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 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
  - IDEA Report 223 - Fatigue Crack Inspection Using Computer Vision and Augmented Reality
• IDEA Report 218 - Development of Three Point Bending Cylinder (3PBC) Asphalt Mixture Fatigue Test System
• IDEA Report 217 - A Real-Time Proactive Intersection Safety Monitoring and Visualization System Based on Radar Sensor Data
• IDEA 215 - Achieving Resilient Multi-Span Bridge by using Buckling-Restrained Braces
• IDEA Report 210 - Material Characteristics of Cu-Based Superelastic Alloys for Applications in Bridge Columns to Improve Seismic Performance
• IDEA Report 207 - MILDGLASS: GFRP Strand for Resilient Mild Pre-Stressed Concrete
• IDEA Report 206 - Rule-Based Automated Safety Monitoring System for Work Zone Safety
• IDEA Report 205-A - Bio-Inspired "MRI" of Concrete Bridges using Waveform-Based Ultrasonic Tomography
• IDEA Report 196 - Smart Installation and Monitoring System for Large Anchor Bolts of Support Structures Made with 3D Printing Enhancement
• IDEA Report 190 - Self-de-icing LED Signals for Railroads and Highway Intersections
• Report 1072 - Telecommuting, Remote Work, and Hybrid Schedules: Managing the Shift to a Flexible Work Future
• Report 1051 - Preparing Transportation Agencies for Connected and Automated Vehicles in Work Zones
• Report 1041 - Nondestructive Evaluation of Highway System Asset Foundational Condition and Capability
• Report 1039 - Risk-Based Construction Inspection: A Guide
• Report 1037 - Reducing Risks to Worker Safety in Work Zones Due to Distracted Drivers
• Report 1028 - State and Local Impacts of Automated Freight Transportation Systems
• Report 1007 - Evaluation of Bonded Concrete Overlays on Asphalt Pavements
• Report 1002 - Metropolitan Planning Organizations: Strategies for Future Success
• Report 998 - Planning Freight-Efficient Land Uses: Methodology, Strategies, and Tools
• Report 992 - Guide to Pedestrian Analysis
• Synthesis 610 - Leveraging Social Media Data for Emergency Preparedness and Response
• Synthesis 609 - Use of Unmanned Aerial Systems for Inspection of Stormwater Best Management Practices
• Synthesis 587 - Use of Smart Work Zone Technologies for Improving Work Zone Safety
• Web-Only Document 329 - Bonded Concrete Overlays on Asphalt Pavements: Resources for Evaluation
• Web-Only Document 322 - Alternative Technologies for Mitigating the Risk of Injuries and Deaths in Work Zones: Conduct of Research

• Transit Cooperative Research Program (TCRP)
  • IDEA Report 101 - Citopia MaaS/Multimodal Transit
  • IDEA Report 100 - TrainMate Robotic System: Making Public Transportation, Public!
  • IDEA Report 99 - Bike Love
  • IDEA Report 98 - Safety Assessment of the Interaction Between the Autonomous Shuttle Bus and Vulnerable Road Users
  • Research Digest 60 - Legal Issues in Transit Mega Projects--Case Studies
  • Legal Research Digest 59 - Legal Issues and Emerging Technologies
  • Report 238 - Quantitative Procedures for Designing and Operating Ferry Services
  • Report 235 - Improving Access and Management of Public Transit ITS Data
  • Report 233 - Strategies for Deterring Trespassing on Rail Transit and Commuter Rail Rights-of-Way, Volume 2: Research Overview

• Transportation Research Circulars
  • E-Circular 282 - Building Information Modeling for Bridges and Structures: From Design to Construction Workshop
  • E-Circular 279 - Advancing Low- and Zero-Emission Marine Vessel Technology Options Workshop
  • E-Circular 278 - Innovations in Freight Data Workshop
  • E-Circular 277 - 13th National Conference on Transportation Asset Management

