



December 10, 2018

Heidi King
Acting Administrator
National Highway Traffic Safety Administration
U.S. Department of Transportation
1200 New Jersey Ave., SE
Washington, DC 20590

USG 4798

**Re: Docket No. NHTSA-2018-0092
Federal Register: 83 Fed. Reg. 50872 (October 10, 2018)
Advanced Notice of Proposed Rulemaking**

Dear Acting Administrator King:

General Motors Company and its subsidiary GM Cruise Holdings LLC (collectively, “GM”) appreciate the opportunity to comment on the National Highway Traffic Safety Administration’s (“NHTSA” or the “Agency”) Advanced Notice of Proposed Rulemaking for a *Pilot Program for Collaborative Research on Motor Vehicles with High or Full Driving Automation* (the “ANPRM” or the “proposed Pilot Program”).¹ GM shares NHTSA’s belief that Automated Driving Systems (“ADS”) have the “potential to save thousands of lives, as well as reduce congestion, enhance mobility, and improve productivity.”²

NHTSA’s proposed Pilot Program could provide a unique opportunity for GM and other manufacturers of vehicles with high- and full-driving automation (“AVs”) and ADS manufacturers to work collaboratively with the Agency to overcome regulatory challenges to deploying such vehicles. The proposed Pilot Program should allow AV manufacturers to conduct controlled, commercial deployment of AVs, including those with advanced designs (e.g., AVs without steering wheels or foot pedals). Through such a program, NHTSA could gain greater knowledge of AV technologies and invaluable insight into the rigorous safety-driven processes that GM and others are using to develop and safely deploy this technology.

In the near-term, GM encourages NHTSA to use its proposed Pilot Program to ease unnecessary regulatory constraints and allow manufacturers to commercially deploy AVs with advanced or unconventional designs. These near-term constraints threaten to stifle AV investment and the development of innovative motor-vehicle safety technology. A conventional approach to modify the Federal Motor Vehicle Safety Standards (“FMVSS”) to address AVs could take as long as ten years. An alternative means of facilitating safe commercial deployment of autonomous vehicles is needed sooner than that.

¹ GM is also a member of the Alliance of Automobile Manufacturers (“Alliance”) and supports the Alliance’s comments insofar as they do not conflict with GM’s comments below and those enclosed in Appendix A.

² ANPRM at p. 7.



Rulemaking is Not Required to Initiate the NHTSA-Proposed Pilot Program

NHTSA could act now, as it has the authority under existing law to implement its proposed Pilot Program through a notice or order, rather than through the notice-and-comment rulemaking process.³ Section 30114 of the Vehicle Safety Act authorizes NHTSA to grant “Special Exemptions” on “terms the Secretary decides are necessary for research, investigations, demonstrations, training, competitive racing events, show, or display.”⁴ This authority is discretionary, and NHTSA can determine the eligibility criteria. In 1996, for example, NHTSA published a notice in the Federal Register related to reducing regulatory burdens on small manufacturers. In that notice, NHTSA discussed the possible use of Section 30114 to permit public road testing of prototype vehicles, ultimately concluding that the authority would allow DOT to award Special Exemptions for that purpose.⁵

Thus, NHTSA already has interpreted Section 30114 to authorize Special Exemptions for operating nonconforming vehicles on public roads. Applying that same logic, the provision is sufficient to empower DOT to exempt vehicles deemed eligible to participate in the NHTSA-proposed Pilot Program. Implementing the Pilot Program now, by granting exemptions under Section 30114, would expedite the development and commercialization of the technology and allow the public to realize benefits of this technology earlier.

The proposed Pilot Program could be a valuable tool for the Agency to discharge its duty to promote vehicle safety, and vehicle safety tools should not be unnecessarily constrained by a lengthy rulemaking process.

Additionally, given the challenges raised by the patchwork of state and local laws also seeking to regulate in this space, it will be important for the Agency to expressly state its intent for the proposed Pilot Program to preempt state and local laws and regulations that purport to regulate the safety design or performance of vehicles participating in this Program. Without preemption, the Agency may not achieve the full benefits of the Pilot Program as State laws and regulations could conflict with, frustrate the purposes of, or dilute the Program’s many benefits—which include the potential for the Agency to obtain and analyze safety data, assess AV performance, foster safety-centric and innovative AV designs, and incentivize industry to participate and provide more information for NHTSA.

NHTSA Rightly Appreciates that AVs Could Reduce Crashes

In 2017 alone, 37,133 people died in traffic crashes in the United States. NHTSA has further estimated that human error or behavior causes approximately 94 percent of automobile crashes in the United States.⁶ As NHTSA rightly acknowledges in the ANPRM, AVs have great potential to “save lives” by mitigating this “human error” on our roadways.⁷

³ For additional analysis of NHTSA’s legal authority to implement a pilot program under Section 30114, please see the Alliance’s comments at Appendix 2.

⁴ 49 U.S.C. § 30114.

⁵ 61 Fed. Reg. 4249, 4251, February 5, 1996.

⁶ U.S. Dep’t of Transportation, “Preparing for the Future of Transportation: Automated Vehicles 3.0” at 3 available at: <https://www.transportation.gov/sites/dot.gov/files/docs/policy-initiatives/automated-vehicles/320711/preparing-future-transportation-automated-vehicle-30.pdf> (last visited Nov. 6, 2018).

⁷ ANPRM at p. 7.

Even with new, potentially life-saving technology, the risks of injuries caused by crashes are inevitable. That was true with the introduction of electronic stability control, airbags and seatbelts, and it will likewise be true for AVs. But GM is hopeful that AV technology has the potential to mitigate the number of severe and injury-inducing crashes. Unavoidable risks should not undermine or foreclose responsible implementation of ADS technology. In addition to safety benefits, the technology stands to provide many further benefits. For example, AVs likely will expand mobility options for persons with disabilities, seniors, and those without access to more affordable transportation. Such benefits provide additional reason to move as expeditiously as prudently possible.

The Proposed Pilot Program Would Generate Valuable Safety Data About AV Vehicles

The proposed Pilot Program could be used to meet one of the ANPRM’s primary goals—to generate data needed to assist AV manufacturers in further “developing methods of validating the safety performance of vehicles with high and full driving automation.”⁸ As NHTSA understands, on-the-road testing and further deployment in “real-world” scenarios is vital to developing standardized testing and validation methods. Absent the proposed Pilot Program, such data may not otherwise be immediately available to industry or the Agency.

