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803 7th Street N.W., Suite 300 | Washington, DC 20001
202.326.5500 | www.autoalliance.org

**SUBMITTED ELECTRONICALLY VIA REGULATIONS.GOV**

December 10, 2018

Ms. Heidi King
Acting Administrator
National Highway Traffic Safety Administration
1200 New Jersey Ave., S.E.
Washington, DC 20590

**Re: NHTSA Advance Notice of Proposed Rulemaking (ANPRM): *Pilot Program for Collaborative Research on Motor Vehicles with High or Full Driving Automation*, NHTSA Docket No. 2018-0092, 83 Fed. Reg. 50872 (October 10, 2018)**

Dear Ms. King:

The Alliance of Automobile Manufacturers ("Auto Alliance" or "Alliance") [1] appreciates this opportunity to provide input to the National Highway Traffic Safety Administration's ("NHTSA" or "Agency") advance notice of proposed rulemaking ("ANPRM") for a *Pilot Program for Collaborative Research on Motor Vehicles with High or Full Driving Automation* ("Pilot Program" or "Program").[2] The Pilot Program outlined in the ANPRM would allow automated driving systems ("ADS")-equipped vehicles to be tested or deployed on public roads if relevant vehicle data or information is shared with the Agency.

ADS-operated vehicles have the potential to significantly improve overall safety on our nation's roadways. In 2017 alone, 37,133 fatalities occurred as a result of vehicle crashes in the United States. ADS-operated vehicles have the potential to reduce this number by using advanced sensing technologies combined with artificial intelligence programming to avoid crashes. Unlike conventional human drivers, the ADS can't get distracted, drive impaired or fall asleep at the wheel. In addition to safety benefits, ADS-operated vehicles hold promise to provide numerous social and economic benefits, including less congestion, lower fuel consumption, and increased mobility for the elderly and disabled.

[1] The Auto Alliance is the leading advocacy group for the auto industry. Its members include BMW Group, FCA US LLC, Ford Motor Company, General Motors Company, Jaguar Land Rover, Mazda, Mercedes-Benz USA, Mitsubishi Motors, Porsche, Toyota, Volkswagen Group of America and Volvo Cars North America, and represent approximately 70 percent of all car and light truck sales in the United States. For further details, see http://www.autoalliance.org/.
[2] https://www.federalregister.gov/documents/ 2018/10/10/2018-21919/pilot-program-for-collaborative-research-on-motor-vehicles-with-high-or-full-driving-automation.

The Pilot Program contemplated in the ANPRM would advance the testing and deployment of ADS-equipped vehicles while providing NHTSA with data and information that could be used to inform a future safety assurance framework for such vehicles. Public road testing is required as part of the engineering process in order to fully develop ADS-equipped vehicle technologies. The Pilot Program would create a mechanism to fully consider and enable such testing to occur.

The proposed Program would also support ADS-equipped vehicle deployment. In order for motor vehicles or motor vehicle equipment to be introduced in interstate commerce, i.e. deployed on public roads, automakers typically must certify that the vehicles they put on public roads comply with Federal Motor Vehicle Safety Standards ("FMVSS").[3] When automakers are ready to deploy new vehicle technologies, including ADSs, they must evaluate if the vehicle meets all applicable FMVSS. If the vehicle containing the new technology is not compliant with applicable FMVSS, in the normal process, the automaker may petition NHTSA for a limited Part 555 exemption. NHTSA reviews the petition and either grants or denies it. Particularly in the case of a newer technology, NHTSA may decide to conduct rulemaking to address compliance issues raised in Part 555 petitions. However, in order to do so, NHTSA would need to rely on on-road data to support such a rulemaking.

To date, most of the FMVSS exemptions that automakers have been granted occur under Title 49, Section 30113 of the U.S. Code. The Section 30113 process allows the new technology to be deployed contingent upon NHTSA review and approval per Part 555. However, 30113 exemptions have volume (2,500) and duration (2 years) limitations that may hinder their effective use for ADS-operated vehicles in certain circumstances, particularly if one purpose of the exemption is to generate data to support new or modified FMVSS.

The Safety Act provides another avenue for exemptions under Section 30114. In the ANPRM, NHTSA stated that it was examining whether the language of Section 30114 --

> [G]ives NHTSA the discretion to create a level playing field by expanding the coverage of exemption under that section to any vehicle, regardless of whether it is domestic or foreign, that meets the criteria of that section, particularly vehicles with high and full driving automation that do not meet existing standards and whose manufacturers are or seek to become engaged in research and demonstrations involving those vehicles. 83 Fed.Reg. at 50882

The Alliance asserts that Section 30114 does provide NHTSA with the authority to expand the coverage of exemptions beyond imported vehicles. Further, when coupled with the authority provided by Section 30182, which confers authority on NHTSA to conduct motor vehicle safety research, "including activities related to new and emerging technologies," Section 30114 authorizes NHTSA to create and execute a Pilot Program for ADS-operated vehicles (see Appendix 2 for more detail). The proposed Program would provide a mechanism for ADS-equipped vehicles to be deployed safely on

[3] 49 U.S.C. Section 30112(a)(1). There is a limited exception for legacy manufacturers conducting testing and evaluation. 49 U.S.C. Section 30112(b)(10).

public roads, with NHTSA oversight, and generate the data and information necessary for the Agency to create new or modified FMVSS for ADS technologies.

Unlike Section 30113, a Section30114 exemption is not constrained by any statutory maximum on the number of vehicles or the duration of the exemption. The contemplated Pilot Program would establish exemptions in order to advance NHTSA's safety research and build public acceptance of the technology. Over time, the agency could use this data in order to promulgate rules or undertake other policy initiatives. It is likely that much more than 2,500 vehicles will need to be placed in service if the agency hopes to generate the requisite, statistically significant data during the Pilot Program. It is also likely that a duration of more than two years may be needed, both to generate statistically valid data, as well as to justify participants' investment in the Pilot Program. Structuring the Program to allow collection of sufficient data will be critical to support future FMVSS rulemaking in compliance with Section 30111. The Alliance finds both Section 30114 and 30113 exemptions to be valuable, but situation-dependent. Thus, the Program proposed in the ANPRM should proceed under Section 30114, while recognizing that some automakers may continue to seek exemptions under Section 30113.[4]

As NHTSA correctly noted in its ANPRM, there is a separate barrier to manufacturing some ADS-equipped vehicles that also contain conventional manual controls. This barrier, the statutory prohibition to render or "make inoperative," applies to any feature or system that was installed in a motor vehicle for purposes of compliance with an FMVSS. The Alliance agrees this is a dilemma and applauds NHTSA's interest in solving it. As explained in more detail in Appendix 3, the Alliance proposes that NHTSA adopt an amendment to Part 595[5] to permit manufacturers to equip vehicles with selectable ADS features without triggering the "make inoperative" prohibition, provided that the vehicle is certified as compliant with all applicable FMVSS in its manual driving mode.

Alliance members emphasize that the removal of unnecessary regulatory barriers for ADS-operated vehicles is a near-term necessity in order to realize the corresponding societal benefits associated with these vehicles as soon as possible. To this end, we appreciate that NHTSA is taking a forward-leaning view in the ANPRM and providing the leadership that can help realize the benefits of ADS safety technologies.

The details of how the Pilot Program is structured are critical to its success. The Alliance provides the following principles that NHTSA should consider when creating the Program. (Please see Appendix 1 for our response to the ANPRM questions, including detailed recommendations regarding the Program structure.)

[4] Alliance members reiterate and support the timeline proposed in the 2016 U.S. Department of Transportation Federal Automated Vehicles Policy (pg 7): NHTSA to provide ruling on simple HAV-related exemption requests in 6 months.
[5] 49 CFR Part 595.

## RECOMMENDED PRINCIPLES FOR THE PILOT PROGRAM:

**The application process should provide NHTSA with information necessary to oversee motor vehicle safety and meet the Agency's research objectives, while providing flexibility for participants who may have unique testing or deployment goals and strategies.**

Alliance members recommend that applicants submit a safety case to NHTSA that addresses each of the 12 areas included in the U.S. Department of Transportation ADS 2.0[6] and AV 3.0[7] Guidance. This includes information about the ADS technology such as its Society of Automotive Engineers ("SAE") level of automation, operational design domain ("ODD"), object and event detection and response ("OEDR"), minimal risk condition, post-crash ADS behavior and human machine interface ("HMI"). It also includes information regarding the system safety, validation methods, crashworthiness, data recording and cybersecurity. Consumer education and training, including training of test drivers, should also be addressed in the application, particularly as it relates to the location where the vehicle may be operated under the Pilot Program. Applicants should also address their plans to abide by applicable federal and state vehicle regulations, and to design their ADS technology to comply with state and local traffic laws for the areas in which they are applying to test/deploy. If state or local laws are not congruent with federal laws, applicants should provide detail on this in their application.

Additionally, the applicant should include the number of vehicles and duration of participation that is required to meet NHTSA's research needs under the Pilot Program. Under the Section 30114 exemption process, NHTSA may determine the number of allowable vehicles and duration of their participation on a case-by-case basis. In order to generate statistically significant vehicle data that can inform the Agency for future rulemaking, it is likely that some applicants would require significantly higher vehicle volumes and durations than are currently permitted under Section 30113.

**Participants in the Pilot Program should share information with NHTSA that advances the Agency's safety mission. This includes crash reporting, vehicle operations data and unique categories of data/information that addresses the Agency's research objectives.**

To remain in good standing with the Pilot Program, participants should be required to periodically share relevant information and agreed-upon data with the Agency, including information on crashes, standardized information pertaining to vehicle operations, and ADS product-specific metrics that the manufacturer agreed to provide during the application process.

