



Washington Office

25 Massachusetts
Ave., NW Suite 500

Washington, D.C. 20001

(202) 789 -7850

Fax: (202) 789-7859

Statement for the Record of

The American Society of Civil Engineers

on

**"Understanding Roadway Safety: Examining the Causes of Roadway Safety Challenges
and Possible Interventions"**

Subcommittee on Transportation and Infrastructure
Committee on Environment and Public Works
U.S. Senate

November 7, 2023

Introduction

The American Society of Civil Engineers (ASCE) appreciates the opportunity to submit a statement to the Senate Committee on Environment and Public Works' Subcommittee on Transportation and Infrastructure regarding "Understanding Roadway Safety: Examining the Causes of Roadway Safety Challenges and Possible Interventions."

Safety is a fundamental principle of civil engineers' work. As the nation's oldest engineering society, ASCE represents the professionals who design, construct, inspect, and maintain roadway systems. ASCE supports policies that account for the safety of all system users throughout a project's life cycle. Additionally, ASCE advocates for a sustained effort to reduce traffic crashes through improvements to all aspects of highway system performance. We commend the subcommittee for holding a hearing on this important subject, and we appreciate the opportunity to share input.

ASCE's 2021 Report Card for America's Infrastructure

Every four years, ASCE publishes its Report Card for America's Infrastructure¹, which grades the nation's major infrastructure categories using an "A" to "F" school report card format. The most recent report card, released in March 2021, evaluated 17 categories of infrastructure and reflected an overall "C-" grade. Roads earned a "D" on the report card², which recognized that the increasing volume of traffic has contributed to growing wear and tear on our nation's roadways, presenting negative implications for safety and the economy. To raise this grade, ASCE recommends increasing funding from all levels of government and the private sector to address the condition and operations of the roadway system to maintain a state of good repair and ensure safety for all users.

Safety trends

Safety remains a pressing issue on our nation's roadways. The National Highway Traffic Safety Administration (NHTSA) estimates 42,795 people died in motor vehicle traffic crashes last year, representing a slight decrease of .3% from the 42,939 fatalities reported in 2021³. This fall, NHTSA released early estimates indicating 19,515 people died in crashes in the first half of 2023⁴. This figure marks a 3.3% decrease compared to the 20,190 fatalities that occurred in the first half of 2022. While these estimates indicate traffic fatalities have declined for the fifth quarter in a row, the number of deaths that take place on our nation's roadways is still too high. ASCE supports Vision Zero, which is based on the tenet that traffic fatalities can be prevented and that even one traffic-related death is too many⁵.

¹ [America's Infrastructure Report Card 2021 | GPA: C-](#)

² [Road Infrastructure | ASCE's 2021 Infrastructure Report Card](#)

³ [Crash Stats: Early Estimate of Motor Vehicle Traffic Fatalities in 2022 \(dot.gov\)](#)

⁴ [Crash Stats: Early Estimate of Motor Vehicle Traffic Fatalities For the First Half \(January–June\) of 2023 \(dot.gov\)](#)

⁵ [Policy statement 552 - Vision Zero | ASCE](#)

Safe roadway systems reduce loss of life, facilitate the movement of goods, and keep the American economy competitive. ASCE supports a sustained effort to reduce traffic crashes and related fatalities, injuries, and property damage⁶. Among other measures, highway safety programs should include:

- A safe environment for all users of the highway system;
- Increased public awareness of safety issues and encouragement of responsible behavior among all users of the highways;
- Implementation of effective engineering, research, education, and enforcement strategies to improve highway safety;
- Continued understanding of rapidly evolving vehicle characteristics and their impact on infrastructure and safety;
- Increased flexibility in federal-aid funding programs for high-priority highway safety improvement programs;
- Legislation that reduces distracted and impaired driving and increases driver penalties for all violations, including speeding in work zones.

Promotion of industry-driven standards

ASCE engages in setting standards on a large scale and can serve as a useful source of technical information for lawmakers and other government partners. ASCE standards provide technical guidelines for promoting safety, reliability, productivity, and efficiency in the civil engineering profession. Accredited by the American National Standards Institute (ANSI), ASCE has a rigorous and formal process overseen by the Codes and Standards Committee (CSC). Standards are created or updated by a balanced volunteer standards committee, followed by a public review period. These standards are adopted by state and local jurisdictions and used in the designing of projects around the world.

One particular standard that can offer sound guidance for transportation engineering and roadway safety is ASCE 58, Structural Design of Interlocking Concrete Pavement for Municipal Streets and Roadways (ASCE/T&DI/ICPI 58-16)⁷, which establishes guidelines for developing appropriate pavement structures for various traffic and subgrade conditions. This standard provides preparatory information for design, key design elements, design tables for pavement equivalent structural design, construction considerations, applicable standards, definitions, and best practices.

⁶ [Policy statement 367 - Highway safety | ASCE](#)

⁷ [Structural Design of Interlocking Concrete Pavement for Municipal Streets and Roadways | Books \(ascelibrary.org\)](#)

Implications of technology

Technology can also play a role in improving roadway safety by filling in the gaps of human performance. According to a Human Factors for Connected Vehicles study by NHTSA⁸, 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, helping avoid tens of thousands of crashes each year.

There are several areas where technology can complement human performance and improve safety and mobility. For example:

- Technological 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.).
- Automated vehicles (AV) 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. AV 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.

ASCE supports multi-modal, multi-disciplinary, and systems approaches to Intelligent Transportation Systems (ITS), which can be a cost-effective means to improve safety, optimize transportation control, performance, and operation, minimize congestion, and increase security while providing real time information to aid in route and travel mode choice and planning. Additionally, ASCE supports the planning and integration of connected and automated vehicles (CAV) as part of a unified transportation infrastructure system. It is recommended that industry work cooperatively with federal, state, and local governmental agencies to establish national standards for the planning, design, deployment, and maintenance of transportation infrastructure and operating systems needed to support CAV deployment, including protections for data privacy.

Conclusion

ASCE thanks the subcommittee for hearing from transportation experts on the important subject of roadway safety.

Improving safety on America's roadways is critically important. A safe, reliable network of roads protects lives and facilitates a healthy economy. ASCE stands ready to assist Congress and industry leaders in addressing this subject.

⁸ [812068-humanfactorsconnectedvehicles.pdf \(nhtsa.gov\)](https://www.nhtsa.gov/sites/nhtsa/humanfactors/documents/humanfactorsconnectedvehicles.pdf)