TRB Snap Search: Innovation

TRB’s involvement in research on Innovation from 2022-2023

The Transportation Research Board (TRB) provides innovative, research-based solutions to improve how we move. TRB is part of the National Academies of Sciences, Engineering, and Medicine, an independent, non-profit institution that provides objective advice on scientific, engineering, and medical issues.

A resource to the nation and to the transportation community worldwide, TRB provides an extensive portfolio of services:
- Opportunities for information exchange on current transportation research and practice
- Management of cooperative research and other research programs
- Analyses of national transportation policy issues and guidance on federal and other research programs
- Publications and access to research information from around the world

All available Snap Searches can be accessed online here: http://www.trb.org/InformationServices/Snap.aspx

TRB Research

TRID – The world’s largest and most comprehensive bibliographic source on all modes and disciplines of transportation
- Click here to view search results on TRB published research on Innovation in the past year.

Specialty Reports
- Critical Issues in Transportation for 2024 and Beyond
- Critical Issues in Transportation 2019
- COVID-19 Addendum to Critical Issues in Transportation
- Racial Equity Addendum to Critical Issues in Transportation

Recent Reports & Publications
- Airport Cooperative Research Program (ACRP)
  - Report 252 - Airport Baggage Handling System Decision-Making Based on Total Cost of Ownership
  - Report 246 - Airside Operations Safety: Understanding the Effects of Human Factors
  - Report 241 - Toward a Touchless Airport Journey
  - Synthesis 120 - Airport Software Solutions and Services Sourcing
  - WebResource 11 - Construction Safety and Phasing Plans
- CRP Special Release (CRP)
  - Report 1 - Evaluation of the Asphalt Binder Quality Tester
- Innovations Deserving Exploratory Analysis (IDEA)
  - Safety Report 45 - Development of a Fatigue Load for Railway Bridges
  - Safety Report 44 - Laser-Based Non-destructive Spike Defect Inspection System
  - Safety Report 43 - Augmenting Reality for Safer Inspections of Railroad Infrastructure and Operations
  - Safety Report 42 - Railroad Tunnel Inspections for Maintenance and Replacement Prioritization Using Untethered Ground Penetrating Radar and LIDAR Capable Unmanned Aerial Vehicles (UAVs)
  - Safety Report 39 - Non-Contact Scour Monitoring System for Railroad Bridges
  - Safety Report 38 - Minimization of Weld Failures by Means of Gas and Shrinkage Porosity Reduction
  - Safety Report 37 - Measuring Behavior of Railroad Bridges under Revenue Traffic using Lasers and Unmanned Aerial Vehicles (UAVs) for Safer Operations: Implementation
- National Cooperative Highway Research Program (NCHRP)
  - IDEA Report 234 - Field Test and Evaluation of a Solar Snow Fence
  - IDEA Report 228 - A Retroreflective Road Lane Marking Tape 1,000X Brighter than Existing Technology
  - IDEA Report 225 - An Automated System for Large-Scale Intersection Marking Data Collection and Condition Assessment
- Fatigue Crack Inspection Using Computer Vision and Augmented Reality
- Development of Three Point Bending Cylinder (3PBC) Asphalt Mixture Fatigue Test System
- A Real-Time Proactive Intersection Safety Monitoring and Visualization System Based on Radar Sensor Data
- Achieving Resilient Multi-Span Bridge by using Buckling-Restrained Braces
- Material Characteristics of Cu-Based Superelastic Alloys for Applications in Bridge Columns to Improve Seismic Performance
- MILDGLASS: GFRP Strand for Resilient Mild Pre-Stressed Concrete
- Rule-Based Automated Safety Monitoring System for Work Zone Safety
- Bio-Inspired "MRI" of Concrete Bridges using Waveform-Based Ultrasonic Tomography
- Smart Installation and Monitoring System for Large Anchor Bolts of Support Structures Made with 3D Printing Enhancement
- Self-de-icing LED Signals for Railroads and Highway Intersections
- Telecommuting, Remote Work, and Hybrid Schedules: Managing the Shift to a Flexible Work Future
- Preparing Transportation Agencies for Connected and Automated Vehicles in Work Zones
- Nondestructive Evaluation of Highway System Asset Foundational Condition and Capability
- Risk-Based Construction Inspection: A Guide
- Reducing Risks to Worker Safety in Work Zones Due to Distracted Drivers
- State and Local Impacts of Automated Freight Transportation Systems
- Evaluation of Bonded Concrete Overlays on Asphalt Pavements
- Metropolitan Planning Organizations: Strategies for Future Success
- Planning Freight-Efficient Land Uses: Methodology, Strategies, and Tools
- Guide to Pedestrian Analysis
- Using Social Media Data for Emergency Preparedness and Response
- Use of Unmanned Aerial Systems for Inspection of Stormwater Best Management Practices
- Use of Smart Work Zone Technologies for Improving Work Zone Safety
- Bonded Concrete Overlays on Asphalt Pavements: Resources for Evaluation
- Alternative Technologies for Mitigating the Risk of Injuries and Deaths in Work Zones: Conduct of Research

