TRB Snap Search: Safety & Human Factors

TRB’s involvement in research on Safety & Human Factors from 2020-2021

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](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**

- [Safety & Human Factors Research at TRB](http://www.trb.org/)
- [Behavioral Traffic Safety Cooperative Research Program (BTSCR)](http://www.trb.org/)

**Specialty Report**

- [Critical Issues in Transportation 2019](http://www.trb.org/)

**Recent Reports & Publications**

- [Airport Cooperative Research Program (ACRP)](http://www.trb.org/)
  - [Report 222](http://www.trb.org/) - Collecting and Sharing of Operations and Safety Data
  - [Report 212](http://www.trb.org/) - Airports and Unmanned Aircraft Systems, Volume 1: Managing and Engaging Stakeholders on UAS in the Vicinity of Airports
  - [Report 212](http://www.trb.org/) - Airports and Unmanned Aircraft Systems, Volume 2: Incorporating UAS into Airport Infrastructure—Planning Guidebook
  - [Report 212](http://www.trb.org/) - Airports and Unmanned Aircraft Systems, Volume 3: Potential Use of UAS by Airport Operators
  - [Synthesis 109](http://www.trb.org/) - Escalator Falls
  - [Synthesis 106](http://www.trb.org/) - Airport Risk Identification and Prioritization Practices
  - [Web-Only Document 50](http://www.trb.org/) - Research Roadmap on Safety Issues

- [Conference Proceedings](http://www.trb.org/)

- [IDEA Safety Program](http://www.trb.org/)
  - [Rail IDEA Report 41](http://www.trb.org/) - Vibration-based Longitudinal Rail Stress Estimation Exploiting Acoustic Measurement and Machine Learning
  - [Rail IDEA Report 40](http://www.trb.org/) - Using Light to Reduce Fatigue and Improve Alertness in Railway Operations
  - [Rail IDEA Report 33](http://www.trb.org/) - Adaptive Prestressing System for Concrete Crossties

- [National Cooperative Highway Research Program (NCHRP)](http://www.trb.org/)
  - [NCHRP 03-127](http://www.trb.org/) - Cybersecurity of Traffic Management Systems
  - [NCHRP 17-76](http://www.trb.org/) - Guidance for the Setting of Speed Limits
  - [NCHRP 17-77](http://www.trb.org/) - Guide for Quantitative Approaches to Systemic Safety Analysis
  - [NCHRP 20-65/Task 76](http://www.trb.org/) - Opportunities for State DOTs (and Others) to Encourage Shared Use Mobility Practices in Rural Areas
  - [NCHRP 20-65/Task 77](http://www.trb.org/) - Lessons Learned and Impacts to Date of State DOT Implementation of New Federal Transit Asset Management and Public Transportation Agency Safety Requirements
IDEA Report 212 - Non-Gating Guardrail Terminal
Legal Research Digest 83 - Guidelines for Drafting Liability Neutral Transportation Engineering Documents and Communication Strategies
Report 941 - Bicyclist Facility Preferences and Effects on Increasing Bicycle Trips
Report 932 - A Research Roadmap for Transportation and Public Health
Report 931 - A Guide to Emergency Management at State Transportation Agencies
Report 930 - Security 101: A Physical and Cybersecurity Primer for Transportation Agencies
Report 926 - Guidance to Improve Pedestrian and Bicyclist Safety at Intersections
Synthesis 557 - Utility Pole Safety and Hazard Evaluation Approaches

Special Reports / Consensus Studies
Report 334 - Review of the Federal Railroad Administration’s Research and Development Program

Transit Cooperative Research Program (TCRP)
Report 218 - Characteristics and Elements of Non-Punitive Employee Safety Reporting Systems for Public Transportation
Report 212 - Stray Current Control of Direct Current-Powered Rail Transit Systems: A Guidebook
Report 211 - Guidebook for Detecting and Mitigating Low-Level DC Leakage and Fault Currents in Transit Systems
Synthesis 146 - Transit Security Preparedness
Synthesis 145 - Current Practices in the Use of Onboard Technologies to Avoid Transit Bus Incidents and Accidents

