ITS AMERICA

February 12, 2026

Michael Halem
Acting Assistant Secretary for Research and Technology
U.S. Department of Transportation
1200 New Jersey Avenue SE
Washington, D.C. 20590

Re: Transportation Research and Development Strategic Plan; Request for Information [Docket No.: DOT-OST-2025-2085]

Dear Acting Assistant Secretary Halem,

The Intelligent Transportation Society of America (ITS America) is grateful for the opportunity to provide input on the next 5-Year Research, Development, and Technology (RD&T) Strategic Plan for the U.S. Department of Transportation (Department).

ITS America is the only national organization bringing together the private, public, and research sectors in intelligent transportation, convening experts across the industry who are fostering innovation to improve safety and efficiency in our transportation system. Our member organizations include state, regional, and local transportation and planning agencies, transit providers, major technology firms, auto manufacturers and suppliers, companies providing ITS products and services, data companies, research organizations, and academic institutions, all centered around delivering efficient, effective technology-forward transportation solutions.

The 5-Year RD&T Strategic Plan is an essential roadmap for the Department and the transportation industry, as the public, private, and academic sectors work together toward our shared mission of a safer and more modern transportation system. The Department's RD&T efforts should be grounded in real-world needs and the latest technological advancements, while simultaneously aimed at helping state and local agencies scale these innovations. It is critical that we turn American research innovation into scalable deployments in the field that benefit communities across the country.

Please see the following comments below:

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

The United States has led the world in researching and developing infrastructure-based and vehicle-based transportation technologies that will modernize our transportation system – it is critical that the Department partner with transportation stakeholders to lead a national effort to scale those innovations through interoperable nationwide deployments. As the pace and adoption of technology continues to advance in the transportation sector, the Department must prioritize and invest in research and deployment efforts of technological innovations that improve safety, mobility, efficiency and return on infrastructure investments. This effort should be a top priority for all modal administrations and the

Office of the Secretary to drive comprehensive modernization of the transportation ecosystem.

The Department's research should be grounded in tangible outcomes that can have a direct positive impact on the current U.S. transportation system and its users, both within the near-term and with an eye towards long-term benefits. It is critical that the Department not just recognize successful ITS (intelligent transportation systems) pilots and demonstrations but also provide funding mechanisms to incentivize broader deployment and scaling of these innovations. This "digitalization" and modernization of our shared surface, air, and maritime infrastructure assets should be a key priority for the Department.

- **In the next 5 Years:** RD&T activities should prioritize actionable goals such as improving road safety, advancing system modernization across all modes, and meeting distinct user needs. The Department should specifically be engaging in research activities that promote a more proactive approach to safety and system improvements.

  ITS technologies are ready to be deployed to help strengthen our national transportation digital infrastructure, the modern layer of intelligence that turns physical roads into adaptive, data-driven systems. While it is critical that the Department continues to advance a robust research agenda over the next five years, scaling and deploying proven innovations domestically is of even greater immediate importance. Tools such as vehicle-to-everything (V2X), artificial intelligence (AI), automated vehicles, digital twins, and more are already starting to make a positive impact on our transportation system and are poised to positively transform our nation's transportation system if properly incentivized and funded through the Department's research and deployment efforts.

  Further, the Department should continue and expand upon its current RD&T efforts relating to transportation digital infrastructure over the next five years. This work is vital to ensuring the next generation of safety and mobility technologies are developed and deployed here in the United States and that there is a cohesive national roadmap for smart transportation technologies across all modes.

- **In the next 25 Years:** In the long term, the Department must continue its strong record of visionary support for groundbreaking transportation research. Long-term research should focus on improving the technologies available today while preparing our system for future technologies that may not yet be proposed or fully developed. Technologies like quantum, blockchain, and Level 5 driving automation are poised to significantly impact our transportation system and should be considered by the Department.

  The ITS tools of today may look vastly different in 25 years. The Department should ensure proper institutional preparation for a changing technology landscape, which necessitates the establishment of institutional partnerships, effective knowledge sharing, and procurement tools designed to be flexible for an evolving technological environment.