Transit Cooperative Research Program (TCRP)
- Citopia MaaS/Multimodal Transit
- TrainMate Robotic System: Making Public Transportation, Public!
- Bike Love
- Safety Assessment of the Interaction Between the Autonomous Shuttle Bus and Vulnerable Road Users
- Legal Issues in Transit Mega Projects--Case Studies
- Legal Issues and Emerging Technologies
- Bus Operator Workforce Management: Practitioner’s Guide
- Quantitative Procedures for Designing and Operating Ferry Services
- Improving Access and Management of Public Transit ITS Data
- Strategies for Deterring Trespassing on Rail Transit and Commuter Rail Rights-of-Way, Volume 2: Research Overview

Transportation Research Circulars
- Building Information Modeling for Bridges and Structures: From Design to Construction Workshop
- Advancing Low- and Zero-Emission Marine Vessel Technology Options Workshop
- Innovations in Freight Data Workshop
- 13th National Conference on Transportation Asset Management

Current & Upcoming Projects

Current Projects
- Airport Blockchain Implementation Guidebook
- A Guide to Developing a Culture of Innovation at Airports
- Improving Airport Organizational Practices to Enhance ACDBE/DBE Participation
- Update to the Guidelines, Tools, and Resources Related to ACRP Reports 11, 147, and 160
- Effective Collaboration to Plan and Respond to Communicable Disease Threats
- Modernizing Air Cargo Operations and Infrastructure at U.S. Airports
- Incorporating Technologies into Airport In-Terminal Concession Programs
ACRP 03-73 - Airport Guide for Transitioning to Unleaded Aviation Gasoline
ACRP 03-74 - ACRP Web Resource for Airport User Choice Modeling and Analysis
ACRP 04-25 - Airports and Communicable Diseases—Preparedness and Response
ACRP 04-32 - Using Existing and Emerging Technologies to Identify and Mitigate Human Trafficking at Airports
ACRP 05-03 - Guidebook on Airport Cybersecurity and Incident Response
ACRP 07-17 - Update to ACRP Report 40: Airport Roadway Analysis and Curbside Congestion Management Strategies
ACRP 07-21 - Exploring Cellular-Based Private Wireless Networks for the U.S. Aviation Industry
ACRP 10-32 - U.S. Airport Industry Adoption of Automated Ground Vehicle Systems
ACRP 11-02/Task 37 - Periodic Report on Transformative Technology at Airports
ACRP Synthesis 11-03/Topic S02-22 - Airport Programs that Reduce Landside Vehicle Carbon Emissions
ACRP Synthesis 11-03/Topic S03-18 – Communication, Implementation, and Outcomes of Airport Economic Impact Studies
ACRP Synthesis 11-03/Topic S06-07 - Impacts of COVID to Airport Work Models and Strategies
BTSCR P BTS-06 - MPO and SHSO Coordination on Behavioral Traffic Safety
BTSCR P BTS-12 - State Practices Promoting Older Driver Safety
BTSCR P BTS-14 - Informing the Selection of Countermeasures by Evaluating, Analyzing, and Diagnosing Contributing Factors that Lead to Crashes
BTSCR P BTS-15 - Highway Safety Strategies for Rural Communities
BTSCR P BTS-20 - Strategies to Address Misreporting of Impaired and Distracted Driving in Motor Vehicle Crashes
BTSCR P BTS-22 - Guidelines for Selecting Communication Channels to Deliver Traffic Safety Messaging
