

DEPARTMENT OF TRANSPORTATION**National Highway Traffic Safety Administration****49 CFR Part 571****[Docket No. NHTSA-2018-0009]****Removing Regulatory Barriers for Vehicles with Automated Driving Systems**

AGENCY: National Highway Traffic Safety Administration (NHTSA), U.S. Department of Transportation (DOT)

ACTION: Request for comment; public meeting.

SUMMARY: NHTSA is announcing a public meeting as part of the Agency's effort to seek public comments to identify any regulatory barriers in the existing Federal Motor Vehicle Safety Standards (FMVSS) to the testing, compliance certification, and compliance verification of vehicles with Automated Driving Systems (ADSs) and certain unconventional interior designs. The Agency published a Federal Register Notice of Request for Comments (RFC) titled Removing Regulatory Barriers for Vehicles with Automated Driving Systems on January 18, 2018, that included specific questions for which the Agency seeks comment (83 FR 2607, Docket No. NHTSA-2018-0009). NHTSA is holding this public meeting to present to the public a summary of the RFC and activities underway at NHTSA and across the industry regarding the identification and removal of barriers that might impede safe deployment of ADSs. This material is intended to better inform the public as they prepare comments in response to the RFC.

Public comments are welcome at this meeting, but all should be oral, and any supporting presentations or materials should be submitted to the docket for consideration.

DATES: NHTSA will hold the public meeting on March 6, 2018, in Washington, DC. The meeting will start at 10 a.m. and continue until 3:30 p.m., EST. Check-in (through security) will begin at 9 a.m. Attendees should arrive early enough to enable them to go through security by 9:50 a.m.

ADDRESSES: The meeting will be held at the U.S. Department of Transportation headquarters building located at 1200 New Jersey Avenue, SE, Washington, DC 20590 (Green Line Metro Station at Navy Yard) in the Conference Center. This facility is accessible to individuals with disabilities. The meeting will also be webcast live, and a link to the actual webcast will be available on NHTSA's technical ADSs website <https://www.nhtsa.gov/manufacturers/automated-driving-systems>.

FOR FURTHER INFORMATION CONTACT: If you have questions about the public meeting, please contact us at av_info_nhtsa@dot.gov or Debbie Sweet at debbie.sweet@dot.gov, 202-366-7179.

SUPPLEMENTARY INFORMATION:

Registration is encouraged for all attendees. Attendees should register at <https://www.surveymonkey.com/r/NHTSABarriers> by March 2, 2018. Please provide name, affiliation, and email, indicate if you wish to offer remarks (speaking would be limited to 10 minutes per person), and please indicate whether you are requesting specific accommodations. Space is limited, so advanced registration is encouraged.

Although attendees will be given the opportunity to offer comments, the Agency is limiting comments to oral only. We may not be able to accommodate all attendees who wish to make oral comments and will arrange the speakers on a first-come, first-served basis. However, if time does not allow for all comments during the meeting, comments may be submitted to the docket and will carry the same weight during review and analysis.

Should it be necessary to cancel the meeting due to inclement weather or other emergency, NHTSA will take all available measures to notify registered participants.

NHTSA will conduct the public meeting informally, and technical rules of evidence will not apply. We will arrange for a written transcript of the meeting and keep the official record open for 30 days after the meeting to allow submission of supplemental information. You may make arrangements for copies of the transcripts directly with the court reporter, and the transcript will also be posted in the docket when it becomes available. The webcast will be recorded and posted to the NHTSA website as well.

Written Comments: Written statements and supporting information submitted during the comment period will be considered with the same weight as oral comments and supporting information presented at the public meeting. Please submit all written comments no later than April 5, 2018, by any of the following methods:

- Federal Rulemaking Portal: Go to <http://www.regulations.gov>. Follow the online instructions for submitting comments.

