OFFICE OF THE ASSISTANT SECRETARY
FOR RESEARCH AND TECHNOLOGY
January 2025

RESEARCH ROUNDUP

TRANSPORTATION RESEARCH BOARD (TRB) ANNUAL MEETING: JANUARY 5-9, 2025

PRINCIPAL DEPUTY ASSISTANT SECRETARY AND CHIEF SCIENCE OFFICER DR. ROBERT C. HAMPSHIRE AT TRB

On January 7, PDAS and Chief Science Officer Dr. Robert C. Hampshire provided keynote remarks at the TRB session "U.S. Department of Transportation - Research, Development and Technology Results". where he discussed significant RD&T achievements spurred by the Bipartisan Infrastructure Law. This insightful session featured perspectives from the Secretary's Office and several Operating Administrations.

PHOTO CREDIT: USDOT

BEYOND BIL - LASTING LEGACY IN A TIME OF TRANSITION

In a compelling session presided over by Deputy Secretary Polly Trottenberg, senior leaders from the U.S. Department of Transportation discussed the transformative impact of the Bipartisan Infrastructure Law (BIL). Deputy Secretary Trottenberg highlighted the historic investments made over the past three years, which have revolutionized our approach to national mobility and infrastructure. The initiatives under BIL have significantly enhanced safety, improved sustainability, and boosted mobility across the nation. She elaborated on how these investments are not only creating thousands of new jobs but are also addressing long-standing inequities within our transportation systems.

PHOTO CREDIT: USDOT

The panelists shared successes from various sectors, demonstrating how collaborative efforts have led to impactful changes. They emphasized the DOT's ongoing commitment to building a lasting legacy that ensures a resilient and equitable transportation future.

PHOTO CREDIT: USDOT

PHOTO CREDIT: USDOT

ADVISORY COMMITTEE ON HUMAN TRAFFICKING

Chaired by U.S. DOT Assistant Secretary Annie Petsonk, a vital discussion on human trafficking and its ties to transportation networks featured insights from experts such as Rabbi David Saperstein, Esther Goetsch of Truckers Against Trafficking, Leslie Richards of the University of Pennsylvania, Michael Krumm of the Michigan State Police, and Shamere McKenzie from the Sun Gate Foundation. This session highlighted the 2024 U.S. DOT Advisory Committee on Human Trafficking's recommendations, focusing on the critical role of transportation in both facilitating and combating human trafficking across diverse environments. Key actionable steps were identified to address this critical issue.

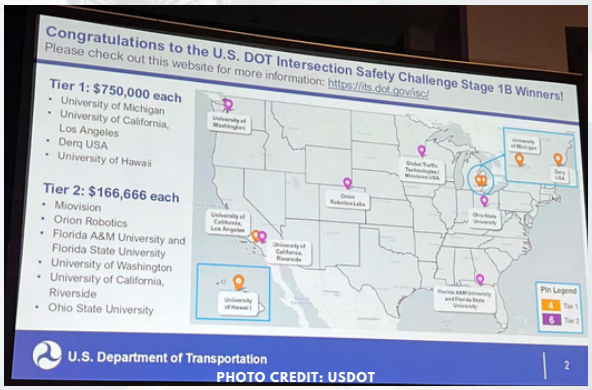


PHOTO CREDIT: USDOT

USDOT ANNOUNCES WINNERS OF THE INTERSECTION SAFETY CHALLENGE STAGE 1B: SYSTEM ASSESSMENT AND VIRTUAL TESTING

Congratulations to the winners of the Intersection Safety Challenge: Stage 1B, announced by ARPA-I Deputy Director Dr. Vincent Tang at TRB. This stage focused on system assessment and virtual testing, pushing forward innovations in intersection safety. Read the press release.

HONORING EXCELLENCE: DR. ROLF SCHMITT AND DR. DANIEL LEMASTER

A hearty congratulations to BTS Deputy Director Rolf Schmitt, who received the Robert E. Skinner, Jr. Distinguished Service Award for his nearly five decades of exemplary service in transportation management. Celebrate Dr. Schmitt's achievement.

Additionally, HASS Senior Scientist Daniel LeMaster received recognition by TRB for developing an AI-assisted workflow for research paper assignments.

