

TRB TRANSPORTATION RESEARCH BOARD

TRB Snap Search: Safety & Human Factors

TRB's involvement in research on Safety & Human Factors 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 Safety & Human Factors within the past year.

Subject Webpages

- [Behavioral Traffic Safety Cooperative Research Program \(BTSCRCP\)](#)

Specialty Report

- [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 \(ACRP\)](#)
 - [Legal Research Digest 44](#) - Airports Responding to Public Health Emergencies: Legal Considerations
 - [Report 253](#) - Airport Lessons Learned from the COVID-19 Pandemic
 - [Report 250](#) - Program Evaluation Report Card Tool for Wildlife Hazard Management Plans: User Guide
 - [Report 249](#) - Developing an Airport Program to Address Human Trafficking: A Guide
 - [Report 248](#) - Airport Insurance Requirements
 - [Report 246](#) - Airside Operations Safety: Understanding the Effects of Human Factors
 - [Report 233](#) - Airport Biometrics: A Primer
 - [Report 229](#) - Airport Collaborative Decision Making (ACDM) to Manage Adverse Conditions
 - [WebResource 11](#) - Construction Safety and Phasing Plans
- [Behavioral Traffic Safety Cooperative Research Program \(BTSCRCP\)](#)
 - [Report 9](#) - E-Scooter Safety Toolbox
 - [Report 8](#) - Highway Safety Behavioral Strategies for Rural and Tribal Areas
 - [Report 7](#) - Improving MPO and SHSO Coordination on Behavioral Traffic Safety: Guide and Toolkit
 - [Report 6](#) - Identifying and Prioritizing Behavioral Interventions to Improve Child Passenger Safety in For-Hire Vehicles
 - [Report 5](#) - Strategies to Improve State Traffic Citation and Adjudication Outcomes
 - [Report 4](#) - Promoting Older Driver Safety: Guide for State Practices
 - [Report 3](#) - Behavioral Traffic Safety Messaging on Variable Message Signs

- [Report 1](#) - Using Electronic Devices While Driving: Legislation and Enforcement Implications
- [Research Results Digest 1](#) - E-Scooter Safety: Issues and Solutions
- [Web-Only Document 5](#) - E-Scooter Safety: Issues and Solutions
- [Web-Only Document 2](#) - Development of Research Problem Statements That Utilize Naturalistic Driving Data to Improve Teen Driving Safety
- [Web-Only Document 1](#) - Influence of Infrastructure Design on Distracted Driving
- [WebResource 1](#) - Employer-Based Driver Safety Programs

- [IDEA Safety Program](#)
 - [Report 45](#) - Development of a Fatigue Load for Railway Bridges
 - [Report 44](#) - Laser-based Non-destructive Spike Defect Inspection System
 - [Report 38](#) - Minimization of Weld Failures by Means of Gas and Shrinkage Porosity Reduction
 - [Report 37](#) - Measuring Behavior of Railroad Bridges under Revenue Traffic using Lasers and Unmanned Aerial Vehicles (UAVs) for Safer Operations: Implementation
 - [Report 36](#) - Onboard High-Bandwidth Fiber-Optic Sensing System for Broken Rail Detection

- [National Cooperative Highway Research Program \(NCHRP\)](#)
 - [IDEA Report 228](#) - A Retroreflective Road Lane Marking Tape 1,000X Brighter than Existing Technology
 - [IDEA Report 217](#) - A Real-Time Proactive Intersection Safety Monitoring and Visualization System Based on Radar Sensor Data
 - [IDEA Report 214](#) - An Enhanced Network-Level Curve Safety Assessment and Monitoring Using Mobile Devices
 - [IDEA Report 212](#) - Non-Gating Guardrail Terminal
 - [IDEA Report 206](#) - Rule-Based Automated Safety Monitoring System for Work Zone Safety
 - [Report 1055](#) - Addressing Encroachment-Related Safety Issues in Work Zones: A Guide
 - [Report 1051](#) - Preparing Transportation Agencies for Connected and Automated Vehicles in Work Zones
 - [Report 1050](#) - Wrong-Way Driving Solutions Handbook
 - [Report 1047](#) - Development and Application of Crash Severity Models for Highway Safety: User Guidelines
 - [Report 2044](#) - Development and Application of Quantitative Macro-Level Safety Prediction Models
 - [Report 1043](#) - Guide for Roundabouts
 - [Report 1033](#) - Long-Term Roadside Crash Data Collection Program
 - [Report 1030](#) - Safety at Midblock Pedestrian Signals
 - [Report 1029](#) - Crash Modification Factors in the Highway Safety Manual: A Review
 - [Report 1016](#) - Design Guidelines for Mitigating Collisions with Trees and Utility Poles
 - [Report 1010](#) - In-Service Performance Evaluation: Guidelines for the Assembly and Analysis of Data
 - [Report 1006](#) - Guide to Understanding Effects of Raising Speed Limits
 - [Report 992](#) - Guide to Pedestrian Analysis
 - [Report 991](#) - Guidelines for the Development and Application of Crash Modification Factors
 - [Report 983](#) - Reliability of Crash Prediction Models: A Guide for Quantifying and Improving the Reliability of Model Results
 - [Report 981](#) - Guidelines for Quantifying Benefits of Traffic Incident Management Strategies
 - [Report 974](#) - Application of Crash Modification Factors for Access Management, Volume 1: Practitioner's Guide
 - [Report 974](#) - Application of Crash Modification Factors for Access Management, Volume 2: Research Overview
 - [Report 969](#) - Traffic Signal Control Strategies for Pedestrians and Bicyclists
 - [Report 966](#) - Posted Speed Limit Setting Procedure and Tool: User Guide
 - [Synthesis 608](#) - Practices to Motivate Safe Behaviors with Highway Construction and Maintenance Crews
 - [Synthesis 592](#) - Practices for Balancing Safety Investments in a Comprehensive Safety Program
 - [Synthesis 591](#) - Use of Safety Management Systems in Managing Highway Maintenance Worker Safety
 - [Synthesis 588](#) - Design Practices for Rock Slopes and Rockfall Management
 - [Synthesis 587](#) - Use of Smart Work Zone Technologies for Improving Work Zone Safety
 - [Synthesis 582](#) - Highway Infrastructure Inspection Practices for the Digital Age
 - [Synthesis 575](#) - Lighting Practices for Isolated Rural Intersections
 - [Synthesis 574](#) - Temporary Pavement Markings Placement and Removal Practices in Work Zones
 - [Synthesis 571](#) - Load Rating of Bridges and Culverts with Missing or Incomplete As-Built Information
 - [Web-Only Document 361](#) - Determination of Work Zone Encroachments
 - [Web-Only Document 357](#) - Wrong-Way Driving Solutions, Policy, and Guidelines
 - [Web-Only Document 354](#) - Safe and Effective Temporary Traffic Control for Mobile Operations on Two-Lane Roadways

