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Comments of Consumer Reports and Consumers Union to the National Highway Traffic Safety Administration on the Federal Automated Vehicles Policy; Request for Comment Docket No. NHTSA-2016-0090

Consumer Reports and Consumers Union welcome the opportunity to comment on the Federal Automated Vehicles Policy developed by the National Highway Traffic Safety Administration (NHTSA).[1] We appreciate NHTSA's work in grappling with tough questions about automated driving. However, much more work lies ahead—and the agency should urgently move forward on more robust measures for consumer safety.

NHTSA has a critical role to play on automated driving as it performs its statutory mission to reduce traffic deaths and injuries by prescribing motor vehicle safety standards and carrying out needed safety research and development.[2] NHTSA should ensure that companies put consumers first by collecting and publishing data and—once it has compiled sufficient evidence—establishing strong safety standards. It should be supported in this endeavor by Congress, which should provide the agency with adequate resources to carry out its important work.

Self-driving vehicles would represent the single biggest change in the relationship between cars and their occupants since the invention of the motor vehicle itself, and warrant diligent oversight at every step of their development to ensure that they are safe. Another important role for NHTSA is therefore to ensure that manufacturers do not undermine safety by

[1] Consumers Union is the policy and mobilization arm of Consumer Reports, an independent, nonprofit organization that works side by side with consumers to create a fairer, safer, and healthier world. As the world's largest independent product-testing organization, Consumer Reports uses its more than 50 labs, auto test center, and survey research center to rate thousands of products and services annually. Founded in 1936, Consumer Reports has over 7 million subscribers to its magazine, website, and other publications.

[2] 49 U.S.C. 30101.

deploying automated driving technologies in an irresponsible manner. Manufacturers must not be permitted to oversell these technologies' capabilities, or exaggerate the time frame in which human drivers can safely be completely taken out of the equation. Failing to appropriately communicate automated technologies' limitations, or failing to design systems with appropriate checks on foreseeable use and misuse, can cost lives.

We understand that NHTSA considers the Federal Automated Vehicles Policy to be an "early step" in its oversight of automated vehicles (AVs)—an initial regulatory framework, designed to guide industry safety practices and improve the agency's and the public's understanding of automated technologies as quickly as possible.[3] We agree with these goals; however, we also note that this Policy will only truly represent an early step if NHTSA takes the additional measures necessary to ensure it is an effective watchdog. In the following comments, we discuss the main elements of the Policy and offer several fundamental steps that NHTSA should take to ensure successful oversight of automated driving technologies.

[3] National Highway Traffic Safety Administration (NHTSA), *Federal Automated Vehicles Policy* at 6 (Sept. 20, 2016) (online at www.nhtsa.gov/nhtsa/av/pdf/Federal_Automated_Vehicles_Policy.pdf) (hereinafter "Federal AVs Policy").

I. The Vehicle Performance Guidance Addresses the Right Topics, but Key Aspects Should Be Stronger to Protect Consumers and Permit Effective NHTSA Oversight

The first part of the Federal Automated Vehicles Policy—the Vehicle Performance Guidance—is the primary portion of the Policy intended to help ensure that AVs are safe under real-world conditions. We appreciate the appropriately broad scope of this Performance Guidance, which covers not just motor vehicle and equipment manufacturers, but also all individuals and companies involved in manufacturing, designing, supplying, testing, selling, operating, or deploying AVs. It covers both test and production vehicles, whether they are light-duty, medium-duty, or heavy-duty.

At the center of the Performance Guidance is NHTSA's request for entities to voluntarily provide the agency with a Safety Assessment Letter outlining how the Guidance has been followed. As specified, entities are asked to take into consideration a wide range of topics rightly raised by the Guidance. The topics that NHTSA identifies as underpinning the reliable functioning of each automated system on a highly automated vehicle (HAV) are appropriate, with operational design domain, object and event detection and response, and fall-back considerations all supported by testing and validation methods. The cross-cutting topics—which, along with testing and validation, the agency properly states should be addressed not just for HAVs but also for SAE International Level 2 AVs—include several that we have previously stressed, such as human-machine interface, system safety, data recording, cybersecurity, and ethical considerations.