PHOTO CREDIT: USDOT

PHOTO CREDIT: USDOT

TRB CHAIR PLENARY SESSION RECAP

During the TRB Annual Meeting, the Chair's Plenary Session featured an insightful discussion led by TRB Executive Director Victoria Sheehan, UK Department for Transport Chief Scientist Prof. Sarah Sharples, and ARPA-I Deputy Director Dr. Vincent Tang. They delved into the research goals for future transportation initiatives, providing transformative insights from leading experts in the field. This session was a key highlight, setting a forward-thinking agenda for upcoming transportation research. Watch the full session here.

Credit: USDOT

INNOVATIONS IN SMART GRANTS

This year, Chicago Transit Authority and Tennessee State University students showcased their groundbreaking projects in transportation safety and efficiency, supported by SMART grants. Their efforts represent our commitment to leveraging technology for better community outcomes. **Discover more about their projects**.

U.S. TRANSPORTATION SECRETARY BUTTIGIEG AND DR. HAMPSHIRE HIGHLIGHT INFRASTRUCTURE

In a recent visit to Pittsburgh, U.S. Transportation Secretary Pete Buttigieg, alongside PDAS Robert Hampshire, explored infrastructure improvements at Carnegie Mellon University, a USDOT University Transportation Center, focusing on innovative transportation projects. This collaborative effort underscores the administration's commitment to advancing smart transportation solutions. For more details on their visit and discussions, you can check out the full article **here**.

AASHTO DAILY UPDATE: TRB PANEL

The AASHTO Daily Update recently featured a key story from the TRB Annual Meeting, highlighting the panel discussion on "Technology Key to the Future of Transportation", moderated by RD&T Coordination Director Alasdair Cain. Distributed to all state DOTs, FHWA, U.S. DOT, and other AASHTO partners, this update serves as a foundational piece for our ongoing dialogue on technology's role in advancing transportation. Read more **here**.

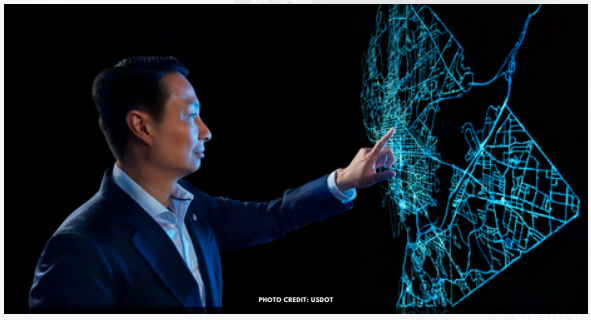
RESILIENCE AND DISASTER RECOVERY TOOL SUITE (RDR) UPDATE

We're pleased to release the 2024.2 version of the Resilience and Disaster Recovery (RDR) Tool Suite. The update enhances our publicly available data tools, adding new features and flexibility for users. The RDR team attended TRB on January 9 and led a workshop showcasing how to utilize these tools effectively. **Learn more about RDR**.

OST-R NEW APPOINTEE

WELCOMING DR. VINCENT TANG TO ARPA-I LEADERSHIP

We are pleased to announce that Dr. Vincent Tang has been named the Deputy Director of ARPA-I. With his extensive background and innovative approach, Dr. Tang is set to spearhead transformative projects within the realm of advanced research and technology in transportation. Discover more about Dr. Tang's vision and the new directions he will be guiding at ARPA-I by visiting **Meet Our New Leadership at ARPA-I**. Join us in welcoming Dr. Tang to his new role!



NOTEWORTHY

- **Congratulations Presidential Awardee Mashrur "Ronnie" Chowdhury!**
  We are thrilled to announce that Dr. Chowdhury of the Clemson University UTC has received the Presidential Award for Excellence in STEM mentoring. His dedication to fostering underrepresented groups in the STEM fields is truly commendable. **Read the full announcement**.