Current & Upcoming Projects

Current Projects
ACRP 03-49 - Effective Collaboration to Plan and Respond toCommunicable Disease Threats
ACRP 03-48 - Advanced Ground Vehicle Technologies (AGVT) for Airside Operations
ACRP 03-57 - A Guidebook to Prepare Airports for Transformations in Wireless Connectivity
ACRP 04-24 - Guidelines to Develop an Anti-Human Trafficking Action Plan for Airports
ACRP 08-03 - Construction Safety and Phasing Plans
ACRP 10-29 - Aircraft Jet Blast Estimation Tool
ACRP 11-01/Topic 10-04 - Updated Survey of Laws and Regulations Applicable to Airport Commercial Ground Transportation
ACRP 11-02/Task 36 - Research Roadmap on Safety Issues
ACRP Synthesis 11-03/Topic S04-21 - Models for Law Enforcement at Airports
ACRP Synthesis 11-03/Topic S10-17 - Agricultural Operations on Airport Grounds
BTSCR BTS-01 - Guidance for Employer-Based Behavioral Traffic Safety Programs for Drivers in the Workplace
BTSCR BTS-02 - Guide for Behavioral Traffic Safety Messaging on Variable Message Signs
BTSCR BTS-04 - Tracking State Traffic Citation and Adjudication Outcomes
BTSCR BTS-06 - MPO and SHSO Coordination on Behavioral Traffic Safety
BTSCR BTS-08 - Use of SHRP2 Naturalistic Driving Study Database to Improve Teen Driving Safety: Phase 1 Proof of Concept
BTSCR BTS-09 - The Influence of Infrastructure Design on Distracted Driving
BTSCR BTS-10 - E-Scooter Safety: Issues and Solutions
BTSCR BTS-11 - Ensuring Child Safety in New Travel Modes
BTSCR BTS-12 - State Practices Promoting Older Driver Safety
BTSCR BTS-13 - Communicating Safe Behavior Practices to Vulnerable Road Users
BTSCR BTS-15 - Highway Safety Strategies for Rural Communities
NCHRP 03-119 - Application of MASH Test Criteria to Breakaway Sign and Luminaire Supports and Crashworthy Work-Zone Traffic Control Devices
NCHRP 03-130 - Guide for Roundabouts
NCHRP 03-132 - Guidance for Safe and Effective Temporary Traffic Control for Mobile Operations on Two-Lane Two-Way Roadways
NCHRP 03-133 - Traffic Signal Design and Operations Strategies for Non-Motorized Users
NCHRP 03-134 - Determination of Encroachment Conditions in Work Zones
NCHRP 03-135 - Wrong-Way Driving Solutions, Policy, and Guidance
- Next Generation of the USLIMITS2 Speed Limit Setting Expert System
- Effects of LED Roadway Lighting on Driver Sleep Health and Alertness
- Guidelines for Vehicle and Equipment Color, Marking, and Lighting
- Development of Safety Performance Based Guidelines for the Roadside Design Guide
- Effective Low-Noise Rumble Strips
- Design Options to Reduce Turning Motor Vehicle–Bicycle Conflicts at Intersections
- Safety Evaluation of On-Street Bicycle Facility Design Features
- Guidebook for Urban and Suburban Roadway Cross-Sectional Reallocation
- Development of Clear Recovery Area Guidelines
- Long-Term Roadside Crash Data Collection Program
- Comprehensive Analysis Framework for Safety Investment Decisions
- Lead States Initiative for Implementing the Highway Safety Manual
- Consideration of Roadside Features in the Highway Safety Manual
- Development of a Comprehensive Approach for Serious Traffic Crash Injury Measurement and Reporting Systems
- Benefit-Cost Methodology for Behavioral Highway Safety Countermeasures
- Guidance for Selection of Appropriate Countermeasures for Opposite Direction Crashes
- Identification of Factors Contributing to the Decline of Traffic Fatalities in the United States
- Update of Crash Modification Factors for the Highway Safety Manual
- Application of Crash Modification Factors for Access Management
- Understanding and Communicating Reliability of Crash Prediction Models
- Safety Effects of Raising Speed Limits to 75 mph and Higher
- Expansion of Human Factors Guidelines for Road Systems, Second Edition
- Proposed Macro-Level Safety Planning Analysis Chapter for the Highway Safety Manual
- Proposed Guidance for Fixed Objects in the Roadside Design Guide
- Pedestrian and Bicycle Safety Performance Functions for the Highway Safety Manual
- Estimating Effectiveness of Safety Treatments in the Absence of Crash Data
- Enhancing Pedestrian Volume Estimation and Developing HCM Pedestrian Methodologies for Safe and Sustainable Communities
- Roadside Encroachment Database Development and Analysis
- Safety Performance of Part-Time Shoulder Use on Freeways
- Evaluation of Roadside Crash Injury Metrics in MASH
- Assessing the Impacts of Connected, Automated and Autonomous Vehicles on the Future of Transportation Safety
- Developing Safety Performance Functions for Rural Two-Lane Highways that Incorporate Speed Measures
- Updating Safety Performance Functions for Data-Driven Safety Analysis
- Crash Modification Factors for Intelligent Transportation Systems (ITS) Applications
- Guidelines for Selecting Sign Sheeting Materials for AASHTO M268
- Implementation of NCHRP Research Report 893: The Oregon DOT Statewide Pedestrian and Bicycle Plan
- Cybersecurity Implications of CV/AV Technologies on State and Local Transportation Agencies
- Topical White Papers for the TRB Forum on Automated Vehicles and Shared Mobility
- State DOT Contributions to the Study, Investigation, and Interdiction of Human Trafficking
- Deploying Transportation Security Practices in State DOTs
- Evaluating the Performance of Longitudinal Barriers on Curved, Superelevated Off-Ramps
- Multi-State In-Service Performance Evaluations of Roadside Safety Hardware
- Determination of Zone of Intrusion Envelopes under MASH Impact Conditions for Barrier Attachments
- Evaluation of Bridge Rail Systems to Confirm AASHTO MASH Compliance
- Development of a Barrier Design to Accommodate Vehicles, Pedestrians, and Cyclists
- Development of MASH TL-3 Deflection Reduction Guidance for 31-inch Guardrail
- Guardrail Performance at Various Offsets from Curb MASH TL-3 Applications
- Update to AASHTO M 180-18 and Associated Highway Guardrail Specifications
- Proposed AASHTO Guidelines for Implementation of MASH for Sign Supports, Breakaway Poles, and Work Zone Traffic Control Devices
o **NCHRP 22-44** - A Transportation Agency Data Collection Practice for Use with In-Service Performance Evaluations (ISPEs)