However, there are ways NHTSA's approach toward the performance of AVs can and should be more robust. It is particularly urgent for the agency to take stronger action in several key areas, and we urge NHTSA to move forward on these measures expeditiously.

A. NHTSA Should Require Effective Reporting by Manufacturers to Help the Agency Receive the Safety Data It Needs to Protect Consumers

NHTSA anticipates that covered entities will voluntarily conform to the Performance Guidance and submit Safety Assessment Letters to the agency. Oral comments from participants at NHTSA's November 10, 2016, public meeting on the Policy seemed to back up this assumption.[4] NHTSA also plans to consider comments on the structure of the Safety Assessment Letter, and to publish a template for manufacturers and other entities to use to submit their information.[5] A common template could help ensure that NHTSA and the public find the Safety Assessment Letters useful in understanding the steps a covered entity has taken to ensure an automated system's safety.

However, we are concerned that companies will choose to submit only the bare minimum of information to NHTSA, and that these voluntary submissions will not necessarily provide the agency with the robust data it needs to independently assess the safety of AVs. Certain

[4] NHTSA, Public Meeting on the Federal Automated Vehicles Policy (Nov. 10, 2015) (Docket No. NHTSA-2016-0090).

[5] Federal AVs Policy at 35.

requested information is so critical to NHTSA's effective oversight of consumer safety that the agency should move quickly to require its submission from as many entities as possible.

At the earliest practicable date, we urge NHTSA to start a rulemaking that would require several activities that are both essential to the agency's safety mission and not overly burdensome for manufacturers. These include requirements for:

- Minimum responses in manufacturers' safety assessment letters, to ensure sufficiently robust responses from manufacturers and to prevent simply "checking the boxes";
- Special registration of AVs with automated systems Level 2 and higher—in a manner similar to that suggested in NHTSA's "Next Steps" for the Guidance—to ensure that NHTSA receives the underlying data that the manufacturer or other entity has used to determine that an automated driving feature is safe;[6] and
- Reporting of all vehicle hardware or software updates involving a safety-critical system—in a manner similar to that suggested in NHTSA's Modern Regulatory Tools section—including a summary of any changes and defects addressed.[7] NHTSA would then be able to evaluate both the safety of the updated system and any actions it might need to take on behalf of consumers whose cars might still have a defect.

As NHTSA pursues this rulemaking, it should continue to seek the included information voluntarily from non-manufacturer entities if it cannot effectively require those entities to submit the information under a rule.

B. NHTSA Should Obtain Company Data on Human-Machine Interface Factors and Consider a Safety Standard to Verify Driver Engagement and Responsiveness in Vehicles with Level 2 or Level 3 Automated Systems

Consumer Reports' auto testing team has driven thousands of miles in cars that can steer within a lane and adjust speed automatically, using increasingly prevalent technologies like adaptive cruise control and lane-keeping assist that are laying the groundwork for automated driving. Based on this first-hand experience, we have significant concerns regarding the impact of human-machine interface (HMI) factors on safety. We are particularly concerned about HMI factors in vehicles with systems below high automation, such as those in SAE Levels 2 and 3. In these vehicles, it may seem to consumers that the car can drive itself, when in reality these consumers need to be prepared to take over the controls at a moment's notice.

Unfortunately, some companies appear to be struggling with responsible deployment of semi-autonomous features. For example, we are troubled by Tesla's decision to market its semi-autonomous system as "Autopilot," and by its initial failure to ensure that drivers keep their hands on the wheel.[8] Tesla has taken steps to improve this system, but it has thus far failed to

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[6] *Id.*

[7] Federal AVs Policy at 76-77. NHTSA notes that it "has authority to regulate the safety of software changes provided by manufacturers after a vehicle's first sale to a consumer."