Specifically, assessing the relative safety and performance of AVs necessarily requires comparison of on-road AV crash rates with human-driven conventional vehicle on-road crash rates. Given that most of today’s crashes are caused by human error or behavior, logic indicates that overall motor-vehicle crash rates could be substantially reduced with the large-scale introduction of AVs (which do not commit human error). Though risks of crashes in individual instances will always be present, AVs have the potential to yield large safety benefits overall.⁹ That said, deploying sufficient numbers of AVs on public roads (*e.g.*, through a Pilot Program) to gather additional data under real-world conditions, in a responsible and safety-conscious manner, is necessary to factually support this logic and conclusion.

A. Accumulated ADS Miles are Important to Accurately Compare AVs and Human-Driven Vehicles

Real-world miles driven by AVs (with the ADS engaged), commonly referred to as “accumulated miles,” are important to evaluating the potential safety benefits of AVs. Because of the shift of operational control from human to ADS, real-world “accumulated miles” on actual roadways and crash incident data from specific on-the-road incidents will be important. Data and information collected from these accumulated miles will refine our understanding of how AVs interact with real-world conditions and pave the way for deployment of AVs on a mass scale. The more miles that AVs travel in real-world scenarios, the more valuable safety-performance data they generate, and that data is critical for making meaningful safety-performance comparisons to conventional vehicles. Delay (*e.g.*, by confining the Pilot Program to small-scale testing) will only postpone the realization of anticipated safety benefits of AVs deployed at scale.

⁸ ANPRM at p. 17.

⁹ See NHTSA, Fatal Accident Reporting System (FARS), available at: <https://www.nhtsa.gov/research-data/fatality-analysis-reporting-system-fars>; See also <https://crashstats.nhtsa.dot.gov/Api/Public/ViewPublication/812115>.

GM has spent significant time developing and testing its AVs through its established and rigorous safety processes. Small deployments in a controlled environment (*i.e.*, narrow geographic and situational boundaries) have been critical to the continuous improvement of GM's AVs, and GM has been developing AV technology through these small deployments for over two years. But the Pilot Program could allow for many more accumulated miles to be driven by AVs which enables further exposure to scenarios and supports more accurate comparisons between the safety performance of human drivers and ADS technologies. Meanwhile, this expanded deployment would provide the next step in a "phasing-in" of the technology, which is a responsible way to implement this sort of ever-evolving technology, as NHTSA has successfully done with other advanced safety technologies.¹⁰

B. The Value of Commercial Deployment

Researching and developing AV technology requires significant capital investment. Considering that economic reality, it will be difficult to sustain AV development without means for developers to commercialize the technology they create. Of course, developers and manufacturers must carefully monitor and address any safety issues implicated by commercial deployment. But by allowing controlled commercial deployments of AVs, including those with advanced designs, a Pilot Program could foster development of commercial models to sustain the investments needed to make this technology a reality.

The Proposed Pilot Program Will Foster Safety-Centric and Innovative AV Designs that Will Benefit the Public

GM appreciates the opportunity to help advance public safety by deploying its AVs in a geo-fenced, ride-share network. Unfortunately, current regulatory barriers prevent any commercial-scale deployment of AVs specially engineered to maximize safety. Under current regulations, AVs must still include traditional driver controls, like a steering wheel and foot pedals, that are inherently susceptible to passenger interference in a ride-share service. The law presently limits GM and other vehicle manufacturers to either (a) non-commercial testing and evaluation with such advanced-design AVs or (b) commercial deployment with conventionally-designed AVs with operable driver controls.¹¹ NHTSA is aware of these regulatory constraints.¹²

Allowing vehicle manufacturers to commercially deploy AVs with advanced designs would enhance both the industry's ability to safely deploy AVs in ride-sharing scenarios and NHTSA's ability to learn about the industry's robust AV safety processes. Without a practicable way to deploy such vehicles in the near future, it may be years before the potential overall life-saving benefits of this technology can be fully realized. Authorizing commercial deployment

¹⁰ See, e.g., 49 C.F.R. § 571.226 at S4.1 (adopting phase-in of ejection mitigation technology); see also 72 Fed. Reg. 51908, 51908 (Sept. 11, 2007) (adopting phased-in testing for side-impact technology).

¹¹ See 49 U.S.C. § 30112(b)(10) (granting certain vehicle manufacturers an exception to the certification requirement "solely for purposes of testing or evaluation"); *Preparing for the Future of Transportation: Automated Vehicles 3.0*, Docket No. DOT-OST-2018-0149, at 7 ("NHTSA's current safety standards do not prevent the development, testing, sale, or use of ADS built into vehicles that maintain the traditional cabin and control features of human-operated vehicles.").

¹² See *Id.*; see also ANPRM, n. 21 ("Certain ADS vehicles that do not comply with existing standards are currently allowed to be introduced into interstate commerce if they meet the requirements in section 30112(b)(10).").

with appropriate limitations through the proposed Pilot Program would provide the Agency and the industry with a rich new data set gleaned from the very environment in which many AV manufacturers intend to ultimately deploy—commercial ride-sharing—and expedite the deployment of this potentially life-saving technology at scale.

A. Current Regulatory Obstacles May Frustrate Innovative Safety Designs

For GM, safety is a gating metric that must be met at every step in the design, validation, and deployment process. GM hopes to deploy AVs that eliminate some traditional vehicle equipment but nevertheless meet GM’s rigorous development and testing standards. Current regulations, however, pose challenges to such a deployment. That is, presently, AVs must meet traditional FMVSS that require traditional driver controls to remain fully operable even when the ADS is safely controlling the driving function.¹³ Accordingly, even for the conventional-design AVs that retain traditional driver controls, there is an additional barrier to deployment—the statutory prohibition against making these controls inoperative.¹⁴ Accordingly, though the risk of passenger misuse exists in any system, GM urges the Agency, through the Pilot Program, to exempt “dual mode” AVs from the “make inoperative” prohibition in Section 30122 if the AV is certified compliant with applicable FMVSS in its manual driving mode. This would incentivize applicants to offer alternative designs and warnings that mitigate the potential for misuse.