o **NCHRP 22-45** - Understanding and Analyzing Crash Contributing Factors

o **NCHRP 22-47** - Incorporating Driver Behavior and Characteristics into Safety Prediction Methods

o **NCHRP 22-48** - Development of Crash Prediction Models for Short-Term Durations

o **NCHRP 23-05** - Guidance for Training and Certification of Construction Inspectors for Transportation Infrastructure

o **NCHRP IDEA 20-30/IDEA 203** - Safer Cushions

o **NCHRP IDEA 20-30/IDEA 206** - From Location Tracking to Continuous Interpretation: Rule-Based Automated Safety Work Zone Safety

o **NCHRP IDEA 20-30/IDEA 214** - An Enhanced Network-Level Curve Safety Assessment and Monitoring Using Mobile Devices

o **NCHRP IDEA 20-30/IDEA 217** - A Real-Time Proactive Intersection Safety Monitoring and Visualization System Based on Radar Sensor Data

o **NCHRP IDEA 20-30/IDEA 223** - Fatigue Crack Inspection Using Computer Vision and Augmented Reality

o **NCHRP IDEA 20-30/IDEA 226** - A Smart IoT Proximity Alert System for Highway Work Zone Safety

o **NCHRP IDEA 20-30/IDEA 228** - A Retroreflective Road Lane Marking Tape 1,000X Brighter Than Existing Technology

