

BEHAVIORAL TRAFFIC SAFETY  
Cooperative Research Program

# 2023 ANNUAL REPORT



NATIONAL  
ACADEMIES *Sciences  
Engineering  
Medicine*

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\* Membership as of November 2023

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COOPERATIVE RESEARCH PROGRAM

# 2023 ANNUAL REPORT

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**TRB** TRANSPORTATION RESEARCH BOARD

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The Behavioral Traffic Safety Cooperative Research Program is sponsored by the Governors Highway Safety Association (GHSA), funded by the National Highway Traffic Safety Administration (NHTSA), and managed by the Transportation Research Board.

## GOVERNORS HIGHWAY SAFETY ASSOCIATION

GHSA is a 501(c)(3) nonprofit representing the state and territorial highway safety offices that implement federal grant programs to address behavioral highway safety issues. Its mission is to provide leadership and advocacy for the states and territories to improve traffic safety, influence national policy, enhance program management, and promote best practices. The goals of GHSA are to (1) promote traffic safety as a national priority, (2) expand and deliver member support services, (3) develop new and strengthen existing partnerships, (4) encourage innovative approaches in the states' safety programs, and (5) ensure sufficient resources to support association services and priorities.

GHSA traces its history back to the Highway Safety Act of 1966, which established the State and Community Highway Safety Grant Program (U.S.C. Title 23, Section 402) and created a unique partnership among federal, state, and local governments and set the foundation for the creation of State Highway Safety Offices. In each state and territory, governors select a representative to administer the program. In 1967, several governors' representatives organized into the National Conference of Governors' Highway Safety Representatives. The organization incorporated in February 1975 and received nonprofit status in June 1976. In March 1978, the organization transitioned from a conference to an association, becoming the National Association of Governors' Highway Safety Representatives. In November 2002, the name was changed to the Governors Highway Safety Association. Learn more about the GHSA at [www.ghsa.org](http://www.ghsa.org).

## NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

NHTSA, a part of the U.S. Department of Transportation, is responsible for reducing deaths, injuries, and economic losses resulting from motor vehicle crashes. This is accomplished by setting and enforcing safety performance standards for motor vehicles and motor vehicle equipment, and through grants to state and local governments to enable them to conduct effective local highway safety programs.

NHTSA also conducts research on driver behavior and traffic safety to develop the most efficient and effective means of bringing about safety improvements. Learn more about NHTSA at [www.nhtsa.gov](http://www.nhtsa.gov).

Cover image credit: Leonardo Ivan Cervantes Ruiz / iStock / Getty Images Plus

# About the National Academies of Sciences, Engineering, and Medicine

The **National Academy of Sciences** was established in 1863 by an Act of Congress, signed by President Lincoln, as a private, nongovernmental institution to advise the nation on issues related to science and technology. Members are elected by their peers for outstanding contributions to research. Dr. Marcia McNutt is president.

The **National Academy of Engineering** was established in 1964 under the charter of the National Academy of Sciences to bring the practices of engineering to advising the nation. Members are elected by their peers for extraordinary contributions to engineering. Dr. John L. Anderson is president.

The **National Academy of Medicine** (formerly the Institute of Medicine) was established in 1970 under the charter of the National Academy of Sciences to advise the nation on medical and health issues. Members are elected by their peers for distinguished contributions to medicine and health. Dr. Victor J. Dzau is president.

The three Academies work together as the **National Academies of Sciences, Engineering, and Medicine** to provide independent, objective analysis and advice to the nation and conduct other activities to solve complex problems and inform public policy decisions. The National Academies also encourage education and research, recognize outstanding contributions to knowledge, and increase public understanding in matters of science, engineering, and medicine.

Learn more about the National Academies of Sciences, Engineering, and Medicine at [www.nationalacademies.org](http://www.nationalacademies.org).