We recommend that participants be required to report to NHTSA all crashes involving an ADS-operated vehicle that is in the Pilot Program. In addition, any crashes involving death or bodily injury, or property damage claims above a monetary threshold caused by an ADS-operated vehicle

[6] *Automated Driving Systems 2.0: A Vision for Safety*, U.S. Department of Transportation and the National Highway Traffic Safety Administration, 2017.
[7] *Preparing for the Future of Transportation: Automated Vehicles 3.0 (AV 3.0)*, U.S. Department of Transportation and Office of the Secretary, 2018.

participating in the Pilot Program should be reported within an agreed upon time period that facilitates public understanding of the crash and the program involved.

A core set of data/information pertaining to the operation of vehicles in the program should be standardized across participants and reported to NHTSA at a frequency that 1) supports NHTSA's research needs, 2) provides NHTSA with relevant data regarding the progress and status of the program, and 3) facilitates public understanding of the Program. The Alliance envisions that such information should include statistics on use (ADS operation) during participation in the program, i.e. functional class of roads driven as part of the ODD, number of miles driven on each class of roads, average speed and speed range, and hours of operation. We recommend that NHTSA define these reporting categories before the Pilot Program begins so that applicants may adequately prepare their vehicles, customers, employees, and processes to ensure timely submission throughout the duration of their participation.

In addition to standardized reporting elements, it is important that NHTSA create flexibility in the structure of the Pilot Program for participants to be able to define and choose optional reporting elements that support NHTSA's research goals and each participant's unique testing and deployment characteristics. Otherwise, reporting categories may not make sense for every applicant and the Agency would waste resources sorting through data that has no practical utility. As such, we recommend that NHTSA establish clear research goals for the Pilot Program that inform participants of the type of data and information needed to fulfill such research objectives. As indicated in the ANPRM, NHTSA research goals could be to 1) collect data to support rulemaking and 2) build public acceptance of the technology. Participants should propose in their application certain data that they would be able to share during their participation in the program that meets NHTSA's stated research objectives. If NHTSA approves the application, the participant must report information accordingly in order to remain in good standing in the program.

To build a successful program, participants may need to share detailed performance information that may be considered proprietary with NHTSA. To facilitate this type of data sharing with the Agency, we recommend that NHTSA establish an Appendix under Part 512 for a new class of data – similar to what was done for the TREAD program – that is specific to the Pilot Program. This would create a more streamlined and efficient process for participants while simultaneously reducing the burden on the Agency.

**Program participants and NHTSA should engage with states and key stakeholders throughout the duration of the Pilot Program.**

Public education and engagement will be critical to the success of the Pilot Program. Alliance members are committed to continuing their coordination with states and localities in areas where ADS-operated vehicle testing occurs. The same will continue if they participate in this Program. Further, the Pilot Program will provide NHTSA with information regarding ADS-operated vehicle performance that advances the Agency's ability to provide the requisite safety oversight. NHTSA should share key

metrics from the Pilot Program with states and ADS-equipped vehicle stakeholders at various points throughout the duration of the Program.

Program Participants: The Alliance recommends that applicants submit to NHTSA a plan for consumer education and training as part of their application. Once NHTSA approves an application, it is in the participant's best interest to notify the state(s) for which the application was approved and provide information regarding the participant (name and business address), ADS-operated vehicle technology (SAE level of automation, ODD and other VSSA elements) and plans for testing or deployment (estimated number of vehicles and duration of their operation) on the state's public roads under the Pilot Program.

During their participation in the Program, participants should notify the state of any material update to the parameters of their involvement in the Program or changes to the OEM's application. Additionally, participants may choose to share information with the state DOT/DMV such as recommendations for state or local infrastructure improvements and information related to other road users and the local community. Any crashes involving an ADS-operated vehicle participating in the Program should be reported to the state consistent with applicable laws.

NHTSA: We recommend that the Agency appoint a point of contact to coordinate with states regarding applications and grants that pertain to that state. Public information on crashes involving an ADS-operated vehicle participating in the Program should be shared with the states at regular intervals.

States: We recommend that states identify a lead agency and single point of contact to coordinate with NHTSA and participants in the Pilot Program. The lead agency should be responsible for disseminating information to the state DOT, DMV, law enforcement and first responders, as appropriate.

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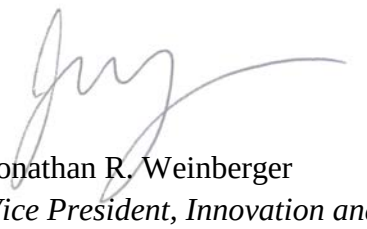
Attached, please find the following Appendices that address specific aspects of the ANPRM:

- Appendix 1: Response to ANPRM Questions
- Appendix 2: Legal Authority for the Pilot Program
- Appendix 3: Legal Analysis of "Make Inoperative" Issues

The Alliance appreciates the opportunity to provide input to NHTSA on this important topic. We look forward to any follow up with the Agency to expand on these comments further.

Sincerely,



Jonathan R. Weinberger
*Vice President, Innovation and Technology*

# Appendix 1 – Response to ANPRM Questions

**"1. What potential factors should be considered in designing the structure of a pilot program that would enable the Agency to facilitate, monitor and learn from on-road research through the safe testing and eventual deployment of vehicles with high and full driving automation and associated equipment?"**

NHTSA should establish clear research goals for the Pilot Program that inform participants of the type of data and information needed to fulfill such research objectives. As indicated in the ANPRM, NHTSA research goals could be to 1) collect data to support rulemaking and 2) build public acceptance of the technology. In addition, it will be important for NHTSA to establish and publish clear and objective criteria for evaluating the Pilot Program applications, including rank ordering the different criteria so that applicants can prioritize. Participants will propose in their application certain data that they would be able to share during their participation in the program that meets NHTSA's stated research objectives. The application process should be transparent and expedient with decisions from the Agency taking no longer than 6 months[8] to determine.

The data that participants report to NHTSA (and, in some cases, will be shared with the public) should be limited to what will contribute to NHTSA's defined research goals. It will be important to monitor positive outcomes, and not limit the data reporting to negative occurrences, which can be an unreliable metric for assessing safety. Both testing and commercial deployment should be allowed as part of this Pilot Program to ensure that NHTSA can move at a reasonable pace to keep up with the fast-evolving nature of this technology. Since the data reported in this program will likely be used to formulate a safety assessment framework for highly and fully automated vehicles, it is critical that this assessment be statistically sound.

The initial focus and learnings from these Programs should be geared towards amending existing regulations to allow for highly and fully Automated Driving Systems ("ADS") to be deployed on vehicles outside of this Pilot Program before creating new regulations for ADS-operated vehicles. As such, this program could supplement the research by Virginia Tech Transportation Institute ("VTTI") to address FMVSS barriers for some ADS-dedicated vehicles. Additional potential learning objectives could include: other road user interactions, driving scenarios, unusual scenarios/edge cases, economic and societal impacts (e.g. mobility for rural areas, decreased congestion, access to community services and opportunities, etc.), over the air ("OTA") updates, public acceptance, accessibility, and human-machine interface effectiveness, including external communications to other road users.

We understand that the Agency will want to monitor the research conducted through this Program in order to ensure that participants are adhering to the agreed upon conditions of their application, ensure public safety through their well-established and understood recalls and defects investigation authority, and make sure that the Pilot Program remains on track to fulfill NHTSA's research objectives. NHTSA should have periodic meetings with Program participants to review the program progress in light of its

[8] This is consistent with the timeline proposed in the US DOT's 2016 Federal Automated Vehicles Policy: ruling on simple HAV-related exemption requests in six months.

goals and share any concerns it might have. Additionally, there should be agreed-upon public disclosures to share information on the status of the Pilot Programs.

**"2. If NHTSA were to create a pilot program, how long would there be a need for such a program? What number of vehicles should be involved? Should NHTSA encourage the conducting of research projects in multiple locations with different weather conditions, topographical features, traffic densities, etc.?"**

The current Section 30113 exemption program limits the duration and number of exemptions to two years and a maximum of 2,500 vehicles with no guarantee of an extension. However, the Pilot Program contemplated in the ANPRM would permit FMVSS exemptions under Section 30114, which does not specify limits on the number and duration of exemptions, and therefore would allow for significantly higher vehicle volumes and durations for exemptions. This in turn would enable the Pilot Program to generate much more data and information for purposes of informing future policy development. We note that it is also important that the length and size of the Pilot Program is sufficient to warrant the investment of the participating companies.

We propose that the number of vehicles and duration of participation in the Pilot Program should be allowed to vary across participants. Applicants should specify in their application the number of vehicles and number of years they would like to participate in the Program and NHTSA should make the final determination on a case-by-case basis.

The last question asks if NHTSA should specify certain operational conditions for the vehicles involved in the Pilot Program. This should be left up to the applicant. There should be no need for the agency to specifically encourage testing in certain scenarios or ODDs, whether multiple locations or different weather conditions. In fact, it's unlikely that such "encouragement" would have any effect, given that technological capabilities of a given ADS and its specified ODD are closely, if orthogonally, linked, such that a change in either generally necessitates change(s) in the other. In short, if a given ADS is incapable as designed of operating in foul weather, NHTSA's "encouragement" that it be redesigned in order to provide such capability is unlikely to have an effect, since it's reasonable to assume that the ADS manufacturer would have already included such expanded ODD capability if it could have done so cost effectively.

That being said, we recommend that the Program allow for modification of the ODD as learning increases during the Program. Program applicants should specify the ODD of their vehicles in their application to NHTSA (as ODDs are defined by the manufacturer). As learning increases, a participant may wish to expand the ODD of vehicles participating in the Pilot Program. This would require a notification to NHTSA, i.e. an amendment to their application.

