**Federal Automated Vehicles Policy**

**Summary of Comments at December 12, 2016 Public Meeting**

EXECUTIVE SUMMARY

BACKGROUND

On December 12, 2016, the National Highway Traffic Safety Administration (NHTSA) held a public meeting to discuss the recently released Federal Automated Vehicles (FAV) Policy. The morning session was an opening listening session dedicated to hearing public comments on the Model State Policy (Section 2 of the FAV Policy). The afternoon session included a series of expert panels, each discussing one of the six areas outlined in the Modern Regulatory Tools portion of the FAV Policy.

This document discusses key items from the public meeting and synthesizes remarks from the commenters in the morning session and summarizes themes from the six panel discussions held during the afternoon session. This summary is provided only for the convenience of members of the public who may not be able to view the entire live webcast and are looking for a short synthesis of high-level themes. The agency takes no substantive or policy position whatsoever in this summary. Interested members of the public are strongly encouraged to refer directly to the source material for more information. A live webcast of the meeting can be found here: <http://icsw.nhtsa.gov/nhtsa/av/>.

MEETING SUMMARY

## Morning Session

The following organizations provided public comments on the Model State Policy during the morning session of the meeting:

* National Association of Mutual Insurance Companies (NAMIC)
* Global Automakers
* Motor and Equipment Manufacturers Association (MEMA)
* Consumers Union
* American Association of Motor Vehicle Administrators (AAMVA)
* Consumers for Auto Reliability and Safety (CARS)
* Self-Driving Coalition for Safer Streets (The Coalition)
* American Automobile Association (AAA)

Public comments regarding the Model State Policy focused primarily on the need to clarify the relationship between the Model State Policy and the Vehicle Performance Guidance, in addition to the state’s role in overseeing testing within their jurisdiction. Overall, commenters generally supported the need for a consistent national approach and applauded NHTSA’s efforts to develop the Federal Automated Vehicle Policy. Key points are summarized by commenter below:

### National Association of Mutual Insurance Companies (NAMIC)

* NAMIC applauds NHTSA’s commitment to developing the FAV Policy and educating the public on automated vehicles.
* The model state policy confirms that states need to maintain their existing responsibilities and NAMIC supports this notion. States should be responsible for determining liability rules, such as how to allocate liability to owners, manufacturers and operators for when a crash occurs.
* It may be desirable to convene an expert commission to study liability issues to make recommendations. NAMIC pledges its support for further development of the FAV Policy and is available to provide any expertise.

### Global Automakers

* Global Automakers agrees that that a consistent national approach is necessary. However, there are some unclear and conflicting statements in the Vehicle Performance Guidance and Model State Policy that need to be addressed immediately. In particular, sections 2d and 2h of the Model State Policy suggest that as part of an application for testing, states should seek a safety and compliance plan for testing vehicles and affirm that they have self-certified to the Vehicle Performance Guidance.
* Global agrees with the outlined division of responsibilities between the Federal government and the states, which maintains the ability of original equipment manufacturers (OEMs) to produce a single fleet for the U.S. market. Allowing individual states to regulate vehicle equipment would lead to a patchwork of requirements and design targets that would impair and delay testing and deployment of AVs.
* Global encourages NHTSA to add a strong statement that it does not intend for the Vehicle Performance Guidance to be codified by states. States requiring compliance with the Vehicle Performance Guidance would create regulatory uncertainty and introduce a two-step regulatory process. Global is concerned that states may seek to require submission of the Safety Assessment Letter (SAL) prior to approval of testing.
* Global also points out that section 2d, which recommends that states require FMVSS-compliance for test vehicles, conflicts with FAST Act provisions that do not require OEMs to seek exemptions for test vehicles that are not FMVSS-compliant.
* The Model State Policy also includes language encouraging states to regulate AV test programs, including the application process, issuance of permits, and jurisdictional permission to test. It is not in the best interest of the public for states to prohibit or regulate testing. States should not manage the jurisdictional permission to test. The Model State Policy should be clarified to state that testing is a Federal responsibility.
* The Federal, State, and local laws section of the Vehicle Performance Guidance raises an important question with regard to the ability of HAVs to temporarily violate local traffic laws to avoid a hazardous situation (for example, cross the centerline to maneuver around a bicyclist). Global suggests that this issue should not be resolved through ethical considerations, but should instead be reconciled through the ways in which traffic laws are drafted. Traffic laws should allow clear exceptions to such rules, which would allow HAVs to clearly follow traffic laws while also managing these ethical conflicts. A future revision of the Model State Policy could encourage states to review their traffic rules to identify where exceptions might be introduced to reduce conflicts between safety and mobility goals. Global is also willing to work with NHTSA to develop a database of all applicable traffic laws for HAVs, that OEMs could have access to.
* Global requested clarification on FAV Policy’s use of the term “deployment”, which currently captures the operation of HAVs by members of the public. This definition accurately describes operation, not deployment. Deployment means that the OEM still has ownership of the vehicle and should not be defined as being available for public use.