The **Transportation Research Board** is one of seven major program divisions of the National Academies of Sciences, Engineering, and Medicine. The mission of the Transportation Research Board is to mobilize expertise, experience, and knowledge to anticipate and solve complex transportation-related challenges. The Board's varied activities annually engage about 8,500 engineers, scientists, and other transportation researchers and practitioners from the public and private sectors and academia, all of whom contribute their expertise in the public interest. The program is supported by state transportation departments, federal agencies including the component administrations of the U.S. Department of Transportation, and other organizations and individuals interested in the development of transportation.

Learn more about the Transportation Research Board at [www.TRB.org](http://www.TRB.org).

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# About the Behavioral Traffic Safety Cooperative Research Program

The Behavioral Traffic Safety Cooperative Research Program (BTSCRCP) is a forum for coordinated and collaborative research to address issues integral to the Governors Highway Safety Association (GHSA), the National Highway Traffic Safety Administration (NHTSA), and traffic safety professionals at all levels of government and the private sector. BTSCRCP provides practical, ready-to-implement solutions to save lives, prevent injuries, and reduce the costs of road traffic crashes associated with unsafe behaviors.

## HOW IS BTSCRCP FUNDED?

Moving Ahead for Progress in the 21st Century (MAP-21), Subsection 402(c), created the National Cooperative Research and Evaluation Program. The program was continued in the Fixing America's Surface Transportation (FAST) Act. Funding was set at \$2,500,000 and is withheld from the Section 402 grant program each federal fiscal year. In October 2017, GHSA entered into an agreement with the Transportation Research Board (TRB) to manage the program's research activities. The name of the program was changed to the Behavioral Traffic Safety Cooperative Research Program to clarify its purpose and to distinguish it from other TRB research programs.

## HOW IS BTSCRCP GOVERNED?

The GHSA Executive Board serves as the governing board for BTSCRCP. The Board consists of representatives of the 10 NHTSA regions and appoints the GHSA Research Committee, which monitors and facilitates the activities of BTSCRCP. Its ultimate goal is to oversee a quality research program that is committed to addressing research issues facing state highway safety offices (SHSOs) and to promote research findings that improve highway safety.

## WHERE DO THE RESEARCH IDEAS ORIGINATE?

Anyone can prepare a problem statement in conjunction with an SHSO; however, only SHSOs, the GHSA Executive Board members, GHSA Research Committee members, or NHTSA can submit a problem statement to BTSCRCP. Submitters are strongly encouraged to do a literature search before submitting, to ensure the problem has not been solved or is not being studied already. There is an annual request for problem statements posted on [www.trb.org/BTSCRCP](http://www.trb.org/BTSCRCP).



## WHO SELECTS THE RESEARCH TOPICS?

NHTSA and TRB staff review the submitted research problem statements and provide feedback to the GHSA Research Committee. The GHSA Executive Board gives final approval of the annual research projects. Emphasis is placed on selecting projects that will result in applied research products that highway safety stakeholders will be able to use immediately upon the completion of the research.

## WHAT HAPPENS AFTER RESEARCH TOPICS ARE SELECTED?

TRB follows a cooperative research process that it has used successfully for more than 60 years in other programs. First, TRB forms a project panel of individuals with expertise and interest in the topic area. This project panel uses the original problem statement to develop a detailed scope of work that serves as a basis for a Request for Proposal (RFP). The RFP is prepared and posted on [www.trb.org/BTSCRIP](http://www.trb.org/BTSCRIP). Those previously expressing interest via the BTSCRIP website are notified immediately. The *TRB Weekly* newsletter provides notice for others. Individuals and agencies then respond to the RFP by submitting proposals to do the work. The project panel reviews the proposals and selects the contractor to perform the work. The panel then provides technical guidance, reviews deliverables, and provides general oversight throughout the life of the project.



# The Behavioral Traffic Safety Cooperative Research Program in 2023

Since its inception in 2017, BTSCRCP has funded 35 research projects aimed at reducing motor vehicle crashes, injuries, and fatalities on U.S. roadway systems. TRB took on this important program of behavioral safety research with our partners at GHSA and NHTSA. With oversight by GHSA and funding from NHTSA, BTSCRCP is structured to support the research needs of SHSOs and other traffic safety stakeholders across the country.