- [Web-Only Document 351](#) - Development and Application of Crash Severity Models for Highway Safety: Conduct of Research Report
- [Web-Only Document 348](#) - Macro-Level Analysis of Safety Planning and Crash Prediction Models: A Guide
- [Web-Only Document 347](#) - Background and Summary of a Guide for Roundabouts
- [Web-Only Document 341](#) - Roadside Database Coding Manual
- [Web-Only Document 332](#) - Multi-State In-Service Performance Evaluations of Roadside Safety Hardware
- [Web-Only Document 323](#) - Highway Safety Manual User Guide
- [Web-Only Document 319](#) - Roadside Safety Analysis Program (RSAP) Update
- [Web-Only Document 318](#) - Safety Prediction Models for Six-Lane and One-Way Urban and Suburban Arterials
- [Web-Only Document 316 Vol 1](#) - Human Factors Guidelines for Road Systems 2021 Update, Volume 1: Updated and New Chapters
- [Web-Only Document 316 Vol 2](#) - Human Factors Guidelines for Road Systems 2021 Update, Volume 2: Conduct of Research Report
- [Web-Only Document 312](#) - Enhancing Pedestrian Volume Estimation and Developing HCM Pedestrian Methodologies for Safe and Sustainable Communities
- [Web-Only Document 309](#) - Safety Performance of Part-Time Shoulder Use on Freeways, Volume 1: Informational Guide and Safety Evaluation Guidelines
- [Web-Only Document 309](#) - Safety Performance of Part-Time Shoulder Use on Freeways, Volume 2: Conduct of Research Report
- [Web-Only Document 306](#) - Safety Prediction Methodology and Analysis Tool for Freeways and Interchanges
- [Special Reports / Consensus Studies](#)
 - [Report 345](#) - Preparing for LNG by Rail Tank Car: A Readiness Review
 - [Report 344](#) - Emerging Hazards in Commercial Aviation—Report 1: Initial Assessment of Safety Data and Analysis Processes
 - [Report 343](#) - Strengthening U.S. Coast Guard Oversight and Support of Recognized Organizations: The Case of the Alternative Compliance Program
 - [Report 342](#) - Options for Improving the Safety of DUKW Type Amphibious Vessels
 - [Report 341](#) - Technical Feasibility of a Wheelchair Securement Concept for Airline Travel: A Preliminary Assessment
 - [Report 339](#) - Preparing for LNG by Rail Tank Car: A Review of a U.S. DOT Safety Research, Testing, and Analysis Initiative
 - [Report 338](#) - Modernizing the U.S. Offshore Oil and Gas Inspection Program for Increased Agility and Safety Vigilance
 - [Substance Misuse Programs in Commercial Aviation: Safety First](#)
- [Transit Cooperative Research Program \(TCRP\)](#)
 - [IDEA Report 98](#) - Safety Assessment of the Interaction Between the Autonomous Shuttle Bus and Vulnerable Road Users
 - [IDEA Report 88](#) - Evaluation of an Automatic, Individual Computer-Based Driver Education and Training Program
 - [Legal Research Digest 58](#) - Policing and Public Transportation
 - [Report 234](#) - Measuring and Managing Fare Evasion
 - [Report 233](#) - Strategies for Deterring Trespassing on Rail Transit and Commuter Rail Rights-of-Way, Volume 1: Guidebook
 - [Report 233](#) - Strategies for Deterring Trespassing on Rail Transit and Commuter Rail Rights-of-Way, Volume 2: Research Overview
 - [Report 229](#) - Assessing and Mitigating Electrical Fires on Transit Vehicles
 - [Synthesis 169](#) - Pedestrian and Bicycle Safety in Bus Rapid Transit and High-Priority Bus Corridors
 - [Synthesis 159](#) - Assessing Equity and Identifying Impacts Associated with Bus Network Redesigns
 - [Synthesis 157](#) - Transit Safety Risk Assessment Methodologies
 - [Synthesis 169](#) - Pedestrian and Bicycle Safety in Bus Rapid Transit and High-Priority Bus Corridors
- [Transportation Research E-Circulars](#)
 - [E-Circular 283](#) - 13th International Conference on Low-Volume Roads