[8] "Tesla's Autopilot: Too Much Autonomy Too Soon," Consumer Reports (July 14, 2016) (online at www.consumerreports.org/tesla/tesla-autopilot-too-much-autonomy-too-soon).

fully address our concerns.[9] Of course, it is not just Tesla that offers automated driving features. The December 2016 issue of Consumer Reports identifies about a dozen models with semi-autonomous technology.[10] As more of these vehicles enter the market, we will be carefully evaluating them for safety, including the potential for foreseeable misuse, and reporting to consumers on our findings.

Judging from the Performance Guidance, NHTSA is taking seriously the need to better understand how HMI factors affect safety. However, we understand that the agency has proposed significant additional research into HMI that has yet to be funded. We strongly support this critical safety work—as well as the significantly broader investments in AV research and testing proposed by NHTSA—and urge Congress to appropriate the resources necessary to carry it out.[11]

Nevertheless, in the absence of such funding, it is all the more important for NHTSA to obtain HMI data directly from covered entities, and use the data to undertake research. We urge NHTSA to push for voluntary submissions by companies to the agency, and when necessary and appropriate, to use its general and special order authority to gather additional data.[12] The data should include the information entities have that is related to HMI both inside and outside the vehicle.

Additionally, as NHTSA considers HMI factors, we urge the agency to carefully consider starting the process for developing an effective safety standard that would require manufacturers to verify driver engagement and responsiveness in vehicles with Level 2 or Level 3 automated systems. Unlike higher-level systems, these systems rely significantly on human drivers to prevent a potential crash. In Level 2, the human driver is expected to maintain constant attention to monitor the driving environment; in Level 3, the human driver is expected to respond appropriately to a request to intervene. These two levels are the ones in which human drivers are the most likely to place undue faith in the capabilities of an automated system, and to therefore be foreseeably inattentive or nonresponsive in a scenario that leads to a crash. Before these vehicles make up a significant portion of those on the road, NHTSA should consider requiring that they include a system to verify engagement and responsiveness that meets minimum performance standards set by the agency.

C. Federal Policy Should Strongly Encourage Independent Third-Party Testing and Certification of Automated Driving Features

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[9] "Tesla's New Autopilot: Better But Still Needs Improvement," Consumer Reports (Oct. 8, 2016) (online at www.consumerreports.org/tesla/tesla-new-autopilot-better-but-needs-improvement).

[10] Consumer Reports Magazine – December," Consumer Reports (Oct. 24, 2016) (online at www.consumerreports.org/cro/magazine/2016/12/index.htm); "What You Need to Know About Semi-Autonomous Technology," Consumer Reports (Oct. 24, 2016) (online at www.consumerreports.org/self-driving-cars/what-you-need-to-know-about-semi-autonomous-technology).

[11] *See, e.g.*, National Highway Traffic Safety Administration, *Budget Estimates – Fiscal Year 2017* (Feb. 2016) (online www.nhtsa.gov/staticfiles/administration/pdf/Budgets/FY2017-NHTSA_CBJ_FINAL_02_2016.pdf).

[12] 49 U.S.C. 30166(g)(1).

Currently, several measures indicate that majorities of consumers are hesitant to trust automated driving technologies.[13] Consumers will be more likely to embrace potentially life-saving automated systems if ensuring safety in these cars goes above and beyond the self-certification that now occurs for compliance with federal motor vehicle safety standards. Therefore, we strongly support the idea of third-party testing and certification of AVs by expert, independent entities, provided that manufacturers and other covered entities also, separately, carefully test and certify the safety of their vehicles. While the section on validation methods in NHTSA's Performance Guidance already mentions that "testing may be performed by an independent third party" in addition to manufacturers and suppliers,[14] NHTSA should more strongly encourage such independent testing. It likely would benefit safety not just by adding a layer of validation, but also by reducing the potential for safety compromises driven by conflicts of interest.

