



November 15, 2022

Dr. Robert C. Hampshire
Deputy Assistant Secretary for Research and Technology
U.S. Department of Transportation
1200 New Jersey Avenue, SE
Washington, D.C. 20590-0001

RE: Request for Information on Enhancing the Safety of Vulnerable Road Users at Intersections ([DOT-OST-2022-0096](#))

Dear Deputy Assistant Secretary Hampshire:

The Alliance for Automotive Innovation (“Auto Innovators”) is pleased to submit comments to the U.S. Department of Transportation (“Department”) in response to its Request for Information on enhancing the safety of vulnerable road users at intersections. We appreciate and share the Department’s commitment to improving the safety of pedestrians, bicyclists, and other vulnerable road users at roadway intersections and welcome the opportunity to collaborate on creative approaches to addressing this important issue.

Auto Innovators is the singular, authoritative, and respected voice of the automotive industry. Auto Innovators represents the manufacturers that produce nearly 98 percent of cars and light trucks sold in the United States, automotive suppliers, and technology companies working in the automotive ecosystem. As part of its commitment to a cleaner, safer, and smarter transportation future, the auto industry in the U.S. continues to lead in bringing the next generation of breakthrough automotive and mobility technologies to the market.

Auto Innovators shares the Department’s interest in fostering a Safe System approach to addressing roadway safety, including the safety of vulnerable road users. Reducing the number and severity of incidents at intersections must be a shared responsibility between federal, state, and local governments, industry, researchers, and others. The Department has a unique and important role to play in convening interested stakeholders and fostering an essential dialogue focused on identifying and advancing holistic and comprehensive solutions to meaningfully improve roadway safety. The Department should continue its efforts to develop and implement a data-driven approach that fully considers a variety of options to improve pedestrian safety, including infrastructure improvements, educational efforts targeted at drivers and vulnerable road users, and new and emerging vehicle technologies.

Auto Innovators also shares the Department's interest and enthusiasm in the potential of new and emerging vehicle technologies to improve safety for vulnerable road users. For this reason, our member companies continue to invest in the research, development, and commercialization of innovative new safety technologies that can help reduce pedestrian and vulnerable road user fatalities. This includes some of the technologies identified in the Request for Information. We support efforts by the Department to better understand the impact that these technologies can have in improving the safety of pedestrians and vulnerable road users at intersections and to explore ways to accelerate and enhance the deployment of these life-saving technologies.

Advanced Driver Assistance Systems

Over the past decade, Advanced Driver Assistance Systems (ADAS) have become increasingly common and have shown demonstrable improvements to vehicle safety. The Insurance Institute for Highway Safety (IIHS) has found that vehicles equipped with Automatic Emergency Braking (AEB) systems showed a 50% decrease in front-to-rear crashes, and that vehicles equipped with AEB with Pedestrian detection (PAEB) showed a 27% reduction in pedestrian crashes.¹ Recognizing the significant safety benefits of these specific systems, the industry voluntarily committed to equipping AEB as standard on nearly all new passenger vehicles by September 1 of this year. While final data on installation have not been finalized, it is expected that this target will be met. What's more, over half of the manufacturers complied early.²

In furtherance of our objective to improve motor vehicle safety by working with the National Highway Traffic Safety Administration ("NHTSA" or "Agency"), Auto Innovators continues to encourage NHTSA to formalize the adoption of these systems into the U.S. regulatory framework. In 2021, Auto Innovators released a series of recommendations to update the New Car Assessment Program (NCAP) to incorporate ADAS technologies, including the immediate inclusion of four key technologies: Forward Collision Warning (FCW)/AEB, PAEB, Lane Departure Warning/Lane Keeping Assist (LDW/LKA), and Automatic High Beams.³ For ADAS technologies that have not been in the market long enough to demonstrate clear safety benefits, Auto Innovators recommends incorporating these technologies into roadmaps which the Agency could use to guide future improvements to the NCAP.

In March of this year, NHTSA published a Request for Comment for updates to the NCAP, including the adoption of several Auto Innovators' recommendations. In response, Auto Innovators provided public comment to the docket.⁴ As part of the industry response, we reiterated our support for NCAP's inclusion of ADAS features, such as AEB/PAEB, that will likely provide substantial safety benefit to all road users, including vulnerable road users. We thank the Agency for the consideration of these comments and recommendations and encourage the expeditious finalization of these updates.