Recently Completed Projects/Pending Publication

- [ACRP 03-49](#) - Effective Collaboration to Plan and Respond to Communicable Disease Threats
- [ACRP 03-57](#) - A Guidebook to Prepare Airports for Transformations in Wireless Connectivity
- [ACRP 04-27](#) - Alternative Methods to Manage Tree Growth Near Airports
- [ACRP 11-02/Task 41](#) - Toward a Touchless Airport Journey
- [NCHRP 03-119](#) - Application of MASH Test Criteria to Breakaway Sign and Luminaire Supports and Crashworthy Work-Zone Traffic Control Devices
- [NCHRP 05-24](#) - Guidelines for Vehicle and Equipment Color, Marking, and Lighting
- [NCHRP 15-66](#) - Operational Performance and Safety Effects of Arterial Weaving Sections
- [NCHRP 15-68](#) - Effective Low-Noise Rumble Strips
- [NCHRP 15-74](#) - Safety Evaluation of On-Street Bicycle Facility Design Features
- [NCHRP 17-86](#) - Estimating Effectiveness of Safety Treatments in the Absence of Crash Data
- [NCHRP 17-92](#) - Developing Safety Performance Functions for Rural Two-Lane Highways that Incorporate Speed Measures
- [NCHRP 17-93](#) - Updating Safety Performance Functions for Data-Driven Safety Analysis
- [NCHRP 17-95](#) - Crash Modification Factors for Intelligent Transportation Systems (ITS) Applications
- [NCHRP 17-96](#) - Traffic Safety Culture Research Roadmap
- [NCHRP 20-124](#) - Deploying Transportation Security Practices in State DOTs
- [NCHRP 22-29B](#) - Evaluating the Performance of Longitudinal Barriers on Curved, Superelevated Off-Ramps
- [NCHRP 22-37](#) - Development of a MASH Barrier to Shield Pedestrians, Bicyclists, and Other Vulnerable Users from Motor Vehicles
- [NCHRP 22-38](#) - Development of MASH TL-3 Deflection Reduction Guidance for 31-inch Guardrail
- [NCHRP 22-39](#) - Guardrail Performance at Various Offsets from Curb MASH TL-3 Applications
- [NCHRP 22-48](#) - Development of Crash Prediction Models for Short-Term Durations
- [NCHRP IDEA Project 223](#) - Fatigue Crack Inspection Using Computer Vision and Augmented Reality
- [NCHRP IDEA Project 231](#) - AI Analyzer for Revealing Insights of Traffic Crashes
- [NCHRP Research Report 1036](#) – Roadway Cross-Section Reallocation: A Guide (expected Fall 2023)
- [Rail Safety IDEA Project 43](#) - Augmenting Reality for Safer Inspections of Railroad Infrastructure and Operations
- [TCRP E-13](#) - COVID-19 and Transit Air Quality Protections (Insight Event)
- [TCRP Report 242](#) - Homelessness: A Guide for Public Transportation

Current & Upcoming Projects

- [Current Projects](#)
 - [ACRP 01-41](#) - Airport Blockchain Implementation Guidebook
 - [ACRP 09-22](#) - Guidance for Small Airports on Safe Maintenance of Airfield Electrical Systems
 - [ACRP 02-94](#) - Update ACRP WebResource 4: Airport Air Quality Resource Library
 - [ACRP 02-95](#) - Understanding Airport Air Quality and Public Health Studies Related to Airports: An Update to ACRP Report 135
 - [ACRP 04-25](#) - Airports and Communicable Diseases—Preparedness and Response
 - [ACRP 04-28](#) - Developing Alternative Aircraft Arresting Systems
 - [ACRP 07-20](#) - Reducing and Managing Disruptive and Unruly Behavior in Airports
 - [ACRP 10-29](#) - Aircraft Jet Blast Estimation Tool
 - [ACRP 11-02/Task 44](#) - Developing an Airport Communicable Disease Response Plan Template
 - [ACRP Synthesis 11-03/Topic S06-07](#) - Evolution of Airport Work Models and Strategies
 - [BTSCRPT BTS-13](#) - Communicating Safe Behavior Practices to Vulnerable Road Users
 - [BTSCRPT BTS-14](#) - Informing the Selection of Countermeasures by Evaluating, Analyzing, and Diagnosing Contributing Factors that Lead to Crashes (Joint project with NCHRP 22-45)
 - [BTSCRPT BTS-16](#) - Developing Driver Skills Examination and Scoring Guidance for Evaluating and Predicting High Safety Risk Drivers
 - [BTSCRPT BTS-17](#) - Determining the Effectiveness of Combined High Visibility Enforcement
 - [BTSCRPT BTS-18](#) - Objectives, Components, and Measures of Effective Traffic Safety Public Awareness and Education Efforts
 - [BTSCRPT BTS-19](#) - Moped and Motor Scooter (50 cc or less) Safety: Issues and Countermeasures
 - [BTSCRPT BTS-20](#) - Strategies to Address Misreporting of Impaired and Distracted Driving in Motor Vehicle Crashes
 - [BTSCRPT BTS-21](#) - Assessing and Mitigating Racial Disparities in the Enforcement of Pedestrian, Bicycle, and Micromobility Traffic-Related Laws