### Motor and Equipment Manufacturers Association (MEMA)

* MEMA supports the iterative development process outlined for the FAV Policy and believes that Federal leadership is necessary to avoid a patchwork of state laws. However, it is concerned that the Federal guidelines could become de-facto requirements and that states could see them as a requirement in order to allow testing. It is important to clarify this in the near future to prevent uncertainty among stakeholders.
* MEMA believes that states should not codify the Vehicle Performance Guidance through state laws and policies.
* MEMA urged NHTSA to consider the difference between test vehicles and production vehicles. Test vehicles are operated by highly trained company employees who are constantly monitoring the driving environment and will take control in critical situations. HAV developers must evaluate their test vehicles under a variety of conditions to prepare for production and real-world exposure on public roads.
* MEMA points out that the FAST Act allows for OEMs to test and operate vehicles that do not meet FMVSS requirements without exemptions, as long as they are not made for sale. This provision applies to OEMs, not component manufacturers. MEMA urges NHTSA to clarify this issue in the FAV Policy.

### Consumers Union

* Consumers Union supports NHTSA’s and AAMVA’s work on the Model State Policy and, with the pace of technology advancement, agrees that it is appropriate to define and delineate Federal and state roles.
* Consumers Union warns against going too far in avoiding a patchwork of state regulations. NHTSA should strive to achieve reasonable consistency, but Consumers Union does not support a policy that would restrict the ability of states to ensure safety on their roads.
* States are responsible for what is tested and operated on their public roads and they should have the final call in this area. Yet, there is concern that the FAV Policy may understate the advisory role that NHTSA should play with states to ensure safety. Under the current framework, states are responsible for granting permission to test and operate HAVs on public roads. Consumers Union is concerned that states lack the expertise to make this determination and will leave states in an untenable position unless they are able to consult with an informed source. NHTSA has indicated that it will explore a mechanism for helping state officials in this regard. This may be useful, but will not be a substitute for independent technical expertise. If the existing framework remains in place, NHTSA should assist states with approval decisions, including determining whether vehicles meet the Safety Assessment Letter (SAL).
* Consumers Union expressed concern that states may grant permission for HAVs to operate without sufficient safety assurance. NHTSA should establish a policy to discourage states from making these types of calls. NHTSA should communicate with a state’s governor if it thinks safety has not been ensured for a vehicle that a state has permitted to operate on its roads.
* NHTSA should provide additional recommendations to states around driver requirements, titling, law enforcement concerns, and insurance. NHTSA should also make recommendations to states around driver/operator education, particularly in working with dealers and OEMs to clearly communicate the limitations of L2/L3 systems to consumers.
* NHTSA should recommend to states that they prohibit operation of HAVs if necessary equipment has been damaged and not repaired. The Vehicle Performance Guidance suggests that vehicles should not operate in HAV mode if they are damaged. Instead of being voluntary, this should be codified as part of state laws.

### American Association of Motor Vehicle Administrators (AAMVA)

* AAMVA believes the Model State Policy serves as a good starting point to develop consistent regulations across states and agrees that it will need to be updated on an ongoing basis.
* AAMVA suggests that the expertise of its members is an essential resource for the further development of the Model State Policy and that AAMVA involvement ensures that state and OEM interests work in tandem to provide consistency across jurisdictional lines.
* AAMVA understands the benefits of grouping AV levels 3, 4, and 5 under a “HAV” designation but suggests that specific classifications will still be needed in certain circumstances.
* AAMVA members suggest that state AV committees should include representatives from state legislatures and economic development groups, as they will ultimately decide policy.
* The FAV Policy does not address automated vehicle platoons, including commercial vehicle platoons, which may incorporate connected vehicle technology. AAMVA requests clarification on whether the FAV Policy applies to connected and automated platoons.
* Section 5b of the Model State Policy suggests that fully automated vehicles are driven entirely by the vehicle and require no human drivers. This section includes a footnote providing the distinction that some HAVs are “dual-capable”, able to be driven entirely by a human or automation, and that in such cases states would retain their jurisdiction to license the human driver. AAMVA suggests that this footnote be included directly in the main text of the Model State Policy to avoid confusion about the authority of states to enforce driver licensing rules.
* AAMVA requests clarification on whether the person in the driver seat of a HAV is responsible for abiding by distracted driving laws and other violations, even while the vehicle is in a fully automated mode.
* The definition of “operator” covers the occupants of a HAV who are not responsible for driving but may be responsible for certain aspects of the journey. AAMVA requested clarification as to whether this definition would cover vehicles that are remotely operated.
* The Vehicle Performance Guidance requests that OEMs provide performance data to NHTSA; AAMVA requested that NHTSA revise the Model State Policy to suggest that this information will be made available to states too so that OEMs only have to make a single data submission.
* AAMVA supports the suggestion there is an expert commission to study liability and insurance issues and make recommendations to the states.

