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1200 New Jersey Ave SE
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ATTN: Docket No. DOT-OST-2025-2085

Re: Department of Transportation Research, Development, and Technology Strategic Plan for Fiscal Years 2026-2030

The American Society of Civil Engineers (ASCE) is grateful for the opportunity to provide comments to the Department of Transportation (DOT) as the agency seeks input on its Research, Development, and Technology (RD&T) Strategic Plan for Fiscal Years (FY) 2026-2030. The perspective offered in this document is in response to the request for information (RFI) issued by DOT on January 13, 2026.

Founded in 1852, ASCE is the nation's oldest engineering society. ASCE represents more than 160,000 members of the civil engineering profession in 177 countries. Whether they practice in private firms, government offices, or universities, ASCE's members are committed to advancing the science and profession of civil engineering and protecting public health, safety, and welfare. As the professionals who plan, design, construct, and maintain critical aspects of our nation's transportation infrastructure, from roads and bridges to rail lines and transit systems, ASCE welcomes the opportunity to offer input on DOT's RD&T Strategic Plan.

Research, development, and technology not only form key components of civil engineers' daily operations, but also guide the planning of future projects. ASCE supports infrastructure research and innovation to boost economic competitiveness and enhance Americans' quality of life. Federal leadership is essential to fostering and advancing research and development initiatives across infrastructure sectors. DOT's RD&T Strategic Plan can play an important role in guiding research efforts among government agencies, academia, and the private sector.

For this comment, ASCE would like to address some of the **questions DOT included in its RFI** and discuss the importance of **sharing research findings**.

ASCE's responses to DOT's questions

1. *How should DOT prioritize and invest in research activities over the next five years? Over the next 25 years?*

- Today, five years from now, and 25 years into the future, safety must be the guiding principle of DOT's research activities. DOT's RD&T Strategic Plan should be oriented around the safety and accessibility of all users of the transportation network.
 - i. Safety is a significant issue on our nation's roadways. The National Highway Traffic Safety Administration (NHTSA) estimates 39,345 people died in motor vehicle traffic crashes in 2024.¹ Pedestrian fatalities are also high. Some 7,148 people were struck and killed while walking in 2024.² Although this figure is down 4.3% from the previous year, it is still 19.2% higher than the 2016 level.
 - ii. DOT's RD&T activities should enhance the collection, organization, and dissemination of accurate safety-related data. To reduce traffic fatalities, access to current crash data is invaluable and must be readily available to all local jurisdictions and transportation professionals responsible for mitigating crashes and other roadway hazards.
 - iii. Safety metrics should also be routinely incorporated into research and updates associated with the Manual on Uniform Traffic Control Devices (MUTCD). Administered by the Federal Highway Administration (FHWA), the MUTCD sets the standards transportation professionals use to install and maintain traffic control devices on streets, highways, sidewalks, and bicycle facilities.
- DOT should also concentrate on research intended to improve the operations and maintenance of the transportation system. Not only is operations and maintenance work critical to keep aging infrastructure in service, but it can also enhance system performance and reliability.
 - i. The nation's infrastructure received a cumulative C grade on ASCE's *2025 Report Card for America's Infrastructure*. While this grade is an improvement from the C- reflected on the 2021 Report Card, it

¹ <https://crashstats.nhtsa.dot.gov/Api/Public/ViewPublication/813710>

² <https://www.ghsa.org/sites/default/files/2025-07/Pedestrian%20Traffic%20Fatalities%20by%20State%20-%202024%20Data%20-%207.10.25.pdf>

indicates the nation's infrastructure still contends with plenty of challenges. Among these challenges are the costs and risks associated with aging infrastructure.

- ii. The implications of aging infrastructure are particularly visible in the bridges chapter of the Report Card, which received a C grade. Approximately 45% of bridges have exceeded their planned design lives of 50 years. Although infrastructure owners have worked to maintain a state of good repair, bridges will need to be kept in service well past their anticipated initial design lives. Between 2014 and 2023, about 4,927 bridges per year were replaced. At that rate, bridges built today will need to last 126 years.³
- iii. Targeted RD&T efforts can play a role in informing how civil engineers operate, maintain, and repair infrastructure over the lifetime of a project.

- Another priority area that carries important implications for the future is resilience.
 - i. Across the U.S., disasters of greater intensity, duration, and frequency have wreaked havoc on communities of every size and location.
 - ii. Since 1980, the U.S. has experienced 426 weather and climate disasters, each with damages reaching or exceeding \$1 billion. The total cost of these 426 events exceeds \$3.1 trillion.⁴ On top of extreme weather events, the nation's transportation system handles the needs of growing populations in many parts of the country as infrastructure elements continue to age.
 - iii. Research related to innovation in the transportation sector across different geographic contexts, including rural and urban areas and large and small communities, can result not only in longer-lasting infrastructure, but also safer systems for the traveling public.