# Appendix 1 – Response to ANPRM Questions

**"3. What specific difficulties should be addressed in designing a national vehicle pilot program for vehicles with high and full driving automation either through the exemption request process relevant for FMVSS or more broadly related to other areas of NHTSA and/or other authorities."**

See Appendix 2 for a legal analysis of the Pilot Program.

In addition, there are two aspects of state and local traffic law compliance that are problematical for ADS-operated vehicles:

1. Human drivers will on rare occasions, and with cause, violate traffic laws in order to maintain safety or complete a trip. For example, a human driver or an ADS may cross a double-yellow line when it is safe to do so in order to pass a bicyclist, or a double-parked vehicle, or they may breach the speed limit temporarily in order to safety pass a slow-moving vehicle. In order to allow ADS-operated vehicles the same sort of dispensation vis-à-vis such judicious breaches of traffic laws, while still requiring them to comply with all applicable traffic laws, we recommend that state and local governments adopt the concept of "designed to comply" for traffic laws. This concept originally came from the lighting compliance sector: due to the probabilistic nature of light, it's not possible to ensure that every given test of a beam pattern will meet every assigned test point, so authorities have accepted random test point "failures" provided that it's clear that the beam pattern was "designed to comply" with the requirement. Reasoning by analogy, the same approach will work for an ADS-operated vehicle with respect to traffic law compliance: manufacturers can certify and demonstrate that an ADS feature or ADS-dedicated vehicle is "designed to comply" with all applicable traffic laws, even while manufacturers and authorities recognize that, on rare occasions, an ADS will violate them, just as human drivers occasionally violate traffic laws in order to maintain safety and complete a given trip.

2. Traffic laws not specifically related to operating a vehicle in traffic (i.e., performing the dynamic driving task) cannot be complied with by an ADS, which otherwise nominally replaces the human driver in an automated vehicle. For example, laws requiring that the driver is responsible for ensuring that child restraints are properly installed and used, or that snow chains are used when required, or that cargo is properly stowed and secured, etc. are things that an ADS cannot do and will instead need to be complied with by passengers using the vehicle. In order to address this discrepancy between a human driver and an ADS when it comes to complying with laws specifying obligations for drivers that are not related to DDT performance, state and local governments should specify that an ADS-dedicated vehicle in driverless operation is not responsible for complying with traffic laws not specifically related to operating a vehicle in traffic.

We note that the CA department of Motor Vehicles adopted language in its current testing and deployment regulations that address both concerns as follows:

> The manufacturer must certify in the deployment permit application that the autonomous technology is designed to detect and respond to roadway situations in compliance with all provisions of the California Vehicle Code and local regulation

> applicable to the performance of the dynamic driving task in the vehicle's operational design domain, except when necessary to enhance the safety of the vehicle's occupants and/or other road users. Cal. Code Regs. tit. 13, § 228.06(a)(9).

**"4. How can existing statutory provisions and regulations be more effectively used in implementing such a pilot program?"**

See Appendix 2 for a legal analysis of the Pilot Program.

**"5. Are there any additional elements of regulatory relief (e.g., exceptions, exemptions, or other potential measures) that might be needed to facilitate the efforts to participate in the pilot program and conduct on-road research and testing involving these vehicles, especially those that lack controls for human drivers and thus may not comply with all existing FMVSS?"**

See Appendix 2 for a legal analysis of the Pilot Program.

**"6. What vehicle design elements might replace existing required safety equipment and/or otherwise enhance vehicle safety under reasonably anticipated operating conditions?"**

Such vehicle designs aspects will likely vary by applicant and can be addressed on a case-by-case basis.

**"7. What types of performance measures should be considered to ensure safety while allowing for innovation of emerging technology in vehicles with high and full driving automation participating in a pilot program?"**

There should be a variety of performance measures to ensure safety while allowing for innovation. As part of the application process, entities should demonstrate to NHTSA that the ADS technology meets safety criteria as outlined in the US Department of Transportation and NHTSA's ADS Guidance 2.0 and re-emphasized in AV 3.0. As such, applicants should address the 12 safety elements as part of their application. This includes information about the ADS technology such as Society of Automotive Engineers ("SAE") level of automation, ODD, object and event detection and response ("OEDR"), minimal risk condition, post-crash ADS behavior and human machine interface ("HMI"). It also includes information regarding the system safety, validation methods, crashworthiness, data recording and cybersecurity. Consumer education and training, including training of test drivers, should also be addressed in the application, particularly as it relates to the location where the vehicle may be operated under the Pilot Program. Applicants should also address compliance with applicable federal, state and local laws for the areas in which they are applying to test/deploy. This should include a declaration that the ADS-operated vehicles are designed to comply with state traffic laws and commitment to comply with various other state authorities regarding vehicle operation. If state or local laws are not congruent with federal laws, applicants should provide detail on this in their application.

# Appendix 1 – Response to ANPRM Questions

It is important that NHTSA create flexibility in the structure of the Pilot Program for participants to be able to define and choose optional reporting elements, which could be unique to each testing and deployment characteristics. Otherwise, reporting categories may not make sense for every applicant and the Agency would waste resources sorting through data with no practical utility. We propose that each applicant define which optional reporting elements match their Program during the application phase. If NHTSA approves the application, the participant must report information accordingly in order to remain in good standing in the Pilot Program.

**"8. How should the Operational Design Domains of individual vehicle models be defined and reinforced and how should Federal, State and local authorities work together to ensure that they are observed?"**

The ODD for a given ADS feature, or for an ADS-dedicated vehicle, is a function of its design. As such, a given ADS product's ODD cannot be deemed externally "defined and reinforced," although it can be described in detail by the ADS/vehicle manufacturer and be altered to accommodate restrictions that may be regulated by authorities. To this end, the Alliance suggests that the Pilot Program application specifies categories of ODD information to be provided, such as the following categories[9]:

- Physical infrastructure
- Operational constraints
- Objects
- Connectivity
- Environmental conditions
- Special zones (school, construction, check-point, etc.)

This information should also be shared with state and local authorities where the applicant intends to operate the vehicle. The Alliance suggests that NHTSA designate a point of contact who is responsible for sharing such information with the relevant state(s). State and local authorities may then ensure that the ADS/vehicle manufacturer's ODD description matches the on-road performance of its ADS-operated vehicles. Non-trivial deviation of ODD as described in the application could result in corrective action up to and including termination of the Section 30114 exemption. NHTSA should clearly define what is considered "non-trivial deviation of the ODD" prior to the Program commencement.

**"9. What type and amount of data should participants be expected to share with NHTSA and/or with the public for the safe testing of vehicles with high and full driving automation and how frequently should the sharing occur?"**

Participants in the Pilot Program should share information with NHTSA that advances the Agency's safety mission. This includes crash reporting, relevant vehicle operations data and unique categories of data/information that addresses the participant's unique research objectives. Please see our

[9] *A Framework for Automated Driving System Testable Cases and Scenarios*, NHTSA, April 2018.

response to Question 15 for a more detailed list of information.

Data sharing with NHTSA should adhere to the following:

- Allow shared learning from pilots
- Support scenario analysis
- Should protect privacy

**"10. In the design of a pilot program, how should NHTSA address the following issues—**

a) **confidential business information?**

NHTSA's Part 512 procedures should apply. Additionally, in order to facilitate data sharing and maximize NHTSA resources, NHTSA should establish an Appendix under Part 512 for a new class of data – similar to what was done under the TREAD program - specific to the Pilot Program. Any confidential information shared by vehicle manufacturers during the course of the Pilot Program should be treated as such to promote data sharing with the Agency.

b) **privacy?**

There is no need to share personally identifiable data for learning about the capabilities of ADS-operated vehicles, so data shared should be anonymized to protect the privacy of the participating passengers.

c) **data storage and transmission?**

Data storage will be handled by each participant. NHTSA should establish a protocol to standardize the format of certain data shared with the Agency.

d) **data retention and reporting?**

NHTSA and the participant may need to retain the data they have shared with NHTSA for the duration of their participation in the Pilot Program.

NHTSA should define a point of contact to disseminate information to states and stakeholders as-needed, e.g. regarding applications to operate in that state or public information reported as part of the Pilot Program.

Participants in the Pilot Program should share data/information with NHTSA, based upon what data is agreed upon, at a frequency determined through their application process. However, notification of any crashes involving a death or bodily injury involving an ADS-

operated vehicle in the Pilot Program should be reported as soon as possible following the crash (within 10 days). Please see the Alliance response to Question 15 for a complete list of recommended reporting elements.

**e) other elements necessary for testing and deployment?**

**"11. In the design of a pilot program, what role should be played by--**

**a. The 12 safety elements listed in A Vision for Safety?**

**b. The elements listed below,**

**i. Failure risk analysis and reduction during design process (functional safety)?**

**ii. Objective performance criteria, testable scenarios and test procedures for evaluating crash avoidance performance of vehicles with high and full driving automation?**

**iii. Third party evaluation?**

**A. Failure risk reduction?**

**B. Crash avoidance performance of vehicles with high and full driving automation?**

**iv. Occupant/non-occupant protection from injury in the event of a crash (crashworthiness)?**

**v. Assuring safety of software updates?**

**vi. Consumer education?**

**vii. Post deployment Agency monitoring?**

**viii. Post-deployment ADS updating, maintenance and recalibration?**

**c. Are there any other elements that should be considered?"**

The twelve safety principles outlined in DOT's ADS Guidance 2.0, and reinforced in AV 3.0, should play the primary role in defining important safety considerations regarding the design of an applicant's proposed pilot vehicle. These safety principles are quite comprehensive and can serve as a primary means for NHTSA to understand that best practices, validation approaches, a defined ODD, etc., have all been adequately comprehended in order to participate in the Pilot Program. All of the safety items listed in Question 11 are addressed in the 12 safety principles. Beyond the design principles, the applicant would also define operational aspects for the Pilot Program, such as:

- How they will monitor their fleet for field incidents.
- How they will record and report agreed-upon data and information.
- How and when they will periodically review the status of the Pilot Program with NHTSA, particularly if significant changes are being made to the scope (e.g. more volume of vehicles, new ODD, etc.).