### Consumers for Auto Reliability and Safety (CARS)

* CARS expressed concern about the Model State Policy preempting state requirements and laws.
* Disengagement reports, similar to those required by the California DMV, may be a useful addition to the Vehicle Performance Guidance or Model State Policy. Real-time data is an important aspect for informing imminent hazard issues.
* NHTSA should codify a set of baseline regulations to ensure the safety of HAVs, as states are not equipped to handle the complexities of safety assurance for HAVs and will look to NHTSA to ensure that HAVs are safe.

### Self-Driving Coalition for Safer Streets (the Coalition)

* The Coalition believes that level 4 and 5 HAVs hold the greatest potential for improving safety and mobility.
* It is crucial for NHTSA to take a strong leadership position in defining Federal and state roles. The Federal government is responsible for enforcing the FMVSS, which has been observed for decades; and there is no reason to diverge from that precedent. States should continue to focus on their traditional areas of jurisdiction, which includes licensing, enforcement, and insurance requirements.
* There is concern that the FAV Policy provides leeway for states to fill gaps and introduce regulations outside their normal areas of control. NHTSA should signal to states that they should not rush into legislation. NHTSA should leverage existing authority to deter overlapping regulations.
* States should examine existing laws that are impediments to HAV testing and deployment rather than establishing new laws and regulations.

### American Automobile Association (AAA)

* NHTSA should work with states to explore how to formalize the elasticity of compliance with state driving laws, where the goals of safety and mobility may come into conflict. NHTSA can also collaborate with states, OEMs, and technology developers to identify common scenarios that may result in conflicts between goals, which would allow states to revise traffic laws to clarify the legality of otherwise illegal maneuvers (e.g., crossing the centerline) when necessary to maintain safety.
* NHTSA should consider an ethical program for HAVs. States may be able to take action to mitigate ethical issues and should consider laws to prevent people from disrupting HAV systems. States can adopt a graduated system of laws, criminalizing actions that disrupt HAVs. States can also examine roads for design characteristics that may lead to ethical conflicts. This would allow them to identify roads with such characteristics and mitigate the risk of ethical conflicts. States and other entities share the responsibility for communicating with and education the public on motor vehicle issues. This should not be left for one agency and NHTSA should consider a full stream of communication channels on this issue

## Afternoon Session

The afternoon session of the public meeting featured six panel discussions, each focused on one of the potential modern regulatory tools covered in section 4 of the FAV Policy. Panel members included legal experts, former NHTSA officials, cybersecurity experts, and advocates focused on roadway safety, consumer protection, and innovation. Panels were moderated by staff from the NHTSA Office of Chief Counsel.

### Panel 1: Premarket Safety Assurance

* *Peter Kurdock, Advocates for Highway and Auto Safety*
* *Reginald Govan, Federal Aviation Administration*
* *Marc Scribner, Competitive Enterprise Institute*

*Discussion Summary:*

The first panel addressed the potential for NHTSA to require premarket safety assurance through testing, risk analysis, data gathering and other tools to ensure the safe operation of vehicles prior to being deployed on public roads. These tools could help demonstrate to NHTSA that they have followed the NHTSA performance guidance, industry best practices, and other performance criteria and standards to assure the safe operation of motor vehicles.

Panelists discussed whether premarket safety assurance would appropriately balance the need to ensure HAV safety and foster innovation. It was suggested that NHTSA should fully evaluate how the current self-certification model could apply to HAVs rather than augmenting with pre-market tools. If the agency determines that self-certification is insufficient to ensure HAV safety and that premarket safety assurance is necessary, then it should carefully consider how this new system can promote safety without adding unnecessary burden in terms of time delays and cost.