- **C2SMARTER/FDNY Project Named Among 2024's Greatest Innovations by Popular Science**
  The C2SMARTER project, developed through a partnership between New York University's Tier 1 UTC and the Fire Department of New York (FDNY), has earned a spot on *Popular Science's* list of the Greatest Innovations of 2024. This project leverages AI-reinforced digital twin technology to enhance emergency vehicle interventions, showcasing significant improvements in operational efficiencies and safety for the FDNY.

  Discover the detailed insights and the innovative aspects of the project that caught the eye of *Popular Science* by visiting the **Best of What's New 2024 – Emergency Services section**.

- **Launch of the Rural Autonomous Vehicle (RAV) Research Program**
  The U.S. Department of Transportation has launched the Rural Autonomous Vehicle (RAV) Research Program with $25 million in funding to advance automated vehicle integration in rural and Tribal areas. The University of Wisconsin-Madison will lead passenger transportation initiatives, while the University of California, Berkeley focuses on enhancing freight movement. For more details, visit our **RAV program page**.

- **New Report on Equity in Transportation Funding**
  The National Academies of Sciences, Engineering, and Medicine have released a groundbreaking report on how federal funding can be effectively utilized by state, local, and other jurisdictions to meet the diverse transportation needs of all communities. This report provides valuable insights into promoting safe and reliable access to transportation while mitigating any adverse effects. It's an essential resource for anyone involved in transportation planning and policy. Download your free copy of the report, "An Assessment of Data Tools and Metrics for Equity in Decisions About Surface Transportation Investments," **here**.

- **Successful Launch of GPS III SV-07 by USSF Enhances PNT Capabilities**
  The United States Space Force (USSF) successfully launched the GPS III SV-07 satellite on December 17 as part of the Rapid Response Test 1 (RRT 1). This mission, utilizing a SpaceX Falcon 9 rocket, represents a significant enhancement in our national space capabilities, specifically designed to provide Assured Access to Space rapidly. The RRT initiative is a semi-covert operation focused on accelerating space launches, crucial for maintaining and improving the GPS network that supports global positioning, navigation, and timing (PNT) services.

  The launch went smoothly, and the USSF is currently managing the on-orbit initialization of the satellite. This milestone is not only a triumph for the USSF but also beneficial for the Department of Transportation and all users relying on precise PNT data for various applications. For more details on this pivotal launch, visit **USSF Field Commands Successfully Launch GPS III**.

- **Honoring Future Transportation Leaders: CUTC Annual Awards Dinner**
  On January, PDAS Dr. Robert Hampshire participated in the Council of University Transportation Centers (CUTC) Annual Student Awards Banquet in Washington, DC. The event celebrated 30 exceptional Students of the Year from the U.S. DOT's University Transportation Centers (UTCs), recognizing their outstanding academic and professional contributions to transportation.

  The ceremony highlighted the pivotal role UTCs play in advancing transportation education and research, fostering innovation that addresses key challenges in the field. Dr. Hampshire's attendance emphasized the U.S. Department of Transportation's commitment to educational excellence and developing the next generation of leaders in transportation.

NOTEWORTHY

- **U.S. DOT Unveils Learning Agenda for FY 2024-2026**
  In November, the U.S. Department of Transportation released the Learning Agenda for FY 2024-2026, a strategic framework designed to guide the development of evidence-based decision-making across the department. This comprehensive agenda encompasses 22 topic areas across nine Operating Administrations (OAs), aligning with five of DOT's Strategic Goals. This document serves as a roadmap for advancing our research and policy initiatives, ensuring that our efforts are both impactful and aligned with the broader objectives of transportation innovation and safety. You can access the full Learning Agenda and learn more about how it will influence our work in the coming years by visiting **DOT's Learning Agenda FY 2024-2026**.

- **PNT Strategic Plan**
  The Office of the Assistant Secretary for Research and Technology (OST-R) has released a new **DOT Positioning, Navigation, and Timing (PNT) Strategic Plan**. As the nation's lead for civil PNT, DOT aims to ensure reliable PNT sources for civil applications and supporting infrastructures across the nation. The plan outlines five strategic goals to enhance PNT capabilities and services, including advancing technology, building resiliency, incorporating cybersecurity, protecting PNT spectrum, and coordinating civilian PNT efforts. This strategy will foster a resilient, innovative PNT system, ensuring safety and expanding service to a growing user community. Through this plan, DOT and its partners will enhance research, promote complementary technologies, and support economic growth and innovation in PNT.