o **NCHRP Synthesis 20-05/Topic 51-03** - Pavement Markings Placement and Removal Practices and Its Effect on Work Zone Safety

o **NCHRP Synthesis 20-05/Topic 52-08** - Practices for Balancing Safety Investments in a Comprehensive Safety Program

o **NCHRP Synthesis 20-05/Topic 52-09** - Use of Safety Management Systems in Managing Highway Maintenance Worker Safety

o **NCHRP Synthesis 20-05/Topic 52-11** - Use of Smart Work Zone Technologies for Improving Work Zone Safety

o **NCHRP Synthesis 20-05/Topic 52-18** - Design Practices for Rock Slopes and Rockfall Management

o **Safety IDEA Project 36** - Onboard High-Bandwidth Fiber Optic Sensing System for Broken Rail Detection

o **Safety IDEA Project 44** - Laser-based Non-destructive Spike Defect Inspection System

o **Safety IDEA Project 45** - Development of a Fatigue Load for Railway Bridges

o **TCRP A-44** - Strategies for Detering Trespassing on Rail Transit and Commuter Rail Rights-of-Way

o **TCRP B-46** - Tactile Wayfinding in Transportation Settings for Travelers Who Are Blind or Visually Impaired

o **TCRP F-26** - Improving the Health and Safety of Transit Workers with Corresponding Impacts on the Bottom Line

o **TCRP G-17** - Assessing Lifecycle and Human Costs of Bus Operator Workstation Design and Components

o **TCRP J-07/Topic SA-51** - Transit Safety Risk Assessment Methodologies

o **TCRP Synthesis J-07/Topic SA-52** - Assessing Equity and Identifying Impacts Associated with Bus Network Redesigns

o **Transit IDEA J-04/IDEA 88** - Evaluation of an Automatic, Individual, Computer-Based Operator Education and Training Program

o **Transit IDEA J-04/IDEA 98** - Safety Assessment of the Interaction Between the Autonomous Shuttle Bus and Vulnerable Road Users

**Upcoming Projects**

o **ACRP 01-44** - Airport Insurance Requirements

o **ACRP 04-25** - Airports and Pandemics—Reducing the Spread of Communicable Diseases

o **ACRP 06-08** - Human Factors in Airport Operations

o **ACRP 10-30** - Evaluating the Effectiveness of an Airport’s Wildlife Hazard Management Program

o **ACRP 11-02/Task 41** - Toward a Touchless Airport Journey

o **BTS/CRP BTS-14** - Understanding and Analyzing Crash Contributing Factors (Joint project with NCHRP 22-45)

o **BTS/CRP BTS-16** - Developing On-road Driver Skills Test and Scoring Guidance for Measuring and Predicting High Safety Risk Drivers

o **BTS/CRP BTS-17** - Is Combined High Visibility Enforcement (HVE) Effective?

o **BTS/CRP BTS-18** - Understanding the Effectiveness of Public Awareness Educational Campaigns (non-law enforcement) and the Necessary Components Critical for Success

o **BTS/CRP BTS-19** - Moped and Motor Scooter (50 cc or less) Safety: Issues and Countermeasures

o **NCHRP 03-141** - Midblock Pedestrian Signal (MPS) Warrants and Operation

o **NCHRP 05-25** - Safety Performance of LED and Variable Lighting Systems

o **NCHRP 08-139** - Guide for Preventing and Mitigating the Risk of Bridge and Tunnel Strikes by Motor Vehicles

o **NCHRP 10-109** - Modern Solutions to Safe and Efficient Work Zone Travel

o **NCHRP 15-66** - Operational Performance and Safety Effects of Arterial Weaving Sections