B. Allowing Commercial Deployment Would Incentivize Industry to Participate in A Pilot Program and Provide More Information for NHTSA

In addition to potentially advancing public safety, NHTSA could gain valuable safety insights if it were to allow vehicle manufacturers to commercially deploy advanced-design AVs through the proposed Pilot Program. Although vehicle manufacturers can test these advanced designs under the FAST Act, presently they cannot commercially deploy them. Allowing these manufacturers to commercially deploy advanced-design AVs within the defined parameters of the program could significantly expand available ADS data for NHTSA to collect and analyze.¹⁵ Denying commercial deployment could substantially limit the effectiveness of the proposed Pilot Program by narrowing these manufacturers’ incentive to participate.

The only other path currently available to vehicle manufacturers for limited commercial deployment of AVs with advanced designs is a petition for exemption under Part 555. There are several difficulties posed by Part 555 exemptions, including the (1) limited number of vehicles eligible for exemption (2,500 per year); (2) the limited duration of exemptions (2 years); and (3) uncertainty with respect to how long it will take the Agency to rule on a Petition—and whether it will ultimately be granted.

Nor should NHTSA bar this promising technology from the market for years while new FMVSS rules and standards are written and implemented. As the Agency itself has already recognized:

¹³ See 49 U.S.C. § 30112(a).

¹⁴ See 49 U.S.C. § 30122(b).

¹⁵ NHTSA acknowledges these current limitations with respect to testing. See ANPRM at 50877 (“NHTSA recognizes that it is restricted in its ability to apply requirements to certain manufacturers testing vehicles on public highways if the manufacturers agree not to offer for sale or sell those vehicles.”).

[B]ecause the software environment is likely to evolve and change at a rapid rate, NHTSA recognizes that it will need a new approach to the development and drafting of FMVSS, especially any FMVSS that might be established for ADS. The accelerating pace of technological change is incompatible with lengthy **rulemaking proceedings that last at least 6-8 years.**

ANPRM at 50876 (emphasis added). The Agency has further recognized that the proposed Pilot Program could help participating AV manufacturers obtain meaningful additional data from “real-world scenarios.” That data can then be used to help re-evaluate test criteria and performance measurements for certain FMVSS that currently require the presence of a human driver or controls.

The interests of advancing automotive safety technology and reducing the number of lives lost in vehicle crashes militate in favor of a new tool for getting AVs on the road safely providing NHTSA with important AV-safety data. By allowing commercial deployment of these AVs, the proposed Pilot Program would encourage manufacturers to further develop, refine, and invest in AV technology for eventual production on a mass scale. Commercial deployment is critical both in terms of gathering greater real-world safety data and developing the required economic infrastructure.

GM would work with the Agency to tailor the proposed Pilot Program as a pathway to safe commercial deployment. When the technology is ready, NHTSA can and should use its proposed Pilot Program to allow for commercial deployment and not delay delivery of AV technology’s potential life-saving benefits to the public.

GM’s Potential Involvement in the Proposed Pilot Program

As with other automotive technologies (*e.g.*, airbags, electronic stability control, emergency braking, and other safety features), GM has worked to develop, test, and implement advanced safety technologies responsibly through an incremental, phased-in process. GM’s ground-up process has integrated safety and technological advancements from prior vehicles into GM’s current AVs. Through this approach, GM teams conducted extensive development and testing of GM’s AVs to ensure that the AVs meet or exceed GM’s robust internal standards and are ready for commercial deployment.

No vehicle, even one with ADS technology, is immune from crashes, including those resulting in injury or death. Through GM’s extensive AV development and testing, our AVs and ADS technologies provide opportunities to reduce human error. These AVs and ADS technologies have the potential to reduce automotive accident frequency and thereby reduce injuries and deaths, too. If the Pilot Program were adopted, GM would aim to use the Program to roll-out AVs incrementally through targeted commercial deployment, thereby advancing automotive safety.

GM is excited that the proposed Pilot Program offers an opportunity to demonstrate to the Agency and to the public that GM’s AVs will be able to be safely deployed in geo-fenced areas on a commercial basis.

Proposed Structure for the Proposed Pilot Program

A. The Application

One of the keys to a successful Pilot Program will be determining who can participate and under what conditions. Applicants should be required to address the 12 safety principles outlined in the Federal Automated Vehicle Policy 2.0 (“FAVP 2.0”).¹⁶ A certain level of flexibility with respect to these twelve principles will likely be necessary to encourage participation and generate relevant field data.

The proposed Pilot Program can satisfy the twin goals of safe deployment and quickly generating field data needed to support and develop future AV safety standards. To serve those ends, NHTSA has discretion to tailor section 30114 exemptions based on an applicant’s AV or ADS design, testing and validation plan.

The elements of a Pilot Program application could include:

- a description of the scope and intent of each proposed pilot;
- a self-assessment based on the 12 safety principles outlined in the FAVP 2.0;
- the rationale and safety basis for requesting an exemption from present FMVSS standards that cannot be met with the proposed vehicle configuration;
- a description of the operational capability and, to the extent they deploy in fleets, the fleet-management plan to monitor the safety of the fleet;
- plans to record and report defined safety-event-data within a defined period of time; and,
- the ability to cease operation within a defined period of time (*e.g.*, 24 hours) if the circumstances dictate that changes are required to mitigate risks.

GM also recommends that NHTSA consider requiring applicants to post a bond in an amount sufficient to ensure financial responsibility of the applicant.

B. Conditions – Data Sharing

Data sharing and, more specifically, the types and amount of data to be shared, will be an important piece of a successful Pilot Program. The types of data generated may vary significantly depending on the particular company and the specific deployment or testing being done. The types of data that applicants could share also likely will depend on the applicant’s goals or plans. Data sharing should generally focus on specific, agreed-to events (*e.g.*, crash or EDR-recorded events) where NHTSA, and the public, can assess and measure the safety of the fleet. A flexible approach that is tailored to the applicant’s specific plans is preferable to a rigid approach that requires the same, preset data from all participants without regard to context. To foster flexibility, applicants should be allowed to specify in the application the data set that makes sense given their design and operation circumstances.

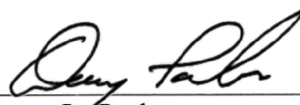
¹⁶ See *Preparing for the Future of Transportation: A Vision for Safety 2.0*, at pp. 5-16 (https://www.nhtsa.gov/sites/nhtsa.dot.gov/files/documents/13069a-ads2.0_090617_v9a_tag.pdf).