- [BTSCRP BTS-22](#) - Guidelines for Selecting Communication Channels to Deliver Traffic Safety Messaging
- [BTSCRP BTS-23](#) - Outcomes of Variability in Teen Driving Experience and Exposure: Evidence from the Naturalistic Driving Study
- [BTSCRP BTS-25](#) - Cost-Benefit Evaluations of Detection Methods for Driving Under the Influence of Drugs (DUID)
- [BTSCRP BTS-26](#) - Advanced Driver Assistance Systems (ADAS) Education and Outreach
- [BTSCRP BTS-27](#) - Evaluation of Motorcycle Licensing and Training Requirements
- [BTSCRP BTS-28](#) - Teen Driving Performance Associated with Distraction, ADHD, and Other Risk Factors
- [NCHRP 03-130](#) - Guide for Roundabouts
- [NCHRP 03-139](#) - Next Generation of the USLIMITS2 Speed Limit Setting Expert System
- [NCHRP 03-142](#) - Evaluating the Impacts of Real-Time Warnings and Variable Speed Limits on Safety and Travel Reliability during Weather Events
- [NCHRP 10-109](#) - Modern Solutions to Safe and Efficient Work Zone Travel
- [NCHRP 08-139](#) - Guide for Preventing and Mitigating the Risk of Bridge and Tunnel Strikes by Motor Vehicles
- [NCHRP 08-157](#) - Best Practices for Data Fusion of Probe and Point Detector Data
- [NCHRP 15-73](#) - Design Options to Reduce Turning Motor Vehicle–Bicycle Conflicts at Intersections
- [NCHRP 15-78](#) - Guidebook for Urban and Suburban Roadway Cross-Sectional Reallocation
- [NCHRP 17-11\(03\)](#) - Development of Clear Recovery Area Guidelines
- [NCHRP 17-43](#) - Long-Term Roadside Crash Data Collection Program
- [NCHRP 17-60](#) - Benefit-Cost Methodology for Behavioral Highway Safety Countermeasures
- [NCHRP 17-71A](#) - Proposed AASHTO Highway Safety Manual, Second Edition
- [NCHRP 17-88](#) - Roadside Encroachment Database Development and Analysis
- [NCHRP 17-97](#) - Strategies to Improve Pedestrian Safety at Night
- [NCHRP 17-99](#) - Assessing Safety Effectiveness of Treatments and Technologies at Highway-Rail Grade Crossings
- [NCHRP 17-100](#) - Leveraging Artificial Intelligence and Big Data to Enhance Safety Analysis
- [NCHRP 17-101](#) - Applying the Safe System Approach to Transportation Planning, Design, and Operations in the United States
- [NCHRP 17-102](#) - Safety Performance for Active Transportation Modes Using Exposure Models
- [NCHRP 17-104](#) - Enhancement of Roadside Design Safety Prediction Models for the Highway Safety Manual
- [NCHRP 17-106](#) - Motorist Behavior and Safety Impacts on Bicyclists from Centerline and Shoulder Rumble Strips on High-Speed Two-Lane Highways
- [NCHRP 17-108](#) - Developing Crash Modification Factors for Alternative Intersections
- [NCHRP 17-109](#) - Crash Modification Factors for Automated Traffic Signal Performance Measures
- [NCHRP 20-44\(35\)](#) - Implementation for NCHRP Report 948 - Guide for Pedestrian and Bicycle Safety at Alternative Intersections and Interchanges
- [NCHRP 20-102\(16\)](#) - Impacts of Connected, Automated Vehicle Technologies on Traffic Incident Management Response
- [NCHRP 20-129](#) - Guidebook for Addressing Encampments on State Transportation Rights-of-Way
- [NCHRP 22-40](#) - Investigation of Material Requirements for Highway Guardrail Specifications
- [NCHRP 22-43](#) - Proposed AASHTO Guidelines for Implementation of MASH for Sign Supports, Breakaway Poles, and Work Zone Traffic Control Devices
- [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 22-46](#) - Human Factors Guidelines for Road Systems, Proposed 4th Edition
- [NCHRP 22-49](#) - The Effect of Vehicle Mix on Crash Frequency and Crash Severity
- [NCHRP 22-50](#) - Crashworthiness of Roadside Hardware on Curbed Roadways
- [NCHRP 22-53](#) - Delineation of Linear Roadside Hardware Systems and Roadside Obstacles
- [NCHRP 22-55](#) - Implementation of MASH Surrogate Test Vehicles for Sign Supports, Breakaway Poles, and Work Zone Traffic Control Devices
- [NCHRP 22-56](#) - Development of Non-proprietary Prefabricated Solutions for Concrete Barrier Systems for Accelerated Bridge Construction
- [NCHRP 23-13](#) - Transportation Research Related to COVID-19
- [NCHRP 23-13\(01\)](#) - Telecommuting, Remote Work, and Hybrid Schedules: Managing the Shift to a Flexible Work Future
- [NCHRP IDEA 20-30/IDEA 223](#) - Fatigue Crack Inspection Using Computer Vision and Augmented Reality
- [NCHRP IDEA 20-30/IDEA 226](#) - A Smart IoT Proximity Alert System for Highway Work Zone Safety