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

- **Transportation Digital Infrastructure (TDI):** To meet its strategic goals, the Department should engage in research efforts that develop and sustain our nation's transportation digital infrastructure to simultaneously improve safety, make travel more efficient, and expand access to mobility. Beyond OST-R, modal administrations should elevate the concept of TDI and incorporate it throughout research initiatives, funding mechanisms, and other priorities. This is specifically imperative for digital infrastructure, as it represents both immediate transportation benefits and serves as the foundation for emerging technology solutions that will be deployed in the future.

  TDI represents a modernized transportation ecosystem that seamlessly integrates physical and digital assets to deliver safe, efficient, and connected mobility through reliable and interoperable data — empowering informed decision-making, real-time operations, proactive management, and continuous innovation across the entire system lifecycle.

  OST-R and modal administration research should emphasize broad system-level modernization, moving beyond a network of fragmented, often outdated platforms and processes. Current research into this should continue and expand moving forward, specifically including all modal administrations to foster interoperability, bolster economic competitiveness, and promote national security objectives through domestic innovation and deployment pathways. Without this modal interaction and sustained engagement, we will end up with the same fragmented, inefficient, and vulnerable systems often seen today.

  Digital infrastructure helps us gather information about our transportation system, providing agencies with crucial tools to make planning smarter decisions, enact safety countermeasures, and proactively monitor the status of their systems. The Department must make this a priority in its RD&T plan and investment efforts, as this will help state and local transportation agencies get more out of their physical assets, make smarter investments, and maximize limited resources.

  In the realm of TDI, the Department should conduct research into the economic benefits of ITS deployments. Investing in technology for highway and transit projects can improve lifecycle return on investment, make travel safer, and improve project delivery speeds. However, there has been limited up-to-date research to quantify the economic and cost benefits of investing in these technology solutions, including indirect benefits achieved through increased safety and decreased congestion. The Department's research should make these outcomes-based evaluations and cost-benefit analyses a priority, as this will help guide future investments that will promote safety, extend the life of infrastructure, and reduce congestion on American roads.

  Realizing the full benefits of TDI will require specific efforts in the areas of data exchange and interoperability which, when properly supported, increase system safety, resilience, and reliability while reducing redundancy and fragmentation costs. A scalable approach to data exchange promotes trust and ease of use for end users while creating new opportunities for

economic growth and further technological development. The Department should expand its research into and support of TDI-related data interoperability that respects privacy and liability concerns while encouraging open exchange and future readiness.

- **Vehicle Technologies:** The Department's research should also have a focus on technologies that improve road user safety and create a more efficient and accessible transportation system. OST-R and modal administration research and deployment efforts for V2X in both the direct and networked applications should continue and be expanded. As part of its research and deployment initiatives for V2X, the Department should re-release the 2024 Saving Lives with Connectivity: A Plan to Accelerate V2X Deployment. This will help guide current and future deployment efforts, as well as future V2X research needs, while meeting Department goals of improving safety, reducing congestion, and improving mobility.

  NHTSA is undertaking a strong research agenda on vehicle safety, including automated driving systems (ADS) and advanced driver assistance systems (ADAS). These efforts should continue, while emphasizing cross-modal collaboration and facilitation with the Office of the Secretary. The potential to integrate V2X into ADS or ADAS presents an opportunity to improve safety, prevent vehicle crashes, protect pedestrians, reduce driver distraction, and enhance system resiliency. The Department should continue to invest in V2X-related vehicle and behavioral safety research, including research aiming to understand the potential for V2X-ADAS integration, as well as the possibility of strategically integrating V2X into the New Car Assessment Program (NCAP).

  As Congress and the Administration continue to examine vehicle affordability trends and the costs of transportation, the Department RD&T Plan should include research into how safety technologies, including V2X, may lower the overall cost of ownership of a vehicle when factoring in crash avoidance, including effects on the cost of crashes, vehicle longevity, and insurance rates.