In addition to being flexible, because AVs and ADS systems generate vast amounts of data on a daily basis, NHTSA will need to focus its data requests to meet its safety objectives. It is not practical or valuable to analyze every terabyte of data; rather, NHTSA should challenge participants to define relevant data that will help define current and future AV/ADS system safety. For example, the Agency should not require participants to produce raw, engineering-specific sensor data that cannot be used for any meaningful analysis of a system. Instead, the focus should be on meaningful safety metrics that can allow NHTSA, and the public, to remain confident that each applicant and the proposed Pilot Program is fulfilling the Agency's safety purpose.

Conclusion

GM appreciates the opportunity to provide comments and welcomes any questions or requests for additional input. Please direct such questions or requests to Matthew Jerinsky (202) 775-5065 of our Washington, D.C. office.

Sincerely,



Doug L. Parks
Vice President
Autonomous and Electrical Vehicle Programs



Maryann Combs
Vice President
Global Vehicle Safety

Enclosure:

Appendix A: GM's Responses to ANPRM Questions

APPENDIX A: GM'S RESPONSES TO THE ANPRM QUESTIONS

NHTSA Pilot Program for Collaborative Research on Motor Vehicles with
High or Full Driving Automation
[Docket No. NHTSA-2018 0092]

Questions and Responses:

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?

Response:

GM supports a Pilot Program, as proposed by the National Highway Traffic Safety Administration (“NHTSA” or the “Agency”), that provides a means to address current regulatory constraints that could otherwise hamstring the development and deployment of vehicles with high- and full-driving automation (“AVs”). A well-designed program would further the significant efforts already being undertaken outside of the proposed Pilot Program to develop safe Automated Driving Systems (“ADS”) technology and AVs, including those with advanced designs (*e.g.*, vehicles without a steering wheel or foot pedals).

GM is excited that the proposed Pilot Program might offer both the Agency and the industry the opportunity to further develop and more-widely deploy AVs, particularly into a targeted commercial market. The proposed Pilot Program could better enable program participants to continue advancing ADS safety and performance. In short, NHTSA’s proposal could move this potentially beneficial technology forward.

At a high level, GM suggests that NHTSA consider at least five factors in designing its Pilot Program.

1. *What the scope and nature of the permitted pilot will be.* The proposed Pilot Program should advance the collective ability of industry and government to further develop and more-widely deploy AVs and ADS technology even beyond where it is today. To do that, program should lift some incompatible regulatory restrictions on certain AVs that, for example, do not have driver controls (or disable driver controls in autonomous mode).

2. *Who can participate, with particular attention to whether the applicant has the capability to safely deploy and operate AVs on public roads.* Specific application requirements will obviously be important. GM suggests that each application should be required to address the 12 safety elements that NHTSA has identified in its Automated Driving Systems 2.0: A Vision for Safety and recently reaffirmed in its Automated Vehicles 3.0: Preparing for the Future

of Transportation ("AV Guidance"). GM hopes these and other application requirements will be developed in close consultation with the industry.

3. *How participating ADS vehicles are managed and controlled within a defined operational design domain.* Participants should have sufficient real-time control over their vehicles to enable them to take any vehicle out of service in the event there is a potential issue requiring that step.

4. *How flexible and narrowly-tailored event data reporting can advance Pilot Program objectives while respecting industry differences.* GM addresses data reporting in greater detail in its Responses to Question Nos. 9 and 15 below. In general, NHTSA should maintain flexibility rather than imposing overly stringent or burdensome data-reporting requirements at the outset. For example, each Pilot Program application will be different in many ways, including the applying company, the location, the AV design, and the data-collection techniques and capabilities of the participant's AVs. At a more holistic level, each applicant will have distinct technologies, unique proposed uses, and differing development and deployment objectives. Given these many differences, NHTSA should negotiate with each applicant with respect to the data sharing and the frequency of reporting.

5. *How proprietary data can be protected to encourage innovation.* NHTSA will need to ensure that any proprietary or confidential business information ("CBI") submitted is protected. To make the transfer of data from participants to the Agency less burdensome and more efficient, NHTSA should consider modifying the current Part 512 process for confidential treatment of information. Specifically, NHTSA should consider a process to pre-approve certain types of proprietary data for confidential treatment. NHTSA could also consider entering into a Protective Order with each participant as part of the application process. Further, NHTSA could consider establishing an Appendix under Part 512 for a new class of data specific to its proposed Pilot Program.

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.?

Response:

The NHTSA-proposed Pilot Program is needed because no reasonable method presently exists for commercial deployments of AVs with advanced designs in meaningful numbers. The NHTSA-proposed Pilot Program should therefore continue until such time as the Agency is able to modify existing Federal Motor Vehicle Safety Standards ("FMVSS") to address AVs, including those AVs without human controls. Specifically, the Pilot Program could provide a structured, closely-monitored path for AV deployment that would allow program participants to generate statistically significant vehicle data. That data would in turn inform FMVSS development and future rulemaking. Until the FMVSS can be addressed, the NHTSA-proposed Pilot Program could also facilitate the advancement of AVs and ADS technology that might include alternative seating configurations, bi-directionality, and other advanced designs.

GM encourages NHTSA to use the authority provided to it under 49 U.S.C. § 30114 and 49 U.S.C. § 30182 to establish its proposed Pilot Program. Unlike exemptions under Section 30113, a Section 30114 exemption is not constrained by any statutory maximum on the number of vehicles or limit on the duration of the exemption. By granting Section 30114 exemptions through its proposed Pilot Program, over time, NHTSA could gain valuable safety data that it could use to ultimately promulgate new rules or policies. The rulemaking process, however, will take a number of years. Generating data in a meaningful way will require significantly higher vehicle volumes and durations than currently are permitted under Section 30113.

The duration of the program and the number of vehicles allowed need not be restricted or defined at the outset. Instead, the number of vehicles and duration can be addressed on a case-by-case basis, tailored to the individual deployment and development objectives of each applicant.

Rather than focusing on placing limits on the number of vehicles and the duration of participation, NHTSA should instead focus on the factors noted in response to Question No. 1 above and address in the application process the number of vehicles and duration for a given entity's participation. In the end, the duration of pilot and the number of vehicles need not be limited if NHTSA can be satisfied that an applicant (1) has properly considered and incorporated safety in the design of its AVs; and (2) has the financial responsibility and organizational capability to appropriately manage the AV's in the pilot, including responding quickly to field events.