Regarding the items listed in "b" of Question 11, the Alliance does not believe that the application process should be so prescriptive as to require any, or all, of these items. Some of the items listed may eventually be derived from aggregate data collected during the Pilot Program, which will be spread across multiple states and cities, as well as multiple participants and ADS products. However, no individual participant should be required to develop or provide such data/information just for its ADS

products, which would be both excessively burdensome, as well as of very limited value to the goal of developing data/information that is applicable and useful for the broader stakeholder community in both the public and private sectors.

With regard to third-party review of participants' testing and evaluation methods, we note that such would not be appropriate in a self-certification compliance regime. Moreover, we question the qualification of third-party reviewers to render judgments about the safety of any particular ADS product, given that ADS-operated vehicles have yet to be deployed, let alone has there been a period of post-deployment bench-marking and development of "best practices" to support generalized safety assessment. Third party verification is neither required nor necessary under the Motor Vehicle Safety Act.

The applicant should also agree that NHTSA can withdraw the exemption for the Pilot Program for a documented safety issue or failure to comply with the provisions of Pilot Program. (We do not expect this to be a an issue that arises frequently, if at all, given that participants in the Pilot Program have a reputational, and in many cases a commercial, interest in responsibly deploying ADS-equipped vehicles.)

**"12. Are there any additional critical areas to consider in the design of a safe pilot program for the testing and deployment of vehicles with high and full driving automation?"**

Our primary recommendations are included herein.

**"13. Which of the following matters should NHTSA consider requiring parties that wish to participate in the pilot program to address in their applications?"**

The Alliance recommendation for Application criteria are provided below. Note that we have also provided a response for each sub-question to Question 13 below.

**APPLICATION**

The Alliance suggests that the application be a one-time submission per applicant for the vehicles addressed in that application (we note that one OEM could submit for more than one pilot with one application for each). We recommend that NHTSA establish a method for applicants to update their application for relevant modifications that may occur based on test results and progression of a participants' capabilities. For instance, changes in ODD may occur as new mapping information becomes available. However, minor updates should not require the entity to update their application. Because the threshold for updating may vary depending on the technology and operating conditions, we recommend that applicants work with NHTSA during their participation in the Pilot Program to determine when such updates are required.

Prior to testing or deploying an ADS-equipped vehicle as part of the Pilot Program, an entity must submit in their application the following information:

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- The name and business address of the company;
- The estimated number of vehicles and duration of their operation on public roads under the Pilot Program;
- State the number, title, paragraph designation, and the text or substance of the portion(s) of the standard(s) from which the exemption is sought;
- The municipality and state in which the applicant is requesting to operate;
- The SAE level of automation of the vehicle(s);
- The Operational Design Domain (ODD) that the ADS is designed to operate, including information in the following categories[10]:
    - Physical infrastructure
    - Operational constraints
    - Objects
    - Connectivity
    - Environmental conditions
    - Special zones (school, construction, checkpoints, etc.)
- Documentation addressing the 12 critical safety areas outlined by US DOT, as described in ADS Guidance 2.0, & AV 3.0;
- A description of how the applicant's participation in the Pilot Program will help support the Agency's research goals;
- Description of the test/deployment plan and use case (e.g., route complexity, weather and related road surface conditions and illumination);
- Recognition that participation does not negate the Agency's investigative or enforcement authority, e.g., independent of any exemptions that the Agency might issue to Program participants and independent of any terms that the Agency might establish on those exemptions, the Agency could conduct defect investigations and order recalls of any defective vehicles involved in the Pilot Program. Further, the Agency could investigate the causes of crashes of vehicles involved in the Program;
- Adherence to recognized practices for standardizing and reporting certain types of data in order to facilitate aggregate analysis and improve statistical validity of aggregate data;
- Indicate if the applicant wishes to sell/lease a non-"test" ADS-equipped vehicle as part of this Pilot Program (i.e. deploy the vehicle with Section 30114 exemption status). In this case, the participant could sell/lease the vehicle and license the software, thereby ensuring that they could still meet reporting requirements to NHTSA during their participation in the Pilot Program.
- Current and future consumer education activities;
- A list of participant-specific data or information that the applicant agrees to report to NHTSA for the duration of their participation in the Pilot Program, including frequency of reporting for each category and delineation of what information is considered confidential business information and should be treated as such under Part 512.

[10] *A Framework for Automated Driving System Testable Cases and Scenarios*, NHTSA, April 2018.

- Identify state laws, if any, that address vehicle design, construction and performance that the applicant proposes would be preempted by participation in the Pilot Program. (The grant should contain NHTSA's decision and the scope of the preemption NHTSA deems necessary.)
- An Emergency Response Guide ("ERG") that addresses how first responders may identify, immobilize and disable the ADS-equipped vehicle that is participating in the Pilot Program.
- That the ADS feature, while engaged, will be designed to operate only within its ODD, and in compliance with the applicable traffic and motor vehicle safety laws and regulations of the state, that specifically govern the performance of the Dynamic Driving Task ("DDT"), in which the vehicle is operated.
- That any test driver(s) or in-vehicle operator of an ADS-operated vehicle holds a valid driver's license for the class of vehicle in the Pilot Program;
- That any test driver(s) is an employee, contractor, or agent of the company testing ADS-equipped vehicles or is faculty, staff, or a student of a college or university and is actively involved in a partnership with that entity;

**"a. "Safety case" for vehicles to be used in the pilot program (e.g., system safety analysis (including functional safety analysis), demonstration of safety capability based on objective performance criteria, testable scenarios and test procedures, adherence to NHTSA's existing voluntary guidance, including the submission of a voluntary safety self-assessment, and third party review of those materials).**

**i. What methodology should the Agency use in assessing whether an exempted ADS vehicle would offer a level of safety equivalent to that of a nonexempted vehicle? For example, what methodology should the Agency use in assessing whether an ADS vehicle steers and brakes at least as effectively, appropriately and timely as an average human driver?"**

This is included in our list of application criteria above. A "safety case" should be made in the application by addressing the 12 safety elements outlined by US DOT in ADS Guidance 2.0 and reinforced in AV 3.0. (A third party review, as suggested in Question 11, is not appropriate in a self-certification safety regime, nor would it be effective, given the nascent state of ADS development and lack of expert knowledge outside of companies developing and validating ADS products, as well as lack of consensus-based "best practices" on which to base generally applicable judgments about ADS safety.)

**"b. Description of research goals, methods, objectives, and expected results."**

Applicants should include a description of how the applicant's participation in the Pilot Program will help support the Agency's research goals. Applicants should also include a list of participant-specific data or information that they agree to report to NHTSA for the duration of their participation in the Pilot Program, including frequency of reporting.

**"c. Test design (e.g., route complexity, weather and related road surface conditions, illumination and institutional review board assessment)."**

"Test design" is included in our list of application criteria above. Note that the specifics will likely vary by applicant.

**"d. Considerations for other road users (e.g., impacts on vulnerable road users and proximity of such persons to the vehicle)**."

This is included in our list of application criteria above. This will be addressed as part of the 12 safety elements.

**"e. Reporting of data, e.g., reporting of crashes/incidents to NHTSA within 24 hours of their occurrence."**

This is included in our list of application criteria above and is addressed in our response to Question 15. In short, reporting of pertinent data or information should be specified in each application with appropriate timelines.

**"f. Recognition that participation does not negate the Agency's investigative or enforcement authority, e.g., independent of any exemptions that the Agency might issue to program participants and independent of any terms that the Agency might establish on those exemptions, the Agency could conduct defect investigations and order recalls of any defective vehicles involved in the pilot program. Further, the Agency could investigate the causes of crashes of vehicles involved in the program."**

This is included in our list of application criteria above.

**"g. Adherence to recognized practices for standardizing the gathering and reporting of certain types of data in order to make possible the combining of data from different sources and the making of statistically stronger findings."**

This is included in our list of application criteria above.

**"h. For which types of data would standardization be necessary in order to make such findings and why?"**

Information pertaining to the operation of vehicles in the Pilot Program should be standardized across participants and reported on a quarterly basis. This will provide the Agency with information to evaluate the Pilot Program status and share this information with states and other ADS stakeholders. The Alliance envisions that such information should include statistics on use during participation in the Pilot Program, i.e. functional class of roads driven as part of the ODD, number of miles driven on each of the functional class of roads, average speed and speed range, and hours of operation. We recommend that NHTSA define these reporting categories before the Pilot Program begins so that applicants may adequately prepare their vehicles, customers, employees, and processes to ensure timely submission through the duration of their participation. Standardized operations data should

follow these general principles: 1) can be collected in a cost effective manner, 2) can remain consistent across all variations of ADS-equipped vehicles participating in the Pilot Program, 3) respect the privacy of the occupants who use the vehicle, and 4) avoid the need to provide IP.

This type of data should only be used to monitor the status and progress of the Pilot Program and not for safety analyses. This information should also be aggregated and anonymized before sharing with stakeholders.

Beyond this scope, it is not appropriate to require standardized data. ADS technology is still developing and it is too early to provide standardized data formats. However, Alliance members support working towards a longer-term goal of developing a framework to standardize data collected from different pilot participants to ensure comparability of findings and meta-analysis of safety impacts.

**"i. To what extent would standardization be necessary for those types?"**

See answer above.

**"j. Occupant/non-occupant protection from injury in the event of a crash (crashworthiness)"**

This is included in our list of application criteria above. This will be addressed as part of the 12 safety elements.

**"k. Assuring safety of software updates"**

This is included in our list of application criteria above. This will be addressed as part of the 12 safety elements.

