



## DEPARTMENT OF TRANSPORTATION

### National Highway Traffic Safety Administration

[Docket No. NHTSA-2016-0036]

#### Guidelines for the Safe Deployment and Operation of Automated Vehicle Safety Technologies

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

**ACTION:** Announcement of Public Meeting.

**SUMMARY:** NHTSA is announcing a public meeting to seek input on planned guidelines for the safe deployment and operation of automated vehicles. The intent of the operational guidance is to encourage innovative and safe deployment of automated vehicle technologies.

At this meeting, NHTSA is seeking public input on those aspects of automated vehicle (AV) systems that would benefit from operational guidelines. For example, of high importance to the Agency is information on the roadway scenarios and operational environments highly automated vehicles will need to address and the associated design and evaluation processes and methods needed to ensure that AV systems can detect and appropriately react to these scenarios such that a high level of safety is assured when these systems are deployed on US roadways.

Also of interest would be input on aspects of automated vehicle technology that may not be suitable or ready for guidelines. For these areas, information would be useful on alternative approaches to assure safety.

**DATES:** NHTSA will hold the public meeting on April 8, 2016, in Washington, DC. The meeting will start at 9:00 a.m. and continue until 4:00 p.m., local time. Check-in (through security) will begin at 8 a.m. (Note: a second public meeting will be held on the West Coast

(California), and details for that meeting will be announced in a separate Federal Register (FR) Notice.)

**ADDRESSES:** The meeting will be held at the U.S. Department of Transportation, West Building, Ground Floor Atrium, 1200 New Jersey Avenue, SE, Washington, DC 20590. 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 through <http://www.nhtsa.gov/Research/Crash+Avoidance/Automated+Vehicles>.

**FOR FURTHER INFORMATION CONTACT:** If you have questions about the public meeting, please contact us at [av\\_info\\_nhtsa@dot.gov](mailto:av_info_nhtsa@dot.gov).

**Registration is necessary for all attendees.** Attendees should register at <http://goo.gl/forms/l8z3HVM6hw> by April 1, 2016. Please provide name and affiliation, indicate if you wish to offer technical remarks, and please indicate whether you require accommodations such as a sign language interpreter. Space is limited, so advanced registration is highly encouraged.

Although attendees will be given the opportunity to offer technical remarks, there will not be time for attendees to make audio-visual presentations during the meeting. Note: we may not be able to accommodate all attendees who wish to make oral remarks. 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.

**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 May 9, 2016, 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. ET, 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 is able to 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/privacy.html>.

**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).

#### **SUPPLEMENTARY INFORMATION:**

##### **Background.**

DOT recently announced a series of actions to remove potential roadblocks to the integration of innovative automotive technology. As part of this effort, several milestones were announced for 2016, including development of guidance on the safe deployment and operation of automated vehicles.

##### **Draft Agenda.**

08:00 - 09:00 – Arrival/Check-In

09:00 - 12:00 – Morning Public Meeting Session

12:00 – 13:00 – Lunch Break

13:00 – 16:00 – Afternoon Public Meeting Session

16:00 – Adjourn

**Public Meeting Topics.**

NHTSA is seeking input on the following topics during the morning and afternoon sessions of the meeting.

1. Evaluation and testing of scenarios the AV system should detect and correctly operate in:

Within the AV system's operating envelope, consider how to identify the scenarios that could be encountered by the AV system (e.g., behavioral competencies/normal driving, pre-crash scenarios, etc.) and what design and evaluation (testing) processes and methods are needed to ensure that the vehicle can detect and appropriately react to these scenarios.

Consider whether third party testing is appropriate for validating test results.

2. Detection and communication of operational boundaries: If there are limitations on where AV technology will operate – what methods should the AV technology use to sense when it is reaching the operational domain limit and how should that be communicated to the driver?

3. Environmental operation and sensing: Consider what environmental conditions AV systems will likely operate in. For environmental conditions in which AV systems are not designed to operate, discuss methods used to detect these conditions.

4. Driver transitioning to/from AV operating mode: For AV systems that rely on transferring vehicle operation back to the driver, discuss approaches to (a) ensuring safe transitioning back to a fully capable non-impaired driver (e.g., geo-fencing, adverse

weather) and (b) how non optimal driver behavior will be addressed by the AV system (e.g., decision errors, erratic behavior, driver impairment.)

5. Data: Consider data recording capabilities of system(s) necessary to monitor the correct operation of the AV system, and what are appropriate triggers (crash, near crash, etc.) to determine system operational status or possible malfunction of the system. Also consider how recorded data could be accessed and by whom. During the testing phase, consider what data should be made public for further analysis and understanding.
6. Crash avoidance capability: Consider the capabilities of AV systems with respect to detecting roadway hazards (other vehicles, pedestrians, animals, etc.) such that common crash scenarios involving these hazards (control loss, crossing paths head-on, etc.) can be detected and either avoided or mitigated.
7. Electronics systems safety: Consider methods and potential documentation that could be produced with respect to functional safety and cybersecurity.
8. Non-passenger AVs: Consider differences between AVs designed for delivery of goods and products that are not intended to have a human operator or potentially even human passengers.
9. Aspects of AV technology that may not be suitable or ready for guidelines. For these areas, information would be useful on alternative approaches to assure safety.
10. Identification of industry voluntary standards, best practices, etc., related to automated vehicle operation.
11. Information AV's may need to communicate to pedestrians and other vehicles (manual or automated) just as a driver would. Consider situations such as pedestrians crossing a travel lane in a parking lot and how this communication should be accomplished.

12. Other topics needed for operational guidance: Other topics that would be beneficial to address in an operational guidance document to facilitate innovation and safe deployment of these systems on public roadways.

Issued in Washington D.C. under authority delegated by 49 CFR 1.95.

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