- **Secretary Buttigieg Commends Infrastructure Progress**
  During his final stop in Michigan, Secretary Pete Buttigieg gave a warm shoutout to PDAS Dr. Robert C. Hampshire, thanking him for his dedication to advancing transportation research and safety under the Biden Administration. This acknowledgment highlights the ongoing commitment at the highest levels to enhance our nation's infrastructure and ensure safety across all modes of transport. Watch the full event and hear their remarks **here**.

- **31st National Space-Based Positioning Navigation and Timing (PNT) Advisory Board Meeting Materials Available**
  The 31st meeting of the National Space-Based Positioning, Navigation, and Timing (PNT) Advisory Board was held in early December in Redondo Beach, CA. Recordings are available **here on YouTube**.

- **Exploring Quantum Technologies in Transportation**
  The Highly Automated Systems Safety Center of Excellence (HASS COE) and ARPA-I have released an influential white paper titled "Quantum Technologies in Transportation." This publication, which explores innovative applications of quantum technologies in the transportation sector, has been featured in **a MeriTalk article** and on **Fox Business Network** in an interview with D-Wave CEO Alan Baratz. The white paper is also now included in the National Quantum Coordination Office's publication library. For further details, contact **Daniel LeMaster** or **Prachi Vakharia**.

- **PHMSA SBIR S1 Visit Highlights Innovations in Battery Safety with Secretary Pete**
  On December 9, 2024, PHMSA's Operations System Director Yolanda Y. Braxton and Secretary Pete Buttigieg visited Newlab in Detroit to discuss advancements in battery safety with Energy Storage Safety Products International (ESSPI). They reviewed the Battery Logistics Integrated Safety System (BLISS), designed to enhance lithium-ion battery transport safety. ESSPI CEO Ron Butler demonstrated the system's real-time monitoring capabilities, impressing Secretary Pete, who awarded challenge coins to Butler and Braxton for their innovative work. The Department of Transportation is now seeking an additional $1 million in SBIR Phase IIB funding to support further development of this vital technology.

SMART MOVES

- ***Historic Funding Announcement for SMART Grants***
  The U.S. Department of Transportation recently announced the latest round of awards for the SMART (Strengthening Mobility and Revolutionizing Transportation) Program, with the distribution of $130M representing the largest single award amount in OST-R history.

  The announcement included funding for 34 Stage 1 demonstration projects across 21 states and the launch of the first round of Stage 2 grants. These grants, totaling about $130 million, support projects that utilize advanced technology to meet diverse community needs, enhancing safety and efficiency within transportation systems.

  The initial round of Stage 2 grants will expand eight promising projects from Stage 1, focusing on scalable solutions to improve transportation safety and efficiency. This significant investment by the Biden-Harris administration highlights a commitment to fostering innovative transportation systems that ensure safer, more efficient travel for all.

  For detailed information on the projects and their impacts, visit the **Investing in America: Biden-Harris Administration Announces $130 Million in Funding** page and explore the **SMART Grants awarded projects**.

- **SMART Grants Program Achieves Nationwide Impact**
  Since its inception, the SMART Grants program has made significant strides in fostering technological innovation across the U.S. transportation landscape. Across Fiscal Years 2022, 2023, and 2024, the program awarded 127 Stage 1 Planning and Prototyping Grants. These grants span 45 states, the District of Columbia, and Puerto Rico, totaling $200 million. To date, SMART has announced $289,088,416 of the $296,000,000 allotted for these fiscal years.

  Building on this momentum, the program recently launched its first round of Stage 2 Implementation Grants. Eight projects across ten states were selected, receiving a total of $85 million to move from planning to real-world implementation. These projects exemplify the program's commitment to transforming local communities through improved transportation solutions. Additional rounds of Stage 2 Implementation Grants will be announced in 2025 and 2026, and recipients of Stage 1 SMART Grants will be eligible to apply.