- Mail: Docket Management Facility: U.S. Department of Transportation, 1200 New Jersey Avenue, SE, West Building Ground Floor, Room W12-140, Washington, DC 20590-0001.
- Hand Delivery or Courier: 1200 New Jersey Avenue, SE, West Building Ground Floor, Room W12-140, Washington, DC 20590-0001, between 9 a.m. and 5 p.m. EST, Monday through Friday, except Federal Holidays.
- Fax: 202-366-1767.

Instructions: All submissions must include the agency name and docket number. Note that all comments received will be posted without change to <http://www.regulations.gov>, including any personal information provided. Please see the Privacy Act discussion below.

Docket: For access to the docket go to <http://www.regulations.gov> at any time or to 1200 New Jersey Avenue, SE, West Building, Ground Floor, Room W12-140, Washington, DC 20590, between 9 a.m. and 5 p.m., Monday through Friday, except Federal Holidays. Telephone: 202-366-9826.

Privacy Act: Anyone can search the electronic form of all comments received into any of our dockets by the name of the individual submitting the comment (or signing the comment, if submitted on behalf of an association, business, labor union, etc.). You may review DOT's complete Privacy Act Statement in the **Federal Register** published on April 11, 2000 (Volume 65, Number 70; Pages 19477-78), or you may visit <http://www.regulations.gov/privacyNotice>.

Confidential Business Information: If you wish to submit any information under a claim of confidentiality, you should submit three copies of your complete submission, including the

information you claim to be confidential business information to the Chief Counsel, NHTSA, at the address given under FOR FURTHER INFORMATION CONTACT. In addition, you should submit two copies from which you have deleted the claimed confidential business information, to Docket Management at the address given above. When you send a comment containing information claimed to be confidential business information, you should submit a cover letter setting forth the information specified in our confidential business information regulation (49 CFR Part 512).

Background: NHTSA wants to avoid impeding progress with unnecessary or unintended regulatory barriers to motor vehicles that have Automated Driving Systems (ADSs) and unconventional designs, especially those with unconventional interior designs. To enable vehicles with ADSs and with unconventional interiors while maintaining those existing safety requirements that will be needed and appropriate for those vehicles, NHTSA is developing plans and proposals for removing or modifying existing regulatory barriers to testing and compliance certification in those areas for which existing data and knowledge are sufficient to support decision-making. In other areas, plans and proposals cannot be developed until the completion of near-term research to determine how to revise the test procedures for those vehicles.

Part of NHTSA's responsibility in carrying out its safety mission is not only to develop and set new safety standards for new motor vehicles and motor vehicle equipment, but also to modify existing standards as necessary to respond to changing circumstances such as the introduction of new technologies. Examples of previous technological transitions that triggered the need to adapt and/or replace requirements in the FMVSS include the replacing of analog dashboards by digital ones, the replacing of mechanical control systems by electronic ones, and the first

production of electric vehicles in appreciable numbers. The existing FMVSS can be found in the Code of Federal Regulations at 49 CFR Part 571.

Almost all of NHTSA's FMVSS were developed and established well before ADS vehicles became a practicable possibility. As a result, the minimum performance requirements and test procedures in many of the FMVSS are based on assumptions about drivers occupying and controlling the vehicle. If a vehicle is designed so that only an ADS can control it rather than the human driver, and vehicle designers modify the passenger compartment, then many of the original assumptions will likely be invalid for that vehicle, and some may be problematic from a testing perspective.

Meeting and Draft Agenda: This public meeting is being held during the open comment period. The meeting is intended to present information regarding the RFC, questions of interest, activities within NHTSA with respect to barrier removal and activities external to NHTSA regarding barrier removal. This information will in turn provide more thorough background for those submitting comments to the RFC. Following presentations by NHTSA and various stakeholders, the public will have an opportunity to provide remarks. Individuals who register to speak at the Public Meeting will have 10 minutes to present oral remarks to NHTSA staff. Clarification questions may be asked of the presenters. Those registered to provide remarks will have the first opportunity to speak. The meeting agenda follows:

9:00 - 9:55 a.m.	Arrival/Check-In
9:55 – 10:00 a.m.	Meeting Logistics
10:00 - 10:05 a.m.	Welcome Remarks