**"l. Consumer education"**

This is included in our list of application criteria above. This will be addressed as part of the 12 safety elements.

**"m. Post-deployment monitoring"**

Post-deployment monitoring should not be included as a requirement in the Pilot Program application. Current tools such as the Early Warning Reporting ("EWR") program and NHTSA's Office of Defects Investigation ("ODI") authorities provide necessary means to monitor vehicle safety.

**"n. Post-deployment maintenance and calibration considerations"**

Post-deployment maintenance and calibration considerations should not be included as a requirement in the Pilot Program application. While some applicants may choose to address this in their Voluntary Safety Self-Assessment ("VSSA") or include it within the vehicle warranty, it may not be applicable for all applicants to address within the scope of this Program.

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**"14. What types of terms and conditions should NHTSA consider attaching to exemptions to enhance public safety and facilitate the Agency's monitoring and learning from the testing and deployment, while preserving the freedom to innovate, including terms and conditions for each of the subjects listed in question 13? What other subjects should be considered, and why?"**

Terms and conditions associated with the Pilot Program should be clearly defined by NHTSA for the Program at large and for each applicant/participant during their individual application process. We recommend that NHTSA adopt the following process, terms and conditions that address the application process, criteria to remain in good standing in the Pilot Program and what happens to vehicles after the Pilot Program term concludes. These elements ensure that NHTSA has the ability to monitor and learn from the pilot vehicles while providing safety oversight of the Pilot Program. The list below also provides recommendations on how to create an efficient and transparent application process.

**PROCESS, TERMS AND CONDITIONS**

- An entity must submit an application for specified ADS-equipped vehicles they wish to operate on public roads (either test or deployed vehicles under this Program).
- NHTSA has a defined period of time to review and respond to the application.
- If NHTSA approves the application, the Pilot Program participant is able to test/deploy said vehicles on public roads immediately.
- If NHTSA does not approve the application, NHTSA must provide an explanation to the applicant. Entities may apply more than once for the same vehicles.
- If a participant in the Pilot Program does not adhere to their agreed-upon reporting requirements or other conditions specified in their grant, NHTSA must provide notification and specify a time period by which the participant must submit the required information to remain in the Pilot Program. Once NHTSA's decision is made, the applicant may appeal to the Secretary.
- Once the participant reaches the end of their term, as specified in their application, the test of deployed vehicles covered by their participation in the Pilot Program will no longer be covered by a Section 30114 exemption but, similar to the Section 30113 exemption process (49 CFR 30113(h)), will be allowed to operate on public roads with the proper permanent label.[11]
- Pilot Program participants have the option to re-apply for a second term at any time.

[11] 49 U.S. Code Section 30113(h): ***PERMANENT LABEL REQUIREMENT.—***

*The Secretary shall require a permanent label to be fixed to a motor vehicle granted an exemption under this section. The label shall either name or describe each motor vehicle safety standard prescribed under this chapter or bumper standard prescribed under chapter 325 of this title from which the vehicle is exempt. The Secretary may require that written notice of an exemption be delivered by appropriate means to the dealer and the first purchaser of the vehicle other than for resale.*

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**"15. What value would there be in NHTSA's obtaining one or more of the following potential categories of data from the participants in the pilot program? Are there other categories of data that should be considered? How should these categories of data be defined?"**

The Alliance recommendation for periodic data/information reporting to NHTSA is as follows. Note that we have also provided a response for each Question 15 sub-question below.

**PERIODIC DATA/INFORMATION REPORTING TO NHTSA**

For the duration of the entity's participation in the Pilot Program, participants must share pre-defined ADS-operated vehicle data or information with NHTSA in order to remain in good standing with the Pilot Program. This should include information on crashes, standardized information pertaining to vehicle operations, and ADS product-specific metrics that the manufacturer agreed to provide during the application process (see list below).

Data reported with associated frequency:

- Notify NHTSA as quickly as possible (within 10 days) any crashes involving a death or bodily injury involving an ADS-operated vehicle that is in the Pilot Program.
- Report to NHTSA (every quarter) instances of crashes with property damage claims above a monetary threshold caused by an ADS-operated vehicle participating in the Pilot Program.
- Report to NHTSA (every quarter) standardized information pertaining to the operation of vehicles in the Pilot Program (i.e. "statistics on use").
- Report to NHTSA (at a frequency determined during the application process) ADS product-specific metrics that the manufacturer agreed to provide during the application process.

Per the last bullet, applicants should define the reporting elements that support the Agency's stated research objective(s) and assign a frequency of reporting for each category. If NHTSA approves the application, the participant must report information accordingly in order to remain in good standing in the Pilot Program. It is likely that some aspects of this information will be proprietary in nature. To facilitate this type of data sharing with the Agency, we recommend that NHTSA establish an Appendix under Part 512 for a new class of data – similar to what was done under the TREAD program - specific to the Pilot Program. This would create a more efficient process for participants while reducing burden on the Agency.

**"a. Statistics on use (e.g., for each functional class of roads, the number of miles, speed, hours of operation, climate/weather and related road surface conditions)."**

This type of information should be standardized across participants and reported to NHTSA on a quarterly basis: functional class of roads as part of the ODD; number of miles driven on each of the functional class of roads; average speed and speed range; hours of operation on a quarterly basis; weather conditions in which the vehicle is designed to operate as part of the ODD; operational plan if weather conditions arise outside the prescribed ODD. However, we advise that there is no practical method of routinely providing weather and road surface conditions.

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For planning purposes, it is imperative that NHTSA identify and fully define the types of data/information that will need to be standardized to support the statistical analysis regarding vehicle use before the Pilot Program begins. For these items, potential participants will need to understand when and how these measures are to be provided to the Agency so that they may adequately prepare their vehicles, customers, employees, and processes to ensure timely submission through the duration of their participation.

Standardized performance measures should follow these general principles: 1) can be collected in a cost effective manner, 2) can remain consistent across all variations of ADS-equipped vehicles participating in the Pilot Program, 3) respect the privacy of the occupants who use the vehicle, and 4) avoid the need to provide intellectual property ("IP").

**"b. Statistics and other information on outcome (e.g., type, number and cause of crashes or near misses, injuries, fatalities, disengagements, and transitions to fallback mechanisms, if appropriate)."**

This should only be required as it pertains to crashes of ADS-operated vehicles participating in the Pilot Program. Crashes with property damage claims above a monetary threshold should be reported to NHTSA every quarter, and crashes involving death or bodily injury should be reported to NHTSA as quickly as possible within 10 days. From this information, and the detailed crash reports that will follow, NHTSA will have access to much of the information listed above.

Reporting "near miss" events should not be required. There is no agreed-upon definition for this. If NHTSA determines that "near miss" data must be reported, we recommend the Agency work with industry to define one or two threshold metrics indicative of a "near miss" (e.g., braking above 0.x g or yaw moment greater than x rad/sec). Without an objective method of defining a "near miss" event for all Pilot participants, the data collected by NHTSA would not be comparable among products or events, and thus would not support NHTSA's research objectives.

Regarding "disengagements," such events do not provide data relevant for meeting NHTSA's research goals, and recommend against including such a reporting element. "Disengagements" – especially for test vehicles – may be discretionary on the part of the fallback test driver, or they may be necessitated by hazard avoidance, while only the latter have any safety relevance. However, it is very difficult to standardize criteria for distinguishing between discretionary and hazard-avoidance disengagements. A more relevant and consistent metric – especially for level 4 ADS-operated vehicles, which are the focus of the Pilot Program, would be to report incidents that trigger automated fallback performance (as defined in SAE J3016) by the ADS.

**"c. Vehicle/scene/injury/roadway/traffic data and description for each crash or near miss (e.g., system status, pre-crash information, injury outcomes)."**

This is included in our list of reporting categories above, with the exception of requiring reporting on "near miss" events. As noted above, "near miss" events are difficult to define consistently.

**"d. Sensor data from each crash or near miss (e.g., raw sensor data, perception system output, and control action)."**

Raw sensor data should not be required as part of this Pilot Program's reporting requirements. Such data would not be useful to NHTSA because it would provide an unnecessary abundance of data that requires technology-specific analysis before it can be useful, and would not advance the Agency's ability to determine performance outcomes of ADS-operated vehicles. In terms of reconstructing a given event, the output of the perception system (i.e. object classification and related positional metrics) and the resultant control actions are important.

**"e. Mobility performance impacts of vehicles with high and full driving automation, including string stability of multiple consecutive ADS vehicles and the effects of ADS on vehicle spacing, which could ultimately impact flow safety, and public acceptance."**

This should not be required as part of an individual participants application process, since "mobility performance impacts" can really only be assessed on an aggregate level in areas where multiple participants are fielding larger volumes of ADS-operated vehicles.

**"f. Difficult scenarios (e.g., scenarios in which the system gave control back to an operator or transitioned to its safe state by, for example, disabling itself to a slow speed or stopped position)."**

As noted above, participants should report incidents that trigger automated fallback performance by the ADS-operated vehicle.

**"g. Software updates (e.g., reasons for updates, extent to which updates are made to each vehicle for which the updates are intended, effects of updates)."**

Non-trivial software updates (i.e. software revisions or upgrades) that change the operational characteristics of the ADS feature, such as expanding or shrinking its ODD, changing its HMI design for safety-relevant aspects, increasing or decreasing its speed range, etc., should be shared with the Agency. However, software updates that do not change the operational characteristics of the ADS, such as changes to payment options and/or mechanisms, improvements in voice-activated software interfaces, software changes required to accommodate a new supplier's sensor, etc., should not be required to be reported to NHTSA.

**"h. Metrics that the manufacturer is tracking to identify and respond to progress (e.g., miles without a crash and software updates that increase the operating domain)."**

This information should be reported to the Agency. Relevant metrics should be defined by each participant depending on their approach, so it is expected that these metrics may vary across the Pilot Program.