NHTSA should allow multiple pilot locations with different weather/driving conditions, topographical features, traffic densities, and other operating conditions. In doing so, NHTSA can help to facilitate the development of SAE Level 5 vehicles and the ultimate goal of AV deployment wherever human operators drive. Nonetheless, NHTSA should work with applicants, who are most familiar with the capabilities of their AVs, to determine the appropriate deployment conditions. As capabilities expand, there will be a natural progression to different driving situations, topography, climate and traffic patterns.

In its proposed Pilot Program, NHTSA should focus on the capability of the individual participant in determining which conditions are appropriate rather than placing broad restrictions on all applicants operating in, for example, certain driving conditions. NHTSA should also support the controlled expansion by applicants of the AV Operational Design Domain ("ODD"). Importantly, a longer Pilot Program period would permit the collection of more data, including data from more diverse driving environments and conditions.

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.

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

Response to Question Nos. 3, 4, and 5:

NHTSA's proposed Pilot Program would provide a unique opportunity for GM and other AV/ADS manufacturers to work collaboratively with the Agency to address regulatory challenges to deploying vehicles with high- and full-driving automation. The Pilot Program could allow manufactures to conduct targeted, commercial deployments of AVs, including those with advanced designs (e.g., vehicles without steering wheels or foot pedals). In doing so, NHTSA could gain invaluable insight into the rigorous safety-driven processes that GM and others are using to develop and safely deploy this technology. At the same time, some initial targeted commercial deployments will encourage continued development of AVs and ADS technology.

GM believes that NHTSA already has authority under the Safety Act to expeditiously develop and implement a Pilot Program based on the exemption provisions of 49 U.S.C. § 30114. GM strongly encourages NHTSA to use its authority under Section 30114 (as opposed to Section 30113) as the basis for its proposed Pilot Program. Section 30113 exemptions are less suitable to the goals of the NHTSA-proposed Pilot Program because of the limited volume (2,500 vehicles) and limited duration (two years) for which the exemptions may be granted. Those limitations may hinder the effective deployment of AVs to generate statistically significant quantities of data to support new or modified FMVSS. Further, implementing its proposed Pilot Program under Section 30114 does not require NHTSA to follow the traditional rulemaking process.

A unified federal approach would provide the best means of simultaneously regulating the safety of AVs and ADS technology and while realizing the purposes articulated by NHTSA in its ANPRM. We agree with U.S. DOT that a patchwork of state and local regulation inevitably would create conflicts or undermine federal requirements (or exemptions) and in turn, would frustrate the purposes of federal regulation in this area—including the facilitation of the safe development of the technology.¹ NHTSA does not need to initiate rulemaking to preempt conflicting state laws, so its proposed Pilot Program could still preempt even if it is implemented through a notice construct instead of a formal rulemaking.² NHTSA's process rests upon public

¹ See U.S. Dep't of Transportation, *Preparing for the Future of Transportation: Automated Vehicles 3.0* at v ("FAVP 3.0") ("[c]onflicting State and local laws and regulations surrounding automated vehicles create confusion, introduce barriers, and present compliance challenges. U.S. DOT will promote regulatory consistency so that automated vehicles can operate seamlessly across the Nation.")

² See *Brookhaven Cable TV, Inc. v. Kelly*, 573 F.2d 765, 768 (2d Cir. 1978) (stating that the "FCC's choice to proceed by means of policy statements and interpretations rather than formal regulations [did not] vitiate[] its attempt to preempt" because the preemptive intent was clear and interested parties had multiple opportunities to weigh in); see also *Holk v. Snapple Beverage Corp.*, 575 F.3d 329, 341-42 (3d Cir. 2009) (recognizing that a non-legislative rule could have preemptive effect if it results from formal procedures that foster fairness and deliberation).

notice and comment, which fosters the necessary fairness and deliberation for preemptive effect. GM accordingly encourages NHTSA to articulate a clear preemptive intent through a notice construct to prevent state laws from frustrating the program's overall purpose or otherwise hampering the safe deployment and development of AVs and ADS technology.

Further, state laws or regulations imposing different or additional disclosure requirements for the types of AVs and associated equipment, systems, or software addressed by the proposed Pilot Program would likewise create a conflict by potentially creating confusion. First, such requirements would take focus away from relevant ADS data collection and analysis and thereby reduce the effectiveness of the proposed Pilot Program and related data collection and analysis. Second, the need to meet different ADS-system or AV requirements for different states or municipalities would also unnecessarily increase costs, making it less likely that applicants would participate in the proposed Pilot Program. Third, a proposed Pilot Program will produce extensive data that will help align NHTSA with manufacturers in reaching a standardized methodology for defining and setting safety-performance parameters for ADS systems and AVs.

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

Response:

Certain existing safety equipment and associated safety requirements will not be necessary for truly driverless vehicles (*i.e.*, those consistent with SAE J3016 Level 4 or 5 automation). For example:

- FMVSS 101 requires standardized symbols and colors to ensure any human can immediately understand the operation of a vehicle. These requirements, however, would not serve a purpose in a vehicle without a human driver.
- FMVSS 103 and 104 provide provisions to ensure a human can see through the windshield. However, an ADS system will rely upon external detection systems that will not "look" through the windshield.
- FMVSS 111 requirements may not be applicable to an ADS-driven vehicle because it will not use mirrors to see to the rear of a vehicle. Such systems will rely on external-facing sensors.
- FMVSS 203 and 204 specify the performance of the steering wheel and steering wheel-mounted controls during a crash. These would not be applicable to a vehicle with without such controls.
- FMVSS 205 specifies transmissibility of glazing to ensure a human driver can see adequately through the glass; however, an ADS-driven vehicle will rely on external-facing sensing to see, and therefore, the transmissivity requirements would not be necessary.
- Several standards (FMVSS 108, 102, 126, 135, 138, 206, 208) require feedback to the human driver to allow the driver to monitor the vehicle and make appropriate decisions. Such feedback would be superfluous in a vehicle without a human driver.

- Several standards require driver-activated controls (*e.g.*, FMVSS 102 and 108). For vehicle operation and controls that will be performed by the ADS, there is no need to include human-operated controls. Indeed, removing human-operated controls ensures that vehicle passengers cannot interfere, purposefully or inadvertently, with the ADS driving operation by grabbing the steering wheel, actuating the brake/throttle pedal, or use of the transmission range select.