  As ADS operations expand beyond robotaxis or rideshare to freight and fixed-route transit, Department research activities should ensure that current testing procedures and regulations are grounded in safety and the latest advancements in ADS technology. This includes any necessary updates to Federal Transit Administration (FTA) bus testing procedures, Federal Motor Carrier Safety Regulations involving innovative warning beacons, and regulations for purpose-built AVs that are intended to assist those with mobility challenges.

- **Traffic Management and Operations Technologies:** The Department should conduct research into the uses for and expansion of digital tools for traffic management and operations, including open traffic data, roadway sensor data, and curbside management data. These technologies are essential for modernizing and optimizing management and operations, and will only become more important as partially and highly automated vehicles are increasingly deployed on American roadways. This underlying digital infrastructure could be part of further RD&T efforts centered on integrating AVs with current Transportation Systems Management

and Operations (TSMO) practices, but would prove beneficial regardless of AV deployments.

Furthermore, research should consider the digital infrastructure applications that can complement ADS operations, and how cities and states can better prepare for AVs on their roads. The Department's RD&T work should integrate assistance for state and local governments who are handling AVs on their roads for the first time.

Public agencies across the country are integrating AI to improve traffic management, re-time signals, analyze near-misses and safety hotspots, inspect roadway infrastructure, and more. The Department should consider ways to incorporate the concept of software-defined intersections or digital intersections into its RD&T investment and research activities as this broadly supports a widescale transition from analog to digital systems. OST-R's next RD&T Plan should reflect the current and prominent uses of AI in transportation and should outline how the Department is advancing research and safe deployment of these tools.

- **System Resiliency:** The RD&T plan should emphasize the need for strong cybersecurity research and the technical skills needed to ensure a transportation system resilient from cyber threats.

  Furthermore, as the country experiences more frequent harsh weather events, natural disasters, and changing populations, the Department should conduct research that focuses on how ITS and transportation digital infrastructure investments can help make our transportation system more resilient to changes and emergencies. Many tools, such as AI or drones, help public agencies respond more quickly and efficiently to natural disasters, infrastructure incidents, or common vehicle crashes.

- **Data Management and Governance:** Furthermore, as the need for high fidelity data grows in the transportation sector, the Department should undertake research activities related to data management, governance, interoperability, and exchange. As public sector agencies utilize more data-enabled transportation solutions, these four topics are among the top issues that warrant further research and investment.

3. What key social, demographic, economic, technological, and/or other trends influence transportation today and into the future?

- **Data Availability and Use:** The availability of data is transforming transportation agency operations, infrastructure development, and how people and goods move across the country. There is more data available to State and local agencies than ever before about asset conditions, road safety, transit operations, and much more. System users – such as transit riders, drivers, and pedestrians have ever larger quantities of data at their fingertips. The ability for agencies to leverage this data for insights, solutions, safety, and better services will help define transportation outcomes going forward, enhancing the need for an effective approach to TDI and system modernization.

- **Artificial Intelligence:** AI is being used today across our nation's transportation system, including freight and logistics, passenger vehicles, public transit, rail, aviation, and even maritime. The public and private sectors are working together to deploy AI-driven tools today to detect pedestrians in crosswalks, optimize traffic flow to reduce congestion, proactively manage physical infrastructure assets, hold intersecting lights when vehicles are entering an intersection dangerously and running a red light, and streamline internal public agency operations to maximize cost savings.

- **Digital Twins:** Digital twins are gaining popularity and advancing technologically in the transportation industry. Many of the recent ARPA-I Ideas Challenge semi-finalists undertook projects that involved the use of digital twinning applications, highlighting the interest and academic expertise in this area. The advancement of digital twins in a research context, but also by public agencies for planning, assessments, and maintenance, will continue to drive the importance of these solutions in transportation.