D. NHTSA Should Develop a Safety Standard for Cybersecurity, and Require Full Reporting of Cybersecurity Considerations and Vulnerabilities in the Interim

Given the seriousness of the risks,[15] it should be a top priority of NHTSA to propose binding minimum cybersecurity standards for manufacturers, in addition to the separate voluntary guidance it has proposed for all persons manufacturing and designing vehicle systems and software.[16] Cars are increasingly networked, and can have major cybersecurity vulnerabilities just as a computer or a mobile device can—but with potentially life-or-death consequences if safety-critical systems are breached. NHTSA indicates in the Performance Guidance that it considers more research to be required before proposing a regulatory standard.

We disagree. Given the abundant work that has already taken place in the private sector, at the National Institute for Standards and Technology (NIST), and at NHTSA itself, NHTSA is well-positioned to at least issue an advance notice of proposed rulemaking as soon as practicable. The agency could conduct any additional research it may need to undertake as the proposal moves through the regulatory process and the agency receives public input. In the interim, the agency should take an active role in not just encouraging, but requiring, that covered entities take cybersecurity seriously by reporting cybersecurity considerations and vulnerabilities to both NHTSA and other companies.[17]

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[13] *See, e.g.*, "Americans Have Big Concerns About Self-Driving Cars, Surveys Show," Consumer Reports (Mar. 6, 2016) (online at www.consumerreports.org/cars/americans-have-big-concerns-about-self-driving-cars--surveys-sho); "Skeptics of Self-Driving Cars Span Generations," New York Times (June 16, 2016) (online at www.nytimes.com/2016/06/17/automobiles/wheels/skeptics-of-self-driving-cars-span-generations.html).

[14] Federal AVs Policy at 31.

[15] *See, e.g.*, Government Accountability Office, "Vehicle Cybersecurity: DOT and Industry Have Efforts Under Way, but DOT Needs to Define Its Role in Responding to a Real-World Attack" at 12-19 (Mar. 2016) (online at www.gao.gov/assets/680/676064.pdf); Federal Bureau of Investigation, Department of Transportation, and NHTSA, "Motor Vehicles Increasingly Vulnerable to Remote Exploits" (Mar. 17, 2016) (online at www.ic3.gov/media/2016/160317.aspx).

[16] NHTSA, "Cybersecurity Best Practices for Modern Vehicles" (Oct. 24, 2016) (online at www.nhtsa.gov/staticfiles/nvs/pdf/812333_CybersecurityForModernVehicles.pdf).

[17] *See* Federal AVs Policy at 21-22.

E. NHTSA Should Convene an Expert Working Group on Ethics Standards

While we are pleased that NHTSA included this critical issue as a subject covered entities must consider as part of their safety assessments,[18] we are wary of entities reaching conflicting or divergent conclusions on their own. Rather than seeking to have manufacturers develop ethical guidelines with public input, we encourage NHTSA to convene an expert working group on ethical considerations that can recommend common, industry-wide standards for AV ethics.

II. The Model State Policy Understates the Role NHTSA Can and Should Play With Regard to State Oversight of Automated Vehicles

We appreciate the joint work done by NHTSA and the American Association of Motor Vehicle Administrators (AAMVA) to develop the Model State Policy portion of the Federal Automated Vehicles Policy. With technology rapidly advancing, it is appropriate to clearly describe and delineate federal and state roles in regulating automated vehicles. However, we are concerned that this portion of the Policy understates the role NHTSA can and should play with regard to state oversight of automated vehicles, both in terms of the amount of consultation states will need and the strength of the recommendations NHTSA should make for appropriate state-level regulation of AVs.

