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Transportation Research Board 2022 Annual Report (2022)

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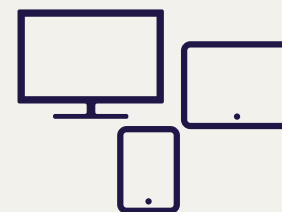
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TRANSPORTATION
RESEARCH BOARD

2022 ANNUAL REPORT

About TRB and NASEM

The Transportation Research Board (TRB) is one of seven program divisions of the National Academies of Sciences, Engineering, and Medicine—a private, nonprofit institution that provides expert advice on some of the most pressing challenges facing the nation and world. The work of the National Academies helps shape sound policies, inform public opinion, and advance the pursuit of science, engineering, and medicine. Because TRB is housed within the National Academies, TRB's staff and volunteers have unequalled access to members of the Academies and their expertise.

TRB's mission is to mobilize expertise, experience, and knowledge to anticipate and solve complex transportation-related challenges. TRB's mission is accomplished through the hard work and dedication of more than 8,000 volunteers and a staff of 135 professionals.

WELCOME

A Message from TRB Leadership

We are pleased to present this annual report for the Transportation Research Board (TRB) of the National Academies of Sciences, Engineering, and Medicine on behalf of the TRB Executive Committee, the thousands of volunteers involved in TRB committees and project panels, and the TRB staff. TRB is focused on advancing transportation in light of the critical issues our industry faces. Work is underway to identify solutions and opportunities to improve climate resiliency and sustainability

and promote economic opportunity, public health, safety, and equity. We continue to meet TRB's high standards for quality, objectivity, independence, nonpartisanship, integrity, and excellence. All that we do is based in evidence.

TRB provides leadership by advocating for improvements and innovation through trusted, timely, impartial, and evidence-based information exchange, research, and advice regarding all modes of transportation. This is accomplished through the hard work and dedication of more than 8,000 volunteers





Risdon Photography

Members of the Special Committee on Diversity, Equity, and Inclusion gather at the 2022 TRB Annual Meeting.

who are members of TRB's various committees and project panels, as well as TRB's 135 staff members. We tackle these challenges by embracing new methods of working together—through technology and in more traditional ways. TRB's Executive Committee has further embraced these innovative opportunities and laid the foundation for a bright future with the adoption this past summer of a new 2022–2027 strategic plan.

This plan places a great deal of emphasis on addressing current and future major issues in transportation. The Executive Committee adopted a new Diversity, Equity, and Inclusion Strategic Plan, as well as a new International Activities Strategic Plan. These plans further our resolve to lead in addressing equity and strengthen our collaboration with our international colleagues. We want to recognize the leadership and membership of the Special Committee on Diversity, Equity, and Inclusion and the International Activities Subcommittee for their hard work and dedication.

More than 7,500 attendees joined us for the 2022 TRB Annual Meeting, where colleagues reconnected, shared ideas, and addressed common goals. U.S. Secretary of Transportation Pete Buttigieg addressed attendees in a keynote speech; the [recording has been viewed](#) by more than 6,500 people since the live address. Many committee meetings were streamed from meeting rooms to increase inclusion and provide another option for those who could not attend in person. Anne Strauss-Wieder, Director of Freight Planning at the North Jersey Transportation Planning Authority, presented the 2022 Thomas B. Deen Distinguished Lectureship with a focus on shifting supply chains and freight systems. [Her lecture also was recorded](#) and has since been viewed more than 1,800 times.

This past year, TRB's 177 standing technical committees continued to address current and emerging issues within their scopes, including critical topics in transportation along with concerns specific to various parts of the industry.

“It has been an honor and privilege to serve as TRB Executive Director for the past eight years. I want to thank all of the TRB sponsors, volunteers, and staff for all that they have done for the board and for their support during the time that I have been Executive Director. Congratulations to Victoria Sheehan! TRB is in good hands under Victoria’s leadership.”

—Neil Pedersen, TRB Executive Director, 2015–2022

These committees helped TRB host 11 specialty conferences and cosponsor more than 20 others during 2022, including several that were postponed from 2020 and 2021. In addition, we hosted more than 60 webinars this year.

TRB’s multimodal Cooperative Research Programs (CRP) continued unabated throughout 2022, with more than 150 publications issued on subjects that range from specific technical topics to broader policy issues. TRB also issued consensus study reports that offered impactful advice to the federal government and others on important policy issues.

This annual report is organized around—and provides information on—progress made in the following major functions of TRB:

1. Convening,
2. Research,
3. Advising and Informing, and
4. Communicating.

TRB accomplished a great deal in each of these areas during 2022. Ingrained in each section of this report is an emphasis on furthering our workforce, as well as improving diversity, equity, and inclusion among the transportation workforce and in society. Serving people and improving the human condition is at the heart of what we do.

As TRB envisions 2023 and beyond, we look forward to continuing the exchange of ideas, sharing best practices, advancing research, and collaborating on transportation-related challenges. No matter the format, TRB will continue to provide leadership to find solutions that address complex transportation-related

problems facing society and to share these strategies widely.

TRB’s leadership will also undergo a change with the retirement of Neil Pedersen, who has served honorably as the Executive Director. TRB is in a better and stronger place due to Neil’s passion and dedication all these years, and for that we owe him a debt of gratitude. After a national search, the National Academies announced that Victoria Sheehan has joined the organization as TRB’s new Executive Director. Victoria comes to TRB from the New Hampshire Department of Transportation,

New TRB Executive Director Victoria Sheehan chats with Maryland Governor Larry Hogan at the AASHTO 2020 Washington Briefing in Washington, DC.



AASHTO



Nathaniel P. Ford, Sr.
*TRB Executive Committee
Chair*
Chief Executive Officer of the
Jacksonville Transportation
Authority



Shawn Wilson
*TRB Executive Committee
Vice Chair*
Secretary of the Louisiana
Department of Transportation
and Development



Neil Pedersen
*TRB Executive Director,
2015–2022*



Victoria Sheehan
*TRB Executive Director,
2022–*

where she was Commissioner for the past seven years. She brings technical expertise and a collaborative leadership approach to the position that will serve TRB and its membership. We are confident that TRB's sponsors, volunteers, customers, and staff will all benefit from Victoria's leadership.

As we begin a new year, we hope that you will actively [participate](#) in TRB's convening, research, and advising activities; take advantage of the numerous resources that TRB makes available to the transportation professional community; and learn from the brightest and best who make TRB the world's premier transportation research organization. By doing so, you will have the opportunity to

contribute to solving some of the most complex transportation-related challenges facing the nation and the world.

The need for active leadership and participation from TRB's volunteers has never been greater. That work is critical as TRB continues to adapt to the rapid changes taking place in transportation and in society to ensure that we rise to the challenge. We are all TRB, and we all must work together to provide leadership to create a better future. We look forward to having you join us on this journey.

Thank you for all that you do for TRB!

—*Nathaniel P. Ford, Sr., Chair, and
Shawn Wilson, Vice Chair
TRB Executive Committee*

TRB'S MISSION AND WORK

Strengthening Our Capacity to Contribute to the Well-Being of Our Nation and the World

Resilience and change are concepts to which we have all become more accustomed since 2020. TRB has led the way by exploring new, emerging, and critical issues in transportation. As part of the National Academies of Sciences, Engineering, and Medicine, TRB provides leadership in transportation improvements and innovation through trusted, timely, impartial, and evidence-based information exchange, research, and advice regarding all modes of transportation. Over the past year, the TRB Executive Committee approved a [new TRB Strategic Plan for 2022–2027](#), a new [TRB Diversity, Equity, and Inclusion Strategic Plan](#), and a new [TRB International Activities Strategic Plan for 2022–2027](#). TRB's mission is to mobilize expertise, experience, and knowledge to anticipate and solve complex transportation-related challenges.

As a program division of the National Academies, TRB provides independent, objective advice to inform policy with evidence, spark progress and innovation, and confront challenging issues for the benefit of society. These challenges require ingenuity, research and evidence, and collaboration across many disciplines and areas of expertise. TRB and the National Academies are working [in service to the nation and the world](#) to advance solutions for a brighter future.

Mobilizing Expertise, Experience, and Knowledge

With TRB's updated strategic plan comes an updated mission that is aligned with the future of transportation and the organization. TRB mobilizes expertise, experience, and

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U.S. Army Corps of Engineers

TRB's commitment to social equity and justice was noted last February in a Planetizen Institute of Transportation Engineers Quickbite.



Russell Houston
TRB Associate Executive
Director



Ann Brach
Director, TRB Technical
Activities Division



Avery Grimes
Chair, Technical Activities
Council



Gary Walker
Senior Deputy Director,
TRB Program Finance



Christopher J. Hedges
Director, TRB
Cooperative Research
Programs

knowledge to anticipate and solve complex transportation-related challenges. New guiding tenants help focus the mission into goals. TRB aims to leverage the expertise available as part of the National Academies, as well as to adhere to high standards for objectivity, independence, nonpartisanship, integrity, and excellence—all based in evidence.

Looking to the world at large, TRB enables society to benefit from the multidisciplinary and multimodal scope of its portfolio and the expertise and contributions of those involved in the organization’s work.

TRB’s sponsors, affiliates, and professionals working in transportation-related fields have access to relevant services and useful, high-quality products. TRB facilitates the professional development and growth opportunities for transportation professionals at all stages of their careers, including students. Its work leverages diversity of thought, background, perspective, and experience to better address transportation’s challenges; identify and eliminate barriers to full and active inclusion in TRB; and develop a diverse set of TRB volunteer leaders.

Mobilizing on a Grand Scale

In addition to about 7,500 attendees at the 2022 TRB Annual Meeting, TRB brought together thousands of volunteers through standing committees, project panels, consensus study committees, forums, conferences, workshops, meetings, and webinars throughout the year. The TRB Annual Meeting remains the leading annual event for transportation researchers and professionals to access and share the latest in transportation research.

In 2022, nearly 5,000 individuals served on TRB’s standing technical committees. In addition, more than 18,300 volunteers contributed to committee activities as friends of committees. TRB’s Technical Activities Division convenes these committees, overseeing and managing the committees’ activities in support of TRB’s mission and strategic goals. Ann Brach is Director of the division, and Avery



Grimes of Patriot Rail Company serves as the volunteer Chair of the Technical Activities Council.

TRB manages research programs focusing on highways, public transit, airports, and behavioral traffic safety through its Cooperative Research Programs (CRP) Division, which has a total budget in excess of \$62 million. Contractors conduct the actual research, and more than 3,200 volunteers serve on CRP oversight committees and project panels. Christopher J. Hedges is Director of this division. Waseem Dekelbab is Deputy Director of the division and Manager of the National Cooperative Highway Research Program (NCHRP). Gwen Chisholm-Smith is Manager of the Transit Cooperative Research Program (TCRP). Marci A. Greenberger is Manager of the Airport Cooperative Research Program (ACRP). Natalie Barnes is the Publications Director for the division. The following TRB volunteers lead the oversight committees for each program:

- Joel Jundt of the South Dakota Department of Transportation (DOT) is Chair of the AASHTO Special Committee on Research and Innovation, which is the oversight committee for NCHRP.
- Rhonda Hamm-Niebruegge of St. Louis Lambert International Airport is Chair of the ACRP Oversight Committee.

- Doran Barnes of Foothill Transit is Chair of the TCRP Oversight and Project Selection Commission.
- Mark Ezzell of the North Carolina Governor’s Highway Safety Program is Chair of the Governors Highway Safety Association Research Committee, which is the oversight committee for the Behavioral Traffic Safety Cooperative Research Program (BTSCRCP).



Joel Jundt
Chair, AASHTO Special Committee on Research and Innovation



Rhonda Hamm-Niebruegge
Chair, ACRP Oversight Committee



Doran Barnes
Chair, TCRP Oversight and Project Selection Commission



Mark Ezzell
Chair, Governors Highway Safety Association Research Committee

TRB consensus reports are the result of research performed by committees of volunteer experts supported by staff from the Consensus and Advisory Studies Division. Scores of TRB consensus reports have contributed to changes in legislation in the United States and, in 2022, approximately 200 volunteers served on committees for this program. Tom Menzies is Director of this division, and Susan Shaheen of the University of California, Berkeley, is the TRB volunteer Chair of the Subcommittee on Planning and Policy Review, which is the oversight committee for the Consensus and Advisory Studies Division.

Either in response to requests from sponsoring agencies or on its own initiative, TRB’s

internationally recognized Marine Board identifies research needs and provides a forum for the exchange of information on new technologies, laws and regulations, economics, the environment, and issues affecting the marine transportation system; port operations; coastal engineering; and marine governance. Craig Philip, National Academy of Engineering member, Research Professor of Civil and Environmental Engineering, Director of the Vanderbilt Center for Transportation and Operational Resiliency (VECTOR), and former CEO of Ingram Barge Company began his two-year term as Marine Board Chair in November 2022. Scott Brotemarkle of TRB’s Technical



Washington State DOT



Tom Menzies
Director, TRB Consensus and Advisory Studies



Susan Shaheen
Chair, Subcommittee on Planning and Policy Review



Craig Philip
Chair, Marine Board

Activities Division serves as the Marine Board’s Program Director.

In addition to Consensus reports and CRP publications, TRB produces a journal and a magazine. The *Transportation Research Record*, TRB’s journal, publishes nearly 800 peer-reviewed papers yearly. Patti Lockhart is the Director of Publishing and Outreach and the Managing Editor.