- [NCHRP IDEA 20-30/IDEA 239](#) - A Real-Time Ice Warning System Empowered by Dielectric Ice Sensors for Bridges
- [NCHRP IDEA 20-30/IDEA 248](#) - An Enhanced Network-level Curve Safety Assessment and Monitoring Using Low-cost Mobile Devices – Refinement and Field Evaluation
- [NCHRP Synthesis 20-05/Topic 53-10](#) - Contrast Pavement Markings Practices
- [NCHRP Synthesis 20-05/Topic 53-16](#) - Critical Findings for Tunnel Functional Systems
- [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 54-03](#) - DOT Practices on Road Safety Audits
- [NCHRP Synthesis 20-05/Topic 54-08](#) - Practices for Integrating Performance-Based Plans with Long-Range Transportation Plans and Statewide Transportation Investment Programs
- [NCHRP Synthesis 20-05/Topic 54-10](#) - State Customization of Highway Safety Manual Methods
- [NCHRP Synthesis 20-05/Topic 54-13](#) - Truck Emergency Escape Ramp Design and Operation
- [Rail Safety IDEA Project 50](#) - An Artificial Intelligence Aided Forward-Facing Camera Video Data Analytics System for Rail Safety
- [TCRP A-48](#) - Mitigation Strategies for Deterring Transit Assaults
- [TCRP B-46](#) - Tactile Wayfinding in Transportation Settings for Travelers Who Are Blind or Visually Impaired
- [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 F-30](#) - Guide for Protecting Transportation Employees and the Traveling Public from Airborne Diseases
- [TCRP G-17](#) - Assessing Lifecycle and Human Costs of Bus Operator Workstation Design and Components
- [TCRP J-05/Topic 18-02](#) - Codes of Conduct on Transit Vehicles and Property: Legal Issues
- [TCRP J-11/Task 43](#) - Analysis of Public Transportation Health Impacts and Benefits
- [TCRP IDEA J-04/IDEA 102](#) - Magnetic Rail Movement Measuring Device (MRMMD) for Rail Safety
- [TCRP Synthesis J-07/Topic SA-54](#) - Pedestrian and Bicycle Safety in Bus/BRT Corridors
- [TCRP Synthesis J-07/Topic SA-59](#) - Electronic Surveillance of Railroad-Highway Crossings for Collision Avoidance, State of the Practice
- [Upcoming Projects](#)
 - [Consensus Study](#) - Transitioning Evidence-based Road Safety Research into Practice
 - [ACRP 02-103](#) - A Guide for Methods to Transition and Decontaminate PFAS from Firefighting Systems
 - [ACRP 04-31](#) - Providing Adequate and Balanced Trainer Facilities for Required and Recurrent Training for Airport Firefighters
 - [ACRP 04-33](#) - Guide for Measuring Financial Benefits of Airport Safety Management Systems
 - [ACRP 04-34](#) - A Guide for Building, Maintaining, and Improving ARFF Programs
 - [ACRP 07-20](#) - Reducing and Managing Disruptive and Unruly Behavior in Airports
 - [ACRP 07-22](#) - Accommodating Cognitive and Sensory Diversity of Airport Travelers
 - [ACRP 11-01/Topic 15-02](#) - Legal Issues Concerning the Safety and Security of General Aviation Airports
 - [ACRP 11-01/Topic 15-03](#) - Legal Impacts to Airports from State Legalization of Marijuana
 - [BTSCRIP BTS-24](#) - Multi-Solving Safety Approach - Stepping Away from Silos to Achieve a Safer System
 - [BTSCRIP BTS-30](#) - Engaging Underserved Populations for Child Passenger Safety
 - [BTSCRIP BTS-31](#) - Quantifying the Safety Impacts of Reduced Traffic Enforcement
 - [BTSCRIP BTS-32](#) - Formative Research and Resources to Prevent Cannabis Impaired Driving Among Teens and Young Adults
 - [BTSCRIP BTS-33](#) - Optimizing Parent-Teen Supervised Drives to Reduce Teen Crash Rates
 - [BTSCRIP BTS-34](#) - Review of Behavioral Traffic Safety Efforts Undertaken by State Highway Safety Offices and Other Safety Organizations to Engage Underserved Communities
 - [NCHRP 03-143](#) - Framework and Toolkit for Selecting Pedestrian Crossing Treatments
 - [NCHRP 05-25](#) - Guide to the Contextual Application of Overhead Lighting on Highways
 - [NCHRP 05-26](#) - Development of Updated Warrants for Roadway Lighting
 - [NCHRP 05-27](#) - Guide for Lighting at Innovative Intersections/Interchanges, including Roundabouts
 - [NCHRP 07-28\(02\)](#) - Assessing the Multimodal Safety Performance of Turn Lanes
 - [NCHRP 07-31](#) - State DOT and Tribal Use of Active Transportation Data: Practices, Sources, Needs, and Gaps
 - [NCHRP 07-33](#) - Evaluate the Benefits of Increasing Clear Zone at Higher Speed/Traffic Volume/Crash Locations
 - [NCHRP 07-36](#) - Self-Explaining Roads in the Safe System: Addressing Target Speeds within Context