Concurrent with the updates to NCAP, NHTSA has indicated that a rulemaking to mandate AEB and PAEB is currently in development.⁵ Indeed, such a rulemaking was Congressionally mandated as part

¹ <https://www.iihs.org/media/290e24fd-a8ab-4f07-9d92-737b909a4b5e/4GauQQ/Topics/ADVANCED%20DRIVER%20ASSISTANCE/IIHS-HLDI-CA-benefits.pdf>

² <https://www.nhtsa.gov/press-releases/nhtsa-announces-2020-update-aeb-installation-20-automakers>

³ <https://www.autosinnovate.org/about/advocacy/NCAP%20PDF%204-19-21.pdf>

⁴ [https://www.autosinnovate.org/committees/safety/Auto%20Innovators%20NCAP%20Comments%20\(w%20Appendix\).pdf](https://www.autosinnovate.org/committees/safety/Auto%20Innovators%20NCAP%20Comments%20(w%20Appendix).pdf)

⁵ <https://www.reginfo.gov/public/do/eAgendaViewRule?pubId=202204&RIN=2127-AM37>

of the Bipartisan Infrastructure Law passed last year. As with the finalization of the NCAP updates, Auto Innovators encourages the Agency to expeditiously issue the Notice of Proposed Rulemaking to formally require these important ADAS technologies on all new vehicles with sufficient lead time so that it can be evaluated by industry and other stakeholders. NHTSA should also consider harmonizing with UN Regulation No. 152 as the regulation addresses common pedestrian crash types.⁶

Auto Innovators also notes that our members have been working diligently to bring other ADAS technologies to market that have the potential to directly benefit vulnerable road user safety. For example, following a petition for rulemaking from industry, NHTSA amended FMVSS 108 earlier this year to allow Adaptive Driving Beams (ADB) into the market, which serves to provide superior illumination for vulnerable road users without glaring other drivers. To help ensure that ADB can have a more immediate beneficial impact on pedestrian safety, Auto Innovators encourages NHTSA to revise the final rule per the association's petition for reconsideration submitted earlier this year. This and many other ADAS technologies have shown preliminary benefits and will continue to grow in number as the benefits to vulnerable road users especially are realized.

Finally, many auto companies are currently working to develop and, in some cases, are already integrating technologies into vehicles that can help ensure that drivers remain attentive and engaged in the driving task. These technologies have the potential to reduce crashes caused by distracted or drowsy drivers.

Automated Driving Systems

There is tremendous potential for Automated Driving Systems (ADS) to improve roadway safety, including pedestrian safety. By combining advanced sensing technologies with artificial intelligence to help avoid crashes, including crashes involving vulnerable road users, ADS-equipped vehicles have the potential to reduce the number of fatalities on our nation's roadways. Unlike conventional human drivers, an ADS cannot get distracted, drive impaired, or fall asleep at the wheel. With 360-degree awareness and quick reaction times, ADS are likely to be more effective than human drivers at detecting pedestrians and other vulnerable road users in and around intersections and at responding quickly to avoid a collision.

As ADS technologies mature, developers need a reliable and viable pathway to commercial deployment in the U.S. This can be accomplished through the implementation of a comprehensive federal framework that supports the testing and commercial deployment of ADS-equipped vehicles at scale, particularly those without conventional vehicle controls. To support the deployment of ADS-equipped vehicles, including in connection with any comprehensive effort to enhance the safety of vulnerable road users at intersections, the Department of Transportation should expeditiously complete its work to update the existing motor vehicle safety standards to accommodate ADS-equipped vehicles. In addition, the Department of Transportation should establish a robust pilot or demonstration program for the testing and commercial deployment of ADS-equipped vehicles. A pilot or demonstration program can enable the safe and responsible testing and deployment of ADS-equipped vehicles at a wider scale under the direct oversight of the Department. Importantly, it can provide an avenue for the federal government to advance its ADS-related research objectives, including its research objectives relating to the safety of pedestrians and other vulnerable road users at intersections, and to gather the data that it needs to establish a longer-

⁶ <https://unece.org/fileadmin/DAM/trans/main/wp29/wp29regs/2020/R152am1e.pdf>

term, permanent regulatory framework. Additionally, for ADS-equipped vehicles that can meet existing FMVSS test procedures, the Department should work to clarify the applicability of the “make inoperative” provision. There may be ADS-equipped vehicles that temporarily disable certain vehicle controls, such as a brake pedal, to ensure safe operation of the vehicle while it is being operated by an ADS. Having clear direction from the NHTSA on how to apply “make inoperative” to these vehicle designs will help ADS developers and vehicle manufacturers determine when exemptions are truly necessary. By doing this, NHTSA can avoid the burden of excessive petitions for exemptions.