The panel discussed how the aviation framework is fundamentally different from the automotive industry. The FAA framework is highly prescriptive in that it controls all elements of the entire aviation process, from conception/design to production off of the assembly line. The FAA certifies all aspects in between, such as the mechanics, the maintenance, and pilots. This process has worked well and has been adopted globally. Some of the panelists discussed that with the pace of development of new technologies, prescriptive models could be overly constraining on innovation.

The FAA has been looking at shifting from a highly prescriptive process to a performance-based model that makes use of voluntary consensus standards and information sharing. The idea is to be proactive and to voluntarily collaborate on safety. In aviation, aircraft manufacturers do not compete on safety. They maintain some proprietary information but are generally open and willing to share data as it relates to safety. It was suggested that the automotive industry takes a competitive approach to safety and so this type of information sharing may not be transferable for HAVs. There is some debate as to whether the FAA should shift more towards a self-certification, particularly for drones (unmanned aerial systems).

In summary, the panelists agreed that there needs to be a better understanding of several areas, such as data, privacy, cybersecurity and areas where NHTSA does not have a lot of experience. Data ownership and management will be an important discussion going forward. NHTSA identified these topics in the Vehicle Performance Guidance, but more specific data requirements will be necessary to ensure that the agency receives useful information.

### Panel 2: Premarket Approval

* David Strickland, Self-Driving Coalition for Safer Streets
* Bryant Walker-Smith, University of South Carolina School of Law and Stanford Law School Center for Internet and Society
* Tom Karol, National Association of Mutual Insurance Companies

*Discussion Summary:*

The second panel discussed the merits of a premarket approval system, similar to the type-approval process currently used to certify new vehicles for sale in Europe. Such a system would represent a departure from the self-certification system that has been in use for decades.

The panel debated how premarket approval could be a viable way to ensure the safety of HAVs, depending on the specific approach adopted. Premarket approval can range in its implementation from a highly strict, hands-on approach to more flexible processes that are more similar to premarket safety assurance. Premarket approval could also be appropriate in cases where the relevant technology poses a significant risk or if a government approval is necessary to generate public acceptance.

One panelist argued that premarket approval is unnecessary for ensuring the safety of HAVs and that an adapted form of self-certification would be sufficient. In this opinion, pre-market approval could provide a false sense of safety and the public would assume too high a safety standard compared to what would actually be achievable. In addition, there are potential tools available that NHTSA could use to mimic pre-market approval, for example the types of letters and inquires NHTSA submits today, is a form of intervention. NHTSA could look more favorably on companies that comply with the Safety Assessment Letter versus those who do not. All panelists agreed that a premarket approval system would require a significant infusion of staff, expertise, and resources for NHTSA to adequately evaluate HAV systems and avoid delays from the approval process.

It was suggested that an iterative self-certification process involving constant information exchange with the original equipment manufacturers (OEMs) would be one way for NHTSA to balance safety assurance with fostering innovation. It will be important to collect and review data related to incidents that are most relevant and one option is to consider the data collection from event data recorders.

Panelists also discussed the issue of applicability of current (FMVSS) standards that focus on repeatable performance tests. There seemed to be consensus among the panel that it would be difficult to develop a test that could account for and handle all operations and scenarios. One suggestion was to focus more on development processes and whether there is a ‘reasonable’ approach to the activity and a clear understanding of the risks. This could also include observation of safe performance over extended time periods.

### Panel 3: Cease-and-Desist/Imminent Hazard Authority

* Rodney Slater, Squire Patton Boggs (former U.S. Secretary of Transportation)
* Sean Kane, Safety Research & Strategies, Inc.
* Erika Jones, Mayer-Brown (former NHTSA Chief Counsel)

*Discussion Summary:*

The third panel discussed the potential for a new authority that would grant NHTSA the ability to require manufacturers to take immediate actions to mitigate safety risks that are serious enough to constitute “imminent hazards.”

Panelists generally expressed support for NHTSA to have some form of imminent hazard authority, but cautioned that the parameters for this authority would need to be well-defined. In addition to imminent hazard authority, NHTSA would need additional tools or authorities in place to prevent hazards. Preventing imminent hazards should be a first step, however, robust standards would provide the basis for this and there are no core standards.