Patrice Davenport
Director, TRB Strategic Program Development

TR News, TRB’s bimonthly magazine, features timely articles on new and state-of-the-art research and practice, transportation news, profiles of transportation professionals, new book notices, and news of TRB activities. Articles in 2022 focused on a range of transportation issues—from trafficking that results in missing and murdered indigenous women to decarbonizing transportation. Christine Gerencher is Chair of the *TR News* Editorial Board, and Cassandra Franklin-Barbajosa is the magazine’s Senior Editor.

Growing Transportation Careers at All Levels

Informal mentoring happens all the time in TRB. Whether through a first job or experiences as seasoned experts, TRB connects professionals to colleagues within their industry, as well as those in the bigger picture of transportation.

Following the success of the virtual Careers in Motion Networking Fair in 2021, TRB held this event again in 2022. More than 300 candidates and two dozen employers from around the country interacted. This fair kicked off a month-long series of professional development challenges geared at helping young professionals cultivate enhanced networking and leadership skills. During February, weekly posts on TRB’s social media and in *TRB Weekly* generated thousands of views consisting of activities for young professionals looking to step up their career development.

Throughout the year, TRB’s Careers in Motion Job Center received an average of 7,000 new job posting views per month, offering a streamlined service to connect candidates and employers. While jobseekers received access to transportation industry employment opportunities and career coaching services, employers posted more than 500 jobs and gained access to a database of professional transportation candidates. Patrice Davenport, Director of Strategic Program Development, leads these TRB workforce-focused initiatives. Jobseekers gain access to employment opportunities posted by TRB sponsors and affiliates, who receive year-round complimentary job postings as part of their core program support.



North Carolina DOT

Summer intern Dominique Parrish controls a drone as fellow intern Blane Winston (right) listens and learns. Both are guided by North Carolina Department of Transportation Aviation Department team Tyler Clowes (left) and Evan Arnold (seated).

CONVENING



Risdon Photography

Gathering Face-to-Face and Webcam-to-Webcam

In January 2022, the TRB Annual Meeting, which thousands in the field of transportation research look forward to, resumed in person. It is a unique opportunity for policy makers, administrators, practitioners, researchers, and representatives of government, industry, and academic institutions to meet and address all things transportation. The program covers all transportation modes and nearly every imaginable relevant subject related to transportation.

TRB and the National Academies stake their

reputations on impartial and rigorous scientific research. The step of sharing that information with audiences who need it and can put it into action is equally important.

Survey results after 2021's virtual TRB Annual Meeting showed that attendees valued the face-to-face format over an online option. After determining that a fully hybrid event—one held in person and fully accessible remotely—was logistically and financially infeasible, TRB staff spent months researching the safest ways to hold in-person events, consulting public health experts and other organizations that run large meetings, and

U.S. Transportation Secretary Pete Buttigieg addresses attendees at the 2022 TRB Annual Meeting.



Risdon Photography

“Despite the challenges related to COVID-19, TRB functioned well, provided great content, and made me feel safe while attending. Well planned!”

—Consultant from Tallahassee, Florida, and first-time TRB Annual Meeting attendee



basing decisions on the best available data and experience. A rigorous COVID-19 countermeasure plan was developed, reviewed, and updated right up to the days of the event. Numerous actions were taken to reduce the risk of COVID-19 exposure, including proof of vaccination, required masking, layouts that afforded more room for social distancing, and removal of several traditional but nonessential events that tended to be more crowded. Approximately half of the 400 committee and subcommittee meetings provided remote access, and high-profile sessions were recorded and posted online for those who could not attend in person. Events proceeded with flexibility to accommodate new formats.

In addition to the Annual Meeting, TRB—through conferences and workshops—brought

together **outstanding speakers and experts** to share ideas on some of the most complex issues facing the transportation industry:

- Sessions at the **Sustainability and Emerging Transportation Technology (SETT) Conference** addressed ways that policy makers, the private sector, and others can work together to support transportation innovations that promote sustainability and benefit all users of the transportation system, particularly in terms of public health, equity, and accessibility.
- The **Automated Road Transportation Symposium (ARTS)** included panelists who represented a wide variety of private industries, as well as academia, government, and research. Topics included safety, business development, roadway operations, public acceptance, and legislative and regulatory affairs, all of which spanned local, federal, and international spheres.
- TRB’s **Conference on Scenario Planning in Transportation** created a space for conversations around the challenges associated with embracing the process. Scenario planning has obvious future potential in preparing agencies’ organization and operational responses to the unexpected, such as increasingly common extreme weather events or global health emergencies.
- Combining two long-standing conferences

on inclusive and accessible transportation, the [TRANSED: Mobility, Accessibility, and Demand Response Transportation Conference](#) addressed the need to better connect the transportation analyses conducted by academia and agencies to conditions on the ground for providers of sustainable and accessible mobility solutions.

Focusing on Deeper Discussions

Additionally, a few events with more limited audiences took place at the National Academies buildings to drive collaboration further. The Transit Cooperative Research Program (TCRP) and Airport Cooperative Research Program (ACRP) each hosted Insight Events focused on specific areas affecting their respective industries.

TCRP took a closer look at [air quality and communicable disease—specifically in buses](#)—by virtually bringing together transit industry leaders, subject-matter experts, and other thought leaders. Stakeholders shared their knowledge to help identify possible solutions to the problems, as well as areas of research to be undertaken in future TCRP projects.

ACRP took a wide-lens look at the [mid-term future \(2035\) and long-term \(2060 and beyond\) trends](#) in the aviation industry. Attendees also discussed promoting collaboration, fostering innovation, and helping to identify areas of future research. In a separate event, the program connected various experts to discuss the challenges posed by [systemic racism in the aviation industry, why it matters, actions that can be taken collectively to create solutions, and future research ideas for ACRP on this subject](#).

Summaries of the TCRP and ACRP Insight Events will be published in the new Transportation Insights series.

Learning from the Experts Firsthand

Every year, TRB offers professional development to thousands of researchers, practitioners, and transportation professionals through an extensive webinar program. TRB webinars have a loyal following in the workforce. Nearly 100 credit hours were offered via professional development accreditation services

Top Five Most Attended TRB Webinars

1. Temporary Pavement Markings and Removal Practices in Workzones (382 attendees)
2. Pedestrian Analysis—Current Practice, Resources, and Applications (358 attendees)
3. Transportation in an Aging Society—The Future Is Now (339 attendees)
4. What's New in the HCM7 and Why It Matters (338 attendees)
5. Transportation Planning and Project Development Quality-of-Life Practices (334 attendees)

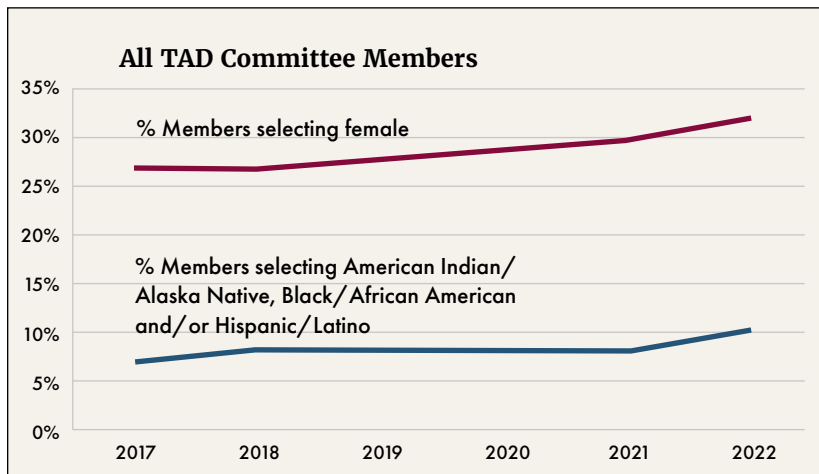
across TRB's more than 60 total webinars this year. When multiplied across attendees, TRB awarded up to 25,000 accreditation hours through its agreements with the Registered Continuing Education Program for professional engineers, the American Planning Association for certified planners, the American Association of Airport Executives, and the American Bar Association. More than 90 percent of attendees join regularly, and the satisfaction rate remains above 90 percent. Approximately 3,000 state DOT employees attended webinars in 2021. New York, North Carolina, and Wisconsin DOT employees lead the pack in taking advantage of the courses available at no charge to TRB sponsors.

TRB's webinar program has been at the forefront of virtual connections for more than 10 years. Most webinars are based on research published by TRB. More than 250 volunteers shared their knowledge through presentations to more than 6,000 webinar registrants in 2022. Each webinar offers a question-and-answer session, allowing real-time opportunity to connect and learn from the exchange.

Collaborating on Future Technology and Policy

To share perspectives on all of the biggest issues surrounding automated vehicles and shared mobility, TRB offers the Forum on Preparing for Automated Vehicles and Shared Mobility Systems. Long-term goals of

Committee Diversity



the program are increasing safety, reducing congestion, enhancing accessibility, increasing environmental and energy sustainability, and encouraging economic development and equity. A July meeting of the Forum—including representatives from the European Union—was held in coordination with ARTS. Participants discussed the potential for twinning and partnering projects.

Finding Solutions for State Agencies

TRB’s State Partnership Program is a joint effort between TRB and state DOTs. TRB has been visiting state DOTs since the 1940s. Virtual group visits in 2022 allowed a focus on specific topics while continuing to be

accessible to as many participants as possible. This year's visits focused on how state DOT employees can take advantage of participation in TRB, including in such areas as resiliency and climate change; infrastructure; transformative technologies; workforce issues; safety; and diversity, equity, and inclusion. All state DOTs had the option to participate in virtual group visits this year, and most chose to take the opportunity.

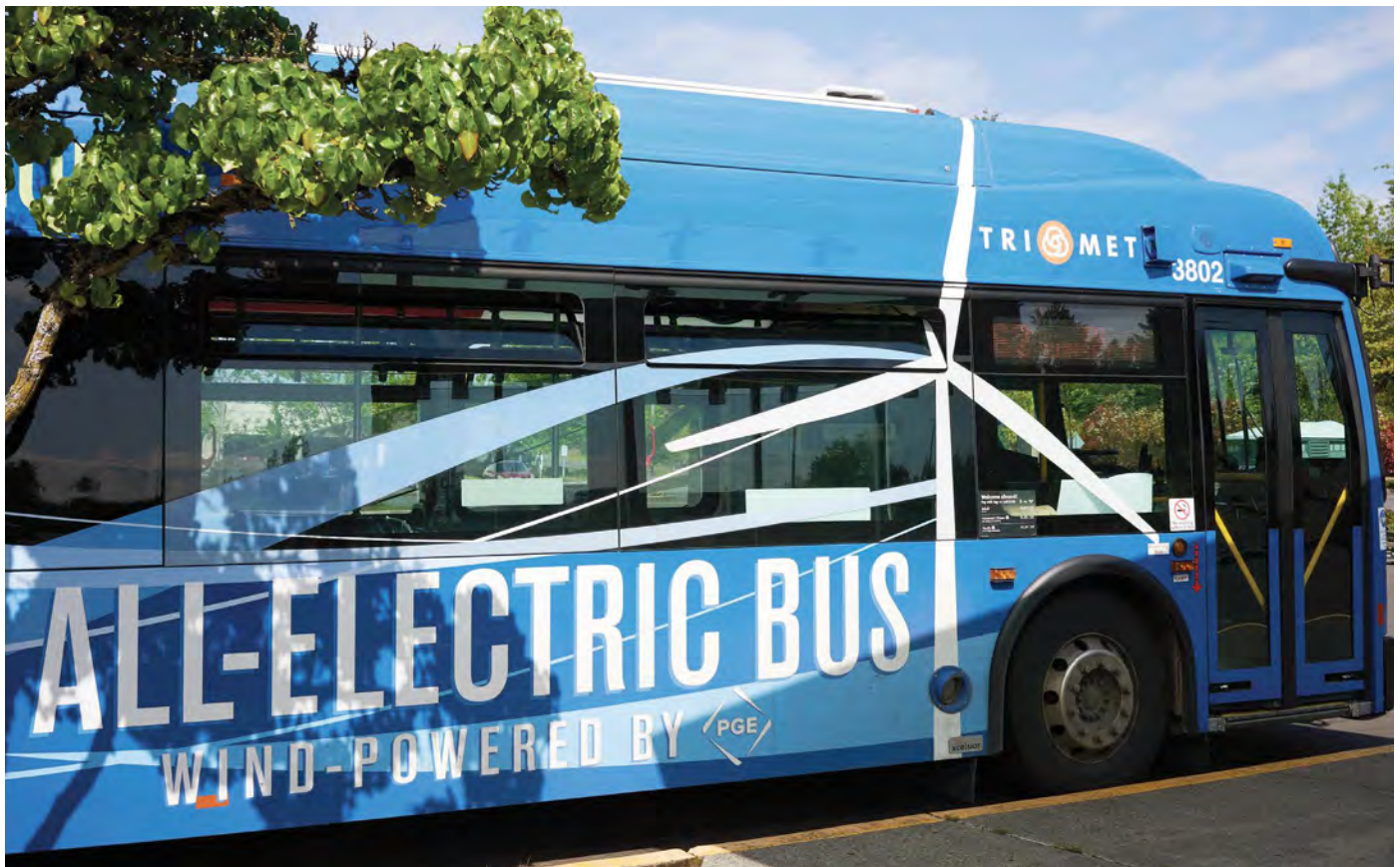
Including More Diverse Voices

The transportation industry is complex and is composed of a wide range of actors. TRB partners with other organizations to ensure its advice, research, and collaboration are equitable and include all voices.

TRB volunteers lead the conversations that the transportation industry has around critical issues. The community recognizes the value in having representation from all stakeholders. Staff and standing technical committee members have worked hard to help diversify the makeup and leadership of these committees over the long term. In 2022, the number of new committee chairs who self-identify as female went from nearly 30 percent to more than 50 percent in the course of a year. The number of committee chairs who self-identify as American Indian/Alaska Native, Black/African American, and Hispanic/Latino rose from just over 8 percent in 2017 to approximately 10 percent in 2022.