Connectivity Technologies

Vehicle-to-everything (V2X) technology also stands to deliver enormous safety benefits, including reducing crashes. V2X applications are designed to provide warnings in scenarios where the capability of sensor suites and cameras may be limited. Specifically, V2X-equipped cars may be able to “see” through other vehicles, around turns, and in limited visibility situations. As you know, a variety of public and private sector stakeholders are currently working to deploy V2X for a number of use cases that can improve roadway safety. At the time of this filing, there are nearly 30 public and private entities seeking waivers from the Federal Communications Commission (FCC) to deploy V2X, including ten state departments of transportation, major cities like New York City and Atlanta, three automakers, and nearly a dozen equipment makers.⁷

One promising use case for V2X technology is vehicle-to-pedestrian (V2P) communication. V2P applications would allow for communication between vehicles and pedestrians, bicyclists, and other vulnerable road users to exchange information to enable collision alerts or warnings to drivers and, in some cases, pedestrians. Unfortunately, the 2020 decision by the FCC to reduce the amount of spectrum available for V2X applications from 75 MHz to 30 MHz will challenge the ability to bring some V2P applications to the U.S. market. Additional spectrum will likely be required to realize the full benefits of V2X technology for pedestrians and other vulnerable road users.

However, there are some vehicle-to-infrastructure (V2I) applications that can be used to improve the safety of vulnerable road users at intersections that may be supported within the existing spectrum band. This includes infrastructure-based applications to warn drivers that they are about to enter an intersection against a red light and that identify the presence of pedestrians and vulnerable road users at or near an intersection and communicate that information with proximate vehicles.

Earlier this year, Auto Innovators released a V2X policy agenda to foster a policy and regulatory environment that will support the wide-scale deployment of V2X technology.⁸ Within that agenda, Auto Innovators recommended – among other things – that the Department of Transportation develop, in coordination with other relevant federal agencies and industry stakeholders, a comprehensive national V2X vision and strategy for the future. Certainly, the development of such a strategy would provide the Department with an opportunity to advance and foster the use of V2X to improve the safety of vulnerable road users at intersection.

⁷ See FCC Docket 19-138, Use of the 5.850-5.925 GHz Band, [https://www.fcc.gov/ecfs/search/search-filings/results?q=\(proceedings.name:\(%2219-138%22\)\)&limit=100&sort=date_disseminated_DESC](https://www.fcc.gov/ecfs/search/search-filings/results?q=(proceedings.name:(%2219-138%22))&limit=100&sort=date_disseminated_DESC).

⁸ <https://www.autosinnovate.org/about/advocacy/V2X%20Policy%20Agenda.pdf>

In addition, Section 24219 of the Bipartisan Infrastructure Law requires the Department to expand V2P research efforts focused on incorporating bicyclists and other vulnerable road users into the safe deployment of connected vehicle systems and to submit to produce a report describing the findings of the research efforts. This research is to include an analysis of the extent to which applications supporting vulnerable road users can be accommodated within the existing spectrum allocations for connected vehicle systems. This research directive and accompanying report presents the Department with an opportunity to further consider and explore ways to improve pedestrian and vulnerable road users at intersections with V2X technologies.

Finally, other connectivity technologies have the potential to improve intersection safety for pedestrians and other vulnerable road users. For example, government and other infrastructure owners and operators can integrate edge nodes into roadside units and use mobile edge and near-edge computing to leverage existing high-speed cellular connections in vehicles to foster reliable, real-time communication between vulnerable road users and vehicles in and around intersections. There is the potential for these capabilities to be made available through mobile phone-based apps so that the benefits can be realized in the near- to mid-term without the need for additional in-vehicle hardware.

Auto Innovators appreciates its ongoing collaboration with the Department on opportunities to further improve roadway safety, including pedestrian and vulnerable road user safety, through new and emerging vehicle technologies. We certainly look forward to continued engagement on this and other matters.

Sincerely,

A handwritten signature in black ink, appearing to read "Hilary M. Cain". The signature is written in a cursive style with a long horizontal stroke extending to the right.

Hilary M. Cain
Vice President
Technology, Innovation, & Mobility Policy