10:05 – 10:20 a.m.	NHTSA Remark Regarding RFC
10:20 – 10:50 a.m.	Presentation of NHTSA/VTTI Research
10:50 – 11:00 a.m.	Questions for NHTSA/VTTI
11:00 – 11:50 a.m.	Presentation of Industry Activities
11:50 a.m.– 12:00 p.m.	Questions for Industry
12:00 – 1:00 p.m.	Lunch
1:00 – 2:15 p.m.	Comments from Registered Attendees
2:15 – 2:30 p.m.	Break
2:30 – 3:30 p.m.	Comments from Registered Attendees

Specific Guiding Questions: To help guide NHTSA’s research to address testing and self-certification issues, we seek comments on the topics below (the same questions as presented in the Request for Comments). The Agency urges that, where possible, comments be supported by data and analysis to increase their usefulness. Please clearly indicate the source of such data.

A. Barriers to testing, certification, and compliance verification

1. What are the different categories of barriers that the FMVSS potentially create to the testing, certification and compliance verification of a new ADS vehicle lacking manual driving controls? Examples of barrier categories include the following:

- a. Test procedures that cannot be conducted for vehicles with ADSs and with innovative interior designs; and
- b. performance requirements that may serve a reduced safety purpose or even no safety purpose at all for vehicles with ADSs and thus potentially impose more cost and more restrictions on design than are warranted.

The first of the above categories is the primary focus of this document. However, the Agency seeks comments on both categories of barriers. If you believe that there are still other barrier categories, please identify them.

2. NHTSA requests comments on the statement made in NHTSA's February 2016 letter of interpretation to Google: that if a FMVSS lacks a test procedure that is suitable for the Agency's use in verifying a manufacturer's certification of compliance with a provision in that FMVSS, the manufacturer cannot validly certify the compliance of its vehicles with that provision. Do commenters agree that each of the standards identified in the letter as needing to be amended before manufacturers can certify compliance with it must be amended in order to permit certification? Why or why not? If there are other solutions, please describe them.

3. Do you agree (or disagree) that the FMVSS provisions identified in the Volpe report or Google letter as posing barriers to testing and certification are, in fact, barriers? Please explain why.

4. Do commenters think there are FMVSS provisions that pose barriers to testing and certification of innovative new vehicle designs, but were *not* covered in the Volpe report

or Google letter? If so, what are they, how do they pose barriers, and how do you believe NHTSA should consider addressing them?

5. Are there ways to solve the problems that may be posed by any of these FMVSS provisions without conducting additional research? If so, what are they and why do you believe that no further research is necessary? For example, can some apparent problems be solved through interpretation? If so, which ones?

6. Similarly, are there ways to solve the problems that may be posed by any of these FMVSS provisions without rulemaking? For example, can some apparent problems be solved through interpretation without either additional research or through rulemaking? If so, which ones?

7. In contrast, if a commenter believes that legislation might be necessary to enable NHTSA to remove a barrier identified by the commenter, please explain why, and please identify the specific existing law that the commenter thinks should be changed and describe how it should be changed. If there are associated regulations that the commenter believes should be changed, please identify the specific CFR citation and explain why they need to be changed.

8. Many FMVSS contain test procedures that are based on the assumed presence of a human driver and will therefore likely need to be amended to accommodate vehicles that cannot be driven by humans. Other FMVSS test procedures may seem, based on a plain reading of their language, to accommodate vehicles that cannot be driven by humans, but it may nevertheless be unclear how NHTSA (or a manufacturer attempting to self-certify to the test) would instruct the vehicle to perform the test as written.

a. Do commenters believe that these procedures should apply to a vehicle that cannot be driven by a human? If so, why? If there are data to support this position, please provide it.

b. If not, can NHTSA test in some other manner? Please identify the alternative manner and explain why it would be appropriate.