RESEARCH



By conducting, sharing, and promoting research, TRB creates and expands access to knowledge on current and future issues in transportation.

TRB's most engaging publications in 2022 show the industry's commitment to the critical issues of climate resiliency and sustainability, public health, safety, equity, and economic opportunity.

Climate Resiliency and Sustainability

The technology behind electric vehicles is increasingly being placed into production.

Aircraft are becoming electric. Design innovation for electrically powered and hybrid electric aircraft is accelerating rapidly. Employees at Alaska's transportation department, FAA, and NASA are all looking to the future, as indicated by the 1,000 downloads of *ACRP Research Report 236: Preparing Your Airport for Electric Aircraft and Hydrogen Technologies*.

When it comes to transitioning to greener transportation, "states are all over the map," says [Jonathan Rubin](#). "Some states are way ahead, and some are way behind. States have to take an honest appraisal of where they

Most Downloaded CRP Publications Published in 2022

1. *Traffic Signal Control Strategies for Pedestrians and Bicyclists*
2. *Recent Decline in Public Transportation Ridership: Analysis, Causes, and Responses*
3. *Highway Safety Manual User Guide*
4. *Preparing Your Airport for Electric Aircraft and Hydrogen Technologies*
5. *Metropolitan Planning Organizations: Strategies for Future Success*
6. *Subsurface Drainage Practices in Pavement Design, Construction, and Maintenance*
7. *Integrating Effective Transportation Performance, Risk, and Asset Management Practices*
8. *Coordination of Public Transit Services and Investments with Affordable Housing Policies*
9. *Transit Safety Risk Assessment Methodologies*
10. *Bus Rapid Transit: Current State of Practice*

are.” Rubin is a University of Maine professor of economics, director of the Margaret Chase Policy Center, and a member of the panel for the NCHRP project that developed [NCHRP WebResource 1: Reducing Greenhouse Gas Emissions](#) and [NCHRP Web-Only Document 308: Methods for State DOTs to Reduce Greenhouse Gas Emissions from the Transportation Sector](#). Since the online document’s publication, staff from California and New York’s DOTs, as well as the U.S. Department of Transportation (U.S. DOT), have downloaded it more than 850 times.

Public Health

The most common approach that state DOT employees use to address highway traffic noise—a public health concern in a number of communities—is usually noise walls. But the solutions are not one size fits all. Some communities may want reduced highway traffic

noise but oppose a wall. Others may advocate for a barrier, although topography and other conditions mean that a barrier will provide little reduction in noise. California, New Jersey, Texas, and Virginia DOT staff are downloading [NCHRP Research Report 984: Breaking Barriers—Alternative Approaches to Avoiding and Reducing Highway Traffic Noise Impacts](#) to help identify which of the innovative strategies included may be appropriate for specific highway projects.

Safety

In the United States, traffic signal timing is traditionally developed to minimize motor vehicle delay at signalized intersections. The unintended consequence is often diminished safety and mobility for pedestrians and bicyclists. [NCHRP Research Report 969: Traffic Signal Control Strategies for Pedestrians and Bicyclists](#) provides tools, performance measures, and policy information to help practitioners design and operate signalized intersections in a way that improves safety and service—whether commuters are on their feet or on two or more wheels. With approximately 2,000 downloads, people are paying attention.

Trespassers accessing rail transit and commuter rail restricted areas are at risk of being struck, severely hurt, or fatally injured. From 2015 to 2019, there were 77 pedestrian fatalities and 1,888 pedestrian injuries involving light and heavy rail systems. [TCRP Research Report 233: Strategies for Deterring Trespassing on Rail Transit and Commuter Rail Rights-of-Way, Volume 1, Guidebook](#) catalogs proven trespasser prevention strategies, from design through planning and implementation. Cook County, Illinois, staff and the California Public Utilities



“Now more than ever, we need to deepen our understanding of the potential of new transportation technologies and management strategies to decarbonize mobility. Sustainability research presented at the TRB Annual Meeting and discussions initiated there are leading the way toward uncovering novel solutions to environmental-friendly transportation systems.”

—Ria Kontou, Assistant Professor at the University of Illinois, Urbana-Champaign and Chair, TRB Young Members Coordinating Council (ex officio)

Commission workforce are among the report's 750 downloaders.

NCHRP has a long history of research supporting industry-standard resources. *NCHRP Web-Only Document 323: Highway Safety Manual User Guide* is an example of a user-friendly companion document with more than 1,000 downloads in its first year. Researchers and practitioners can make use of this resource to better identify strategies with the most potential for reduction in crash frequency or severity and mitigation measures.

Equity

Equity in accessibility has been a cornerstone of TRB research over the past few years. Publications in 2022 have followed suit. Late in the year, the first volume of *TCRP Research Report 236: Racial Equity, Black America, and Public Transportation* was released. The volume summarizes common practices of the 20th and 21st centuries that had significant economic, health, and social impacts and the racial gaps that emerged as a result of transportation inequities, deliberate actions, policies, and projects. Look for more information about this report's subsequent volumes in the *2023 and the Future* section of this report.

Employees from the U.S. Department of Housing and Urban Development are among the nearly 900 who downloaded *TCRP Synthesis 162: Coordination of Public Transit Services and Investments with Affordable Housing Policies*. The report highlights informative case examples that explore not only the ways transit agencies are coordinating with affordable housing initiatives, but also ways regional planning agencies, local governments, and affordable housing partners are helping to bridge their individual tasks to realize the full potential of each.

Building on a nearly 20-year-old TCRP snapshot of transit agency initiatives, *TCRP Research Report 228: Resource Guide for Improving Diversity and Inclusion Programs for the Public Transportation Industry* covers evolving diversity programs; how inclusion has been incorporated; and what policies, plans, and practices have been successfully implemented within the industry. The report has been downloaded nearly 1,300 times, including by those at the Port Authority of New York and New Jersey.

Economic Opportunity

Connecting people with economic opportunity—either to work, shop, or network—is one of transportation's major goals. Practitioners and planners in King County, Washington, and in Connecticut may have a vested interest in using bus rapid transit systems to improve the reliability of bus service, travel time, operation efficiency, and customer satisfaction, as they are among the more than 850 downloaders of *TCRP Synthesis 164: Bus Rapid Transit—Current State of Practice*.

Air service supports business and employment throughout a given region. *ACRP Web-Only Document 53: Measuring and Understanding the Relationship Between Air Service and Regional Economic Development* and *ACRP WebResource 12: Air Service Development and Regional Economic Activity* provide the information and tools necessary to understand and communicate the nexus between air service and regional employment. Downloaders are located across the globe, from Canada to India.

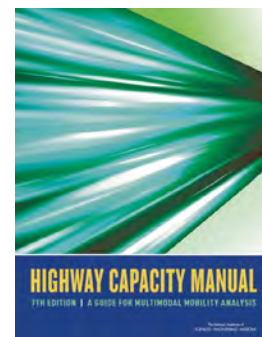
Decades of Research Behind Transportation Engineering

Transportation engineers can update safety and planning work with the latest version of a fundamental reference, *Highway Capacity Manual, 7th Edition: A Guide for Multimodal Mobility Analysis* (HCM7). These professionals have used versions of the HCM as part of their studies in analysis techniques for seven decades.

HCM7 contains new planning-level methods for connected and automated vehicles; a completely revised procedure for analyzing two-lane highways; a new procedure for evaluating systems of freeways and arterials with queue spillback; and updated methodologies for pedestrian operations—including at signals and on urban streets—throughout the manual.

TRB volunteer and University of Florida Transportation Institute Director Lily Elefteriadou contributed to the manual. She shared her excitement about the updates, noting that transportation engineers can now analyze an entire network of freeways and arterial roads seamlessly for the first time. Her [brief remarks](#) have been watched nearly 4,000 times online.

HCM7 serves as a fundamental reference on





Samantha Schaffer, U.S. Air Force

concepts, performance measures, and analysis techniques for evaluating the multimodal operation of streets, highways, freeways, and off-street pathways.

TRB continues to develop and maintain the Transportation Research Information Services (TRIS) databases, including Transport Research International Documentation (TRID) and the Transportation Research Thesaurus. TRID is the world’s largest, most comprehensive bibliographic resource on published and ongoing transportation research, with more than 1.4 million records containing more than 420,000 links to free or fee-based full text. TRID includes datasets and technical reports from state and federal DOTs; projects on ongoing,

recently completed, or soon-to-begin research from TRB’s Research in Progress Database; and comprehensive coverage of peer-reviewed transportation journals.

Paving the Way for a Diverse, Equitable, and Inclusive Workforce

Technology can be a tool to advance jobs and complement employees. The fledgling state of transit vehicle automation and a significant amount of uncertainty about how and when automated transit services become more prevalent make [TCRP Research Report 232: The Impacts of Vehicle Automation on the Public Transportation Workforce](#) particularly timely. The report looks at job impacts for operators,



“With new methods to plan and design better pedestrian treatment in HCM7, I envision a great boost in HCM’s usage for true multimodal analyses. The multimodal aspect of mobility analyses will improve our transportation infrastructure to be more equitable for all users. These new applications will pave the way to properly address safety and environmental issues and challenges.”

—Behzad Aghdashi, Director of the McTrans Center at the University of Florida

“This year, I witnessed the transformation of two excellent undergraduate students who completed and submitted their research under the example and guidance of senior PhD researchers in two extremely important topics: Native American resilience against post-wildfire flooding following the 2022 fires in New Mexico, and human–robotic interfaces for highway maintenance in mountainous roads. Tim is a midshipman ROTC student, and Eric is in the Air Force. They are both excited about the upcoming TRB Annual Meeting in general, but in particular, attending the [meetings of the] Standing Committee on Transportation for National Defense. I can’t wait to see their involvement grow building up to the January meeting.”

—Fernando Moreu, Associate Professor at the University of New Mexico and TRB Minority Student Fellow Program Mentor for Timothy Thiergart and Eric Olaguir



Risdon Photography

Texas Southern University student Valencia Stewart takes part in the Minority Student Fellows orientation at the 2022 TRB Annual Meeting.

dispatchers, traffic controllers, mechanics and maintenance technicians, and bus service personnel. It also takes a close look at those currently in these roles and the greater implications for society.

The [Minority Student Fellows Program](#) welcomed another outstanding class to the 2022 TRB Annual Meeting. While attending the meeting, the 20 student fellows representing 15 minority-serving institutions presented self-authored research papers. Karen Febey, TRB Senior Report Review Officer, manages the program.

Graduate-level aviation students present and publish work in the *Transportation Research Record* through close work with advisors in the ACRP Graduate Research Awards Program.

Undergraduate students are eligible for ACRP’s University Design Competition. The competition encourages innovative, yet practical solutions for challenges facing airports in four categories: airport environmental interactions; airport operations and maintenance; airport management and planning; and runway safety/runway incursions/runway excursions including aprons, ramps, and taxiways. The [2022 winners and faculty advisers](#) received their awards in July at the National Academies main building in Washington, DC.



Karen Febey
TRB Senior Report Review Officer

ADVISING AND INFORMING



Appointed by the President of the National Academy of Sciences, TRB expert study committees provide formal recommendations to the federal government through consensus studies and also provide strategic advice to U.S. DOT modal agencies on their research and technology programs. Furthermore, other TRB activities—including workshops and research reports—can be valuable sources of information for policy discussions at all levels of government.

TRB research is particularly focused on innovative and implementable practices and technologies. *COVID-19 Addendum to Critical Issues in Transportation* and *Racial Equity Addendum to Critical Issues in Transportation* have each been downloaded about 1,500 times over

the past year. At the same time, TRB continues to administer research into the day-to-day issues facing transportation agencies, including understanding emissions, network design, and traffic interchanges.

Convening to Advise

Upon request, National Academies–appointed consensus study committees advise Congress, executive branch agencies, the states, and other organizations on an array of complex and often controversial transportation topics of national significance. Committee members are selected to provide appropriate expertise and a balance of perspectives on the issues involved. Through such special expert committees, TRB also conducts periodic or continuing reviews

of specific transportation research and technology programs. Consensus study committee activities are subject to the requirements of Section 15 of FACA (the Federal Advisory Committee Act) amendments of 1997.

Consensus Study Committees

TRB conducts advisory studies in accordance with procedures of the National Academies. Congress or executive branch agencies request most studies, while others are funded by states, other organizations, or are self-funded by TRB. Committees of volunteer experts supported by staff from TRB's Consensus and Advisory Studies Division conduct these studies.

Formal policy advice comes through TRB's consensus studies. Each study committee produces a report with evidence-based conclusions and recommendations that are subject to the National Academies' rigorous report review process.

Committee Chair Joseph L. Schofer and other committee members led two days of presentations and discussions on transportation resilience metrics. Informed by the findings in *TRB Special Report 340: Investing in Transportation Resilience—A Framework for Informed Choices*, representatives of federal, state, and local transportation and planning agencies joined private-sector staff and academics to explore ways to carry out the recommendations in the report. Published in 2021, the report was downloaded approximately 1,800 times that year, a number that almost doubled in 2022.

Researched Recommendations

Commercial aviation safety in the United States has improved more than 40-fold over the past several decades, according to industry statistics. But it will be important to monitor for changing hazards, such as those that may arise from climate change; increasingly complex systems; changing workforce; and new players, business models, and technologies. *Emerging Hazards in Commercial Aviation—Report 1: Initial Assessment of Safety Data and Analysis Processes* has already been downloaded nearly 1,000 times since its August release. It is the first in a series of six reports that will be issued over the next 10 years on commercial aviation

safety trends in the United States. Look for upcoming events and meetings leading to future reports.