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**"i. Information related to community, driver and pedestrian awareness, behavior, concerns and acceptance related to vehicles with high and full driving automation operation. For example, if vehicles with high and full driving automation operated only in limited defined geographic areas, might that affect the routing choices of vehicles without high and full driving automation? For another example, if vehicles with high and full driving automation are programmed to cede right of way to avoid collision with other vehicles and with pedestrians and cyclists, might some drivers of vehicles without such automation, pedestrians and cyclists take advantage of this fact and force vehicles with high and full driving automation to yield to them?"**

This should not be required as part of an individual participant's application process, since such information may not be applicable to all participants. As with subsection "e" above, this information would be best assessed on an aggregate level in areas where multiple participants are fielding larger volumes of ADS-operated vehicles.

**"j. Metrics or information concerning the durability of the ADS equipment and calibration, and need for maintenance of the ADS."**

This should not be required, as it has no direct bearing on ADS safety performance. Moreover, the need for calibration and maintenance will likely vary from participant to participant and contains sensitive business information (some of which is proprietary to suppliers). However, this could be reported to NHTSA on a voluntary basis.

**"k. Data from "control groups" that could serve as a useful baseline against which to compare the outcomes of the vehicle participating in the pilot program."**

This should not be required.

Defining an appropriate "control group" for ADS-operated vehicles would require the existence of a "gold standard" ADS, which does not exist and could only emerge from many years of comparative performance data. Using human-operated vehicles as a "control group" for ADS-operated vehicles is inappropriate both because ADSs do not operate a vehicle the way humans do, and because human operators vary dramatically in terms of driving safety performance. As such, specifying a "control group" made up of a finite number of human-driven vehicles and comparing its performance to that of a group of ADS-operated vehicles would not yield consistent, reliable, or relevant safety data. (Broad statistical comparisons between human-driven and ADS-operated vehicle crash data can and will be made, but this is quite different than conducting a control group study.)

**"l. If there are other categories of data that should be considered, please identify them and the purposes for which they would be useful to the Agency in carrying out its responsibilities under the Act."**

See complete list above.

**"m. Given estimates that vehicles with high and full driving automation would generate terabytes of data per vehicle per day, how should the need for data be appropriately balanced with the burden on manufacturers of providing it and the ability of the Agency to absorb and use it effectively?"**

NHTSA guidelines on what data or information should be reported should strike an appropriate balance between gathering data and making effective use of it while encouraging technology innovation to occur. The Agency should only collect data or information for which it has identified a practical use and will support its research goals for ADS-equipped vehicles.

**"n. How would submission of a safety assurance letter help to promote public safety and build public confidence and acceptance?"**

As previously noted, the Alliance agrees that participants in this proposed Pilot Program should address the 12 safety areas outlined by US DOT in ADS Guidance 2.0 and AV 3.0 in their application. However, publication of a public-facing Safety-Self Assessment is a voluntary process established in US DOT ADS Guidance 2.0 and AV 3.0, and should not be specified as a condition of participation.

**"o. For all of the above categories of information, how should the Agency handle any concerns about confidential business information and privacy?"**

NHTSA should address confidential business information and privacy as they currently do for treatment of sensitive data, including that which is covered under 49 CFR Part 512. Additionally, in order to facilitate data sharing and maximize NHTSA resources, NHTSA should establish an Appendix under Part 512 for a new class of data – similar to what was done under the TREAD program - specific to the Pilot Program.

**"16. How should the Agency analyze safety in deciding whether to grant such exemptions under each of the separate bases for exemptions in section 30113? Can the exemption process be used to facilitate safe and effective ADS development in an appropriate manner?"**

Yes, the Section 30113 exemption processes can be used to facilitate safe and effective ADS development in an appropriate manner. While the Alliance recommends the Agency to structure the proposed Pilot Program on the basis of section 30114 exemptions, we recognize that that both 30113 and 30114 exemptions are valuable. The Alliance supports the new Pilot Program proposed in the ANPRM that would proceed under Section 30114, while recognizing that some automakers may continue to seek exemptions under Section 30113.

In AV 3.0, US DOT indicated its intention to review the current Part 555 regulation in light of ADS technology in order to improve the process for this unique technology. The Alliance supports this proposal and stands ready to assist the Department, should it have questions about how best to do so. We also encourage US DOT to set appropriate time limits on agencies tasked with responding to petitions for exemption for ADS-operated vehicles.

The Agency should analyze safety in deciding whether to grant such exemptions by looking at the aggregate as opposed to an FMVSS-specific (or FMVSS-provision-specific) level. This approach would allow the agency to look at a petition holistically and consider the product's specific design and operational limits (e.g., lower operating speeds, fair weather conditions, prescribed routes, etc.), as well as the possible existence of ancillary features, such as a fleet operations center that monitors, manages and maintains the ADS-operated vehicles in service.

**"17. Could a single pilot program make use of multiple statutory sources of exemptions or would different pilot programs be needed, one program for each source of exemption?"**

See Appendix 2 for a legal analysis of the Pilot Program.

**"18. To what extent would NHTSA need to implement the program via new regulation or changes to existing regulation? Conversely, could NHTSA implement the program through a non-regulatory process? Would the answer to that question change based upon which statutory exemption provision the agency based the program on?"**

See Appendix 2 for a legal analysis of the Pilot Program.

**"19. How could the exemption process in section 30113 be used to facilitate a pilot program? For vehicles with high and full driving automation that lack means of manual control, how should NHTSA consider their participation, including their continued participation, in the pilot program in determining whether a vehicle would meet the statutory criteria for an exemption under section 30113? More specifically:**

**a. Would participation assist a manufacturer in showing that an exemption from a FMVSS would facilitate the development or field evaluation of a new motor vehicle safety feature providing a safety level at least equal to the safety level of the FMVSS, as required to obtain an exemption under section 30113(b)(ii)? If so, please explain how.**

**b. Would participation assist a manufacturer in showing that compliance with the FMVSS would prevent the manufacturer from selling a motor vehicle with an overall safety level at least equal to the overall safety level of nonexempt vehicles, as required to obtain an exemption under section 30113(b)(iv)? If so, please explain how.**

The Alliance recommends the Agency to structure the proposed Pilot Program on the basis of section 30114 exemptions. Both 30113 and 30114 exemptions are valuable, but situation-dependent. The Alliance supports both the new Pilot Program proposed in the ANPRM that would proceed under Section 30114 as well as the proposal by US DOT in AV 3.0 to improve the current Part 555 regulation for purposes of ADS-operated vehicles.

**"c. The Agency requests comment on what role a pilot program could play in determining when to grant an exemption from the "make inoperative" prohibition under section 30122 for certain "dual mode" vehicles. Relatedly, what tools does NHTSA have to incentivize vehicles with high**

**and full driving automation that have means of manual control and thus do not need an exemption to participate in the pilot program?"**

See Appendix 3 for a legal analysis of "make inoperative" issues.

**"20. What role could exemptions under section 30114 play in the pilot program? Could participation in the pilot program assist a manufacturer in qualifying for an exemption under section 30114? Could participation be considered part of the terms the Secretary determines are necessary to be granted an exemption under section 30114 for vehicles that are engaged in "research, investigations, demonstrations, training, competitive racing events, show, or display"?"**

See Appendix 2 for a legal analysis of the Program.

**"21. What role could a pilot program play in determining when to grant an exemption from the "make inoperative" prohibition under section 30122 for certain "dual mode" vehicles? Relatedly, what tools does NHTSA have to incentivize vehicles with high and full driving automation that have means of manual control and thus do not need an exemption to participate in the pilot program?"**

See Appendix 3 for a legal analysis of "make inoperative" issues.

**"22. If there are any obstacles other than the FMVSS to the testing and development of vehicles with high and full driving automation, please explain what those are and what could be done to relieve or lessen their burdens. To the extent any tension exists between a Federal pilot program and State or local law, how can NHTSA better partner with State and local authorities to advance our common interests in the safe and effective testing and deployment of ADS technology?"**

The various patchwork of requirements and regulations at the state and local government level continue to perpetuate uncertainty and complexity when it comes to the testing and deployment of vehicle with high and full ADS features. For this reason, we recommend that application criteria include an identification of state laws, if any, that address vehicle design, construction and performance, including the types of laws described in response to Question 3, above. Presumably, these would be preempted under the Pilot Program. To clarify on this matter, we recommend that the Pilot Program grant should contain NHTSA's decision and the scope of the preemption NHTSA deems necessary for each participant.

While the Pilot Program may alleviate some, if not all, of the current challenges to test or deploy ADS-equipped vehicles, it would only be afforded to those companies who decide to participate. Companies who decide to use other means to test or deploy their vehicles on public roadways, e.g. via CFR Part 555 exemptions or testing under the FAST Act, would still be left to deal with many of these obstacles. To this end, a definitive timeline for NHTSA to review Part 555 exemptions would be helpful. We re-iterate and support the timeline proposed in the 2016 FAVP --

> HAV-related interpretations in 60 days, and ruling on simple HAV-related exemption requests in six months. Federal Automated Vehicles Policy, US DOT, September 2016, pg 7.

Another concern is related to the timing of the Pilot Program. The Alliance applauds the priority which NHTSA has placed on bringing this program to fruition as soon as possible, but we recognize that some time will still be needed to finalize the details. The Alliance cautions that some states and local governments may seek to enact more new regulations before the Program is ready. This could have a major effect on ability to test automated vehicles through other means beyond the Program.

We encourage NHTSA to remain engaged with state and local regulatory agencies during the creation of the Pilot Program and throughout its duration. In the latest AV 3.0 guidelines, NHTSA encouraged state governments to collaborate, harmonize, and avoid patchwork. The Alliance supports this recommendation and further believes NHTSA's engagement to be crucial in establishing an environment where the states and local governments can realize the recommendations of the agency.