o **NCHRP 15-79** - Development of Guidance for Non-Standard Roadside Hardware Installations
- NCHRP 17-96 - Traffic Safety Culture Research Roadmap
- NCHRP 17-97 - Strategies to Improve Pedestrian Safety at Night
- NCHRP 17-99 - Safety Effectiveness Assessment of Advanced Highway-Rail Grade Crossing Improvements
- NCHRP 20-07/Task 358 - Reducing Risks to Worker Safety in Work Zones Due to Distracted Drivers
- NCHRP 20-07/Task 368 - Development of a Roadmap for Use of SHRP2 Safety Data to Enhance Existing Publications
- NCHRP 20-102(16) - Preparing TIM Responders for Connected Vehicles and Automated Vehicles
- NCHRP 20-102(18) - Minimum Safety Data Needed for Automated Vehicle Operations and Crash Analysis
- NCHRP 20-102(33) - Safety of Vulnerable Road Users in a C/AV Future
- NCHRP 22-32A - Development of Methods to Evaluate Side Impacts for Next Edition MASH
- NCHRP 22-36(01) - A Guideline for Connection Details Between Portable Concrete Barrier Segments
- NCHRP 22-42 - Impact Performance Assessment of Barrier Performance at High Speeds
- 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 22-51 - Evaluation of MASH 2016 Soil Specifications and Procedures
- NCHRP 23-09 - Scoping Study to Develop the Basis for a Highway Standard to Conduct an All-Hazards Risk and Resilience Analysis
- NCHRP 23-13 - Transportation Research Related to COVID-19
- TCRP D-19 - Detecting and mitigating low level DC fault currents in transit systems thus eliminating electrical fires in tunnels and rights-of-way

**Reports from the National Academies Press on Safety & Human Factors**
- Decarcerating Correctional Facilities during COVID-19 - Advancing Health, Equity, and Safety
- Public–Private Partnerships for Global Health at the National, Municipal, and Community Levels
- Value Proposition and Innovative Models for Multi-Sectoral Engagement in Global Health
- Stronger Food and Drug Regulatory Systems Abroad
- Health-Focused Public–Private Partnerships in the Urban Context
- Predicting Human Health Effects from Environmental Exposures: Applying Translatable and Accessible Biomarkers of Effect

**Committees & Panels**

*Sign-up to be a committee "Friend"*

**TRB Standing Committees** – Search by transportation mode and committee topic
- 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
- ACS10 – Transportation Safety Management
- ACS20 – Safety Performance Analysis
- ACS50 – Impaired in Transportation
- ACS60 – Truck and Bus Safety
- AKD20 – Roadside Safety Design
- AKD80 – Roundabouts and other Intersection Design and Control Strategies
- ALO70 – Tort Liability and Risk Management
- AME60 – Accessible Transportation and Mobility
- AN000 – Safety and Systems Users Group
- ANB00 – Safety
- ANB23 – Highway Safety Workforce Development
- ANB40 – Traffic Law Enforcement
- ANB45 – Occupant Protection
- ANB60 – Safe Mobility of Older Persons
- AND00 – Users Performance
- AND40 – Visibility
- ANF30 – Motorcycles and Mopeds
- AR070 – Rail Safety
- AR080 – Highway/Rail Grade Crossings
Task Forces - Search for task force under committee here

Policy Study
- B0110 - Commercial Truck and Bus Safety Synthesis Program
- B0140 - Offshore Oil and Gas Safety Culture: A Framing Study

CRP Panels
- Project Panels Related to Safety & Human Factors

Councils
- A001C – Young Members Coordinating Council

Recent and Upcoming Events

Upcoming Conferences - Left hand menu "upcoming conferences by topic"
(Conferences cosponsored by TRB are denoted with an asterisk.)

10th International Conference on Bridge Maintenance, Safety, and Management (IABMAS2020)*
April 11-15, 2021
Sapporo, Japan

18th Biennial National Harbor Safety Committee Conference
June 15, 2021
Boston, MA

2021 Innovations in Freight Data
September 21, 2021
Irvine, CA

24th National Conference on Rural Public and Intercity Bus Transportation
October 24-27, 2021
Charleston, SC

Webinars – View upcoming webinars, suggest a webinar or add registration information

Past Webinars
- Safety and Human Factors

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
- Research Needs Statements (RNS) – rns.trb.org - Research needs as identified by TRB Technical Activities standing committees
- 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