BTSCR P BTS-26 - Advanced Driver Assistance Systems (ADAS) Education and Outreach
NCHRP 03-128 - Business Intelligence Techniques for Transportation Agency Decision Making
NCHRP 03-135 - Wrong-Way Driving Solutions, Policy, and Guidance
NCHRP 03-140 - Guidelines for Applications of RFID and Wireless Technologies in Highway Construction and Asset Management
NCHRP 03-142 - Evaluating the Impacts of Real-Time Warnings and Variable Speed Limits on Safety and Travel Reliability during Weather Events
NCHRP 03-144 - Leveraging Existing Traffic Signal Assets to Obtain Quality Traffic Counts and Enhance Transportation Monitoring Programs
NCHRP 05-22A - Gaps and Emerging Technologies in the Application of Solid-State Roadway Lighting
NCHRP 08-127 - Emerging Issues: Impact of New Disruptive Technologies on the Performance of DOTs
NCHRP 08-130 - Best Practices in Coordination of Public Transit and Ride Sharing
NCHRP 08-136 - Guidebook on Using Performance-Based Management Approaches for Maintenance
NCHRP 08-139 - Guide for Preventing and Mitigating the Risk of Bridge and Tunnel Strikes by Motor Vehicles
NCHRP 08-142 - Virtual Public Involvement: A Manual for Effective, Equitable, and Efficient Practices for Transportation Agencies
NCHRP 08-151 - Risk Management at State DOTs: Building Momentum and Sustaining the Practice
NCHRP 08-155 - Handbook for Addressing Racial Disparities in the Project Delivery Process
NCHRP 08-157 - Best Practices for Data Fusion of Probe and Point Detector Data
NCHRP 09-69 - Verifying Quantities of Materials Used in Asphalt Mixtures at Production Facilities
NCHRP 10-109 - Modern Solutions to Safe and Efficient Work Zone Travel
NCHRP 10-112 - Guidelines for Digital Technologies and Systems for Remote Construction Inspection for Highway Infrastructure Projects
NCHRP 10-12 - Guidelines for Digital Technologies and Systems for Remote Construction Inspection for Highway Infrastructure Projects
NCHRP 14-36(01) - Implementation of Bridge Preservation Actions
NCHRP 14-45 - Guidelines for Response Planning, Assessment, and Rapid Restoration of Service of Bridges in Extreme Events
NCHRP 14-47 - Tools and Technology for Roadside Landscape Asset Management
NCHRP 15-69 - Utility Conflict Impacts During Highway Construction
NCHRP 15-81 - Guideline for Depicting Existing and Proposed Utility Facilities in Design Plans
NCHRP 17-99 - Assessing Safety Effectiveness of Treatments and Technologies at Highway-Rail Grade Crossings
NCHRP 19-18 - Transitioning Fuel Tax Assessments to a Road Usage Charge
NCHRP 20-06/Topic 26-03 - Multistate Coordination and Harmonization for AV Legislation
NCHRP 20-24(138) - Collective and Individual Actions for State Departments of Transportation Envisioning and Realizing the Next Era of America’s Transportation Infrastructure – Phase I
NCHRP 20-44(34) - Successful Practices for State Transportation Research Office’s Complying with 2 CFR § 200 (NCHRP 20-111J)
- Consultant Support for Implementation of Guidebook for Managing Data from Emerging Technologies
- Program Management Insights for the 5310 Program (Including Sub-Grantee Consolidation and Urban 5310)
- Best Practices in Rural Service Assessment