Current & Upcoming Projects

• Current Projects
  • ACRP 01-41 - Airport Blockchain Implementation Guidebook
  • ACRP 01-46 - A Guide for Geospatial Data Governance Policies and Procedures
  • ACRP 01-47 - A Guide to Developing a Culture of Innovation at Airports
  • ACRP 01-51 - Improving Airport Organizational Practices to Enhance ACDBE/DBE Participation
  • ACRP 02-97 - Update to the Guidelines, Tools, and Resources Related to ACRP Reports 11, 147, and 160
  • ACRP 03-49 - Effective Collaboration to Plan and Respond to Communicable Disease Threats
  • ACRP 03-63 - Modernizing Air Cargo Operations and Infrastructure at U.S. Airports
  • ACRP 03-70 - 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 07-21: 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
- BTS@CRP BTS-06: MPO and SHSO Coordination on Behavioral Traffic Safety
- BTS@CRP BTS-12: State Practices Promoting Older Driver Safety
- BTS@CRP BTS-14: Informing the Selection of Countermeasures by Evaluating, Analyzing, and Diagnosing Contributing Factors that Lead to Crashes
- BTS@CRP BTS-15: Highway Safety Strategies for Rural Communities
- BTS@CRP BTS-20: Strategies to Address Misreporting of Impaired and Distracted Driving in Motor Vehicle Crashes
- BTS@CRP BTS-22: Guidelines for Selecting Communication Channels to Deliver Traffic Safety Messaging
- BTS@CRP 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 03-144: 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 08-151: 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(39): Consultant Support for Implementation of Guidebook for Managing Data from Emerging Technologies
- NCHRP 20-65/Task 79 - Program Management Insights for the 5310 Program (Including Sub-Grantee Consolidation and Urban 5310)
- NCHRP 20-65/Task 81 - Best Practices in Rural Service Assessment
- NCHRP 20-102(27) - Realistic Timing Estimates for Automated Vehicle Implementation
- NCHRP 20-102(34) - Toolbox for Navigating the Land-Use Impacts of the Automated Vehicle Ecosystem
- NCHRP 20-123 - Support for AASHTO Committees and Councils
- NCHRP 20-123(12) - System Mobility and Emerging Technologies (SMET): Strategic Planning Session and Research Roadmap Development
- NCHRP 20-127 - Business Case and Communications Strategies for State DOT Resilience Efforts
- NCHRP 20-128 - Emergency Response: Organizational and Operational Models Used by State DOTs
- NCHRP 22-44 - A Transportation Agency Data Collection Practice for Use with In-Service Performance Evaluations (ISPEs)
- NCHRP 22-45 - Informing the Selection of Countermeasures by Evaluating, Analyzing, and Diagnosing Contributing Factors that Lead to Crashes
- NCHRP 22-53 - Delineation of Linear Roadside Hardware Systems and Roadside Obstacles
- NCHRP 23-11 - Transportation Emergency Management and Security Summit and Exchange
- NCHRP 23-15 - Guidance on Risks Related to Emerging and Disruptive Transportation Technologies
- NCHRP 23-16 - Implementing and Leveraging Machine Learning at State Departments of Transportation
- NCHRP 23-19 - Practices for Transportation Agency Procurement and Management of Advanced Technologies
- NCHRP 23-23 - Data Governance Design and Implementation - Links Between Governance Approaches and Performance Effects in DOTs
- NCHRP 25-61 - Development of On-Bridge Stormwater Treatment Practices
- NCHRP Synthesis 20-05/Topic 54-01 - Practices to Identify and Mitigate PFAS Impacts on Highway Construction Projects and Maintenance Operations
- NCHRP Synthesis 20-05/Topic 54-02 - Outsourcing Post-Construction Stormwater Best Management Practice Inspection and Maintenance Activities
- NCHRP Synthesis 20-05/Topic 54-17 - State DOT Innovation Programs and Practices
- NCHRP IDEA 20-30/IDEA 224 - Development of an Automated and Rapid Conditioning and Testing Device for Cracking and Rutting
- NCHRP IDEA 20-30/IDEA 225 - An Automated System for Large-Scale Intersection Marking Data Collection and Condition Assessment
- NCHRP IDEA 20-30/IDEA 226 - A Smart IoT Proximity Alert System for Highway Work Zone Safety
- NCHRP IDEA 20-30/IDEA 227 - Adjustable Cross-frames for the Erection of Steel Girder Bridges
- NCHRP IDEA 20-30/IDEA 229 - Lab Dielectric Measurement System for Asphalt Mixture Bulk Specific Gravity Determination
- NCHRP IDEA 20-30/IDEA 231 - AI Analyzer for Revealing Insights of Traffic Crashes
- NCHRP IDEA 20-30/IDEA 233 - Development of an Innovative Bio-Mediated Self-Healing Concrete Technology
- NCHRP IDEA 20-30/IDEA 245 - Simple and Rapid Tests for Assessing Quality and Consistency of Reclaimed Asphalt Pavement (RAP) for Recycled Asphalt Mixture Applications
- TCRP B-47 - Impact of Transformational Technologies on Underserved Populations
- TCRP B-48 - The Provision of Alternative Services by Transit Agencies: The Intersection of Regulation and Program Objectives
- TCRP B-50 - Accessible Public Bus and Rail Passenger Information for Riders with Vision Disabilities
- TCRP C-25 - Bus Operator Barrier Design
- TCRP D-19 - Detecting and Mitigating Low-Level DC Fault Currents in Transit Systems (Phase II TCRP Project D-17)
- TCRP I-05/Topic 19-03 - Navigating the Complexities of Sensitive Security Information (SSI) and Protected Critical Infrastructure Information (PCI)
- TCRP I-05/Topic 20-01 - Legal Issues in Transit Mega Projects—Case Studies
- TFPE 04 - Evaluation of FHWA’s Every Day Counts Program
- TFPE 05 - Evaluation of FHWA’s Initiative on Integrating NEPA and Permitting

• **Upcoming Projects**
  - ACRP 02-103 - A Guide for Methods to Transition and Decontaminate PFAS from Firefighting Systems
  - ACRP 04-34 - 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) - Development of Guidance for Non-Standard Roadside Hardware Installations
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 F-05/Topic 20-02 - Liability Insurance Issues for Transit Lawyers: A Primer
TCRP F-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
- AED80 - Visualization in Transportation
- AJE35 - Research Innovation Implementation Management
- AJE50 - Economics and Finance
- AIL40 - Emerging Technology Law
- AKB10 - Innovative Highway Structures and Appurtenances
- AMR50 - Extreme Weather and Climate Change Adaptation
- AP020 - Innovative Public Transportation Services and Technologies
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

- **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**
  *July 23-26, 2023*
  *Cedar Rapids, IA*
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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