As stated in our Cover Letter, we recommend the following actions for program participants, NHTSA and states, in order to harmonize and streamline their collaboration:

Program Participants: The Alliance recommends that applicants submit to NHTSA a plan for consumer education and training as part of their application. Once NHTSA approves an application, it is in the participant's best interest to notify the state(s) for which the application was approved and provide information regarding the participant (name and business address), ADS-operated vehicle technology (SAE level of automation, ODD and other VSSA elements) and plans for testing or deployment (estimated number of vehicles and duration of their operation) on the state's public roads under the Pilot Program.

During their participation in the Program, participants should notify the state of any material update to the parameters of their involvement in the Program or changes to the OEM's application. Additionally, participants may choose to share information with the state DOT/DMV such as recommendations for state or local infrastructure improvements and information related to other road users and the local community. Any crashes involving an ADS-operated vehicle participating in the Program should be reported to the state consistent with applicable laws.

NHTSA: We recommend that the Agency appoint a point of contact to coordinate with states regarding applications and grants that pertain to that state. Public information on crashes involving an ADS-operated vehicle participating in the Program should be shared with the states at regular intervals.

States: We recommend that states identify a lead agency and single point of contact to coordinate with NHTSA and participants in the Pilot Program. The lead agency should be responsible for disseminating information to the state DOT, DMV, law enforcement and first responders, as appropriate.

# Appendix 2 – Legal Authority for the Pilot Program

In the ANPRM, NHTSA requested comment on "creating a national ADS vehicle pilot program for the testing of vehicles and associated equipment and to gather data from such testing, including data generated in real world scenarios. NHTSA anticipates that this data will provide information needed to help realize the promises and meet the challenges of ADS vehicle development and deployment."[12]

In this appendix, the Alliance provides comments on the legal basis under which NHTSA can establish such a pilot program within its existing statutory authorities. For purposes of this appendix, the Alliance is assuming (based on the ANPRM) that the pilot program would be comprised of the following elements:

- Establishment of a pilot program for the purpose of researching the emerging ADS technologies and assisting NHTSA to determine how best to foster the safe development and implementation of these technologies;
- Grant of exemptions from certain FMVSSs for some ADS vehicles participating in the pilot program;
- Adoption of a regulation (or enforcement discretion policy) exempting some ADS vehicles participating in the pilot program from the "make inoperative" prohibition;
- Preemption of state/local laws that would frustrate the purpose of the pilot program, particularly those laws that would unreasonably interfere with the testing and deployment of the pilot program vehicles.

**General Authority for the Pilot Program.** As NHTSA noted in the ANPRM, Congress "reiterated and strengthened NHTSA's role in conducting research, particularly in areas of innovative technology" when it amended the Vehicle Safety Act in July 2012 to add specific direction to the Secretary of Transportation to conduct such research as may be necessary.[13] The 2012 amendment expressly authorizes DOT to "conduct motor vehicle safety research, development, and testing programs and activities, including activities related to new and emerging technologies that impact or may impact motor vehicle safety."[14] The Section also authorizes DOT to enter into "cooperative agreements, collaborative research or contracts" with private organizations and groups to carry out the research authorized by the section, as well as to "[c]ollect and analyze all types of motor vehicle and highway safety data" related to motor vehicle performance and crashes.[15]

This legislation provides ample authority for NHTSA to establish a pilot program for the purpose of testing and evaluating ADS vehicles.

**Exemptions from Certain FMVSSs**. The ANPRM identifies the two authorities under which NHTSA may grant exemptions to manufacturers to permit the manufacture, sale and public road operation of vehicles that are not certified to all of the applicable FMVSSs.

[12] 83 Fed. Reg. 50872 at 50874 (October 10, 2018).
[13] 49 U.S.C. §30181, added by MAP-21 legislation, Pub.L. 112-141, July 2012.
[14] 49 U.S.C. §30182(a)(1).
[15] 49 U.S.C. §30182(a)(2).

First, the Vehicle Safety Act authorizes a category of exemptions known as "General Exemptions."[16] These exemptions have traditionally and historically been used to provide relief to vehicle manufacturers to allow the manufacture and sale of a limited number of vehicles that are not certified to meet all of the FMVSSs. This program is well established and understood. NHTSA has adopted implementing regulations to identify the information required by an applicant for a General Exemption.[17]

General Exemptions may provide some limited value for the pilot program, but the statutory constraints on the volume of eligible vehicles (2,500 per year for most manufacturers) and the duration of the exemption (maximum of two years for most manufacturers) restrict the amount of information and data that can be generated by the Pilot Program. If NHTSA were to rely only on the information and data that could be generated by vehicles granted General Exemptions, it would significantly delay the achievement of the purpose of the pilot program, which NHTSA described as assisting the agency to "prepar[e] for a world in which ADS vehicles operate on a broad scale on our Nation's roads under a vast array of complex and changing road, traffic and weather conditions."[18]

Second, the Vehicle Safety Act authorizes a category of exemptions known as "Special Exemptions."[19] Under this provision, the Secretary is given substantial discretion to grant exemptions on "terms the Secretary decides are necessary for research, investigations, demonstrations, training, competitive racing events, show, or display."

In 1996, NHTSA published a notice in the Federal Register announcing a public meeting to seek information on how it could reduce regulatory burdens on small manufacturers. In that notice, NHTSA discussed the possible use of the Special Exemption authority in Section 30114 to permit public road testing of prototype vehicles, and concluded that the authority would allow DOT to award Special Exemptions for that purpose:

> Sec. 30114 *Special exemptions* provides NHTSA with the authority to exempt a motor vehicle or an item of motor vehicle equipment on terms that the agency decides are necessary "for research, investigations, demonstrations, training, or competitive racing events." Since its original enactment in P.L. 100-562, *The Imported Vehicle Safety Act of 1988*, Sec**.** 30114 has been implemented solely with respect to the importation of vehicles and equipment, in 49 C.F.R. Sec. 591.5(j)(1). **However, that statutory provision appears to have other applications as well, such as permitting manufacturers to operate non-conforming prototype vehicles on the public roads.** (Emphasis added).[20]

[16] 49 U.S.C. §30113.
[17] 49 C.F.R. Part 555.
[18] 83 Fed. Reg. at 50875.
[19] 49 U.S.C. §30114.
[20] 61 Fed. Reg. 4249, 4251, February 5, 1996.

Thus, NHTSA has already interpreted the Special Exemptions provision to authorize the testing of nonconforming prototype vehicles on public roads, and the scope of exemptions contemplated for the pilot program is consistent with this interpretation.

Notably, the Special Exemptions provision has no constraints on volume or duration. Those terms and conditions are left entirely to the Secretary's discretion, as long as they are necessary for the research program being conducted.

**Exemptions from "Make Inoperative" Prohibitions.** Manufacturers of certain ADS vehicles that have both manual and autonomous configurations may need relief from the "make inoperative" prohibition in the Vehicle Safety Act. Please see the Alliance Appendix 3 for more discussion of this issue.

**Preemption**. An important element of a successful pilot program would be ensuring that state and local laws could not be used to frustrate the purposes of the federal pilot program, one of which would be to "aid developers of vehicles with high and full driving automation in testing and deploying their vehicles across the country in a wide variety of scenarios, *e.g.*, different climates, weather patterns, topographical features, road systems, population and traffic densities, etc."[21] Ultimately, the purpose of testing and deploying "in a wide variety of scenarios" is to serve the federal purpose of allowing DOT and other stakeholders to gather the data to make good decisions about the future of ADS technology.

If state or local laws are permitted to restrict this goal by limiting unreasonably the ability of the pilot program participants to accumulate mileage (and thus, data) in these various scenarios, they would frustrate the purpose of the federal program and should be preempted carefully, in order to preserve the balanced partnership among the federal, state and local governments that has traditionally allowed a role for each level of government.

Significantly, preemption is needed even for vehicles whose manufacturers are granted exemptions under either the General Exemptions authority or the Special Exemptions authority. Exemptions do not automatically confer preemption, and absent an assertion of preemption, state and local governments can impose restrictions on the operation of exempted vehicles in their jurisdiction.

It is well settled that federal agencies can preempt state and local laws that conflict with, and frustrate the purpose of, a lawful federal program or policy, even without express preemption authority in the underlying statute. The courts have repeatedly held that federal agency regulations or policies can have just as much preemptive effect as statutes.[22]

[21] 83 Fed. Reg. at 50877.
[22] Capital Cities Cable, Inc. v. Crisp, 467 U.S. 691, 699 (1984)

To this point, the preemption that is needed for an effective ADS vehicle pilot program is not based on the text of the Vehicle Safety Act. While that statute does provide for preemption of state and local laws that address the same aspect of performance, but differ from, an FMVSS, that is not the source of the preemption at issue here. Rather, the preemption needed for an effective pilot program is grounded in the Supremacy Clause of the U.S. Constitution, which establishes that federal law has priority over a conflicting or inconsistent state law. The federal case law has identified several types of conflict preemption. This analysis will focus on the type of conflict preemption that is found when state law "stands as an obstacle to the accomplishment and execution of the full purposes and objectives of" the federal government. This type of conflict is sometimes called "frustration of purpose" preemption. This can arise from a conflict with a statute or a federal regulation or a federal policy.

In this connection, the mere existence of a federal program, regulation or standard does not automatically confer preemption. For example, the Supreme Court held that the provision of FMVSS 208 (1989 version) conferring a regulatory choice between lap belts and three-point seat belts in the center rear seating position did not preempt personal injury claims under California state negligence law, primarily because NHTSA did not articulate any federal policy purpose for preserving that choice.[23] Rather, NHTSA decided to retain the lap-belt option in the center rear seating position for cost-benefit reasons, but would apparently have had no concerns if manufacturers all elected to install three-point belts anyway. In other words, the Court found that there was no policy conflict between the FMVSS and the plaintiffs' theory.