- Realistic Timing Estimates for Automated Vehicle Implementation
- Toolbox for Navigating the Land-Use Impacts of the Automated Vehicle Ecosystem
- Support for AASHTO Committees and Councils
- System Mobility and Emerging Technologies (SMET): Strategic Planning Session and Research Roadmap Development
- Business Case and Communications Strategies for State DOT Resilience Efforts
- Emergency Response: Organizational and Operational Models Used by State DOTs
- Transportation Agency Data Collection Practice for Use with In-Service Performance Evaluations (ISPEs)
- Informing the Selection of Countermeasures by Evaluating, Analyzing, and Diagnosing Contributing Factors that Lead to Crashes
- Delineation of Linear Roadside Hardware Systems and Roadside Obstacles
- Transportation Emergency Management and Security Summit and Exchange
- Guidance on Risks Related to Emerging and Disruptive Transportation Technologies
- Implementing and Leveraging Machine Learning at State Departments of Transportation
- Practices for Transportation Agency Procurement and Management of Advanced Technologies
- Data Governance Design and Implementation - Links Between Governance Approaches and Performance Effects in DOTs
- Development of On-Bridge Stormwater Treatment Practices
- Preparing Successful No-Effect and No-Adverse-Effect Section 106 Determinations: A Handbook for Transportation Cultural Resource Practitioners
- Practices to Identify and Mitigate PFAS Impacts on Highway Construction Projects and Maintenance Operations
- Outsourcing Post-Construction Stormwater Best Management Practice Inspection and Maintenance Activities
- State DOT Innovation Programs and Practices
- Development of an Automated and Rapid Conditioning and Testing Device for Cracking and Rutting
- An Automated System for Large-Scale Intersection Marking Data Collection and Condition Assessment
- A Smart IoT Proximity Alert System for Highway Work Zone Safety
- Adjustable Cross-frames for the Erection of Steel Girder Bridges
- Lab Dielectric Measurement System for Asphalt Mixture Bulk Specific Gravity Determination
- AI Analyzer for Revealing Insights of Traffic Crashes
- Development of an Innovative Bio-Mediated Self-Healing Concrete Technology
- Simple and Rapid Tests for Assessing Quality and Consistency of Reclaimed Asphalt Pavement (RAP) for Recycled Asphalt Mixture Applications
- Impact of Transformational Technologies on Underserved Populations
- The Provision of Alternative Services by Transit Agencies: The Intersection of Regulation and Program Objectives
- Accessible Public Bus and Rail Passenger Information for Riders with Vision Disabilities
- Bus Operator Barrier Design
- Detecting and Mitigating Low-Level DC Fault Currents in Transit Systems (Phase II TCRP Project D-17)
- Navigating the Complexities of Sensitive Security Information (SSI) and Protected Critical Infrastructure Information (PCI)
- Legal Issues in Transit Mega Projects—Case Studies
- Homelessness: A Guide for Public Transportation
- Evaluation of FHWA's Every Day Counts Program
- Evaluation of FHWA's Initiative on Integrating NEPA and Permitting