- [NCHRP 08-150](#) - Tools to Integrate Equity into Active Transportation and Safety Investments
- [NCHRP 08-163](#) - Defining Appropriate Design and Accommodation Thresholds for Active Transportation in a Context-Driven Approach
- [NCHRP 08-166](#) - Racial and Socioeconomic Inequities in Active Transportation Safety
- [NCHRP 08-171](#) - Institutionalizing the Safe Systems Approach in Transportation Planning and Programming
- [NCHRP 08-177](#) - Digitizing Bicycle and Pedestrian Treatments for Promoting Active Transportation Equity and Safety
- [NCHRP 10-117](#) - Design and Repair of Glass Fiber Reinforced Polymer Concrete Bridge Barriers
- [NCHRP 15-79](#) - Development of Guidance for Non-Standard Roadside Hardware Installations
- [NCHRP 15-82](#) - Relationship of Speed, Roadway Geometrics, and Crashes on High-Speed Rural Highways
- [NCHRP 17-103](#) - A Guide and Toolkit for Strategic Decision-Making to Improve Traffic Safety
- [NCHRP 17-107](#) - Guide for Work Zone Intrusion Prediction and Prevention
- [NCHRP 17-111](#) - Speed Management Strategies to Improve Pedestrian and Bicyclist Safety on Arterials and Higher-Speed Roadways
- [NCHRP 17-112](#) - Enhancing Crash Modification Factors and Safety Performance Functions for Pedestrian and Bicyclist Countermeasures
- [NCHRP 17-113](#) - Incorporating Safe System Approach into the NCHRP Report 500 Series
- [NCHRP 17-114](#) - Integrated Strategies for Managing Excessive Travel Speed to Improve Safety Performance
- [NCHRP 17-115](#) - Guide for Marked Crosswalk Design, Spacing, Placement, and Safety
- [NCHRP 17-116](#) - Practical Approaches to Quantifying Safe System Concepts
- [NCHRP 17-117](#) - Advancing Safety Prediction Methodologies for Horizontal Curves
- [NCHRP 17-118](#) - Understanding the Impacts of Operational Changes on Safety Performance
- [NCHRP 17-119](#) - Conflict-Based Crash Prediction Method for Intersections
- [NCHRP 17-120](#) - A Method to Link Crash, Emergency Medical Service, and Trauma Registry Data
- [NCHRP 17-121](#) - Using Advanced Technologies to Reduce Commercial Motor Vehicle Crashes in Work Zones
- [NCHRP 17-122](#) - Strategies and Technologies for Warning, Detection, and Prevention of Trespassing in the Vicinity of Highway-Rail Grade Crossings: State of the Practice and Research Needs
- [NCHRP 17-123](#) - Light, Medium, and Heavy Rail and Roadway Interface Safety Performance Functions and Crash Modification Factors Development
- [NCHRP 17-125](#) - Incorporating the Safe System Approach into Road Safety Audits
- [NCHRP 17-126](#) - Intersection Crash Prediction Models for Future Editions of the Highway Safety Manual
- [NCHRP 17-127](#) - Practitioner's Application Guide to the Highway Safety Manual
- [NCHRP 17-128](#) - Reducing Adverse Driving Behaviors in Work Zones
- [NCHRP 17-129](#) - Safety Performance of Complex Interchanges
- [NCHRP 17-89B](#) - Safety Performance of Part-Time Shoulder Use on Freeways
- [NCHRP 20-06/Topic 27-01](#) - Transportation Agency Liability for Roadside Safety Hardware
- [NCHRP 20-06/Topic 27-05](#) - Addressing Liability Issues of Proactive Safety Improvements
- [NCHRP 20-102\(33\)](#) - A Guide to Enhancing the Safety of Vulnerable Road Users in a CAV Future
- [NCHRP 20-121A](#) - Countering Human Trafficking: A Toolkit for State DOTs
- [NCHRP 20-123\(16\)](#) - Roadmap for the Transformation to Computer Simulation-Based Assessment of Bridge Railings
- [NCHRP 20-123\(17\)](#) - Highway Safety Manual Development and Roadmap
- [NCHRP 20-130](#) - Incorporation of the Human Factors Guide into Transportation Agency Practices
- [NCHRP 20-24\(145\)](#) - Harnessing the Safe System Approach to Meaningfully Improve Traffic Safety
- [NCHRP 20-44\(52\)](#) - Implementing A Guidebook for Urban and Suburban Roadway Cross Section Reallocation
- [NCHRP 20-44\(53\)](#) - Implementing A Proposed Macro-Level Safety Planning Analysis Chapter for the Highway Safety Manual
- [NCHRP 22-32A](#) - Development of Methods to Evaluate Side Impacts – Phase II
- [NCHRP 22-42A](#) - Impact Performance Assessment of Barrier Performance at High Speeds
- [NCHRP 22-47A](#) - Incorporating Driver Behavior and Characteristics into Safety Prediction Methods
- [NCHRP 22-51](#) - Impact of Soil Stiffness on the Performance of Crash Testing and Roadside Safety
- [NCHRP 22-52](#) - Development of a Crashworthy Tangent End Treatment for Low-Speed Curbed Roadways
- [NCHRP 22-54](#) - MASH Hardware Evaluation with New Proposed Test Vehicles
- [NCHRP 22-57](#) - Procedures for Development of MASH Full-Scale Test Matrices for Additional Roadside Safety Devices

- [NCHRP 22-58](#) - National In-Service Performance Evaluation Guidelines for Defining Acceptable Roadside Safety Hardware
- [NCHRP 22-59](#) - Safety Risks of Occupant Compartment Damage During Crashes
- [NCHRP 22-60](#) - Development of MASH Test Procedures for Motorcycles
- [NCHRP 22-61](#) - Evaluation of Electrical Vehicle Compatibility with MASH Roadside Hardware
- [NCHRP 22-62](#) - Reduced Impact Angles with Temporary Barriers in Work Zones
- [NCHRP 22-63](#) - Updating Finite Element Analysis (FEA) Verification and Validation (V&V) Procedures and Reporting
- [NCHRP 23-13\(03\)](#) - Guide on Truck Rest and Service Areas for Critical Supply Chain Delivery
- [NCHRP 23-28](#) - Planning for 4.9 GHz Spectrum Changes — What Transportation Agencies Need to Know
- [NCHRP Synthesis 20-05/Topic 54-10](#) - State Customization of Highway Safety Manual Methods
- [NCHRP Synthesis 20-05/Topic 55-10](#) - Implementation of the Federal Highway Administration (FHWA) Proven Safety Countermeasures
- [TCRP A-48](#) - Mitigation Strategies for Deterring Transit Assaults
- [TCRP B-51](#) - Floating Transit Stops and Passengers with Vision Disabilities
- [TCRP D-20](#) - Investigation and Mitigation of Insulated Joint Electrical Failure
- [TCRP E-14](#) - Lithium-Ion Battery Transit Bus Fire Prevention and Risk Management
- [TCRP J-07/Topic 21-03](#) - Update of Selected Studies in Transportation Law, Volume 5, 2014 Supplement (Transit Law)
- [TCRP Synthesis J-07/Topic SB-39](#) - Improving Transit Customer Perception of Personal Security

Reports from the [National Academies Press](#) on Safety & Human Factors

- [Transportation and Infrastructure » Safety and Human Factors](#)
- [Evaluation of the Transport Airplane Risk Assessment Methodology](#)
- [Supporting Individual Risk Assessment during COVID-19](#)
- [New Approach Methods \(NAMs\) for Human Health Risk Assessment](#)
- [Rapid Expert Consultation on Critical Federal Capabilities Needed to Evaluate Real-World Safety, Effectiveness, and Equitable Distribution and Use of Medical Countermeasures During a Public Health Emergency](#)
- [Evaluation of the Transport Airplane Risk Assessment Methodology](#)
- [Investing in Resilient Infrastructure in the Gulf of Mexico](#)
- [Systematizing the One Health Approach in Preparedness and Response Efforts for Infectious Disease Outbreaks](#)
- [Public Health Lessons for Non-Vaccine Influenza Interventions: Looking Past COVID-19](#)
- [Policies and Practices to Minimize Police Use of Force Internationally](#)
- [Flying in the COVID-19 Era: Science-based Risk Assessments and Mitigation Strategies on the Ground and in the Air](#)