A. States May Lack Sufficient Technical Expertise and Should Not Bear Primary Responsibility for Deciding if Automated Vehicles Are Safe for Public Roads

Under the Policy, states are effectively responsible for deciding whether to grant permission for AVs to be tested, operated, and used on public roads.[19] We are very concerned that states often lack the technical motor vehicle safety expertise necessary to make this determination, and that this framework will leave states in an untenable position unless they extensively consult with a well-informed, better-resourced NHTSA. If this framework remains in place—as opposed to replacing it with something closer to a NHTSA premarket approval process for AVs—we strongly encourage NHTSA to take an active role in assisting states with these decisions.

Similarly, we are concerned that state governors, motor vehicle administrators, or other executive branch officials may grant permission for an automated vehicle to be deployed on public roads without its safety having been sufficiently ensured. We urge NHTSA to establish a federal policy that discourages states from making this mistake, as it could profoundly jeopardize consumer safety. NHTSA should communicate clearly and forcefully with a state governor if it believes safety has not been sufficiently ensured for a vehicle that the state intends to permit on its public roads.

B. NHTSA Should Make Stronger Recommendations to States Regarding Their Oversight of Retailer Practices and Vehicle Damage

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[18] Federal AVs Policy at 26-27.

[19] Federal AVs Policy at 40.

The Policy's model framework for states includes several areas in which it is appropriate and beneficial to consumer safety for states to regulate the testing, deployment, and operation of AVs. This includes issues related to requirements for drivers of deployed vehicles, titling of these vehicles, law enforcement considerations, and insurance. However, there are additional steps that NHTSA should recommend the states take.

First, NHTSA should recommend that states require dealers, rental companies, and other retailers to clearly communicate the limitations of automated systems to consumers. We are very concerned that significant potential exists for driver confusion over AV capabilities, which could lead to crashes. To prevent such confusion, states should require retailers to make clear to consumers the limits of AV systems, particularly with regard to the Level 2 and Level 3 systems whose capabilities can most readily be overstated. Retailers could work with manufacturers and NHTSA to determine appropriate information to share with consumers.

Second, NHTSA should recommend that states prohibit the operation of vehicles' automated driving systems if needed equipment has been significantly damaged and not repaired. We appreciate that the Policy's safety assessment already asks entities to prohibit vehicles from operating in HAV mode if sensors or critical safety control systems are damaged. This prohibition should be a part of state laws nationwide.

III. NHTSA Should Use Its Current Regulatory Tools to Aggressively Investigate and Take Enforcement Action on Safety-Related Defects, and to Improve Crashworthiness

As previously discussed in these comments, NHTSA can and should use its current regulatory tools to protect consumer safety as new automated technologies emerge. In the Federal Automated Vehicles Policy, NHTSA considers its current regulatory tools to be letters of interpretation, exemptions from standards, rulemakings, and enforcement authority.[20] As we have commented before, all regulatory interpretations, exemptions, and rule changes should be consistent with NHTSA's mandate to reduce traffic deaths and injuries; essentially, they should be consistent with the agency's broad mission under the National Traffic and Motor Vehicle Safety Act, as well as with narrower regulatory procedures associated with these authorities. NHTSA has previously affirmed that the purpose of these activities must be to advance safety,[21] and the agency should always keep this goal squarely in the forefront going forward.

On the enforcement side, we applaud NHTSA for making abundantly clear in its Enforcement Bulletin that it can take prompt enforcement action when entities fail to safeguard against foreseeable automated system safety risks.[22] As AVs advance at a rapid pace, NHTSA will need to wield agile and timely agency oversight, and a far more aggressive, updated, and responsive approach to defect investigation and enforcement action than we have seen at any

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[20] Federal AVs Policy at 48.

[21] National Highway Traffic Safety Administration, "DOT/NHTSA Policy Statement Concerning Automated Vehicles," 2016 Update (Jan. 14, 2016) (online at www.nhtsa.gov/staticfiles/rulemaking/pdf/Autonomous-Vehicles-Policy-Update-2016.pdf).