9. What research would be necessary to determine how to instruct a vehicle with an ADS, but without manual means of control, to follow a driving test procedure? Is it possible to develop a single approach to inputting these “instructions” in a manner applicable to all vehicle designs and all FMVSS, or will the approach need to vary? If so, why and how? If commenters believe there is a risk of gaming, what would that risk be and how could it be reduced or prevented?

10. In lieu of the approaches suggested in questions 8 and 9, is there an alternative means of demonstrating equivalent level of safety that is reliable, objective and practicable?

11. For FMVSS that include test procedures that assume a human driver is seated in a certain seating position (for example, procedures that assess whether a rearview mirror provides an image in the correct location), should NHTSA simply amend the FMVSS to require, for instance, that “driver’s seat” requirements apply to any front seating position? If so, please explain why. If not, what research would need to be conducted to determine how NHTSA should amend those requirements?

12. A variety of FMVSS require safety-related dashboard telltales and other displays, if provided, to be visible to a human driver and controls to be within reach of that driver.

Generally speaking, is there a safety need for the telltales and other displays in Table 1

and 2 of FMVSS No. 101 to be visible to any of the occupants in vehicles without manual driving controls? Commenters are requested to provide their own list of the telltales and other displays they believe are most relevant to meeting any potential safety need in those vehicles. For each item on that list, please answer the following questions:

- a. Should the telltale or other display be required to be visible to one or more vehicle occupants in vehicles without manual driving controls?
- b. If there is a need for continued visibility, to the occupant(s) of which seating position(s) should the telltale or other display be visible?
- c. Does the answer to the question about the continued need for a telltale or other display to be visible to the occupant of a vehicle without manual driving controls change if a manufacturer equips the vehicle with a device like an “emergency stop button”? Why or why not?
- d. Would the informational safety needs of the occupants of vehicles with ADSs differ depending on whether the vehicle has a full set of manual driving controls, just an emergency stop button, or no controls whatsoever?
- e. Conversely, if a vehicle is designed such that it can be driven only by an ADS, does the ADS need to be provided with some or all the same information currently required to be provided for a human driver? For example, does the ADS need to know if the tires are underinflated? Why or why not?
- f. If commenters believe that it would enhance safety if a vehicle’s ADS were required to receive information similar to some or all of that currently required to be provided to human drivers by telltales and other displays, what research needs to be conducted to develop the kinds of objective and practicable performance

requirements or test procedures that would enable manufacturers and the Agency to evaluate whether that information was provided to and understood by the ADS?

13. If NHTSA is going to conduct research to determine whether there is any safety need for the occupants of fully self-driving vehicles to continue to have any access to any of the non-driving controls (e.g., controls for windshield washer/wiper system, turn signals, and lights) in a vehicle without manual driving controls, what should that research include and how should NHTSA conduct it?

a. If there is a safety need for the occupants of fully self-driving vehicles to have access to any of the existing vehicle non-driving controls, please identify those controls and explain the safety need.

b. Do commenters believe that research should be conducted to determine whether any additional controls (such as an emergency stop button) might be necessary for safety or public acceptance if manual driving controls are removed from fully-self-driving vehicles? Why or why not, and what is the basis for your belief?

c. If NHTSA is going to conduct research to determine whether there is any safety need for the occupants of fully self-driving vehicles to continue to be able to control exterior lighting like turn signals and headlamp beam switching devices, what should that research include and how should NHTSA conduct it? Separately, if NHTSA is going to conduct research on what exterior lighting continues to be needed for safety when a human is not driving, what should that research include and how should NHTSA conduct it?

14. If NHTSA is going to conduct research to determine whether there is a safety need for the occupants of vehicles with ADSs, but without manual driving controls, to be able to see to the side and behind those vehicles using mirrors or cameras, what should that research include and how should NHTSA conduct it? Separately, if NHTSA is going to conduct research to determine how NHTSA would test the ability of a vehicle's ADS to "see" around and behind the vehicle as well as (or better than) a human driver would, what should that research include and how should NHTSA conduct it?