Committees & Panels

[Sign-up to be a committee "Friend"](#)

[TRB Standing Committees](#) – Search by transportation mode and committee topic

- [AC000](#) - Safety and Operations Group
- [ACH00](#) – Section - Pedestrians, Bicycles, Human Factors
- [ACH10](#) – Pedestrians
- [ACH20](#) - Bicycle Transportation
- [ACH30](#) – Human Factors of Vehicles
- [ACH40](#) - Human Factors of Infrastructure Design and Operations
- [ACH50](#) - Road User Measurement and Evaluation
- [ACH60](#) – Vehicle User Education, Training, and Licensing
- [ACP20](#) – Freeway Operations
- [ACP30](#) – Vehicle-Highway Automation
- [ACP35](#) - Managed Lanes
- [ACP40](#) - Highway Capacity and Quality of Service
- [ACP55](#) - Traffic Control Devices
- [ACS00](#) – Section – Safety
- [ACS10](#) - Transportation Safety Management Systems
- [ACS20](#) - Safety Performance and Analysis
- [ACS30](#) - Traffic Law Enforcement
- [ACS40](#) - Committee on Occupant Protection

- [ACS50](#) - Impairment in Transportation
- [ACS60](#) - Truck and Bus Safety
- [AEP20](#) - Transportation Needs of National Parks and Public Lands
- [AJL10](#) - General Law
- [AJL70](#) - Tort Liability and Risk Management
- [AKC10](#) - Construction Management
- [AKD10](#) - Performance Effects of Geometric Design
- [AKD20](#) - Roadside Safety Design
- [AKD30](#) - Low-Volume Roads
- [AKD50](#) - Hydrology, Hydraulics, and Stormwater
- [AKM20](#) - Binders for Flexible Pavement
- [AKP50](#) - Pavement Surface Properties and Vehicle Interaction
- [AKR40](#) - Winter Maintenance
- [AKR50](#) - Road Weather
- [AP015](#) - Transit Capacity and Quality of Service
- [AP065](#) - Urban Rail Transit Systems
- [AP075](#) - Light Rail Transit
- [AP080](#) - Transit Safety and Security
- [AR030](#) - Railroad Operating Technologies
- [AR050](#) - Railroad Infrastructure Design and Maintenance
- [AR070](#) - Rail Safety
- [AR080](#) - Highway/Rail Grade Crossings
- [AV090](#) - Aviation Safety, Security and Emergency Management
- [AW040](#) - Marine Safety and Human Factors

Task Forces - Search for *task force* under committee here

Policy Study

- [B0175](#) - Emerging Trends in Aviation Safety
- [B1081](#) - Impacts of Alternative Compensation Methods on Commercial Motor Vehicle Driver Retention and Safety Performance

CRP Panels

- [D0362](#) - Guidelines for Accessible Pedestrian Signals (APS)
- [D0525](#) - Safety Performance of LED and Variable Lighting Systems
- [D0728](#) - Assessing the Impacts of Turn Lanes in Different Contexts and Modal Considerations to Increase Safety Performance
- [D0815](#) - Valuation of Transportation Equity in Active Transportation and Safety Investments
- [D1574](#) - Safety Evaluation of On-Street Bicycle Facility Design Features
- [D1582](#) - Effects of Operating Speed and Posted Speed Limit in Conjunction with Roadway Geometric Design on Safety Performance for High-Speed Rural Highways and Freeway
- [D1762](#) - Improved Prediction Models for Crash Types and Crash Services
- [D1768](#) - Intersection Crash Prediction Methods for the Highway Safety Manual
- [D1771](#) - Proposed AASHTO Highway Safety Manual, Second Edition
- [D1776](#) - Understanding the Relationship between Operating, Posted, and Design Speeds and Safety in the Setting of Speed Limits
- [D1781](#) - Incorporating Road Safety Planning in the Highway Safety Manual
- [D1789](#) - Safety Performance of Part-Time Shoulder Use on Freeways
- [D1792](#) - Developing Safety Performance Functions for Rural Two-Lane Highways that Incorporate Speed Measures
- [D1793](#) - Updating Safety Performance Functions for Data-Driven Safety Analysis
- [D1797](#) - Strategies to Improve Pedestrian Safety at Night
- [D1799](#) - Strategies and Technologies for Warning, Detection, and Prevention of Trespassing in the Vicinity of Highway-Rail Grade Crossings: State of the Practice and Research Needs
- [D2232](#) - Development of Methods to Evaluate Side Impacts with Roadside Safety Features
- [D2247](#) - Incorporating Driver Behavior Considerations in Safety Prediction Methods
- [D2257](#) - Development of MASH Full-Scale Test Matrices for Additional Roadside Safety Devices
- [D2259](#) - Safety Risks of Occupant Compartment Damage During Crashes
- [D03142](#) - Evaluating the Impacts of Real-Time Warnings and Variable Speed Limits on Safety and Travel Reliability during Weather Events
- [D08150](#) - Valuation of Transportation Equity in Active Transportation and Safety Investments
- [D08166](#) - Racial and Economic Disparities in Pedestrian and Bicyclist Safety