On the other hand, the courts have upheld agency decisions to preempt state laws even when the agency did not issue affirmative regulations to displace the state laws when the agency has clearly articulated its intention to preempt. For example, the Supreme Court upheld the Federal Communications Commission's decision to preempt state regulation of cable television rates and services by means of an Order announcing the preemptive intent, and was not troubled that the FCC did not also adopt federal regulations over the same rates and services. The Court noted:

> "And, as we have repeatedly explained, when federal officials determine, as the FCC has here, that restrictive regulation of a particular area is not in the public interest, States are not permitted to use their police power to enact such a regulation."[24] (Internal quotations and citations omitted.)

Likewise, the Second Circuit upheld a preemption order issued by the FCC preempting state and local price regulation of cable television where the FCC's policy was to "delay all price regulation" to allow free-market pricing,[25] and another FCC Order displacing state regulation of building-mounted satellite dishes without adopting federal rules over those services.[26] The D.C. Circuit has upheld a similar FCC preemption Order involving satellite signal regulation, even though "[t]he Commission chose not to

[23] Williamson v. Mazda Motor of America, Inc., 562 U.S. 323 (2011)
[24] Capital Cities Cable, Inc. v. Crisp, 467 U.S. 691, 709 (1984)
[25] Brookhaven Cable TV, Inc. v. Kelly, 573 F.2d 765 (2d. Cir.,1978), cert. den. 441 U.S. 904 (1978)
[26] New York State Commission on Cable Television v. FCC, 669 F. 2d 58 (2d. Cir. 1982)

impose entry restrictions of its own, believing that open entry policies in the satellite field would create a more diverse and competitive telecommunications environment."[27]

Here, NHTSA is contemplating a pilot program to evaluate ADS vehicles. The pilot program is serving an important federal purpose that is expressly authorized by statute. Certain state/local laws restricting the use of public roads for the testing and deployment of ADS vehicles within the pilot program could conflict with, and frustrate the purpose of, the pilot program. Thus, NHTSA has the authority to declare those state/local laws to be preempted as to the vehicles that are participating in the pilot program.

Because the courts have also repeatedly held that "the agency's own views" about the preemptive effect of their policies and regulatory decisions are significant in determining whether to find conflict preemption,[28] NHTSA would need to explain to the public carefully and thoroughly the federal policy underlying the pilot program, and explain why it finds the need to preempt certain state/local laws to the extent they would unreasonably prevent vehicles participating in the pilot program from being tested and deployed on public roads in that jurisdiction. NHTSA should explain the limited nature of the scope of the preemption (presumably only those vehicles participating in the pilot program).

One example of NHTSA asserting preemption over an emerging patchwork of state laws is the Event Data Recorder ("EDR") rule that was published on August 28, 2006.[29] In the preamble to this rule, NHTSA addressed concerns about "a patchwork of State and local requirements" governing EDRs and agreed that inconsistent laws should be preempted. The agency stated:

> It is our view that any State laws or regulations that would require or prohibit the types of EDRs addressed by our regulation, or that would affect their design or operation, would create a conflict and therefore be preempted.[30]

NHTSA also stated an intention to preempt any State or local laws imposing consumer disclosure requirements on manufacturers or dealers beyond the disclosure requirements contained in the EDR Rule.[31] NHTSA provided an extensive discussion (nearly a full page of the Federal Register) describing why inconsistent State laws would frustrate the purpose of NHTSA's goal of encouraging the rapid voluntary introduction of EDRs into the market.

On the other hand, in recognition of the traditional role of the states, NHTSA explicitly reserved to the States "issues generally within the realm of State law," such as ownership of the EDR data, how EDR data can be used in criminal proceedings, whether EDR data can be obtained without a warrant, access to the EDR data by insurance companies and others, and other such issues.

[27] New York State Commission on Cable Television v. FCC, 749 F. 2d 804 (D.C. Cir. 1984)
[28] Geier v. American Honda Motor Co., 529 U.S. 861 (2000)
[29] 71 Fed. Reg. 50998 (August 28, 2006)
[30] 71 Fed. Reg. at 51029
[31] 49 C.F.R. Part 563

# Appendix 2 – Response to ANPRM Questions

The Alliance submits that NHTSA could assert a similarly balanced approach to preemption for the pilot program, one which recognizes the traditional roles of the state and local governments in regulating the operations of vehicles within their jurisdictions, but which also recognizes the need for a robust program to test and deploy ADS vehicles in a "wide variety of scenarios."

# Appendix 3 – Legal Analysis of "Make Inoperative" Issues

NHTSA requested comment on what role a pilot program could play in determining when to grant an exemption from the "Make inoperative" prohibition under Section 30122 of the Safety Act for certain "dual mode" vehicles[32]. NHTSA also sought comments on the tools that NHTSA might have to incentivize vehicles with high and full driving automation that have means of manual control and thus do not need an exemption to participate in the pilot program.

**"Make Inoperative" Exemptions.** NHTSA correctly noted that it has the authority to provide exemptions from the "make inoperative" prohibition when the exemption is consistent with motor vehicle safety and the purposes of the Safety Act. This authority is provided in Section 30122(c)(1) which allows the agency to prescribe regulations to do so.

The Alliance urges NHTSA to exercise this authority to level the playing field between manufacturers, distributors, dealers and motor vehicle repair businesses that are subject to the "make inoperative" prohibitions, and other entities that are not subject to those prohibitions, such as fleet operators who own their fleet vehicles and are free to modify them, even if the modification disables a feature installed to comply with a Federal Motor Vehicle Safety Standard (FMVSS). To encourage the introduction of vehicles with high and full driving automation, the Alliance urges NHTSA to adopt a regulation exempting "dual mode" vehicles equipped with automated driving systems (ADS) from the "make inoperative" prohibition if the vehicle is certified as compliant with all applicable FMVSSs in its manual driving mode.

With respect to the "make inoperative" issue, the Alliance submits that there are three categories of ADS vehicles.

First, there is a category of ADS vehicles that are also equipped with conventional manual controls that can be used during testing to confirm compliance with all applicable FMVSSs. If these vehicles are designed such that the vehicle defaults to the manual controls whenever the vehicle recognizes the presence of a human in the front left seating position (the position that is conventionally recognized as the "driver's" seating position), or when a driving control (such as a steering wheel or brake) is engaged, then the Alliance submits that such vehicles do not need any exemption from the "make inoperative" provision.

Second, there is a category of ADS vehicles that are also equipped with conventional manual controls that can be used during testing to confirm compliance with all applicable FMVSSs, but which can also be operated in an autonomous configuration at the choice of the vehicle operator. In its January 18, 2018 request for comment on Removing Regulatory Barriers for Vehicles with Automated Driving Systems, NHTSA indicated that a vehicle that could be operated both conventionally through human driver controls and autonomously in which at least some human driver controls are not available, might

[32] The Alliance is using the term "dual mode" because that is the term that NHTSA used in the ANPRM. However, a more appropriate term would be "multiple configurations," because some vehicles will be designed to have more than two configurations of autonomous operation.

"under the Agency's line of interpretations involving vehicle systems that have multiple modes" have "testing or even compliance difficulties."[33]

The Alliance believes that NHTSA is referring to its longstanding policy that the agency may ordinarily select to activate any feature in a motor vehicle before conducting a compliance test. Thus, for example, a vehicle that is certified compliant with FMVSS 135 and demonstrates compliance through operation of the conventional brake pedal, but which disables that brake pedal when the ADS mode is selected, cannot demonstrate compliance to the published FMVSS 135 test procedure in that mode. If NHTSA adheres to a policy of being able to activate the ADS mode prior to a compliance test, then manufacturers will not be able to certify those "dual mode" vehicles as compliant with all applicable FMVSSs.

The Alliance urges NHTSA to amend Part 595 to add a regulation exempting vehicle manufacturers from the "make inoperative" prohibition if they install ADS equipment and features in vehicles that otherwise are capable of demonstrating compliance to the published test procedures for all applicable FMVSSs.

Finally, there is a category of ADS vehicles that do not have some or all of the conventional manual controls, and thus (under the interpretation issued to Google), cannot be certified compliant with all of the FMVSSs because the published compliance tests cannot be conducted. The Alliance agrees that, under current law, these vehicles will require an exemption under Section 30113 or 30114, and that a "make inoperative" exemption is not sufficient to permit those vehicles to be introduced into interstate commerce.

**Incentivizing Vehicles with High and Full Driving Automation.** NHTSA also sought comment on the tools the agency has "to incentivize vehicles with high and full driving automation that have means of manual control and thus do not need an exemption to participate in the pilot program."

As discussed above, an ADS vehicle that is also equipped with conventional manual controls that can be used during testing to confirm compliance with all applicable FMVSSs, but that has a selectable control to activate one or more ADS features may not need an exemption under Section 30113 or Section 30114, but it likely needs an exemption from the "make inoperative" prohibition to avoid creating a noncompliance in an ADS configuration. Expediting a "make inoperative" exemption rule (or, in the alternative, announcing enforcement discretion not to activate selectable ADS features during FMVSS compliance tests for vehicles in the pilot program) would provide an incentive to manufacturers to participate in the pilot program.

Another incentive that NHTSA could offer to encourage participation in an ADS pilot program would be to announce that state/local laws that are inconsistent with, and would frustrate the purposes of, the pilot program are preempted for the duration of the pilot program, at least with respect to vehicles that

[33] 83 Fed. Reg. 2609 (January 18, 2018).

are part of the pilot program. NHTSA's authority to preempt inconsistent state/local laws is discussed in more detail in Appendix 2.