The country's increased production of crude oil and natural gas can provide economic benefits to the United States but also creates new demands and safety challenges for their transportation. As U.S. natural gas production has grown markedly over the past decade, liquefied natural gas (LNG) is being exported in larger quantities to customers overseas. However, to date, very little LNG has been transported by rail to export facilities and other users. The committee that authored 2022's *Preparing for LNG by Rail Tank Car: A Readiness Review* recommended that the new tank car design specification for LNG shipments be investigated further to ascertain its likely safety performance in a derailment and fully account for LNG's distinctive cryogenic and flammability properties.

The offshore oil and gas industry is characterized by diverse and complex operations with many hazards that need to be controlled. In early 2023, a TRB consensus project is expected to provide an assessment of [the changing risk profile of offshore oil and gas operations](#) in the Gulf of Mexico. The committee assessed the progress that has been made in addressing and decreasing the systemic risks of offshore operations since the tragic Macondo field drilling rig explosion and well release of 2010.

The Workforce Translates Findings into Real World Results

The owner of a new company that provides passenger service on amphibious boats says he benefited from the advice and analysis in a 2021 TRB consensus report, according to [FOX Station KOLR in the Ozarks](#). Canopies installed on a DUKW boat, a type of amphibious vessel, were found by the National Transportation Safety Board to have trapped passengers underwater during a fatal boat accident on Table Rock Lake in Missouri in 2018. However, in deciding whether to install canopies on his Hydra-Terra amphibious boats, which differ from DUKW boats, owner Richard Corby consulted *TRB Special Report 342: Options for Improving the Safety of DUKW Type Amphibious Vessels* to determine that the reserve buoyancy on the company's boats would be sufficient to





negate concerns about whether the canopies were a safety hazard.

In 2022, the University of North Dakota became the largest public flight school in the United States to [fully switch to unleaded aviation gas \(or avgas\)](#). The CEO of the fuel company that supplies the university with the unleaded avgas lauded Kimberly Kenville, a TRB volunteer and University of North Dakota aviation professor. Kenville has been working with others in the aviation industry to find cleaner fuels, following her service on the TRB committee that issued the report [TRB Special Report 336: Options for Reducing Lead Emissions from Piston-Engine Aircraft](#).

Committees That Advise on U.S. DOT Research

TRB's Committee for the Review of Federal Highway Administration's Long-Term Infrastructure Research and Development Program (LTIP) is charged with advising the agency on its priorities and progress in providing the technical tools and products state DOTs need to maintain and improve the performance of their pavements and bridges. The LTIP committee has recommended the formation of a forum of experts to identify and set priorities for long-term pavement performance data analysis and for FHWA to develop a revised plan for the collection of nondestructive evaluation data on bridge deck condition.

The Research and Technology Coordinating Committee, which advises FHWA on its research, development, and technology program, [issued a report commenting on FHWA's Complete Streets Program](#) and additional research needed associated with this program.

Diversity and Equity Behind Recommendations and Policy

The 2022 TRB Annual Meeting featured nearly 30 sessions based on research around issues of equity. Robert Hampshire, U.S. DOT Deputy Assistant Secretary for Research and Technology, led a conversation on *Innovation for Transformation: Safety, Economic Strength, Equity, and Climate*. [A video of the session](#) featured representatives from various offices within U.S. DOT, along with Nuria Fernandez, Federal Transit Administrator and ex officio member of TRB's Executive Committee.

The National Academies value diversity in our members, volunteers, and staff and strive for a culture of inclusion in our workplace and activities. Convening a diverse community of professional expertise to exchange ideas and perspectives enhances the quality of our work and increases our relevance as advisers to the nation about the most complex issues facing the United States and the world.

Selection of appropriate committee members for TRB's consensus studies—individually and collectively—is essential for the success of a study. As with all National Academies advisory projects, committee members serve as individual experts, not as representatives of organizations or interest groups. Committee composition is representative, independent, and balanced. [Resources for volunteers](#) clarify roles and the importance of inclusivity in the process.



Risdon Photography

Robert Hampshire, U.S. DOT Deputy Assistant Secretary for Research and Technology and TRB Executive Committee ex officio member, leads a discussion on *Innovations for Transformation: Safety, Economic Strength, Equity, and Climate* at the 2022 TRB Annual Meeting.

COMMUNICATING



TRB staff continue to work toward implementation of the Strategic Communications Plan approved by TRB’s Executive Committee in 2021. A social media strategy was added as an appendix to the document in 2022. Increased collaboration with the National Academies Office of the Chief Communications Officer also allowed for improved gathering and analysis of online statistics, incorporating this understanding into how we reach TRB’s audiences. Paul Mackie is the Director of Communications/Media.

People also may notice a change to many of TRB’s documents, signs, and presentations, as the National Academies launched a new look

in its branding in 2022. TRB also has enhanced its documented crisis communications strategy for the TRB Annual Meeting to increase our preparedness should unexpected crises arise.

TRB’s revamped digital newsletter, *TRB Weekly*, continues to amass subscribers with approximately 18,000 people receiving it each week. Engagement with the newsletter is well above the industry average, with links in *TRB Weekly* clicked more than three times as often as similar email newsletters in the industry. Subscribers continuously reevaluate their subscription categories, ensuring that they get the exact mix of news they are seeking.

In addition to *TRB Weekly*, three



Paul Mackie
Director,
Communications/Media

mode-specific CRP listservs—applications that distribute messages to subscribers on an electronic mailing list—deliver announcements of new projects, calls for nominations and problem statements, and requests for proposals as they arise. TRB volunteers receiving these messages often take the lead for further spreading the message to university transportation centers, professional groups, consultancies, or the state DOTs they represent.

The *Upcoming TRB Webinars* weekly newsletter reaches 32,000 subscribers, who opt to select topics and are only notified when webinars with their chosen topics are available. On average, the enrollment rate for webinars jumps more than 480 percent after these emails go out.

TRBAM Express, the newsletter for registrants at TRB's Annual Meeting, took off in 2022. The eight-issue newsletter is a benefit for all registered attendees. Updates to the schedule, technical advice for accessing the online presentations, and social media coverage were some of the more engaging items.

Increase Awareness of TRB Products, Activities, and Services

Word-of-mouth communications by the volunteers on TRB's standing technical committees remain strong, as researchers and practitioners regularly share information about TRB's transportation-research resources and opportunities. Attendees of TRB's symposia, forums, and conferences report that approximately 60 percent have discovered the event from a colleague.

The ease of finding TRB online helps to reach emerging transportation professionals and researchers who may be unfamiliar with TRB's many offerings. In 2022, TRB continued to work toward transitioning all TRB-sponsored events to a single website and improving the search results of these events. TRB webinars gained an increased presence on the new web platform to further bolster them in search results. Approximately 5 percent of the professionals at TRB webinars report that they are new to the program and are attending for the first time. [TRB Webinar: Considering Quality of Life in Transportation Planning and Development](#) was particularly popular in pulling in first-time attendees last August.

Services like TRB Snap Searches from the TRB Library, which introduce researchers and practitioners to TRB-specific materials and are organized by topic, now also have a presence on the new website. Continuing to build information on a single platform will help TRB's findability in the future as its multiple websites no longer compete against each other in search results.

Communicate the Value of TRB and Research

"Research is vital to the transportation sector," says Shawn D. Wilson, TRB Executive Committee Vice Chair and Secretary of the Louisiana Department of Transportation and Development. "It informs and improves the way we deliver projects and services. Our implementation of research in Louisiana has led to valuable savings greater than \$500 million over three decades."

In February, the first TRB Emerging Transportation Leaders 4-Week Networking Challenge launched on LinkedIn. Ideal for professionally minded individuals age 35 and younger, the challenge was designed to give future leaders in transportation a social and professional networking boost. Each week featured a new assignment with a different theme to engage with TRB's professional development services. Interaction increased in *TRB Weekly* as the challenges progressed, and posts were clicked more than average TRB posts on Twitter and LinkedIn, confirming that professionals were eager for guidance on furthering their careers with TRB.

On Twitter, a post announcing that TRB received nearly 50 percent of papers for the 2023 TRB Annual Meeting on the submission deadline was one of the most engaging news items of the year.

A LinkedIn post announcing that the presentations from TRB's International Conference on Roundabouts were available reached nearly 3,000 people. TRB audiences are finding the information they need by connecting with TRB on social media.

Make TRB the Go-To, Essential, Up-to-Date Source

TRB's Communications Director Paul Mackie received a note from Deon J. Hampton, National Reporter at NBC News Digital, saying,



Virginia DOT

“You’re literally becoming the first call I make on tough transportation stories, so I just want to say thanks.”

In 2022, TRB services and research were cited by mainstream and trade media more than 100 times per month, on average. Some of the highlights included coverage by the *New York Times* and the *Washington Post* of the 2022 TRB Annual Meeting. A

2022 *Time* magazine article noted a 2013 TCRP publication—*Millennials and Mobility: Understanding the Millennial Mindset and New Opportunities for Transit Providers*—focused on cities hoping to attract remote workers. The report states the importance of efficient, accessible, multimodal, and sustainable ways to move people around. Upcoming research on commercial truck driver pay was highlighted by both *The White House* and *Bloomberg Government*.

The National Academies’ Climate Conversations series has taken off in 2022. Each Climate Conversation livestream attracts an average of 700 live viewers, and more than 700 people view the recording. TRB has contributed to planning two of the regular events: one on *electric vehicle infrastructure* and another on urban transportation emissions and improved mobility.

“Using the transportation system as a gateway to not only uplift the economic conditions of the people of Los Angeles but also reduce environmental impacts,” is a top concern for the Los Angeles County Metropolitan Transportation Authority, according to its Chief Sustainability Officer and TRB volunteer Cris Liban. He views this holistic approach

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Looking for the latest on #roundabouts? The presentations from our International Conference on Roundabouts are all available! Check them out and see what you can use. Thanks again to the conference patrons and support from [Federal Highway Administration](#).
[#TRBRoundabouts](#)
<http://ow.ly/23s350JCNIE>

Play 0:03



as being part of a larger context of working to create an environment where everyone benefits.

Increase TRB's Impact on Solving Transportation and Societal Challenges

TRB events tackled some of the most critical issues of climate resiliency and sustainability, economic opportunity, public health, safety, and equity. As such, communications campaigns were built to further promote the conferences on automated vehicles, accessibility, and scenario planning.

Speakers at the Automated Road Transportation Symposium recorded promotional videos to increase excitement about their sessions that were promoted on TRB's website, newsletters, and social media channels. The video produced by Richard Bishop, owner of Bishop Consulting, discussed automated trucking and was viewed more than 1,200 times. The website was visited by more than 3,100 people. One of TRB's most engaging posts on Twitter in 2022 announced the session on international policy for automated vehicles. Posts announcing the conference dates and Bishop's video were liked or clicked by more than 40 percent of those who saw them.

The TRANSED: Mobility, Accessibility, and Demand Response Transportation Conference drew 1,200 website visitors and proved engaging on LinkedIn, where attendees and speakers clicked before the event and shared their experiences as it took place.

TRB's Conference on Scenario Planning tackled a challenging topic for the industry but grabbed the attention of a wide audience. More than 1,000 people clicked the conference

link, while projected attendance was around 200 participants. Kansas DOT Secretary and TRB Executive Committee member Julie Lorenz live tweeted her presentation, pointing out the challenges as well as the benefits to embracing a new method.

Shine a Wide Spotlight

"TRB is an organization encouraging diversity and inclusion and has appointed a significant number of women leaders to chair the committees and councils," says TRB volunteer Yu Zhang. "It provides growth space for women transportation professionals in their career development."

Throughout the year, volunteers shared their thoughts on the importance of TRB honoring cultural awareness months and resources around those given topics. More than 30 TRB volunteers expressed their thoughts and shared resources about Black History Month, Women's History Month, Asian American and Pacific Islander Month, LGBTQIA+ Pride Month, Americans with Disabilities Act anniversary week, Hispanic and Latino Heritage Month, and Native American Heritage Month.

Approximately 30 posts in TRB's ongoing blog series were new or updated this year to highlight emerging research, events, and TRB services. The posts also feature a number of TRB volunteers' expertise on topics. Volunteers represent a range of locations, transportation modes, and stages in their careers, including chairs of consensus committees and students just getting started in the field. A four-part series for the blog that focused on transportation equity remains popular, especially one on [socioeconomic equity](#). It was updated this year to include—among other features—Wilmington Neighborhood Council Chair Gina Martinez's address to TRB's Marine Board Spring Meeting, which focused on community involvement and transportation connections to health inequities near the Port of Los Angeles.

As TRB's work continues to pursue some of the most challenging issues facing the industry, TRB will continue to share the results in new and inventive ways to reach its goals.

2023 AND THE FUTURE



TRB will begin the new year under new leadership. Following a national search, Victoria Sheehan joins the National Academies as TRB's new Executive Director, in time for the 2023 TRB Annual Meeting.

Sheehan comes to the National Academies from New Hampshire DOT, where she has led as its Commissioner for the past seven years. Responsible for an operating budget of more than \$650 million, she oversaw a staff of more than 1,600 employees representing diverse areas such as aeronautics, rail, transit, construction, operations, finance, and administration. Her team led the development of New Hampshire's 10-Year Transportation

Improvement Plan, and Sheehan worked directly with the governor, general court, and executive council to ensure that it would address the state's growing needs.

