brake is activated--not the manner in which that state is achieved."

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<sup>5</sup> 85 FR 17636.

We encourage the agency to maintain this flexible approach and apply it more generally to compliance testing, so the agency remains focused on evaluating whether a vehicle achieves the objective of a test, rather than the specific manner in which that objective is achieved. To implement this principle, NHTSA could adopt policies allowing manufacturers to provide the tools and information necessary for the agency to conduct compliance tests in a manner befitting each manufacturer's unique automated vehicle designs.

We appreciate the opportunity to provide these comments, and we look forward to continuing to participate in the agency's rulemaking process.

Sincerely,

/s/ David Quinalty

David Quinalty

Head of Federal Policy and Government Affairs

/s/ Daniel Smith

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/s/ Allison Drutchas

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