One panelist commented that NHTSA effectively has imminent hazard authority now through its power to order and enjoin recalls (49 U.S.C §30118 and 49 U.S.C. §30163, respectively), since imminent hazards generally stem from defects. The panelist pointed to examples of other agencies – the Consumer Product Safety Commission (CPSC), in particular – that has imminent hazard authority but rarely use it. Rather, building trust between a regulator and industry can allow that regulator to have a powerful enforcement tool like imminent hazard authority, but avoid using it in favor of collaboration and information sharing with industry.

All of the panelists suggested that NHTSA would need significant investment in expertise, staff, and resources for most of the new regulatory tools being considered to address HAVs. This could also support greater trust between the industry and the agency.

There was a question on whether announcing the investigation of a safety defect would be sufficient to push industry action to address defects and other hazards. Panelists seemed to agree that this would not necessarily ensure that problems are resolved. Deeming certain defects as imminent hazards could imply that other defects do not pose hazards that are truly imminent. NHTSA would need to carefully consider how to make these judgements. Considering the lack of complete participation in current recall campaigns, designating certain recalls as an ‘imminent hazard’ may influence consumer perception and decrease participation in recalls that are not labeled as an imminent hazard.

### Panel 4: Expanded Exemption Authority

* Jacqueline Glassman, King & Spalding (former NHTSA Chief Counsel)
* Steven Shladover, California Partners for Advanced Transportation Technology (PATH) Program
* Norma Krayem, Holland & Knight (former U.S. DOT Deputy Chief of Staff)

*Discussion Summary:*

NHTSA currently has the authority to provide an exemption for one or more FMVSS requirements, but not for more than 2,500 vehicles per year for a two-year period, on the basis of equivalent safety. This panel discussion focused on the possibility of expanding its exemption authority, by increasing the volume of vehicles and/or the time limit in order to generate additional data that would allow manufacturers and NHTSA to assess the on-road safety of exempted vehicles.

Some panelists believed that it may be premature to consider expanded exemption authority without understanding how it would apply and its objectives. In the context of HAVs, the nature of exemption requests may be more focused on testing procedures rather than the testing outcomes. NHTSA may wish to explore how to deem HAVs compliant with FMVSS if they are unable to perform the specific tests outlined in the regulations. Similarly, NHTSA should consider what information it needs about HAV performance and then evaluate whether expanded exemption authority can actually enable the agency to collect that data.

The panel discussed the challenge of evaluating comparable safety in the context of granting exemptions. It is difficult to determine what combination of on-road, test track testing and simulation can be put together to determine the right level of safety. Statistical exercises have found that demonstrating that a HAV performs more safely overall than a human driver would require an impractical number of test miles. This issue is not unique to granting exemptions, but is a central challenge in defining an overall regulatory approach for HAVs. Panelists emphasized that a significant amount of work is being devoted to this issue internationally, and that NHTSA should be involved in this research to ensure harmonization of approaches.

Panelists commented on the relevance to expanded exemption authority of the recent FAST Act requirement that OEMs do not need to seek FMVSS exemptions for non-compliant vehicles being tested on public roads. They pointed to the fact that the provision only applies to test vehicles, so OEMs would still face the current exemption limitations for vehicles they wish to offer for use by or sale to the general public. Established original equipment manufacturers (OEMs) have been conducting controlled testing on public roads for many decades and have an established relationship with the agency. Congress and NHTSA may need to reconsider how this provision applies to non-OEM entities that are testing HAVs.

Overall, panelists agreed that NHTSA first needs to clearly articulate what challenge would be addressed through expanded exemption authority prior to approaching Congress for this type of authority. A key question is also on how you determine who receives the exemption over who does not based on safety.

### Panel 5: Post-sale Authority to Regulate Software Changes

* Adam Thierer, Mercatus Center at George Mason University
* Michael Clamann, Duke University
* Christine Hines, National Association of Consumer Advocates

*Discussion Summary:*

This panel discussed potential approaches for NHTSA to regulate post-sale updates to HAV software. Manufacturers have recently begun equipping their new vehicles with the ability to update software wirelessly; in some cases over-the-air (OTA) updates have been used to change or add functionality in a significant way. Panelists discussed how NHTSA might oversee OTA updates in the context of HAVs to ensure they are made safely.

Panelists discussed how OTA updates present both risks and opportunities as applied to HAVs. On the one hand, changing the software of a HAV could effectively replace the “driver” of the vehicle, including all of the “behaviors” it had at the initial point of manufacture. However, considering the cybersecurity threats facing HAVs as well as the likelihood that HAV software programming will improve over the course of a vehicle’s lifespan, OTA updates present an opportunity to quickly and thoroughly address vulnerabilities and programming weaknesses.