15. Do the FMVSS create testing and certification issues for vehicles with ADSs other than those discussed above? If so, which FMVSS do so and why do you believe they present such issues? For example, FMVSS No. 108, "Lamps, reflective devices, and associated equipment," could potentially pose obstacles to certifying the compliance of a vehicle that uses exterior lighting and messaging, through words or symbols, to communicate to nearby pedestrians, cyclists, and motorists, such as at a 4-way stop intersection, the vehicle's awareness of their presence and the vehicle's willingness to cede priority of movement to any of those people. If research is needed to eliminate the barriers in an appropriate way, please describe the research and explain why it is needed. Are there other lighting issues that should be considered? For example, what lighting will be needed to ensure the proper functioning of the different types of vehicle sensors, especially cameras whose functions include reading traffic control signs?

16. If occupants of vehicles with ADSs, especially those without manual driving controls, are less likely to sit in what is now called the driver's seating position or are less likely to sit in seats that are facing forward, how should these factors affect existing requirements for crashworthiness safety features?

17. If vehicles with ADSs have emergency controls that can be accessed through unconventional means, such as a smart phone or multi-purpose display and have unconventional interiors, how should the Agency address those controls?

18. Are there any specific regulatory barriers related to small businesses that NHTSA should consider, specifically those that may help facilitate small business participation in this emerging technology?

B. Research needed to address those barriers and NHTSA's role in conducting it

19. For issues about FMVSS barriers that NHTSA needs research to resolve, do commenters believe that there are specific items that would be better addressed through research by outside stakeholders, such as industry or research organizations, instead of by NHTSA itself?

a. Which issues is industry better equipped to undertake on its own, and why?

Which issues are research organizations or other stakeholders better equipped to undertake on their own, and why?

b. What research is needed to determine which types of safety performance metrics should be used to evaluate a particular safety capability and to develop a test procedure for evaluating how well a vehicle performs in terms of those metrics?

c. Which questions is NHTSA better equipped to undertake and why? For example, would NHTSA, as the regulator, be the more appropriate party to

conduct research needed to determine what performance threshold to require vehicles to meet with respect to that metric? Why or why not?

d. What research has industry, research organizations, and other stakeholders done related to barriers to testing and certification? What research are they planning to do? With respect to research planned but not yet completed, please identify the research and state the expected starting and end dates for that research.

e. How can NHTSA, industry, states, research organizations, and other stakeholders work together to ensure that, if the research on these issues were eventually to lead to rulemaking, it is done with the rigor and thoroughness that NHTSA would need to meet its statutory obligations, regardless of who performs it (e.g., done in a manner that enables the Agency to ensure that FMVSS are and remain objective and practicable, and continue to meet the need for safety)?

20. For the issues identified above or by commenters, which merit the most attention? How should the Agency prioritize its research and any follow-on rulemakings to remove the barriers to testing and certification?

21. Correcting barriers associated with the track testing of motor vehicles will be particularly challenging. Examples of such barriers follow:

a. FMVSS No. 126 specifies the use of an automated steering machine that depends on a vehicle's steering wheel to steer vehicles when they are tested for compliance. NHTSA will need to determine how to amend the standard to enable the Agency to conduct stability control testing in vehicles that lack a steering

wheel. Further, if NHTSA is going to conduct research to consider how to change the “sine with dwell” test procedure for FMVSS No. 126 so that steering wheel angle need not be measured at the steering wheel in determining compliance with the standard, what should that research include and how should NHTSA conduct it?

b. If NHTSA is going to conduct research to develop a performance test to verify how a vehicle is activating its service brakes, what should that research include and how should NHTSA conduct it? If NHTSA is going to conduct research to determine whether there continues to be a safety need to maintain a human-operable service brake, what should that research include and how should NHTSA conduct it?

22. Are there industry standards, existing or in development, that may be suitable for incorporation by reference by NHTSA in accordance with the standards provisions of the National Technology Transfer and Advancement Act of 1995 and Office of Management and Budget Circular A-119, “Federal Participation in the Development and Use of Voluntary Consensus Standards and Conformity Assessment Activities?”

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