"We are excited that Victoria will be joining our leadership team," said Gregory Symmes, Chief Program Officer of the National Academies. "Her experience with complex, multifaceted projects and organizations will bring important skills not only to TRB, but to the important cross-disciplinary work that is necessary to address the implications for transportation on the ongoing challenges of climate change, pandemics, diversity, and economic growth."



Nathaniel P. Ford, TRB Executive Committee Chair and CEO of the Jacksonville Transportation Authority, went on to say: “Through our discussions about industry issues and her track record at New Hampshire Department of Transportation and AASHTO, I am confident that Victoria is an excellent choice to lead TRB in its crucial mission of providing transportation professionals with the research and advice they will need to address our shared challenges.”

Sheehan will succeed Neil Pedersen, who has served as TRB’s Executive Director for nearly eight years.

Upcoming Work on Critical Issues

One of Pedersen’s legacies at TRB will be the focus he placed on the challenges and opportunities for transportation in equity, safety, climate resiliency and sustainability, economic opportunity, and public health.

A new *Critical Issues in Transportation* report is anticipated in early 2023. Forthcoming convening, research, and advising activities will address meeting these challenges.

Equity

One report that was released in late 2022—*TCRP Research Report 236: Racial Equity, Black America, and Public Transportation, Volume 1* summarizes common practices of the 20th and 21st centuries that had significant economic, health, and social impacts, and the racial gaps that emerged as a result of transportation inequities, deliberate actions, policies, and projects. Volume 2 will demonstrate a methodology to estimate how much it would cost to redress those damages. Volumes 3 and 4 will provide tools for elected and appointed officials and other stakeholder groups to engage effectively in the arena of transportation policy, planning, and funding at all levels of government.

Metrics and analytic methods so often drive decision making but are reliant on the data behind them. Opportunities for using data, metrics, and analytic methods will be identified to better inform federal agencies on how to allocate funds to improve equity for underserved communities in a [report expected in 2023](#).

TRB’s Conference on Advancing Transportation Equity is expected to return in

2024. In 2021, the highly popular conference focused on links between transportation and housing, telecommunications, health, policing, and economic development. [Recordings of the 2021 presentations](#) are available online.

Safety

A consensus study effort will examine the influence of safety research on the practice of [road safety and the tools and resources used by practitioners](#). In particular, consideration will be given to how objective, evidence-based road safety research is produced and disseminated in a timely and consistent manner to inform the planning, design, and operations of road infrastructure. After assessing the research-to-practice process for road safety, the committee will explore equivalent processes from other fields and disciplines such as medicine, public health, and education, as well as other engineering-oriented fields such as commercial and residential building design and construction.

In response to a congressional mandate, a consensus study effort between the Division of Behavioral and Social Sciences and Education, the Health and Medicine Division, and TRB will examine [drug and alcohol programs](#) within U.S. DOT, FAA, and in similar industries and sectors. In particular, it will review the Human Intervention Motivation Study Program and the Flight Attendant Drug and Alcohol Program; explore best policies and practices, including best practices for prevention; and consider programs to implement or to change existing programs that could best assist employees in getting treatment and returning to work.

Look for forthcoming consensus committees to study other aspects of public health and safety. One will examine potential safety risks from the operation of trains longer than 7,500 feet relative to the operation of shorter trains. Another will examine the impacts of existing methods of compensation on commercial motor vehicle driver retention and safety performance in the U.S. long-haul trucking and intercity bus sectors.

Sustainability

Domestic and international examples will identify opportunities for [repurposing plastics](#)

in asphalt, other transportation infrastructure, and in infrastructure outside of the transportation domain. The study aims to also examine opportunities to improve plastic recycling processes and the upstream manufacturing and use of plastics to make them compatible with the safe and effective repurposing of plastics waste in infrastructure.

Convened by TRB, the [National Conference on Transportation Asset Management](#) will be held July 8–11, 2023, in Boston, Massachusetts. The conference will cover a broad range of asset management topics to help transportation agencies manage their infrastructure assets to meet needs today and in the future. A focus of this conference will be the development of actionable asset management plans that demonstrate integration with agency processes to inform decision making.

Economic Opportunity

TRB's conference on Measuring Supply Chain Performance: Metrics, Data, and Policy Perspectives will be held April 12–13, 2023, in Washington, DC. The event will bring together experts on supply chain performance from the private- and public-sector workforce. Speakers will share applications for and approaches to performance measurement; compare metrics, data sources, and tools; identify shared interests and challenges; and outline needs for research and improved data.

Later in the spring, TRB's [National Aviation System Planning Symposium](#) will be held May 15–18, 2023, in Irvine, California. Speakers and participants will convene to evaluate the latest developments as they affect the challenges of planning the national aviation system of the future.

More to Explore

1. TRB 2022–2027 Strategic Plan
https://onlinepubs.trb.org/onlinepubs/general/TRB_Strategic_Plan_2022_2027.pdf
2. U.S. Secretary of Transportation Pete Buttigieg Addresses the 101st TRB Annual Meeting
<https://www.youtube.com/watch?v=E4wrV15eqPk>
3. Anne Strauss-Wieder Presents the 2022 TRB Annual Meeting Distinguished Deen Lecture
<https://www.youtube.com/watch?v=1bCauJWqyYA&t=845s>
4. Get Involved with the Transportation Research Board
<https://www.nationalacademies.org/trb/get-involved>
5. TRB 2022 Diversity, Equity, and Inclusion Strategic Plan
https://onlinepubs.trb.org/onlinepubs/general/TRB_Diversity_Equity_Inclusion_Strategic_Plan_2022.pdf
6. Strategic Plan for TRB International Activities 2022–2027
https://onlinepubs.trb.org/onlinepubs/general/TRB_International_Activities_Strategic_Plan_2022_2027.pdf
7. In Service to the Nation and the World
<https://www.nationalacademies.org/in-service-to-the-nation-and-the-world>
8. Evaluating Transportation Equity: ITE Quickbite
<https://www.planetizen.com/news/2022/02/116058-evaluating-transportation-equity-ite-quickbite>
9. *Transportation Research Record*
<http://journals.sagepub.com/home/trr>
10. *TR News*
<https://www.trb.org/Publications/PubsTRNewsMagazine.aspx>
11. Sustainability and Emerging Transportation Technology (SETT) Conference
<https://www.nationalacademies.org/event/03-15-2022/sustainability-and-emerging-transportation-technology-sett-conference>
12. TRB's Automated Road Transportation Symposium
<https://www.nationalacademies.org/event/07-18-2022/trbs-automated-road-transportation-symposium>
13. Conference on Scenario Planning in Transportation Planning
<https://www.nationalacademies.org/event/09-19-2022/conference-on-scenario-planning-in-transportation-planning>
14. TRANSED: Mobility, Accessibility, and Demand Response Transportation Conference
<https://www.nationalacademies.org/event/09-12-2022/transed-mobility-accessibility-and-demand-response-transportation-conference>
15. TRB: TCRP Insight Event—Air Quality in Transit Buses
<https://www.nationalacademies.org/event/06-21-2022/trb-tcrp-insight-event-air-quality-in-transit-buses>
16. TRB ACRP Insight Event—Future of Aviation
<https://www.nationalacademies.org/event/03-22-2022/acrp-insight-event-future-of-aviation>
17. TRB ACRP Insight Event—Systemic Inequality in the Airport Industry: Exploring the Racial Divide
<https://www.nationalacademies.org/event/04-12-2022/trb-acrp-insight-event-systemic-inequality-in-the-airport-industry-exploring-the-racial-divide>

18. Eleftheria “Ria” Kontou Profile
<https://cee.illinois.edu/directory/profile/kontou>
19. ACRP Research Report 236: *Preparing Your Airport for Electric Aircraft and Hydrogen Technologies*
<https://doi.org/10.17226/26512>
20. Jonathan Rubin on What’s Next for Maine’s Greener Transportation Future
<https://umaine.edu/news/blog/2022/04/20/jonathan-rubin-on-whats-next-for-maines-greener-transportation-future/>
21. NCHRP WebResource 1: *Reducing Greenhouse Gas Emissions*
<https://crp.trb.org/nchrpwebresource1/>
22. NCHRP Web-Only Document 308: *Methods for State DOTs to Reduce Greenhouse Gas Emissions from the Transportation Sector*
<https://doi.org/10.17226/26523>
23. NCHRP Research Report 984: *Breaking Barriers—Alternative Approaches to Avoiding and Reducing Highway Traffic Noise Impacts*
<https://doi.org/10.17226/26469>
24. NCHRP Research Report 969: *Traffic Signal Control Strategies for Pedestrians and Bicyclists*
<https://doi.org/10.17226/26491>
25. TCRP Research Report 233: *Strategies for Deterring Trespassing on Rail Transit and Commuter Rail Rights-of-Way, Volume 2: Research Overview*
<https://doi.org/10.17226/26503>
26. NCHRP Web-Only Document 323: *Highway Safety Manual User Guide*
<https://doi.org/10.17226/26552>
27. TCRP Research Report 236: *Racial Equity, Black America, and Public Transportation, Volume 1—A Review of Economic, Health, and Social Impacts*
<https://doi.org/10.17226/26710>
28. TCRP Synthesis 162: *Coordination of Public Transit Services and Investments with Affordable Housing Policies*
<https://doi.org/10.17226/26542>
29. TCRP Research Report 228: *Resource Guide for Improving Diversity and Inclusion Programs for the Public Transportation Industry*
<https://doi.org/10.17226/26230>
30. TCRP Synthesis 164: *Bus Rapid Transit: Current State of Practice*
<https://doi.org/10.17226/26597>
31. ACRP Web-Only Document 53: *Measuring and Understanding the Relationship Between Air Service and Regional Economic Development*
<https://doi.org/10.17226/26682>
32. ACRP WebResource 12: *Air Service Development and Regional Economic Activity*
<https://crp.trb.org/acrpwebresource12>
33. *Highway Capacity Manual, 7th Edition: A Guide for Multimodal Mobility*
<https://doi.org/10.17226/26432>
34. Lily Elefteriadou on LinkedIn
<https://www.linkedin.com/feed/update/urn:li:activity:6939606922039898112/>
35. TRID Database
<https://trid.trb.org/>
36. TCRP Research Report 232: *The Impacts of Vehicle Automation on the Public Transportation Workforce*
<https://doi.org/10.17226/26613>
37. Minority Student Fellows
<https://www.nationalacademies.org/news/2022/08/trb-announces-24-minority-student-fellows-for-2023>
38. Winners Selected for the 2021–2022 TRB Airport Cooperative Research Program University Design Competition for Addressing Airport Needs
<https://www.nationalacademies.org/news/2022/07/winners-selected-for-the-2021-2022-trb-airport-cooperative-research-program-university-design-competition-for-addressing-airport-needs>
39. *COVID-19 Addendum to Critical Issues in Transportation*
<https://doi.org/10.17226/26047>
40. *Racial Equity Addendum to Critical Issues in Transportation*
<https://doi.org/10.17226/26264>
41. TRB Special Report 340: *Investing in Transportation Resilience—A Framework for Informed Choices*
<https://doi.org/10.17226/26292>
42. *Emerging Hazards in Commercial Aviation—Report 1: Initial Assessment of Safety Data and Analysis Processes*
<https://doi.org/10.17226/26673>
43. *Preparing for LNG by Rail Tank Car: A Readiness Review* <https://doi.org/10.17226/26719>
44. *A Report Series on Progress and Opportunities Toward Decreasing the Risk of Offshore Energy Operations*
<https://www.nationalacademies.org/our-work/a-report-series-on-progress-and-opportunities-toward-decreasing-the-risk-of-offshore-energy-operations>
45. New Duck Boats on Branson Lake on 4th Anniversary of Deadly Sinking
<https://www.ozarksfirst.com/local-news/regional-news/branson-news/new-duck-boats-on-branson-lake-on-4th-anniversary-of-deadly-sinking/>
46. TRB Special Report 342: *Options for Improving the Safety of DUKW Type Amphibious Vessels*
<https://doi.org/10.17226/26447>
47. UND Aerospace to Get the Lead Out
<https://stateaviationjournal.com/index.php/state-news/north-dakota/und-aerospace-to-get-the-lead-out>
48. TRB Special Report 336: *Options for Reducing Lead Emissions from Piston-Engine Aircraft*
<https://doi.org/10.17226/26050>
49. *Research and Technology Coordinating Committee Letter Report: September 29, 2022*
<https://doi.org/10.17226/26758>
50. TRB 2022 Annual Meeting—Innovation for Transformation: Safety, Economic Strength, Equity, and Climate
<https://vimeo.com/665039259>
51. The National Academies, Our Volunteers
<https://www.nationalacademies.org/about/volunteers>
52. TRB Webinar: Considering Quality of Life in Transportation Planning and Development
<https://www.nationalacademies.org/event/08-25-2022/trb-webinar-considering-quality-of-life-in-transportation-planning-and-development>
53. Desperately in Demand This Pandemic Winter: Snowplow Operators
<https://www.nytimes.com/2022/01/15/us/snow-plow-drivers-shortage.html>
54. Transportation: Infrastructure Programs on Hold Until Congress Passes Budget to Fund Them
<https://www.washingtonpost.com/transportation/2022/01/29/infrastructure-climate-goals-delay/>
55. Ideas: How More Cities Worldwide Can Attract Remote Workers
<https://time.com/6168289/cities-attracting-remote-workers/>