A panelist discussed how NHTSA faces a “pacing problem,” where policy evolves incrementally but technology evolves exponentially. Agencies in this situation will need to learn by doing (rather than taking a prescriptive approach), even though this is not always a comfortable position for regulators. Several panelists commented on software validation approaches taken by other Federal agencies, including the FAA, Food and Drug Administration (FDA), and NTIA. They pointed to the use of guidance and best practices accompanied by post-market surveillance and the presence of tort and product defect law to offer a flexible and nimble approach to ensuring the safety of emerging technologies (one panelist characterized these approaches as the emergence of “soft law”).

In considering the approaches taken by other agencies, panelists emphasized that other agencies tend to deal with highly trained users (FDA and physicians, FAA and pilots), where the users tend to seek out updates. For example, physicians regularly seek updated information and research. The automotive industry deals with a very different type of user in the driving public and has generally faced challenges in promoting compliance with critical recalls. This is one major reason for why consumer education plays a significant role in any approach to post-sale updates to HAV software. One panelist also pointed to FAA’s and CPSC’s use of third-party certification as a model that NHTSA could consider for HAV software.

An audience member pointed out that much of the discussion around post-sale updates assumes that the status quo is riskless; meaning that concerns over OTA updates for HAVs are inherently riskier than vehicles and drivers currently on the road. How risky would post-market software updates need to be to justify delaying the introduction of HAVs and preventing the loss of life? Focusing on perfect safety may prevent movement toward a best case scenario and instead result in the status quo where many lives are lost every year. The best safety scenario could come from a process of trial and error and an understanding of the risks and trade-offs. The safety engineering field has set a precedent of weighing the probability and severity of risks and this could be a model for considering software updates for HAVs.

### Panel 6: Other Tools

* Ryan Hagemann, Niskanen Center
* Ian Adams, R Street Institute
* Cary Coglianese, University of Pennsylvania

*Discussion Summary:*

The final panel discussed additional tools and approaches that NHTSA should consider as it evaluates potential new tools and authorities for regulating and ensuring the safety of HAVs.

Panelists expressed mixed opinions about the use of variable test procedures for HAVs. It is difficult to have a single objective test for a technology operating in a complex environment. A panelist commented how there is difficulty with objectively measuring the performance and decision-making of artificial intelligence, which remains a largely unresolved area. He suggested that before determining a testing approach, NHTSA needs to consider what it is trying to regulate. If it pursues a functional or system safety approach, as discussed by previous panelists, NHTSA may be in a position of regulating underlying decision-making algorithms, which would present numerous challenges.

Some panelists argued that the consistency of static test procedures is preferable so that all entities are subject to the same tests. While concerns have been expressed about the ability of manufacturers to “game” static test procedures (i.e., program their HAV to perform perfectly in light of the static test procedures, even if its real-world performance is lacking), this panelist commented that this problem is unlikely to be significant, since manufacturers will still have to meet real-world performance expectations even if they can easily program their HAV to perform established tests perfectly.

Another panelist discussed how variable test procedures are more appropriate for HAVs for two reasons. First, the testing approach should relate to the objectives of the system being tested. Since HAVs will be expected to perform in a highly variable environment, the test procedures used to evaluate their safety and functionality should mirror this variability. Second, HAVs will be expected to balance competing priorities in their day-to-day operation (e.g., protecting the safety of different road users, balancing mobility and safety); variable test procedures would allow NHTSA and the public to understand how various HAV systems perform with regard to multiple and potentially competing goals.

Panelists also discussed the use of sunset provisions in HAV regulations, whereby new regulations would automatically expire at a predetermined date. Sunset provisions could be appropriate for emerging technologies, where innovation is occurring at a fast pace. This would allow regulatory agencies to more appropriately tailor their rules and remain flexible. The criticism of using sunset provisions is that it may be too blunt an instrument. Agencies can be required to go back and reassess regulations without using a sunset provision or rigid regulatory timeline (e.g., EPA assesses the Clean Air Act).

Panelists discussed the importance of data collection and reporting. A general strategy to deal with the complexity of AVs is to “regulate by learning” and recognize that guidance provides flexibility. However, NHTSA and the Federal government will need to have the human resources, expertise and capacity to use the data and address these issues. Overall, panelists highlighted the importance of building trusting relationships between NHTSA and industry. They suggested that if they have a good working relationship, NHTSA will be willing to exercise discretion and understanding when an OEM reports an issue and, in turn, OEMs will be more willing to report issues early.