- **Automation:** Highly automated vehicles and advanced vehicle technologies are gaining momentum today and will continue to influence all facets of our economy. With automotive OEMs announcing plans for advanced L2 and L3 driving systems, and expanding robotaxi and automated freight services, this area of research and deployment will continue to be of great importance. The Department should continue, expand, and strengthen its vehicle safety and technology research through OST-R, as well as the National Highway Traffic Safety Administration, Federal Motor Carrier Safety Administration, FTA, and the ITS Joint Program Office.

Technologies of all kinds are having large effects on State and local departments of transportation. From the integration of AI to geographic information systems, advanced aerial capabilities, and data analytics, agencies are on the frontlines of technology deployment. Public agencies will benefit from sustained research into these areas now and into the future.

4. What emerging challenges or opportunities or knowledge gaps in transportation warrant additional DOT RD&T activities or investments

- **Interoperability:** One of the most significant opportunities is creating a national vision and roadmap for our transportation digital infrastructure. However, interoperability remains a challenge to this vision. For example, the trucking sector operates across state lines every day, yet the delivery of safety-critical information such as severe weather warnings, work zone alerts, incident notifications, and roadway hazard advisories remains fragmented due to inconsistent data standards and system interfaces. The Department should be prioritizing activities that improve the interoperability of shared data and vehicle alerts.

- **Cybersecurity:** As more advanced technologies like AI permeate our digital systems, we must work together to prevent future cyberattacks and vulnerabilities. The Department should increase its efforts around transportation cybersecurity, conducting research, disseminating

best practices to public agencies, and giving federal funding recipients the resources to implement cybersecure practices and products. OST-R should consider working with FHWA to ensure the *Manual Uniform on Traffic Control Devices* reflects the latest developments in cybersecurity. Additionally, we encourage OST-R work to incorporate the National Institute of Standards and Technology (NIST) cybersecurity risk management framework into its activities, recommendations, and best practices for practitioners.

- **Workforce Gaps:** ITS America released a report in 2024 on workforce gaps in the transportation sector, which highlighted the need for skills in data analytics, machine learning/ AI, cybersecurity, edge computing, and data privacy. As the world around us gets more technologically advanced, it is critical that we have federal leadership in ensuring our transportation workforce is prepared to meet the moment.

  Technology knowledge gaps within the transportation workforce persist, and the Department should undertake research activities to ensure our workforce has the skills and support necessary to understand and use ITS technologies. The Department should invest in and prioritize training, peer exchanges, and educational materials for transportation practitioners across the country. This should include partnering with unionized and frontline workers to ensure they have knowledge of the latest technological trends and tools in the transportation sector. Investing in the future of our transportation system through training and new job pathways will create new, good paying jobs in communities across the country.

- **Procurement:** Procurement of ITS technologies continues to be a challenge at the state and local level, with vendors navigating a patchwork of state and local regulations and procurement offices that are traditionally used to procuring concrete and asphalt. While many of these regulations are enforced locally, the Department should undertake activities through its RD&T plan to share procurement best practices nationwide, expand technical knowledge, and endorse modern practices fit for a wide array of transportation technologies and related research (i.e., outcomes-based procurement).

  By focusing on outcomes and harmonizing procurement practices, the Department will unlock private sector innovation and improve safety outcomes faster. In the same spirit, the Department should initiate research into procurement pathways (such as P3s) that accelerate project delivery and modernize governance models that support long-term operations/maintenance and not just one-off demonstrations.

5. How can DOT best lead and coordinate its RD&T activities with Federal, State, local, tribal and territorial governments, the private sector, non-profit institutions, and international partners?

Our transportation networks do not exist in a vacuum, so neither should research and technology deployment efforts at the federal level. All RD&T activities should be closely coordinated amongst the modal administrations and OST-R, along with any other relevant federal agencies.

The Department has the convening power to bring key participants to the table and create

collaborative structures where all parties can participate. The Department should maintain and expand its technology transfer activities, peer exchanges, and use case repositories for successful ITS case studies and transportation digital infrastructure projects.