2. *What types of research activities should DOT undertake to meet its strategic goals?*

- DOT should pursue partnerships with academia, industry, and local agencies to develop RD&T solutions and meet strategic goals.
- Innovation challenges and open data initiatives could also serve as avenues for discovering talented individuals and promising technologies.

³ <https://infrastructurereportcard.org/wp-content/uploads/2025/03/Bridges.pdf>

⁴ <https://www.climatecentral.org/climate-services/billion-dollar-disasters>

- i. The Ideas and Innovation Challenge operated by the Advanced Research Projects Agency - Infrastructure (ARPA-I) is an example of an initiative that can attract ideas for solutions to enhance America's infrastructure.
 - Raising awareness of opportunities and challenges at K-12 schools, community colleges, and universities is another way DOT can prepare the next generation of workers.
- 3. *What key social, demographic, economic, technological, and/or other trends influence transportation today and into the future?*
 - Connected and automated vehicles (CAV) influence transportation today and continue to grow more prevalent. DOT should focus RD&T efforts on the infrastructure that accommodates these vehicles. Also, DOT should consider how CAV technologies interact with elements of the transportation network, such as signs and markings.
 - i. ASCE recommends DOT work cooperatively with industry partners to establish national standards for the planning, design, deployment, and maintenance of transportation infrastructure. These standards will define a protocol to guide the development of CAV systems by the private sector.
 - ii. The federal government has an instrumental role to play in implementing policies that inform a comprehensive, national framework for compatible CAV technologies. This national framework will prevent a patchwork of individual state-developed policies.
- 4. *What emerging challenges or opportunities or knowledge gaps in transportation warrant additional DOT RD&T activities or investments?*
 - The transportation sector is rife with challenges and opportunities that could benefit from additional RD&T investment.
 - Pavement:
 - Continue research to preserve and improve pavement life. Expand asset management programs and funding for preventive maintenance. Maintaining a state of good repair on existing roads, many of which were designed decades ago, is essential.
 - Life-cycle cost analysis is a critical component of asset management. Life-cycle cost analysis, which helps provide awareness of total infrastructure cost, can help transportation professionals and elected officials make well-informed operations and maintenance decisions.
 - Construction:

- Fund research into innovative technologies, materials, and construction techniques to extend and preserve the life of transportation infrastructure.
 - Recycled materials are an option for reducing waste and costs.
- Additionally, research alternatives to natural aggregates.
- Research the utilization of right-of-way to accommodate innovative technologies.
- Housing trends:
 - Increased density, which can create congestion at origins and destinations of trips.
 - Land use's impact on crash severity and likelihood.
 - Best practices for coordinating transportation planning with local land use under categorical exemption processes.
- Travel and leisure trends:
 - Work-related vehicle trips, which have shifted due to the COVID-19 pandemic.
 - Travel patterns for shopping trips, school drop-off and pick-up runs, and other non-work trips.
 - Seasonal variations in demand across all modes.
 - FHWA's National Household Travel Survey and resulting summary of trends is a useful resource for this information and should receive continued support from DOT.
- Extreme weather:
 - Rising risks to coastal, urban, and rural infrastructure from floods, wildfires, and hurricanes.
 - Invest in extreme weather modeling and infrastructure adaptation strategies.
- Cybersecurity threats:
 - Increasing vulnerabilities in connected transportation infrastructure and vehicles.
 - Analyze data privacy and cybersecurity implications of connected infrastructure.
- Workforce evolution:
 - Addressing skills gaps in electric vehicle (EV) manufacturing, mobility solutions, and infrastructure maintenance.
- Energy transition:

- EV adoption requires grid modernization, battery recycling, and resilient supply chains for rare earth minerals.

Importance of sharing research results

DOT leaders should be mindful of the gap between analyzing research results and putting them into practice. Outreach, dissemination of research results, and training of the people responsible for applying these results is critical and often overlooked. ASCE urges DOT to redouble its efforts to share findings and recommendations with the professionals who implement research results, such as employees of state and local departments of transportation and practitioners at private engineering firms.

ASCE recommends DOT consider linking training, outreach, and technology transfer practices to each of the research priorities outlined in the RD&T Strategic Plan. Moreover, DOT should engage in dialogue with the people and agencies affected by research and innovation to gain an understanding of their needs.

Conclusion

ASCE would like to thank DOT for updating its RD&T Strategic Plan and accepting feedback from stakeholders as it does so. The transportation sector contains vast potential for advancements in research, development, and technology. ASCE looks forward to serving as a source of information and is prepared to answer any questions as DOT collects input.