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?

Response:

High- and full-driving AV technology is relatively new and constantly evolving. The application of such technology within the proposed Pilot Program will likely vary among applicants and change along with the technology. Therefore, it will be difficult, at the outset, to define specific measures or metrics that will be equally applicable to the varying technology or its application.

Rather than predefine specific performance measures that may soon become obsolete, GM recommends using the 12 safety principles outlined in the AV Guidance. These principles cover safe design practices, system safety practices, testing approaches, and consumer-facing communication, to name a few.

Further, by evaluating the performance of participants' AVs in the field, participating entities and NHTSA will be able to monitor performance both within the pilot and of the overall program. With any eye toward that performance, the Agency can periodically evaluate whether changes to the program are necessary.

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?

Response:

The ODD should be established by the applicant. Defining the ODD is part of implementing the 12 safety principles in the AV Guidance, and it is key to describing the safety-focused operation of a participant's individual deployment. In this self-certification-like approach, a participant that violates the terms of its established (and NHTSA-reviewed) deployment could face termination from the Pilot Program.

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?

Response:

NHTSA should require that certain specific data and information be provided to the Agency as a condition to participate in its proposed Pilot Program. As detailed in GM's response to Question 15, such data-reporting will ensure that the Agency can continue to fulfill its charge to ensure and improve motor vehicle safety. In addition to protecting this data through the Agency's current procedures governing CBI, NHTSA could employ other procedures unique to the NHTSA-proposed Pilot Program discussed in GM's response to Question 1. Furthermore, GM would be open to requests from NHTSA to share additional information on an *ad hoc* basis if the Agency concludes it needs to review such data in specific circumstances.

Program participants may be required to provide NHTSA with personally identifiable information (PII) of users of its AVs or ADS technology. But GM also expects that NHTSA will comply with the plain terms of the Privacy Act of 1974 and all pertinent exemptions to the Freedom of Information Act that protect this data from disclosure. GM highly values the privacy of its customers. It does not believe there is any public interest in disclosing beyond the Agency any PII as part of NHTSA's proposed Pilot Program.

As NHTSA correctly notes in Question 15, the amount of data generated by AVs is voluminous. Given this reality, document storage, retention, and transmission will pose significant issues for manufacturers of AVs or ADS technology. Manufacturers likely handle data storage and retention differently depending on their internal requirements and the respective stage of AV development. Per GM's response to Question 15, we recommend that certain data be submitted to NHTSA on a quarterly basis, similar to the method currently used to transmit TREAD data, subject to NHTSA's ability to obtain and store information. In the event of an incident involving death or injury, a quicker reporting period should be established; GM further recommends that NHTSA be notified of any such incident within 5 days. Pilot Program participants could retain a subset of agreed-upon data for the duration of the Pilot and provide that information to the Agency in the event that NHTSA requests it.

10. In the design of a Pilot Program, how should NHTSA address the following issues--

- a. confidential business information?**
- b. privacy?**
- c. data storage and transmission?**
- d. data retention and reporting?**
- e. other elements necessary for testing and deployment?**

Response:

Data-related questions like these are not easily answered with one-size-fits-all solutions. If the Pilot Program is structured appropriately, the type of data to be shared with NHTSA, as

well as any variances in CBI-handling procedures from NHTSA's current procedures, should be worked out between the applicant and the Agency as part of the application process.

It is our belief that any privacy issues implicated by a pilot program may remain regulated through existing means. In 2014, GM pledged its commitment to the Automotive Consumer Privacy Protection Principles, which were established by the Alliance of Automobile Manufacturers ("Auto Alliance"), to protect PII collected through in-car technologies. The principles are based on Federal Trade Commission ("FTC") Guidance and the Fair Information Practice Principles ("FIPPS"), which have long-served as the foundation for privacy frameworks in the U.S. and abroad, and are enforceable by the FTC under existing consumer protection laws. In 2018, GM, along with other members of the Auto Alliance, reviewed the Principles in light of evolving technologies and consumer expectations and concluded that the fundamental commitments continue to provide appropriate consumer protections.

As noted in response to Question 9, GM recommends that, as a general matter, safety-event data (if any) be submitted to NHTSA quarterly in a method similar to the one used to transmit and report TREAD data. Retention could match the duration of a manufacturer's participation in the proposed Pilot Program. Alternatively, if necessary because other studies could build upon it, data retention could extend past the duration of this Pilot Program.

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?**

Response:

The AV Guidance's 12 safety principles are an integral part of ADS design. They should provide a foundation for any application to the proposed Pilot Program. These comprehensive safety principles embrace the relevant factors for NHTSA to evaluate an applicant's safety case. Indeed, all the safety elements identified above (except for third-party evaluation) are included in the 12 safety principles, and would necessarily be part of an applicant's self-assessment.

Third-party evaluation should not play a role in the proposed Pilot Program. GM agrees with NHTSA's recent position in its AV Guidance: "[NHTSA] [r]eaffirms U.S. DOT's reliance on a self-certification approach, rather than type approval, as the way to balance and promote safety and innovation; U.S. DOT will continue to advance this approach with the international community."³

Beyond the safety principles, the applicants should also define the operational model of their individual deployment, including aspects such as:

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

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?

Response:

The proposed Pilot Program should be structured in a way that encourages full and diverse participation by both OEMs and AV-equipment manufacturers in different individual deployments. This inclusive approach could be facilitated by permitting applicants to participate based on varying levels of AV/ADS design and testing maturity. That is, NHTSA could tailor the participation and exemption based on the maturity level and test history of each applicant.

By way of example, GM has an established AV/ADS program that incorporates traditional motor-vehicle safety-design in a ground-up process that has integrated safety and technological advancements from prior vehicles into GM's current AVs. Through this approach, GM and Cruise teams conducted extensive development and testing of GM's AVs to ensure that the AVs meet and exceed GM's robust internal due-care standards and are ready for targeted commercial deployment. Therefore, GM suggests that it would be a "mature" applicant who could be considered for exemption terms that include targeted, commercial deployment in an appropriate rideshare setting.

³ See FAVP 3.0 at 6.