The Department should engage in activities to share lessons learned, best practices, and future ideas amongst a wide range of stakeholders – public agencies, private sector companies, non-profits, academia, and more. These peer exchanges should be prioritized, particularly amongst the public sector so that agencies can learn from each other and bring best practices back to their home community. With ITS and technology projects, states or cities are often first-movers and adopters, so it is important that their lessons learned, successes, and failures are then shared with other states or cities so they can deploy these ITS tools similarly.

However, these activities are not sufficient in themselves. The Department is uniquely positioned to develop and support the implementation of guidance and policies that systematically influence research and deployments. Translating results of RD&T activities into relevant policies is essential for harmonizing activities across sectors and ensuring the advancement of transportation technologies.

6. How can DOT best use its research portfolio to develop national standards that can drive interoperability across the multimodal transportation system?

The Department's research should prioritize cross-modal collaboration and a system of systems approach. Early engagement among industry partners, infrastructure-owner-operators, and researchers will support standards development efforts and reinforce the need for an interoperable transportation system. Whether through corridor-based projects or broader deployments nationwide, the Department must invest in, and encourage private sector investment in, a baseline technological layer supporting our nation's physical infrastructure and transportation system.

In a multimodal context, the Department could consider the creation of universal API specifications for real-time, multimodal transportation data, fostering interoperability among technology platforms, cargo providers, and transit modes. The Department should also thoughtfully consider whether there is a lack of national standards for particular technologies and how we may apply already existing standards, in other technological domains, to transportation use cases.

7. What activities should DOT adopt to facilitate deployment of DOT research results into the U.S. transportation system?

Without strong leadership and guidance from the Department, state and local governments will continue to be hesitant to deploy and scale cost- and life-saving technologies. The Department must incentivize moving beyond small pilots and demonstrations to full-scale deployments and creating mechanisms to bring research results to the field quicker so that state and local governments can capitalize on these innovative technologies.

The Department should use all resources at its disposal to incentivize ITS deployments in grant and formula programs through mechanisms like increased federal cost sharing for ITS, improved scoring

on grant application rubrics, prioritization for technology modernization projects, and a favorable national procurement environment for operations-based technologies. Further, the Department should focus on ensuring that relevant guidance documents and modal administration policies are regularly and expeditiously updated to reflect the latest research, enabling practitioners to take advantage of the latest technologies and countermeasures to address critical transportation issues. The *Manual on Uniform Traffic Control Devices* (MUTCD), AASHTO's *A Policy on Geometric Design of Highways and Streets* (i.e., "The Green Book"), and *Countermeasures That Work* from NHTSA are essential to communicating and facilitating the deployment of research results.

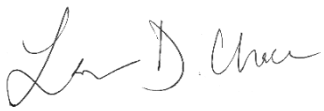
Additionally, rather than working in a silo, the Department's research activity should be aligned with industry capabilities and products so that federal research results in tangible outputs for the public. In general, it is key that the Department expands its engagement with external stakeholders to ensure that its research activities are relevant, applicable, and not duplicative of existing efforts.

Finally, research undertaken by OST-R should be conducted in close collaboration with modal administrations. Rather than operating in modal or institutional verticals, there should be greater partnerships amongst the modes on research priorities, investment strategies, and stakeholder engagement. OST-R should consider how to ensure its RD&T 5-Year Plan is executed within the Department, holding modal administrations accountable for aligning with OST-R's research priorities and ensuring the timely publication of relevant research results. This will allow for accelerated deployment of technologies into our transportation system while harmonizing research efforts across the Department.

8. Is there anything else you want to share or say regarding DOT's research portfolio and activities?

ITS America and our members look forward to working with OST-R along with the entire Department to help achieve our shared transportation safety, efficiency, and mobility goals. We are grateful for the opportunity to provide comments on this important roadmap for the Department's research and innovation efforts. If you have any questions about the comments we have provided, please reach out to ITS America's Director of Policy and Government Affairs, Jim Broderick, at jbroderick@itsa.org.

Sincerely,



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