  All SMART projects are multi-disciplinary and leverage multiple technology areas defined in the Bipartisan Infrastructure Law (BIL) to address specific challenges. The 127 Stage 1 awards cover nine cross-cutting project areas. For a closer look at some of the innovative projects funded by these grants, explore the detailed project descriptions here and learn more about the Stage 2 Implementation Grants here.

- **Tennessee State University Students Triumph in NOCoE TRB Student Contest**
  We are proud to announce that Tennessee State University graduate students Atiqur Rahman Mallick and Tupac Moseley, guided by Professor Kamrul Hasan, have won the NOCoE TRB Student Contest. Their entry, a video showcasing the LADDMS SMART grant project, captivated the judges and secured their victory. This remarkable video highlights their innovative approach to addressing transportation challenges. **Watch the award-winning video here**.

  Atiqur, Tupac, and Professor Hasan attended the Transportation Research Board (TRB) meeting in January and accepted their well-deserved award.

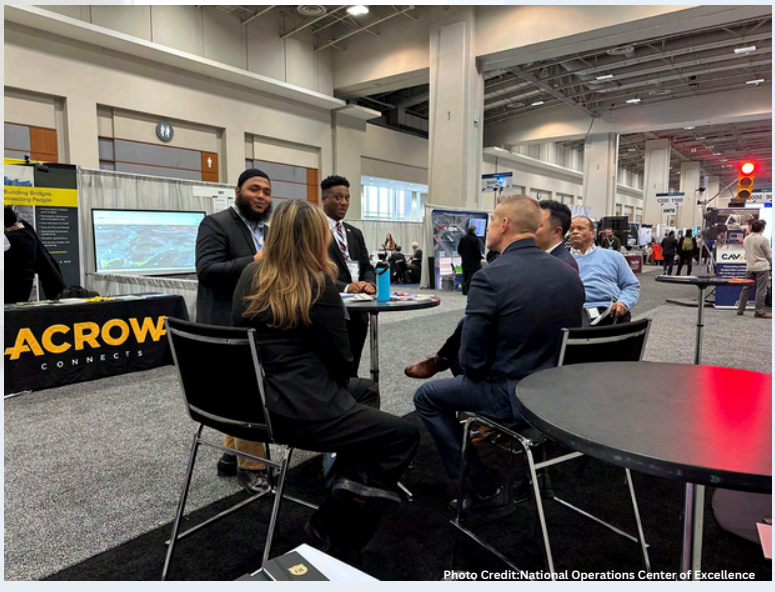


Photo Credit:National Operations Center of Excellence

SMART MOVES

- **Major SMART Grants in Nashville**
  PDAS for Research and Technology, Dr. Robert C. Hampshire, was on the move with SMART Grant winners for an engaging trip, highlighting nearly $12 million in federal funding for transformative projects through the Strengthening Mobility and Revolutionizing Transportation (SMART) Program. This includes $10 million awarded to the Metropolitan Government of Nashville's Department of Transportation and $2 million to the Nashville Metropolitan Transit Authority.

  Before celebrating these awards, Dr. Hampshire stopped by NewsChannel5-Nashville to discuss the new federal grants for Nolensville and Murfreesboro Pikes. During the interview, he emphasized the expected improvements in transportation safety and efficiency. His insights highlighted the proactive steps taken to enhance local infrastructure, reflecting an ongoing commitment to community development. Watch the interview.

SMART IN NASHVILLE CREDIT: U.S. DOT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- **Indiana Advances Drone Training with SMART Grant Funding**
  In a significant development this December, the U.S. Department of Transportation awarded $54 million across 34 projects in 21 states as part of the third and final round of the SMART Stage 1 Grants. Notably, Indiana has received $2 million to enhance its capabilities in aerial survey technology through the "Building Local Capacity for Aerial Surveys" project.

  This initiative aims to train local teams in using drone technology, significantly advancing their ability to conduct comprehensive and efficient aerial surveys. This funding will help build essential infrastructure and expertise within the state, ensuring that Indiana remains at the forefront of technological adoption in transportation and surveying. For more details on Indiana's project and its objectives, read the full announcement.