This type of graduated approach will encourage full participation and help generate extensive ADS data. Following such an incremental approach is a responsible way to “phase-in” the technology, analogous to what NHTSA has successfully done with safety standards such as FMVSS 226 and 214. *See* 49 C.F.R. § 571.226 at S4.1 (adopting phase-in of FMVSS 226); 72 Fed. Reg. 51908 (Sept. 11, 2007) (adopting phased-in testing for FMVSS 214 compliance).

13. Which of the following matters should NHTSA consider requiring parties that wish to participate in a Pilot Program to address in their applications?

- a. “Safety case” for vehicles to be used in a 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).**
- b. What methodology should the Agency use in assessing whether an exempted ADS vehicle could 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?**
- c. Description of research goals, methods, objectives, and expected results.**
- d. Test design (e.g., route complexity, weather and related road surface conditions, illumination and institutional review board assessment).**
- e. Considerations for other road users (e.g., impacts on vulnerable road users and proximity of such persons to the vehicle).**
- f. Reporting of data, e.g., reporting of crashes/incidents to NHTSA within 24 hours of their occurrence.**
- g. 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 a Pilot Program. Further, the Agency could investigate the causes of crashes of vehicles involved in the program.**
- h. 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.**
- i. For which types of data would standardization be necessary in order to make such findings and why?**

- j. To what extent would standardization be necessary for those types?**
- k. Occupant/non-occupant protection from injury in the event of a crash (crashworthiness)**
- l. Assuring safety of software updates**
- m. Consumer education**
- n. Post-deployment monitoring**
- o. Post-deployment maintenance and calibration considerations**

Response:

The safety case for a particular proposed deployment should be considered as part of any application. As noted in our response to Question 11, an applicant's safety case should be based upon the 12 safety principles outlined in the AV Guidance. These principles comprehensively address the relevant factors needed for NHTSA to evaluate AV safety for purposes of the proposed Pilot Program.

Applicants should also still be required to demonstrate how their AV designs accomplish the safety *intent* of the FMVSS, even where the proposed Pilot Program permits advanced designs that are not specifically contemplated by the present FMVSS (*e.g.*, vehicles without traditional human-operated controls or other advanced designs not contemplated under current FMVSS). Such demonstration could include a combination of test results, simulation results, or logic and engineering judgement. For example, a vehicle without a brake pedal cannot be tested to FMVSS 135. In that instance, an applicant could show that the ADS is capable of stopping the vehicle within the standard's prescribed distances. This showing would satisfy the safety purpose and intent of the FMVSS.

Unique safeguards may be required due to the nature of a participant's pilot vehicles. How the specific vehicle is operated may present special use cases where additional safety measures may be needed. In those instances, the applicant should also describe how safety during these special use situations will be addressed; for example, features that encourage passengers in a ride-hailing service to be properly restrained or features that secure cargo in a delivery-fleet application.

NHTSA should not attempt to develop criteria at the outset that encompasses every conceivable safety consideration, as each applicant is likely to have different AV/ADS applications and use cases. As a result, many of the relevant considerations simply cannot be evaluated in advance. For example, a pilot fleet will require a competent fleet operator with capability to maintain the fleet, identify incidents, control access, make updates, and take other steps. But NHTSA should not attempt to define all of these aspects beforehand. NHTSA should instead evaluate the manufacturer's capability based on factors such as past field testing and experience in relation to the applicant's proposed use case. Attempting to do otherwise would be

impractical for NHTSA, resulting in a lengthy and burdensome approval process that does not ultimately meet safety objectives. The applicant should, therefore, maintain primary responsibility for their vehicles' safe design and operation, with the understanding that vehicles participating in the Pilot Program can be "grounded" if NHTSA determines that an unreasonable risk to safety exists.

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?

Response:

In addition to its Response to Question No. 13 above, GM believes the proposed Pilot Program would be best served by requiring the applicant to commit to the following:

- Describe the scope and intent of their proposed use case;
- Address the 12 safety principles outlined in the AV Guidance;
- Define the rationale and safety basis for requesting exemption from present FMVSS standards that cannot be met with the given vehicle configuration to be deployed, if applicable;
- Describe the operational capability and the fleet management plan to monitor the safety of the fleet;
- Record and report defined safety-event data within a defined period of time (*e.g.*, 5 days), and respond to any specific NHTSA questions in a timely manner (timing to depend on the scope and complexity of the questions); and
- Cease operation within a defined period of time (*e.g.*, 24 hours) if safety circumstances dictate that changes in the fleet are required.

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

- 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).**
- 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).**
- c. **Vehicle/scene/injury/roadway/traffic data and description for each crash or near miss (e.g., system status, pre-crash information, injury outcomes).**
- d. **Sensor data from each crash or near miss (e.g., raw sensor data, perception system output, and control action).**
- 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.

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).

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).

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).

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?

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

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

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.

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?

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

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

Response:

The volume of data contemplated by Question 15, including its fifteen subparts, is excessive. It would not be manageable by either the applicant or NHTSA. Most of these data categories pertain to technical details of vehicle development and are generally confidential and proprietary.

GM agrees that the proposed Pilot Program participants should be required to share certain data with the Agency, including information on all crashes resulting in death, serious injury, or significant property damage. The types of safety-event data that applicants share should depend largely on the applicant's specific development and deployment objectives, and should generally focus on specific, agreed-to data that will allow NHTSA to assess the safety of

the vehicles in the pilot fleet. Furthermore, participants could be required to provide data relating to testing and validation of AVs and ADS technology (including vehicles with advanced designs), the ODD, the number of miles driven, the class of roads driven, and the average speed of the vehicles. Beyond these categories, GM suggests that all participants in the proposed Pilot Program be receptive to any request from the Agency to share additional information in specific circumstances as needed by the Agency, so as to ensure that NHTSA can continue to advance its safety mission.

Given the ever-evolving nature of this technology, NHTSA should not dictate specific metrics or a common language or platform as a requirement to participate in its proposed Pilot Program. A flexible approach that is tailored to the applicant's specific development and deployment objectives is better than a blanket, rigid approach that requires the same, preset data from all participants without regard to context. An individual approach to each applicant's data will be necessary because it will be challenging for NHTSA to obtain the resources and tools to review voluminous data from multiple sources. To foster flexibility, applicants should have the ability to specify, in consultation with the Agency, the data set that makes sense for their particular scenario.