- Upcoming Projects
- A Guide for Methods to Transition and Decontaminate PFAS from Firefighting Systems
- Best Practices for Building and Improving an Aircraft Rescue and Firefighting Program
- ACRP 09-22 - Guidance for Small Airports on Safe Maintenance of Airfield Electrical Systems
- NCHRP 03-146 - Guide for Transportation Operations Manual Implementation
- NCHRP 03-148 - Preparing for Virtual Operation of Traffic Management Systems
- NCHRP 05-27 - Guide for Lighting at Innovative Intersections/Interchanges, including Roundabouts
- NCHRP 07-31 - State DOT and Tribal Use of Active Transportation Data: Practices, Sources, Needs, and Gaps
- NCHRP 08-128 - Snapshots of Planning Practices
- NCHRP 08-143 - Guide to the Application of Spatial Segmentation on Travel Time Reliability Measures
- NCHRP 08-144 - Rural Transit Fleet Mix and Vehicle Size Decision Trees
- NCHRP 08-153 - A Guide for the Development and Use of Truck Traffic Forecasts in Design
- NCHRP 08-156 - Planning for Innovative and Emerging Mobility Futures at Intermodal Passenger Facilities
- NCHRP 08-158 - A Compendium for Communicating the Value of Freight and Community Interactions
- NCHRP 08-165 - Use of Active Transportation Data in Decision-Making
- NCHRP 10-115 - Guide on Progressive Design-Build for Transportation Projects
- NCHRP 15-79 - Development of Guidance for Non-Standard Roadside Hardware Installations
- NCHRP 17-121 - Using Advanced Technologies to Reduce Commercial Motor Vehicle Crashes in Work Zones
- NCHRP 20-24(147) - Identify Best Practices for Automated Driving Systems and Other Emerging Technologies
- NCHRP 20-102(20) - Preparing the Transportation Workforce for the Deployment of Emerging Technology
- NCHRP 20-102(33) - A Guide to Enhancing the Safety of Vulnerable Road Users in a CAV Future
- NCHRP 20-123(16) - Support for AASHTO Committees and Councils. Roadmap for the Transformation to Computer Simulation-Based Assessment of Bridge Railings
- NCHRP 20-129 - Guide for Addressing Encampments on State Transportation Rights-of-Way
- NCHRP 25-67 - Guide to Mitigation of Adverse Effects on Cultural Resources
- TCRP A-49 - Fare Policies, Structures, and Technologies -- 2022 Updates
- TCRP A-51 - Innovative Practices for Technology Implementation at Rural, Small, and Mid-Sized Transit Agencies
- TCRP F-31 - Modernizing Transit Station Staffing Management
- TCRP I-05/Topic 20-02 - Liability Insurance Issues for Transit Lawyers: A Primer
- TCRP I-11/Task 47 - Quick-Response Research on Long-Term Strategic Issues. Task 47. Affordable Housing and Transit
- TRB/AAMVA 19-01 - RFQ: Demographic and Technological Trends Impacting the DMV of the Future