[22] NHTSA, *NHTSA Enforcement Guidance Bulletin 2016-02: Safety-Related Defects and Automated Safety Technologies*, 81 Fed. Reg. 65705 (Sept. 23, 2016).

time in past or recent history. We urge the agency to use this authority whenever warranted by a threat posed to the public.

However, we are concerned by a portion of the introduction to the Regulatory Tools section stating that manufacturers "need ask NHTSA about a new technology or vehicle design only when it will not comply with applicable standards, or when there might be a question as to compliance."[23] We urge NHTSA to clarify this position to reflect that the agency intends to oversee all AV technologies and designs and will seek reports on all potential vehicle safety issues—not just those involving compliance matters.

In addition—while not addressed by NHTSA in the Policy[24]—it is critical to note that essential improvements to crashworthiness remain far from completed. For example, although the Research Safety Vehicle designed by NHTSA in the late 1970s was crash-safe at 50 miles per hour,[25] today the minimum safety standard for frontal impact is set at 30 miles per hour, with a 35-mile-per-hour test for the New Car Assessment Program (NCAP). Consumers need to be confident that they are entrusting their lives and their families' lives to crash-safe vehicles, and these improvements should be viewed as a necessary corollary to automated crash avoidance systems.

There is one additional, important role currently played by NHTSA that the agency does not list as a current regulatory tool, but which should be included: its ability to consult with other federal agencies. With respect to AVs, we foresee the most important partnership occurring between NHTSA and the Federal Trade Commission (FTC). Just this year, we are aware of two separate times when an automaker marketed its automated driving technology as being more capable than it actually is.[26] This can give consumers a false sense of security, and even lead them into unsafe situations. Therefore, we urge NHTSA to partner with the FTC to address the misleading marketing of automated vehicle systems and make clear that these systems—and their limitations—must be described clearly and accurately.

IV. Modern Regulatory Tools Will Be Critical to Ensure Consumer Safety and NHTSA Should Not Hesitate to Use Them

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[23] *Id.*

[24] NHTSA addresses occupant protection in the Federal AVs Policy including by: (1) stating its expectation that HAVs should meet NHTSA crashworthiness standards; (2) encouraging entities involved with HAVs to indicate in the Safety Assessment Letter how they have addressed crashworthiness; and (3) encouraging entities to develop and incorporate new occupant protection systems that use information from the advanced sensing technologies needed for HAV operation to provide enhanced protection to occupants of all ages and sizes. Federal AVs Policy at 23. The agency does not address the general importance of updating its crashworthiness standards and the impact that these updates may have on consumer acceptance of AV systems.

[25] Center for Auto Safety, "Destruction of the Research Safety Vehicle (RSV)" (Sept. 9, 2002) (online at www.autosafety.org/destruction-research-safety-vehicle-rsv).

[26] "Tesla's Autopilot: Too Much Autonomy Too Soon," Consumer Reports (July 14, 2016) (online at www.consumerreports.org/tesla/tesla-autopilot-too-much-autonomy-too-soon); "Mercedes Pulls Ad That Made New E-Class Appear to Drive Itself," Consumer Reports (July 29, 2016) (online at www.consumerreports.org/mercedes-benz/mercedes-pulls-ad-made-e-class-appear-drive-itself).

In the Federal Automated Vehicles Policy, NHTSA lists several modern regulatory tools that may be useful to its oversight of AVs. While its current regulatory tools give NHTSA significant capabilities to protect the public, the additional modern tools identified by the agency will be critical to ensure consumer safety. In particular, there is great potential for NHTSA to protect consumers through additional safety assurance reporting and the agency's ability to assess software changes after the point of sale, both of which the agency addresses in the Policy and can undertake under its existing authority.[27] NHTSA should not hesitate to use these tools; indeed, we consider them essential to the agency's effective oversight of AV technologies.