In addition to being flexible, the volume of data required cannot be overly burdensome and should be narrowly tailored to NHTSA's specific safety objectives. For example, participants should not be required to produce raw, engineering-specific sensor data that cannot be used for any meaningful analysis of a system. Instead, the focus should be on meaningful safety data that will allow NHTSA, and the public, to remain confident that its proposed Pilot Program is fulfilling its objectives.

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?

Response:

Safety should be a central consideration in the Agency's approach, as it is for GM. As noted in our response to Question 11, NHTSA should evaluate an applicant's safety case based upon the 12 safety principles outlined in the AV Guidance. These principles comprehensively address the relevant factors needed for NHTSA to evaluate AV safety for purposes of the proposed Pilot Program.

Section 30113's vehicle eligibility restrictions (2,500 vehicles per year) and exemption duration (2 years) are not well suited for the proposed Pilot Program. Section 30114, on the other hand, would allow for larger vehicle populations with no time restraints. These expanded parameters will enable NHTSA to obtain statistically significant data to help it define future safety standards and relevant alternative test methodologies. Section 30114 also provides the necessary flexibility for NHTSA to contemplate the varying sophistication levels of AV designs and development among potential participants. GM, therefore, recommends that NHTSA utilize Section 30114 for its proposed Pilot Program instead of Section 30113. Section 30114's

parameters align much more closely with the proposed Pilot Program's objectives to facilitate safe AV deployment while garnering meaningful metrics to help inform future NHTSA policymaking.

In the end, a NHTSA-initiated Pilot Program under Section 30114 would incentivize the development and deployment of safer technology by affording an opportunity for commercialization of that same technology. It could also provide consumers with some degree of initial familiarity with these vehicles in a more controlled and monitored environment. And with sufficiently flexible provisions, the Proposed program might empower participants to make repeated and expedient iterative improvements in safety systems over the life of the Pilot Program.

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?

Response:

As GM explained in its Response to Question No. 16, above, NHTSA's proposed Pilot Program would provide a unique opportunity for the Agency to obtain AV-related data that could be used to build a framework and methodology for analyzing the "safety level" requirements of exemptions sought under § 30113(B)(3) or (4). That is, this data could help the Agency determine if a proposed exempt vehicle does or does "not unreasonably lower the safety level of [the] vehicle," 49 U.S.C. § 30113(B)(3), or if such proposed vehicles have "an overall safety level at least equal to the overall safety level of non-exempt vehicles," 49 U.S.C. § 30113(B)(4).

That said, GM does not believe it is necessary to complicate the proposed Pilot Program by providing for multiple sources of exemption. True, an agency might generally rely on multiple statutory provisions in taking action. But from an exemption perspective, GM agrees with NHTSA that 49 U.S.C. § 30114 is the most appropriate provision under which to create its pilot program. Section 30114 provides NHTSA with the appropriate authority while providing the necessary flexibility to allow NHTSA to create an effective pilot program. The provisions of § 30113 are more specific and, in some ways, inconsistent; and the volume and time limitations make that section problematic for obtaining the broader objectives that the proposed Pilot Program could otherwise enable.⁴

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?

⁴ Cf. *Ray v. Turner*, 587 F.2d 1187, 1196 (D.C. Cir. 1978) (noting in the FOIA context the "difficulty [that] arises" when the agency invokes multiple exemptions for a particular action, as it can be difficult to tie a particular aspect of agency action to a particular source of authority).

Response:

NHTSA could act now, as it has the authority under existing law to implement its proposed Pilot Program through a notice or order, rather than through the rulemaking process. Section 30114 of Vehicle Safety Act authorizes NHTSA to award “Special Exemptions” on “terms the Secretary decides are necessary for research, investigations, demonstrations, training, competitive racing events, show, or display.”⁵ This authority is discretionary, and NHTSA can determine the eligibility criteria. NHTSA already has interpreted Section 30114 to authorize Special Exemptions for operating nonconforming vehicles on public roads. Applying that same logic, the provision is sufficient to empower the Department of Transportation to exempt vehicles deemed eligible to participate in the proposed Pilot Program. Implementing the proposed Pilot Program now, by granting exemptions under Section 30114, would provide the Agency with the ability to realize benefits of this technology earlier.

The proposed Pilot Program could be a valuable tool for the Agency to discharge its duty to promote vehicle safety. Vehicle safety tools should not be unnecessarily constrained by the lengthy rulemaking process. The proposed Pilot Program—if designed and executed appropriately—has potential to be just such a new and productive regulatory tool. It could be used to bridge the gap between exemption and rule-making.

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 a 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.**
- 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 a Pilot Program?**

⁵ 49 U.S.C. § 30114.

Response:

In addition to its responses to Questions 16 and 17 above, the Agency has authority under Section 30122(c)(1) to provide exemptions from the “make inoperative” prohibition. Presently, AVs must meet traditional FMVSS that require traditional driver controls to remain fully operable and available even when the ADS is safely controlling the driving function.⁶ Inclusion of such controls in a vehicle with ADS might introduce certain risks of misuse. Though the risk of misuse exists in any system, GM urges the Agency to exempt “dual mode” AV vehicles equipped with ADS from the “make inoperative” prohibition in section 30122 if the AV vehicle is certified compliant with applicable FMVSS in its manual driving mode.

GM also supports the comments filed by the Alliance of Automobile Manufacturers (the “Alliance”) in Appendix 3 of its submission.

20. What role could exemptions under section 30114 play in a Pilot Program? Could participation in a 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”?

Response:

Please see GM's responses to Questions 16, 17 and 18 above.

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 a Pilot Program?

Response:

Please see GM's response to Question 19 above and the comments filed by the Alliance in Appendix 3 of its submission.

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?

⁶ See 49 U.S.C. § 30122(b).

Response:

From a federal perspective, GM is not aware of any additional obstacles unrelated to FMVSS.

As the Agency has noted, though, the patchwork of conflicting state and local laws seeking to regulate the safety design or performance of AVs creates deployment obstacles. Given that problem, the Agency should expressly state its intent for the proposed Pilot Program to preempt state and local laws and regulations that purport to regulate vehicles participating in this Program. Without preemption, it will not be possible for the Agency to achieve the benefits of the proposed Pilot Program, as such laws and regulations would be likely to conflict with, frustrate the purposes of, and dilute the benefits of the Program. As discussed above, these benefits include the potential to generate safety data, assess AV performance, foster safety-centric and innovative AV designs, and incentivize industry participation and provision of information to NHTSA.