56. *Millennials and Mobility: Understanding the Millennial Mindset and New Opportunities for Transit Providers*
<https://doi.org/10.17226/22500>
57. Fact Sheet: The Biden Administration’s Unprecedented Actions to Expand and Improve Trucking Jobs
<https://www.whitehouse.gov/briefing-room/statements-releases/2022/04/04/fact-sheet-the-biden-administrations-unprecedented-actions-to-expand-and-improve-trucking-jobs/>
58. Teens Driving 18-Wheelers Among Efforts to Help Supply Chain
<https://about.bgov.com/news/trucker-pay-young-driver-efforts-deployed-to-help-supply-chain/>
59. Climate Conversations: EV Infrastructure
<https://www.nationalacademies.org/event/03-22-2022/climate-conversations-ev-infrastructure>
60. Building Socioeconomic Equity Through Transportation Research
<https://www.nationalacademies.org/trb/blog/building-socioeconomic-equity-through-transportation-research>
61. Data, Metrics, and Analytic Methods for Assessing Equity Impacts of Surface Transportation Funding Programs
<https://www.nationalacademies.org/our-work/data-metrics-and-analytic-methods-for-assessing-equity-impacts-of-surface-transportation-funding-programs>
62. TRB Conference on Advancing Transportation Equity: Bridging the Divide Between People, Research, and Practice
<https://trb.secure-platform.com/aa/page/transportationequity>
63. Transitioning Evidence-Based Road Safety Research into Practice
<https://www.nationalacademies.org/our-work/transitioning-evidence-based-road-safety-research-into-practice>
64. Study and Recommendations on the HIMS, FADAP, and Other Drug and Alcohol Programs Within the USDOT
<https://www.nationalacademies.org/our-work/study-and-recommendations-on-the-hims-fadap-and-other-drug-and-alcohol-programs-within-the-usdot>
65. Repurposing Plastics Waste in Infrastructure
<https://www.nationalacademies.org/our-work/repurposing-plastics-waste-in-infrastructure>
66. TRB 14th National Conference on Transportation Asset Management
https://trb.secure-platform.com/a/page/asset_management
67. TRB’s National Aviation System Planning Symposium
<https://www.nationalacademies.org/event/05-15-2023/trbs-national-aviation-system-planning-symposium>

TRB Volunteer Leadership

TRB's Executive Committee provides strategic direction and oversight of TRB's programs and activities. The 26 appointed members of the volunteer Executive Committee are chosen from among public- and private-sector executives, prominent academicians, and members of the National Academies. In addition, 19 ex officio members—top executives from TRB's sponsoring agencies—serve on the Executive Committee. Two former Executive Committee chairs serve as "ex officio voting members."

Transportation Research Board 2022 Executive Committee (as of November 2022)



Chair Nathaniel P. Ford, Sr., Chief Executive Officer, Jacksonville Transportation Authority, Jacksonville, Florida



Vice Chair Shawn Wilson, Secretary, Louisiana Department of Transportation and Development, Baton Rouge



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Marie Therese Dominguez, Commissioner, New York State Department of Transportation, Albany



Ginger Evans, President, Tower Consulting, Arlington, Virginia



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Steward T.A. Pickett, Distinguished Senior Scientist, Cary Institute of Ecosystem Studies, Millbrook, New York



Leslie S. Richards, General Manager, Southeastern Pennsylvania Transportation Authority, Philadelphia



James M. Tien, Distinguished Professor and Dean Emeritus, College of Engineering, University of Miami, Coral Gables, Florida



Michael R. Berube, Deputy Assistant Secretary for Sustainable Transportation, U.S. Department of Energy, Washington, DC (*ex officio*)



Amit Bose, Administrator, Federal Railroad Administration, Washington, DC (*ex officio*)



Carlos M. Braceras, Executive Director, Utah Department of Transportation, Salt Lake City (*ex officio*)



Tristan Brown, Deputy Administrator, Pipeline and Hazardous Materials Safety Administration, U.S. Department of Transportation, Washington, DC (*ex officio*)



Ann Carlson, Acting Administrator, National Highway Traffic Safety Administration, Washington, DC (*ex officio*)



Steven Cliff, Executive Officer, California Air Resources Board, Planning and Technical Support Division, Sacramento (*ex officio*)



Nuria I. Fernandez, Administrator, Federal Transit Administration, Washington, DC (*ex officio*)



LeRoy Gishi, Chief, Division of Transportation, Bureau of Indian Affairs, U.S. Department of the Interior, Germantown, Maryland (*ex officio*)



William H. Graham, Jr. (Major General, U.S. Army), Deputy Commanding General for Civil and Emergency Operations, U.S. Army Corps of Engineers, Washington, DC (*ex officio*)



John T. Gray II, Senior Vice President, Policy and Economics, Association of American Railroads, Washington, DC (*ex officio*)



Robert C. Hampshire, Deputy Assistant Secretary for Research and Technology, U.S. Department of Transportation, Washington, DC (*ex officio*)



Robin Hutcheson, Administrator, Federal Motor Carrier Safety Administration, Washington, DC (*ex officio*)



Eleftheria "Ria" Kontou, Assistant Professor, University of Illinois, Urbana-Champaign, Urbana, and Chair, TRB Young Members Coordinating Council (*ex officio*)



Billy Nolen, Acting Administrator, Federal Aviation Administration, U.S. Department of Transportation, Washington, DC (*ex officio*)



Stephanie Pollack, Acting Administrator, Federal Highway Administration, U.S. Department of Transportation, Washington, DC (*ex officio*)



Susan A. Shaheen, Professor and Co-Director, Transportation Sustainability Research Center, University of California, Berkeley (*ex officio*)



Karl Simon, Director, Transportation and Climate Division, U.S. Environmental Protection Agency, Washington, DC (*ex officio*)



Paul P. Skoutelas, President and Chief Executive Officer, American Public Transportation Association, Washington, DC (*ex officio*)



Polly Trottenberg, Deputy Secretary of Transportation, U.S. Department of Transportation, Washington, DC (*ex officio*)



Jim Tymon, Executive Director, American Association of State Highway and Transportation Officials, Washington, DC (*ex officio*)

APPENDIX A ■ *Statement of Activities*

Funding Support by Program and Expenditures, Calendar Years 2021 and 2022

	2021 (Actual)	2022 (Projected)*
Core Technical Activities		
State Highway and Transportation Departments (State DOTs)	\$8,004,000	\$8,602,000
Federal Government		
Federal Highway Administration (FHWA)	1,400,000	1,400,000
Office of the Assistant Secretary of Transportation for Research and Technology (OST-R)	81,000	375,000
Federal Transit Administration (FTA)	194,000	322,000
National Highway Traffic Safety Administration (NHTSA)	127,000	233,000
U.S. Department of the Interior	85,000	85,000
U.S. Department of Energy (DOE)	76,000	77,000
U.S. Environmental Protection Agency	76,000	77,000
Federal Aviation Administration (FAA)	42,000	76,000
Federal Railroad Administration	38,000	76,000
Pipeline and Hazardous Materials Safety Administration	38,000	76,000
Federal Motor Carrier Safety Administration	31,000	76,000
U.S. Army Corps of Engineers	75,000	75,000
U.S. Air Force Civil Engineer Center	76,000	63,000
Subtotal, Federal Government	\$2,339,000	\$3,011,000
Other		
California Air Resources Board	81,000	82,000
American Public Transportation Association	76,000	76,000
Association of American Railroads	76,000	76,000
Fees and Sales	4,450,000	5,500,000
Subtotal, Other	\$4,683,000	\$5,734,000
Total, Core Technical Activities	\$15,026,000	\$17,347,000
Marine Board Core Program		
U.S. Coast Guard	75,000	75,000
U.S. Army Corps of Engineers	75,000	75,000
Office of Naval Research	65,000	65,000
National Oceanic and Atmospheric Administration	40,000	40,000
Bureau of Safety and Environmental Enforcement	30,000	30,000
Maritime Administration	19,000	19,000
U.S. Navy Supervisor of Salvage and Diving	12,000	12,000
Total, Marine Board Core Program	\$316,000	\$316,000
Cooperative Research Programs		
National Cooperative Highway Research Program (State DOTs)	40,463,000	41,637,000
Airport Cooperative Research Program (FAA)	12,476,000	13,333,000
Transit Cooperative Research Program (FTA)	4,687,000	5,160,000
Behavioral Traffic Safety Cooperative Research Program (Governors Highway Safety Association, NHTSA)	1,675,000	1,974,000
Total, Cooperative Research Programs	\$59,301,000	\$62,104,000

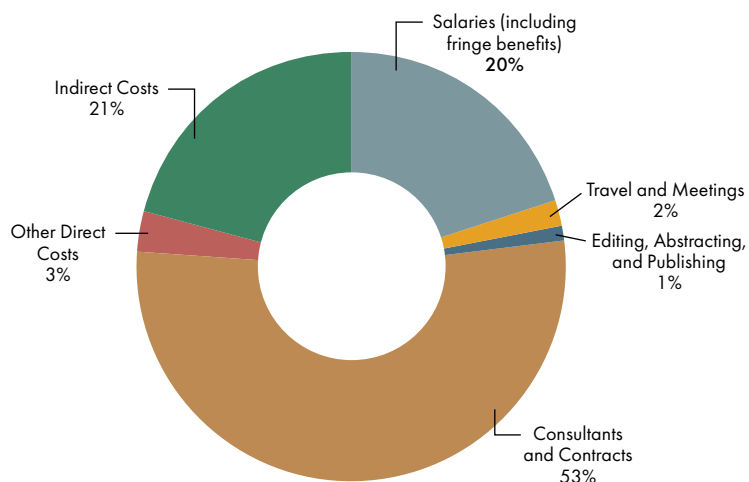
	2021 (Actual)	2022 (Projected)*
Rail Safety IDEA Program	\$223,000	\$460,000
Evaluations of FHWA Research and Technology Program Projects	\$715,000	\$978,000
Policy Studies	\$2,611,000	\$3,318,000
Conferences, Workshops, Forums, and Research Projects	\$1,393,000	\$1,893,000
TRB TOTAL	\$79,585,000	\$86,416,000
Sources of Funds		
Federal	25,129,000	28,691,000
State DOTs	48,467,000	50,239,000
Other	5,989,000	7,486,000
	\$79,585,000	\$86,416,000
Expenditures by Major Cost Category		
Salaries (including fringe benefits)	16,295,000	16,974,000
Travel and Meetings	409,000	1,895,000
Editing, Abstracting, and Publishing	950,000	1,048,000
Consultants and Contracts	39,938,000	44,551,000
Other Direct Costs	2,343,000	2,460,000
Indirect Costs	18,773,000	17,759,000
Total Expenditures	\$78,708,000	\$84,687,000

TRB Reserve Fund		
Fund balance, end of previous fiscal year	\$17,589,000	\$18,466,000
Plus (minus) current fiscal year income over (under) expenditures	877,000	1,729,000
Balance, current fiscal year	\$18,466,000	\$20,195,000

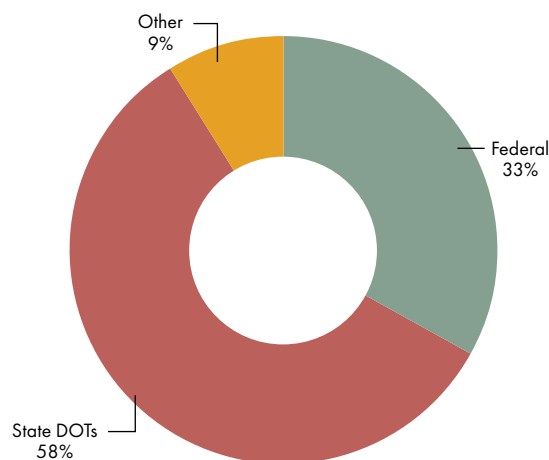
In 1965, the TRB Executive Committee approved a reserve fund to provide for orderly adjustments in the event of a temporary shortfall in anticipated revenues for TRB technical activities. This fund, built up over the years from surplus income in excess of expenditures from nonfederal sources for any one fiscal year, is reserved for expenditures in excess of income for any later fiscal year under a fixed budget approved annually by the TRB Executive Committee.

* Calendar Year 2022 comprises actual data through October and estimates for the remainder of the year.