- [D08171](#) - Institutionalizing the Safe System Approach in Transportation Planning and Programming
- [D08177](#) - NCHRP Project Panel on Digitizing Bicycle and Pedestrian Treatments for Promoting Active Transportation Equity and Safety
- [D10114](#) - Developing Performance and Safety Specifications for Rejuvenating Seals
- [D17100](#) - Leveraging Big Data and Artificial Intelligence to Streamline Safety Data Analyses
- [D17102](#) - Safety Performance for Active Transportation Modes using Exposure Models
- [D17103](#) - Developing Multidisciplinary Safety Strategies from Understanding Roadway Fatality Trends During the New Millennium
- [D17104](#) - Enhancement of Roadside Design Features Safety Performance Models for the Highway Safety Manual
- [D17106](#) - Motorist Behavior and Safety Impacts on Bicyclists from Centerline and Shoulder Rumble Strips on High-Speed Two-Lane Highways
- [D17110](#) - Template for Gathering and Disseminating Telemetric Data for Safety and Operational Uses by State DOTs (Phase 1: State of the Practice Survey and Synthesis)
- [D17111](#) - Speed Management Solutions and Strategies to Improve Pedestrian and Bicyclist Safety on Arterial Roadways
- [D17112](#) - Enhancing Highway Safety Manual Guidance on Pedestrian and Bicyclist Countermeasures (CMF/SPF Development)
- [D17115](#) - Pedestrian Crosswalk Spacing and Placement Guidance to Improve Safety
- [D17117](#) - Safety Performance Functions for Horizontal Curves
- [D17118](#) - Understanding the Impacts of Operational Changes on Safety Performance
- [D17120](#) - Improved Method to Link Crash, Emergency Medical Service, and Trauma Registry Data
- [D17123](#) - NCHRP Project Panel on Light, Medium, and Heavy Rail and Roadway Interface Safety Performance Functions and Crash Modification Factors Development
- [D17125](#) - Incorporating the Safe System Approach into Road Safety Audits
- [D17126](#) - Intersection Crash Prediction Models for Future Editions of the Highway Safety Manual
- [D17127](#) - Practitioner's Application Guide to the Highway Safety Manual
- [D17129](#) - Safety Performance of Complex Interchanges
- [D20112](#) - Research Roadmap--Public Health and Transportation
- [D204453](#) - Implementing A Proposed Macro-Level Safety Planning Analysis Chapter for the Highway Safety Manual
- [D231302](#) - Employee Safety during COVID-19
- [D2007358](#) - Reducing Risks to Worker Safety in Work Zones Due to Distracted Drivers
- [D2010225](#) - Readiness and Effectiveness of Freeway-Based Corridor V2X Applications for Improving Congestion and Safety
- [D2010233](#) - Safety of Vulnerable Road Users in a C/AV Future
- [D2012317](#) - Highway Safety Manual Development and Research Roadmap
- [D2024145](#) - Harnessing the Safe System Approach to Meaningfully Improve Traffic Safety
- [D2024147](#) - Peer Exchange and Research to Identify Best Practices for Testing, Monitoring and Deployment of Automated Transportation Solutions to Support Safety, Equity and Operational Efficiency
- [DA0345](#) - Collecting and Sharing Airport Safety and Operational Data
- [DA0369](#) - Identifying Congestion and Safety Risks Due to Heterogeneous Airport Curbside Activity and Remedial Solutions
- [DB006](#) - Guide for MPO and HSO Coordination on Behavioral Traffic Safety Countermeasures
- [DB016](#) - Developing On-road Driver Skills Test and Scoring Guidance for Measuring and Predicting High Safety Risk Drivers
- [DB018](#) - Objectives, Components, and Measures of Effective Traffic Safety Public Awareness and Education Efforts
- [DB019](#) - Moped and Motor Scooter (50 cc or less) Safety: Issues and Countermeasures
- [DB021](#) - Assessing and Mitigating Racial Disparities in the Enforcement of Pedestrian, Bicycle, and Micromobility Traffic-Related Laws
- [DB022](#) - Guidelines for Selecting Communication Channels to Deliver Traffic Safety Messaging
- [DB024](#) - Multi-Solving Safety Approach - Stepping Away from Silos to Achieve a Safer System
- [DB030](#) - Engaging Underserved Populations for Child Passenger Safety
- [DB031](#) - Quantifying the Safety Impacts of Reduced Traffic Enforcement
- [DB034](#) - Review of Behavioral Traffic Safety Efforts Undertaken by State Highway Safety Offices and Other Safety Organizations to Engage Underserved Communities
- [E1008](#) - Rail Safety Innovations Deserving Exploratory Analysis (IDEA) Program Committee
- [SN5403](#) - DOT Practices on Road Safety Audits
- [SN5410](#) - State Customization of Highway Safety Manual Methods

- [SN5510](#) - Implementation of the Federal Highway Administration (FHWA) Proven Safety Countermeasures
- [STSA54](#) - Pedestrian and Bicycle Safety in Bus/BRT Corridors

Councils

- [A001C](#) – Young Members Coordinating Council

Recent and Upcoming Events

[Upcoming TRB Conferences](#) – Use left hand menu to filter events

[2nd International Roadside Safety Conference](#)

June 23-28, 2024

Orlando, FL

[4th International Conference on Access Management](#)

June 24-26, 2024

Boston, MA

[Upcoming Events/Webinars](#) – In the Upcoming Events tab under Types, choose what event you are interested in, search titles by keyword

[TRB Webinar: Understanding Evacuation Behavior and Regional Resilience](#)

December 11, 2023

[Past Events](#) - In the Past Events tab under Types, choose what event you are interested in, search titles by keyword

[TRB Webinar: Societal Perceptions of Impaired Driving and Strategies for Law Enforcement](#)

October 3, 2023

[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

[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

Contact or Questions: TRBLibrary@nas.edu