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**Statement for the Record of
The American Society of Civil Engineers
on
"The Road Ahead for Automated Vehicles"
Subcommittee on Highways and Transit
Committee on Transportation and Infrastructure
U.S. House of Representatives**

February 2, 2022

Introduction

The American Society of Civil Engineers (ASCE) appreciates the opportunity to submit a statement to the House Subcommittee on Highways and Transit for the hearing on *The Road Ahead for Automated Vehicles*.

Thoughtful planning and safe deployment are critical as these vehicles become a more prevalent part of the nation's transportation landscape. ASCE recommends industry and government representatives work cooperatively to establish national standards for the planning and deployment of transportation infrastructure associated with automated vehicles (AV). These standards will help guide the development of AV systems by the private sector while establishing a framework for local jurisdictions that plan and maintain infrastructure.

ASCE commends the House Subcommittee on Highways and Transit for hearing from a variety of vehicle industry leaders and transportation experts. Federal, state, and local government officials need to balance investments to preserve safety on existing systems while planning for the roadways of the future with consideration of autonomous vehicles.

ASCE's 2021 Report Card for America's Infrastructure

Every four years, ASCE publishes its *Report Card for America's Infrastructure*, which grades the nation's major infrastructure categories using an A to F school report card format. The most recent report card¹, released in March 2021, evaluated 17 categories of infrastructure and reflected an overall C- grade.

Roads earned a D on the report card, which recognized that the introduction of connected and autonomous vehicles represents a major technological shift. Although these technologies can provide an opportunity to increase safety and mobility, reduce congestion and carbon emissions, and improve land use, autonomous vehicles could also lead to extra stress on the transportation system if implemented incorrectly. Some 40 states have already either enacted legislation or issued executive orders on autonomous vehicles, and a national framework is necessary to prevent a patchwork of individual state-level policies.

Safety

AV technologies have the potential to improve safety at a time when roadway fatalities are a serious issue. The National Highway Traffic Safety Administration (NHTSA) released data² in October indicating 20,160 people died in motor vehicle crashes

¹ <https://infrastructurereportcard.org/>

² <https://crashstats.nhtsa.dot.gov/Api/Public/ViewPublication/813199>

between January and June 2021. This figure marks an increase of 18.4% compared to the first half of 2020, in which 17,020 such fatalities were projected.

According to a Human Factors for Connected Vehicles study by NHTSA³, connected vehicle technologies have the potential to address up to 82% of crash scenarios with unimpaired drivers. These technologies could save a significant number of lives and prevent crash-related injuries, and help avoid tens of thousands of crashes each year.

There are several areas where technology can fill in the gaps of human performance and improve safety and mobility.

For example:

- Technology improvements can provide stability control, automatic braking, all-wheel drive, steering by wire, traction control, collision avoidance, blind spot warning systems, lane control, and automatic cruise control.
- Infotainment systems linked to cell phone technologies (e.g., Bluetooth and voice activated commands) in vehicles can reduce distracted driving (e.g., from texting, looking down at a phone for directions, searching for an address, etc.).
- AVs possess hardware and software collectively capable of performing some aspects of safety-critical control functions (e.g., steering, throttle, and braking) without direct driver input. AVs may use vehicle sensors, cameras, GPS, and telecommunications to obtain information to make decisions regarding safety-critical situations and act appropriately by effectuating control at some level. In this way, the AV infrastructure and the roadway infrastructure are interdependent.
- Vehicle to Everything (V2X) technologies are being developed and tested to prevent or mitigate crashes. V2X technologies must improve safety for the passenger and provide increased efficiency for existing infrastructure. Connectivity to 5G systems will be required and enough spectrum band must be preserved to support V2X technologies.
- ASCE has joined industry partners such as the American Association of State Highway and Transportation Officials (AASHTO) in supporting the preservation of the 5.9 GHz wireless spectrum on which connected vehicles using V2X technologies rely.

The recently enacted Infrastructure Investment and Jobs Act represents a substantial investment in surface transportation. The legislation contains a five-year, \$383.4 billion reauthorization of federal surface transportation, highway safety, transit, and rail programs and an additional \$110 billion for road and bridge programs. As this law is implemented, it will be important to make investments that enhance growing technology.

Consideration should be given to the following:

³ <https://www.nhtsa.gov/sites/nhtsa.gov/files/812068-humanfactorsconnectedvehicles.pdf>

- As connected and automated vehicles (CAV) technology continues to develop, cooperative systems must be achieved through strong partnerships between vehicles manufacturers, infrastructure owners and operators, government entities, freight transport and logistics professionals, transportation safety groups, law enforcement, first responders, and other private sector representatives.
- Our nation's transportation infrastructure system needs to meet the growth and demands of CAV technology. Strong and resilient infrastructure must be in place to adopt new transportation technology.
- It is important to invest in the infrastructure system to ensure CAV technology is properly implemented. There must be a complete and properly maintained infrastructure system in order to maximize the safety benefits that CAV technology can provide.

Conclusion

ASCE thanks the House Subcommittee on Highways and Transit for hearing from a panel of experts on the subject of AVs.

AV technologies have the potential to improve safety and reduce motor vehicle crashes. These vehicles will continue to be a part of the nation's transportation landscape, and their appropriate use will be facilitated by national standards developed by government and industry leaders.