Distribution of TRB Expenditures



TRB Funding Support



APPENDIX B ■ *Institutional Affiliates*

Sponsors

State Transportation Departments

(Listed with TRB Representatives)

Alabama Department of Transportation

Kidada Dixon

Alaska Department of Transportation and Public Facilities

Anna Bosin

Arizona Department of Transportation

Dianne Kresich

Arkansas Department of Transportation

Mark Headley

California Department of Transportation

Dara Wheeler

Colorado Department of Transportation

Stephen Cohn

Connecticut Department of Transportation

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Delaware Department of Transportation

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Illinois Department of Transportation

Megan Swanson

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Barry K. Partridge

Iowa Department of Transportation

Peggi S. Knight

Kansas Department of Transportation

Daniel Wadley

Kentucky Transportation Cabinet

Jarrold Stanley

Louisiana Department of Transportation and Development

Samuel Cooper

Maine Department of Transportation

Dale Peabody

Maryland State Highway Administration

Richard Y. Woo

Maryland Department of Transportation

Hua Xiang

Massachusetts Department of Transportation

Stephen Woelfel

Michigan Department of Transportation

Michael Townley

Minnesota Department of Transportation

Hafiz Munir

Mississippi Department of Transportation

Cynthia Smith

Missouri Department of Transportation

Jennifer Harper

Montana Department of Transportation

Rebecca Ridenour

Nebraska Department of Roads

Brandon Varilek

Nevada Department of Transportation

Ken Chambers

New Hampshire Department of Transportation

Diedre Nash

New Jersey Department of Transportation

Amanda Gendek

New Mexico Department of Transportation

Hao Yin

New York State Department of Transportation

Wei-Shih Yang

North Carolina Department of Transportation

Humberto Tasaico

North Dakota Department of Transportation

Matthew Linneman

Ohio Department of Transportation

Vicky Fout

Oklahoma Department of Transportation

Teresa Stephens

Oregon Department of Transportation

Michael Edward Bufalino

Pennsylvania Department of Transportation

Brian Wall

Rhode Island Department of Transportation

Christos Xenophontos

South Carolina Department of Transportation

Terry Swygert

South Dakota Department of Transportation

David L. Huft

Tennessee Department of Transportation

David Lee

Texas Department of Transportation

Kevin Pete

Utah Department of Transportation

Cameron T. Kergaye

Vermont Agency of Transportation

Emily Parkany

Virginia Department of Transportation

Michael Fitch

Washington State Department of Transportation

Anne Freeman

West Virginia Department of Transportation

Perry Keller

Wisconsin Department of Transportation

Diane Gurtner

Wyoming Department of Transportation

Ethan Crockett

Federal Government

U.S. Department of Transportation

Federal Aviation Administration

Federal Highway Administration

Federal Motor Carrier Safety Administration

Federal Railroad Administration

Federal Transit Administration

National Highway Traffic Safety Administration

**Office of the Assistant Secretary of Transportation for
Research and Technology**

Pipeline and Hazardous Materials Safety Administration

Office of the Under Secretary for Policy

U.S. Army Corps of Engineers

U.S. Coast Guard

U.S. Department of Energy

U.S. Department of the Interior

U.S. Environmental Protection Agency

Other Organizations

**American Association of State Highway and
Transportation Officials**

American Public Transportation Association

Association of American Railroads

California Air Resources Board

Marine Board Sponsors

Bureau of Safety and Environmental Enforcement

Maritime Administration

National Oceanic and Atmospheric Administration

Office of Naval Research

Office of the Supervisor of Salvage and Diving, U.S. Navy

U.S. Army Corps of Engineers

U.S. Coast Guard

Global Affiliate Sustaining Circle

Applied Research Associates, Inc.

ARUP

Caliper Corporation

HDR

HNTB

Jacobs

Kittelson & Associates, Inc.

Michael Baker International, Inc.

National Transportation Safety Board

Port Authority of New York and New Jersey

Texas A&M Transportation Institute

The World Bank

U.S. Air Force Civil Engineer Center

U.S. Department of Agriculture

VHB

Washington Metropolitan Area Transit Authority

WSP

**Calendar and Fiscal Year 2022 Core Financial Support
Provided by**

- 92 Sponsor and Sustaining Global Affiliates
- 51 Organizational Affiliates from 11 nations
- More than 600 Individual Affiliates

APPENDIX C ■ TRB Webinars, Conferences, and Workshops

January 1–December 31, 2022

In-person conferences and workshops are noted with their location.

JANUARY

9–13 TRB 101st Annual Meeting

FEBRUARY

3 TRB Webinar: Improving Diversity and Inclusion Programs in Public Transportation

10 TRB Webinar: Embracing the Unknown—Strategic Transportation Planning in the Pandemic Age

15 TRB Webinar: On the Edge—New Applications and Safety Outcomes of Edge Lane Roads

22 TRB Webinar: Designing and Constructing Concrete with Advancing Technologies

23 TRB Webinar: Transportation in an Aging Society—The Future Is Now

28 TRB Webinar: End Communication Breakdown—Practices in Airport Emergency Plans

MARCH

9 TRB Webinar: Micromobility and Transit—Keys to Successful Collaboration

14 TRB Webinar: Using Buried Bridge Techniques to Accelerate Bridge Construction Processes

20–23 American Society of Civil Engineers (ASCE) Geo-Congress 2022*
Charlotte, North Carolina

22 TRB Webinar: How Rough Is Your Pavement? Measuring Pavement Profiles for Low-Speed Roads

22–24 International Data Science for Pavements Symposium*
McLean, Virginia

29 TRB Webinar: Robot-Enabled Sensing and Augmented Learning for Bridge Inspection

APRIL

3–6 International Conference on Accelerated Pavement Testing*
Nantes, France

5 TRB Webinar: Creating Inclusive Mobility

7 TRB Webinar: Rethinking Parking to Enhance Airport Revenues

14 TRB Webinar: Emerging Issues in Priced Managed Lane Networks

14 TRB Webinar: Implementing and Evaluating Wildlife Crossings

20 TRB Webinar: Managing and Sharing Research Data for Public Access

MAY

13 TRB Webinar: Understanding the Effects of COVID-19 on Impaired Driving

15–17 Road Use Charging and Finance Conference*
Denver, Colorado

15–18 International Conference on Roundabouts
Monterey, California

17 TRB Webinar: Telecommunication at Airports—Trends and Legal Considerations

17 Research Day at ITF Annual Summit*
Leipzig, Germany

19 TRB Webinar: Collaborating to Reduce Greenhouse Gas Emissions

23–25 TRB Workshop at the Highway Geology Symposium*
Asheville, North Carolina

25 TRB Webinar: Innovations in Testing—Modified Binders Cracking Resistance

26 TRB Webinar: Sustainable, Resilient, and Durable Concrete Pavements

31 TRB Webinar: Pavement Performance—Fundamentals and New Technologies

31–June 2 Conference on Sustainability and Emerging Transportation Technology
Irvine, California

JUNE

7 TRB Webinar: What's New in the HCM7 and Why It Matters

7–10 International Conference on Managing Pavement Assets*
Chicago, Illinois

8 TRB Webinar: Enhancing Public Health Equity Through Transportation

13–15 18th Biennial National Harbor Safety Committee Conference
Boston, Massachusetts

14 TRB Webinar: Saving Lives with Autonomous Truck Mounted Attenuator Systems

16–17 Investing in Transportation Resilience, Dissemination Event
Washington, DC

19–23 International Conference on Research in Air Transportation*
Tampa, Florida

- 21 TRB Webinar: Prioritization of Public Transportation Investments
- 21–22 TRB’s TCRP Insight Event: Air Quality in Transit Buses
- 23 TRB Webinar: Geotechnical Data Applications and Visualization for Transportation
- 26–29 6th International Symposium on Highway Geometric Design*
Amsterdam, Netherlands
- 28 TRB Webinar: Performance-Based Application of the *Highway Safety Manual*
- 28–30 International Conference on the Bearing Capacity of Roads, Railways, and Airfields*
Trondheim, Norway
- 30 TRB Webinar: Implementing Biometric Technologies at Airports

JULY

- 7 TRB Webinar: Roadside Fire Risk and Prevention Strategies
- 11–15 International Conference on Bridge Maintenance, Safety, and Management*
Barcelona, Spain
- 13 TRB Webinar: Geotechnical Asset Performance in a Changing Climate
- 14 TRB Webinar: Evaluating Freeway and Arterial Connections in the New HCM7
- 15 TRB Webinar: Next Generation Information Systems for Transportation Projects
- 18–21 TRB’s Automated Road Transportation Symposium
Garden Grove, California
- 21 TRB Webinar: Optimizing Unpaved Road Design with a Materials Blending Tool
- 24–26 International Symposium on Transportation and Traffic Theory*
Beijing, China
- 24–27 TRB Annual Workshop on Transportation Law
Portland, Oregon
- 25 TRB Webinar: Advances in Multiresolution Modeling for Traffic Analysis
- 25–27 Geospatial Data Acquisition Technologies in Design and Construction Summer Committee Meeting
Washington, DC
- 25–28 Ghana Infrastructure Conference*
Ghana
- 26 TRB Webinar: Strings Attached—Permissible Uses of Airport Property and Revenue
- 26 Accelerating Decarbonization in the United States: Technology, Policy, and Societal Dimensions—Pathways to an Equitable and Just Transition Workshop*
Washington, DC
- 27 Climate Change Challenges International Transportation Webinars*

AUGUST

- 3 TRB Webinar: Incorporating a Complex Transportation System in the New HCM7
- 4–5 Bridging Transportation Researchers Online Conference*
- 16 TRB Webinar: Temporary Pavement Markings and Removal in Work Zones
- 16–18 Summerail*
Michigan City, Indiana
- 16–19 National Hydraulic Engineering Conference*
Atlanta, Georgia
- 23 TRB Webinar: Integrating Performance, Asset, and Risk Management Is Value-Add
- 25 TRB Webinar: Considering Quality of Life in Transportation Planning and Development
- 29–31 TRB’s Tools of the Trade Conference
Boise, Idaho
- 30 TRB Webinar: Complete the Puzzles in Planning and Environmental Linkages Practice

SEPTEMBER

- 6–9 International Conference of International Society for Intelligent Construction*
Guimaraes, Portugal
- 12–16 TRANSED: Mobility, Accessibility, and Demand Response Transportation Conference
- 15 TRB Webinar: Needs and Solutions for Automated Vehicle Infrastructure Implementation
- 19 TRB Webinar: Making the Research in Progress Database Work for You
- 19–21 Conference on Scenario Planning in Transportation
Washington, DC
- 21 TRB Webinar: Adaptive Flood Relief Techniques to Enhance Resiliency
- 22 TRB Webinar: Strategies to Improve the Quality of Pavement Condition Data
- 26–29 Society of Naval Architects and Marine Engineers Maritime Convention*
Houston, Texas
- 27 TRB Webinar: Pedestrian Analysis—Current Practice, Resources, and Applications
- 29 TRB Webinar: Performance Measures for State Aviation Agencies

OCTOBER

- 4 Review of Federal Highway Administration Infrastructure R&D: Expert Task Group on Pavements
Washington, DC
- 6 TRB Webinar: Supply Chain Risk and Resilience—Linking Transportation and Economic Models
- 11 TRB Webinar: Resistivity and Concrete Durability

- 11 Data, Metrics, and Analytic Methods for Assessing Equity Impacts of Surface Transportation Funding Programs Meeting #7*
Washington, DC
- 12 TRB Webinar: Withstanding Climate Change—Resilient & Flexible Pavement
- 18 TRB Webinar: New Era in Data Analytics for Bridge Foundation Design
- 19 TRB Webinar: Preparing the Next Generation of Airport Industry Professionals
- 20 TRB Webinar: Microtransit—Innovation in Rural Mobility
- 25 TRB Webinar: Safer Intersections for Pedestrians and Bicyclists
- 26 TRB Webinar: New Transit Fare Policy—Capping and “Cashless” Collection
- 27 TRB Webinar: Protocols for Macrotexture Measurement to Prevent Wet Weather Crashes

NOVEMBER

- 1–5 Maritime Risk Symposium*
- 3 TRB Webinar: Six Minute Pitch: A Transportation Startup Challenge
- 3–4 TRB’s Symposium on Visualization in Transportation
Washington, DC
- 8 TRB Webinar: Mitigating the Legal Risk of Data Collected at Airports

- 9 TRB Webinar: Enabling Automated Truck Inspection for Safety
- 10 TRB Webinar: T-1 Steel, I-40 Bridge, and the Way Forward
- 17 TRB Webinar: Cybersecurity Trends in Transportation
- 22 TRB Webinar: Legal Considerations of Renewable Energy Production in State Right-of-Way
- 29 TRB Webinar: Managing Severe Storms and Environmental Impacts
- 30 TRB Webinar: State DOTs Perspective on Pavement Resilience

DECEMBER

- 5 TRB Webinar: Ruggedness Testing—Evaluating Asphalt Mixture Cracking Resistance
- 12 TRB Webinar: Expanding Microtransit Services and Improving the Rider Experience
- 12–14 Advances in Materials and Pavement Performance Prediction*
Hong Kong
- 13 TRB Webinar: Trends in Transit Ridership—Analysis, Causes, and Responses
- 15 TRB Webinar: Measuring and Managing Fare Evasion

* TRB was cosponsor of the meeting.

APPENDIX D ■ Publications

January 1–December 31, 2022

Transportation Research Record (online)

Volume 2676

Issue 1	January 2022
Issue 2	February 2022
Issue 3	March 2022
Issue 4	April 2022
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Issue 11	November 2022
Issue 12	December 2022

Transportation Research Circulars (E-Circulars)

E-C276	State Departments of Transportation Experiences and Applications with Traffic Speed Deflection Devices
E-C277	13th National Conference on Transportation Asset Management
E-C278	Innovations in Freight Data Workshop
E-C279	Advancing Low- and Zero-Emission Marine Vessel Technology Options Workshop
E-C280	Glossary of Terms for Balanced Design of Asphalt Mixtures
E-C281	Advancing Transportation Equity: Conference Summary and Action Brief

TR News Magazine¹

337	Preservation, Maintenance, and Renewal: A Strategic Approach to Prepare for the Future (January–February 2022)
338	Missing and Murdered Indigenous Women: How Can Transportation Stop Traffickers? (March–April 2022)
339	Pavement Preservation, Maintenance, and Rehabilitation (May–June 2022)
340	New Technologies in Highway Construction (July–August 2022)
341	Decarbonizing Transportation: Challenges and Pathways to 2050 (September–October 2022)
342	Getting Safely to the Other Side: Decision Support for Wildlife Crossing Programs (November–December 2022)

Online Newsletter

TRB Weekly

Airport Cooperative Research Program (ACRP)²

ACRP RESEARCH REPORTS

236	Preparing Your Airport for Electric Aircraft and Hydrogen Technologies
237	Primer and Framework for Considering an Airport Noise and Operations Monitoring System
238	Airfield Design for Large Unmanned Aircraft Systems—A Guide
240	Primer for Airport Organizational Redesign
241	Toward a Touchless Airport Journey
244	Advancing the Practice of State Aviation System Planning
245	Guide to Evaluating Airport Governance Structures
246	Airside Operations Safety: Understanding the Effects of Human Factors
247	Airfield Pavement Markings: Effective Techniques for Removal and Temporary Applications