In terms of new tools and authorities, there are several that are of particular importance. We strongly support Congress granting NHTSA imminent hazard authority (or "cease-and-desist" authority),[28] and have been advocating for this change for almost two years. In addition, it could be useful for Congress to grant NHTSA pre-market approval authority over automated features with safety issues not fully covered by federal motor vehicle safety standards,[29] but only if the agency is guaranteed the resources needed to carry out this work, and provided that NHTSA's "stamp of approval" cannot be used by manufacturers to unduly evade its legal responsibility for injury a vehicle causes a consumer. Finally, NHTSA should take all necessary steps to keep its test protocols up-to-date, including by implementing variable test procedures.[30]

V. Conclusion

Consumer Reports and Consumers Union appreciate the opportunity to comment on the Federal Automated Vehicles Policy. With traffic deaths on U.S. roads rising to 35,092 last year and being estimated to have increased another 10% in the first half of 2016,[31] it is an urgent necessity to find effective ways to prevent more traffic deaths and injuries. Doing so will require strong, evidence-based strategies, which can be based at least in part on emerging technologies.

We agree with NHTSA on the pressing need to improve the agency's and the public's understanding of AVs and to begin establishing a regulatory framework for them. However, it is also essential to have strong federal standards based on adequate research to protect all drivers, as states are not equipped to do the hard work of determining whether a self-driving car can be safely allowed on public roads, and manufacturers' incentives may not align with the public interest. To build toward those strong federal standards, and otherwise strengthen the Federal Automated Vehicles Policy, our comments make several recommendations, including:

- The Vehicle Performance Guidance addresses the right topics, but key aspects should be stronger to protect consumers and permit effective NHTSA oversight;

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[27] Federal AVs Policy at 70-71 and 76-77.

[28] Federal AVs Policy at 75.

[29] Federal AVs Policy at 74-75.

[30] Federal AVs Policy at 79-80.

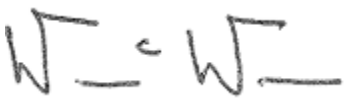
[31] National Highway Traffic Safety Administration, *Early Estimate of Motor Vehicle Traffic Fatalities for the First Half (Jan–Jun) of 2016*, Traffic Safety Facts, Report No. DOT HS 812 332 (Oct. 2016) (online at crashstats.nhtsa.dot.gov/Api/Public/ViewPublication/812332).

- NHTSA should require effective reporting by manufacturers to help the agency receive the safety data it needs to protect consumers;
- NHTSA should obtain company data on human-machine interface factors and consider a safety standard to verify driver engagement and responsiveness in vehicles with Level 2 or Level 3 automated systems;
- Federal policy should strongly encourage independent third-party testing and certification of automated driving features;
- NHTSA should develop a safety standard for cybersecurity, and require full reporting of cybersecurity considerations and vulnerabilities in the interim;
- NHTSA should convene an expert working group on ethics standards;

- The model state policy understates the role NHTSA can and should play with regard to state oversight of automated vehicles;
  - States may lack sufficient technical expertise, and should not bear primary responsibility for deciding if automated vehicles are safe for public roads;
  - NHTSA should make stronger recommendations to states regarding their oversight of retailer practices and vehicle damage;
- NHTSA should use its current regulatory tools to aggressively investigate and take enforcement action on safety-related defects, and to improve crashworthiness; and
- Modern regulatory tools will be critical to ensure consumer safety, and NHTSA should not hesitate to use them.

Going forward, we strongly urge NHTSA to ensure that the Federal Automated Vehicles Policy is an initial regulatory framework that truly serves as an early step and springboard toward more robust measures. This Policy must be a floor, not a ceiling, for the regulation of automated systems. As these technologies continue to advance, we look forward to working with NHTSA to ensure that automated vehicles, and all vehicles, are safe for our roads.

Respectfully submitted,



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