Reports from the National Academies Press on Innovation

- Toward Equitable Innovation in Health and Medicine
- Review of the SBIR and STTR Programs at the National Science Foundation
- Infusing Advanced Manufacturing into Undergraduate Engineering Education
- NSF Efforts to Achieve the Nation’s Vision for the Materials Genome Initiative: Designing Materials to Revolutionize and Engineer Our Future (DMREF)
- Carbon Dioxide Utilization Markets and Infrastructure: Status and Opportunities: A First Report
- Wastewater-based Disease Surveillance for Public Health Action
- Innovation, Global Value Chains, and Globalization Measurement
- Human-AI Teaming: State-of-the-Art and Research Needs
- Innovative Data Science Approaches to Identify Individuals, Populations, and Communities at High Risk for Suicide
- Innovation in Electronic Health Records for Oncology Care, Research, and Surveillance
- Catalyzing Innovative Health System Transformation
- Innovation in Cancer Care and Cancer Research in the Context of the COVID-19 Pandemic

Committees & Panels

Sign-up to be a committee "Friend"

TRB Standing Committees – Search by transportation mode and committee topic

- AED20 - Urban Transportation Data and Information Systems
- AED60 - Visualization in Transportation
- AJE35 - Research Innovation Implementation Management
- AJE50 - Economics and Finance
- AL40 - Emerging Technology Law
- AKB10 - Innovative Highway Structures and Appurtenances
Panels
- **D08130** - Best Practices in Coordination of Public Transit and Ride Sharing
- **D08144** - Rural Transit Fleet Mix and Vehicle Size Decision Trees
- **D08157** - Best Practices for Data Fusion of Probe and Point Detector Data
- **D2007424** - Best Practices for the Operations of Movable Bridges from Remote Locations
- **D2010228** - Best Practices in Work Zones for AVs and CVs
- **D2030** - IDEA (Innovations Deserving Exploratory Analysis)
- **DA0146** - Geospatial Data Governance—Organizational Factors and Best Practices
- **DA0147** - Guide to Airport Innovation--Creating an Organizational Fit for the Future
- **DA0344** - Best Practices in Building Air Service through Incentive Programs
- **DB022** - Effectiveness of Different Forms of Innovative Traffic Safety Messaging
- **DTFPE05** - Evaluation of FHWA’s Every Day Counts Innovation Integrating NEPA and Permitting
- **E0005A** - Preparing for Automated Vehicles and Shared Mobility
- **E1008** - Rail Safety Innovations Deserving Exploratory Analysis
- **SN5417** - State DOT Innovation Programs and Practices
- **TD21** - Planning for Innovation & Emerging Mobility Futures at Intermodal Passenger Facilities
- **TI04** - Transit-Innovations Deserving Exploratory Analysis (IDEA)
- **TI1135** - Diversity and Inclusion Plans, Policies and Best Practices in the Transportation Industry
- **X0014** - AASHTO Special Committee on Research and Innovation

Councils
- **A001C** – Young Members Coordinating Council

Recent and Upcoming Events

**Upcoming TRB Conferences** – Use left hand menu to filter events

- **Innovations in Freight Data Workshop**
  
  *Sept 19-21, 2023*  
  *Washington, D.C.*

**Upcoming Events** – In the Upcoming Events tab under Types, choose what event you are interested in, search titles by keyword

**Past Events** - In the Past Events tab under Types, choose what event you are interested in, search titles by keyword

- **International Conference on Road Weather and Winter Maintenance**
  *May 9-10, 2023*  
  *Washington, D.C.*

- **National Aviation System Planning Symposium**
  *May 15-18, 2023*  
  *Irving, CA*

- **Innovations in Travel Analysis and Planning Conference**
  *June 4-6, 2023*  
  *Indianapolis, IN*

- **Marine Transportation System Innovative Science and Technologies Toward Greater Sustainability**
  *June 19-22, 2023*  
  *Washington, D.C.*

- **National Conference on Transportation Asset Management**
  *July 8-11, 2023*  
  *Boston, MA*

- **TRB International Conference on Low Volume Roads**
TRB’s Transportation Research Information Services (TRIS)

TRIS includes the TRB Library and the TRIS Databases (listed below) which are available free on TRB’s website. The TRB Library provides information services to TRB staff, sponsors, TRB Committee members and panels and researchers. Access to the TRB Library is a benefit to TRB sponsors and TRB committee members. In cooperation with your State DOT Library or Information Service, the TRB Library provides:

- Reference and research assistance
- Literature searches
- Articles for TRB Committee work

The TRB Library provides training on effective and efficient use of the following TRIS resources:

- Transportation Research International Documentation (TRID) – trid.trb.org - The world's largest and most comprehensive bibliographic source on all modes and disciplines of transportation
- Transportation Research Thesaurus (TRT) – trt.trb.org - A tool to improve the indexing and retrieval of transportation information.
- Research in Progress (RiP) Database – rip.trb.org - Current or recently completed transportation research projects
- Publications Index (PubsIndex) Database – pubsindex.trb.org - The papers, articles and reports published by the Transportation Research Board, Strategic Highway Research Programs or the Marine Board

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