ACRP SYNTHESSES

116	Examples of Facility Space Provided for Community Use at Airports
117	Agricultural Operations on Airport Grounds
118	Airport Parking Pricing Strategies
119	Considerations for Establishing and Maintaining Successful Pollinator Programs on Airports
120	Airport Software Solutions and Services Sourcing

ACRP WEB-ONLY DOCUMENTS (WODs)

52	Command-Level Decision Making for Transportation Emergency Managers (joint with TCRP WOD 75 and NCHRP WOD 321)
53	Measuring and Understanding the Relationship Between Air Service and Regional Economic Development (and WebResource 12)
54	Development of a Small Aircraft Runway Length Analysis Tool

ACRP WEBRESOURCES

11	Construction Safety and Phasing Plans
12	Air Service Development and Regional Economic Activity (and WOD 53)
13	Airside Planning, Design, Construction, Operations and Maintenance

ACRP CONFERENCE PROCEEDINGS ON THE WEB

29	The Future of Aviation: Proceedings of an ACRP Insight Event
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Behavioral Traffic Safety Cooperative Research Program (BTSCRCP)²

BTSCRCP RESEARCH REPORTS

- 1 Using Electronic Devices While Driving: Legislation and Enforcement Implications
- 2 Framework for Assessing Potential Safety Impacts of Automated Driving Systems (joint with NCHRP Research Report 1001)
- 3 Behavioral Traffic Safety Messaging on Variable Message Signs

BTSCRCP WEB-ONLY DOCUMENTS

- 1 Influence of Infrastructure Design on Distracted Driving
- 2 Development of Research Problem Statements That Utilize Naturalistic Driving Data to Improve Teen Driving Safety
- 3 Developing Employer-Based Behavioral Traffic Safety Programs for Drivers in the Workplace (and WebResource 1)

BTSCRCP RESEARCH RESULTS DIGEST

- 1 E-Scooter Safety: Issues and Solutions

BTSCRCP WEBRESOURCES

- 1 Tool for Employer-Based Behavioral Traffic Safety Programs (and WOD 3)

National Cooperative Highway Research Program (NCHRP)³

NCHRP RESEARCH REPORTS

- 969 Traffic Signal Control Strategies for Pedestrians and Bicyclists
- 972 Development of Safety Performance-Based Guidelines for the Roadside Design Guide
- 977 Access Management in the Vicinity of Interchanges
 - Volume 1: Practitioner’s Guide
 - Volume 2: Research Overview
- 979 Systematic Approach for Determining Construction Contract Time: A Guidebook (and WOD 298)
- 981 Guidelines for Quantifying Benefits of Traffic Incident Management Strategies (and WOD 301)
- 982 Relationships Between the Fatigue Properties of Asphalt Binders and the Fatigue Performance of Asphalt Mixtures
- 985 Integrating Effective Transportation Performance, Risk, and Asset Management Practices
- 986 Implementation of the AASHTO Guide for Enterprise Risk Management
- 987 Ruggedness of Laboratory Tests for Asphalt Mixture Cracking Resistance
- 988 Rural Transportation Issues: Research Roadmap
- 989 Reliability-Based Geotechnical Resistance Factors for Axially Loaded Micropiles
- 990 Guidebook for Effective Policies and Practices for Managing Surface Transportation Debt
- 991 Guidelines for the Development and Application of Crash Modification Factors
- 992 Guide to Pedestrian Analysis (and WOD 312)
- 993 Managing Performance to Enhance Decision-Making: Making Targets Matter (and WOD 317)

- 994 Use of 0.7-in. Diameter Strands in Precast Pretensioned Girders (and WOD 315)
- 995 Guidelines for Treatments to Mitigate Opposite Direction Crashes
- 996 Selection and Placement Guidelines for Test Level 2 Through Test Level 5 Median Barriers
- 997 Algorithms to Convert Basic Safety Messages into Traffic Measures
- 998 Planning Freight-Efficient Land Uses: Methodology, Strategies, and Tools
- 999 Design and Construction of Deck Bulb Tee Girder Bridges with UHPC Connections
- 1000 Accessibility Measures in Practice: A Guide for Transportation Agencies
- 1001 Framework for Assessing Potential Safety Impacts of Automated Driving Systems (joint with BTSCRCP Research Report 2)
- 1002 Metropolitan Planning Organizations: Strategies for Future Success
- 1003 Guide to Alternative Technologies for Preventing and Mitigating Vehicle Intrusions into Highway Work Zones (and WOD 322)
- 1004 Federal Funding Uncertainty in State, Local, and Regional Departments of Transportation: Impacts, Responses, and Adaptations
- 1005 Motorcycle Crashes into Traffic Barriers: Factors Related to Serious and Fatal Injuries (and WOD 327)
- 1006 Guide to Understanding Effects of Raising Speed Limits (and WOD 328)
- 1007 Evaluation of Bonded Concrete Overlays on Asphalt Pavements
- 1008 Attracting, Retaining, and Developing the 2030 Transportation Workforce: Design, Construction, and Maintenance
- 1009 Shared Automated Vehicle Toolkit: Policies and Planning Considerations for Implementation (and WOD 331)
- 1010 In-Service Performance Evaluation: Guidelines for the Assembly and Analysis of Data (and WOD 332)
- 1011 Watershed Approach to Mitigating Hydrologic Impacts of Transportation Projects: Guide (and WOD 333)
- 1013 Roadside Barrier Designs near Bridge Rail Ends with Restricted Rights-of-Way: A Guide (and WOD 334)
- 1015 Performance Criteria for Retroreflective Pavement Markers
- 1016 Design Guidelines for Mitigating Collisions with Trees and Utility Poles (and WOD 336)
- 1018 Zone of Intrusion Envelopes Under MASH Impact Conditions for Rigid Barrier Attachments
- 1019 Quantifying the Effects of Implements of Husbandry on Pavements (and WOD 338)
- 1020 Investigation of Material Requirements for Highway Guardrail Systems
- 1021 Application of Dynamic Lane-Use Control: Proposed Practices
- 1022 Context Classification Application: A Guide
- 1023 Federal Funding Flexibility: Use of Federal Aid Highway Fund Transfers by State DOTs
- 1024 Evaluation of Bridge Rail Systems to Confirm AASHTO MASH Compliance

1025	Contingency Factors to Account for Risk in Early Construction Cost Estimates for Transportation Infrastructure Projects	308	Methods for State DOTs to Reduce Greenhouse Gas Emissions from the Transportation Sector (and WebResource 1)
NCHRP SYNTHESSES			
571	Load Rating of Bridges and Culverts with Missing or Incomplete As-Built Information	312	Enhancing Pedestrian Volume Estimation and Developing HCM Pedestrian Methodologies for Safe and Sustainable Communities (and Research Report 992)
578	Use of Unmanned Aircraft Systems for Highway Construction	315	Details of the Study on the Use of 0.7-in Diameter Strands in Precast Pretensioned Girders (and Research Report 994)
579	Subsurface Drainage Practices in Pavement Design, Construction, and Maintenance	316	Human Factors Guidelines for Road Systems: 2021 Update <ul style="list-style-type: none"> • Volume 1: Updated and New Chapters • Volume 2: Conduct of Research Report
580	Practices for Ensuring the Smoothness of Concrete Bridge Decks	317	Developing a Guide for Managing Performance to Enhance Decision-Making (and Research Report 993)
581	Rehabilitation of Culverts and Buried Storm Drain Pipes	318	Safety Prediction Models for Six-Lane and One-Way Urban and Suburban Arterials
582	Highway Infrastructure Inspection Practices for the Digital Age	319	Roadside Safety Analysis Program (RSAP) Update
583	Implementation of Subsurface Utility Engineering for Highway Design and Construction	320	Aligning Geometric Design with Roadway Context
584	Visualization of Highway Performance Measures	321	Command-Level Decision Making for Transportation Emergency Managers (joint with TCRP WOD 75 and ACRP WOD 52)
585	Bridge Element Data Collection and Use	322	Alternative Technologies for Mitigating the Risk of Injuries and Deaths in Work Zones: Conduct of Research (and Research Report 1003)
586	Use of Recycling Agents in Asphalt Concrete Mixtures	323	<i>Highway Safety Manual</i> User Guide
587	Use of Smart Work Zone Technologies for Improving Work Zone Safety	324	Guide to Implementation of the Toward Zero Deaths National Strategy on Highway Safety
588	Design Practices for Rock Slopes and Rockfall Management	325	Consideration of Roadside Features in the <i>Highway Safety Manual</i>
589	Automated Data Collection and Quality Management for Pavement Condition Reporting	326	Design Guidelines for Test Level 3 Through Test Level 5 Roadside Barrier Systems Placed on Mechanically Stabilized Earth Retaining Walls
590	Agency Use of Quality Control Plans for Administering Quality Assurance Specifications	327	Serious and Fatal Motorcycle Crashes into Traffic Barriers: Injury Information (and Research Report 1005)
591	Use of Safety Management Systems in Managing Highway Maintenance Worker Safety	328	Safety Effects of Raising Speed Limits to 75 mph and Higher (and Research Report 1006)
592	Practices for Balancing Safety Investments in a Comprehensive Safety Program	329	Bonded Concrete Overlays on Asphalt Pavements: Resources for Evaluation (and Research Report 1007)
593	3D Digital Models as Highway Construction Contract Documents	330	Accessibility Measures in Practice (and Research Report 1000)
594	Technological Capabilities of Departments of Transportation for Digital Project Management and Delivery	331	Mobility on Demand and Automated Driving Systems: A Framework for Public-Sector Assessment (and Research Report 1009)
595	Practices for Assessing and Mitigating the Moisture Susceptibility of Asphalt Pavements	332	Multi-State In-Service Performance Evaluations of Roadside Safety Hardware (and Research Report 1010)
596	Measuring Investments in Active Transportation When Accomplished as Part of Other Projects	333	Watershed Approach to Mitigating Hydrologic Impacts of Transportation Projects (and Research Report 1011)
597	Micromobility Policies, Permits, and Practices	334	Roadside Barrier Designs near Bridge Rail Ends with Restricted Rights-of-Way: A National Survey and Testing Reports (and Research Report 1013)
NCHRP RESEARCH RESULTS DIGESTS			
403	Program Management Insights for the Section 5310 Program, Including Subrecipient Consolidation and Urban 5310	335	A Guide to Computation and Use of System-Level Valuation of Transportation Assets
NCHRP LEGAL RESEARCH DIGESTS			
85	Public Liabilities Relating to Driveway Permits	336	Proposed Guidelines for Fixed Objects in the <i>Roadside Design Guide</i> (and Research Report 1016)
86	Managing Enhanced Risk in the Mega Project Era	338	Quantifying the Effects of Implements of Husbandry on Pavements: Appendices (and Research Report 1019)
87	Encampments of Unhoused Individuals in Transportation Rights-of-Way: Laws and State DOT Practices	340	Dynamic Curbside Management: Keeping Pace with New and Emerging Mobility and Technology in the Public Right-of-Way
88	Consequential Damages Provisions in Construction Contracts: Legal Issues		
NCHRP WEB-ONLY DOCUMENTS			
298	Developing a Systematic Approach for Determining Construction Contract Time (and Research Report 979)		
301	Development of Guidelines on Quantifying Benefits of Traffic Incident Management Strategies (and Research Report 981)		

- 346 Programmatic Issues of Future System Performance
- 349 Virtual Public Involvement: Lessons from the COVID-19 Pandemic

NCHRP WEBRESOURCES

- 1 Reducing Greenhouse Gas Emissions: A Guide for State DOTs (and WOD 308)

Transit Cooperative Research Program (TCRP) (online)

TCRP RESEARCH REPORTS

- 231 Recent Decline in Public Transportation Ridership: Analysis, Causes, and Responses (and WOD 74)
- 232 The Impacts of Vehicle Automation on the Public Transportation Workforce
- 233 Strategies for Deterring Trespassing on Rail Transit and Commuter Rail Rights-of-Way
 - Volume 1: Guidebook
 - Volume 2: Research Overview
- 234 Measuring and Managing Fare Evasion
- 235 Improving Access and Management of Public Transit ITS Data
- 236 Racial Equity, Black America, and Public Transportation, Volume 1: A Review of Economic, Health, and Social Impacts

TCRP SYNTHESSES

- 156 Uses of Social Media in Public Transportation
- 158 Cybersecurity in Transit Systems
- 159 Assessing Equity and Identifying Impacts Associated with Bus Network Redesigns
- 160 Fare Capping: Balancing Revenue and Equity Impacts
- 161 ADA Paratransit and Other Demand-Responsive Transportation Services in Small to Midsized Transit Agencies

- 162 Coordination of Public Transit Services and Investments with Affordable Housing Policies
- 163 Considering the Unbanked in Cashless Fare Payment at Point of Service for Bus/Demand-Response Services
- 164 Bus Rapid Transit: Current State of Practice

TCRP LEGAL RESEARCH DIGESTS

- 58 Policing and Public Transportation
- 59 Legal Issues and Emerging Technologies

TCRP WEB-ONLY DOCUMENTS

- 74 Recent Decline in Public Transportation Ridership: Hypotheses, Methodologies, and Detailed City-by-City Results (and Research Report 231)
- 75 Command-Level Decision Making for Transportation Emergency Managers (joint with NCHRP WOD 321 and ACRP WOD 52)

CRP Special Releases

TRB-FHWA Program Evaluation

- 1 Evaluation of the Asphalt Binder Quality Tester
- 2 Evaluation of the Exploratory Advanced Research Program
- 3 Evaluation of Ultra-High Performance Concrete Connections

1 Available in print and online.

2 Entire series available in print and online.

3 Publications released since 2001 available in print and online.

APPENDIX E ■ TRB Staff

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