- **$7 Million SMART Grant Boosts U.S.-Canada Border Efficiency in Washington**
  The Washington State Department of Transportation (WSDOT) has been awarded nearly $7 million through the Strengthening Mobility and Revolutionizing Transportation (SMART) grant program, aimed at enhancing border crossing efficiency between the U.S. and Canada. This funding will support the installation of advanced technology to manage traffic better and reduce wait times at key border points in Blaine, Lynden, and Sumas.

  Reported by The Bellingham Herald, this initiative is part of a broader effort that includes $24 million in funding for various projects across Washington state, facilitated by President Biden's infrastructure bill. U.S. Senators Maria Cantwell and Patty Murray highlighted that this grant would address the outdated and failing border wait-time notification systems in Whatcom County, some of which are over 20 years old.

  The improvements are timely, as real-time border crossing information will be critical during the FIFA World Cup 2026, hosted by cities including Seattle and Vancouver, B.C. In 2023, nearly 3 million vehicles crossed into the U.S. at Blaine, reflecting a significant increase as international travel continues to recover post-pandemic. These enhancements aim to provide both estimated and actual wait times, significantly improving the crossing experience for travelers and commercial traffic alike. For further details on this transformative project, read the full article here.

U.S. DOT VOLPE CENTER UPDATES

- **Volpe's 55th Anniversary**
  2025 marks a significant milestone for the John A. Volpe National Transportation Systems Center as it celebrates 55 years of service. This year's annual review highlights the innovative solutions that continue to advance the U.S. DOT's mission across various transportation modes. **Review the annual review**, spotlighting some of their most impactful, innovative work from 2024.

- **This December, the U.S. DOT Volpe National Transportation Systems Center announced several key developments:**

  1. Maritime Highway Transportation Expansion: The Volpe Center worked with MARAD to release a report on expanding maritime highway transportation in critical regions, including the Gulf of Mexico, Puget Sound, and Salish Sea. This initiative aims to enhance freight movement and reduce congestion on traditional transportation routes. **Read more about the maritime transportation opportunities**.
  2. Modernizing Aviation Safety: In collaboration with the FAA, the Volpe Center is developing a Safety Assurance System (SAS) mobile application. This tool is designed to modernize aviation safety management, offering real-time data and analytics to improve oversight and compliance. **Learn about the SAS mobile application**.
  3. Development of a Mariner Workforce Strategic Plan: Addressing the growing needs of the maritime industry, the Volpe Center worked with MARAD to develop a strategic plan to bolster the mariner workforce. This plan focuses on training and career development to ensure a skilled and sustainable workforce for the future. **Explore the strategic plan for mariner workforce development**. These projects underscore the Volpe Center's commitment to advancing transportation innovation and safety across various sectors. Stay updated with their ongoing efforts and the impact these initiatives have on enhancing U.S. transportation systems.

Check out Volpe at TRB below!

IN THE MEDIA

1. White House Sustainable Freight Workshop: The recent workshop highlighted BTS Freight Data and discussed strategies for decarbonizing freight transport, showcasing the ongoing work of the Climate Change Center team. **Read the full readout**.

2. National Coverage of SMART Grants

- **North Carolina:** Received funding for "Drone in a Box" technology to improve emergency responses**.** **Read more**.
- **Utica, New York:** Secured $18 million to update traffic signals and enhance road safety. **Read more**.
- **Nashville:** Received grants for improvements on Murfreesboro Pike and Nolensville Road. **Read more**.
- **Alaska:** Multiple grants including $12.4 million for drone use in rural areas and $1.13 million for avalanche mitigation technology along the Seward Highway. **Read more**.
- **Seattle and Minneapolis:** Partnering on kerb management to streamline city logistics. **Read more**.

For further details on these projects and other grant outcomes, visit our dedicated **SMART Grants page**.

UPCOMING

Explore upcoming webinars, conferences, and opportunities from OST-R program offices.

Upcoming Events and Acknowledgments

- Don't miss the upcoming webinars hosted by the U.S. DOT Climate Change Center, covering a wide range of topics from decarbonization to social science applications in transportation. Register for the webinars.

CONTACT US AND SUBSCRIBE

Get the inside scoop on all things OST-R! Simply scan the QR code to join our mailing list and receive exciting monthly updates directly to your inbox. Don’t miss out—connect with us online for more insights!