2023 was a productive year for BTSCRCP.

**Nine BTSCRCP publications** were released:

- *BTSCRCP Research Report 4: Promoting Older Driver Safety: Guide for State Practices*
- *BTSCRCP Research Report 5: Strategies to Improve State Traffic Citation and Adjudication Outcomes*
- *BTSCRCP Research Report 6: Identifying and Prioritizing Behavioral Interventions to Improve Child Passenger Safety in For-Hire Vehicles*
- *BTSCRCP Research Report 7: Improving MPO and SHSO Coordination on Behavioral Traffic Safety: Guide and Toolkit*
- *BTSCRCP Research Report 8: Highway Safety Behavioral Strategies for Rural and Tribal Areas: A Guide*
- *BTSCRCP Research Report 9: E-Scooter Safety Toolbox*
- *BTSCRCP Web-Only Document 4: Highway Safety Behavioral Strategies for Rural Areas*
- *BTSCRCP Web-Only Document 5: E-Scooter Safety: Issues and Solutions*
- *BTSCRCP Web-Only Document 6: Communicating Safe Behavior Practices to Vulnerable Road Users*

**Contractor work was completed** on three projects with associated publications in progress:

- BTS-14, "Informing the Selection of Countermeasures by Evaluating, Analyzing, and Diagnosing Contributing Factors that Lead to Crashes" [jointly funded with National Cooperative Research Program (NCHRP) Project 22-45]
- BTS-17, "Determining the Effectiveness of Combined High Visibility Enforcement"
- BTS-19, "Moped and Seated Motor Scooter (50 cc or less) Safety: Issues and Countermeasures"

**Contractor work began** on five new BTSCRP projects:

- BTS-24, “Multi-Solving Safety Approach—Stepping Away from Silos to Achieve a Safer System”
- BTS-25, “Cost-Benefit Evaluations of Detection Methods for Driving Under the Influence of Drugs”
- BTS-26, “Advanced Driver Assistance Systems (ADAS) Education and Outreach”
- BTS-27, “Evaluation of Motorcycle Licensing and Training Requirements
- BTS-28, Teen Driving Performance Associated with Distraction, ADHD, and Other Risk Factors”

We thank our many friends and colleagues who have supported this program since its launch. As in all of TRB’s cooperative research programs, it is our volunteers who keep BTSCRP aligned with the needs of the stakeholder community.



# Current and Pending Projects

## **BTS-14/NCHRP 22-45: INFORMING THE SELECTION OF COUNTERMEASURES BY EVALUATING, ANALYZING, AND DIAGNOSING CONTRIBUTING FACTORS THAT LEAD TO CRASHES**

Funds: \$690,000 (jointly funded by BTSCRCP and NCHRP)

Contractor: Exponent

**Overview:** Research is needed to develop diagnostic tools that leverage crash, roadway, traffic volume, human factors, behavioral, socioeconomic, and demographic data, as well as nontraditional data sources, in order to advance the state of the practice in crash diagnostics and countermeasure selection that considers both modal priorities and facility context. The objective of this research is to develop new tools for diagnosing contributing factors leading to crashes that will aid practitioners in selecting appropriate countermeasures in modally diverse contexts. The tools should address a wide variety of contributing factors leading to crashes (e.g., roadway, technological, behavioral, human, socioeconomic, demographic, weather, and land use) in order to further practitioner understanding of how to most effectively balance trade-off decisions in a given modal priority and facility context.

**Status:** Final deliverables under review.

## **BTS-16: DEVELOPING DRIVER SKILLS EXAMINATION AND SCORING GUIDANCE FOR EVALUATING AND PREDICTING HIGH SAFETY RISK DRIVERS**

Funds: \$650,000

Contractor: Johns Hopkins University

**Overview:** On-road tests during driver licensure are conducted to ensure that drivers have the basic skills to operate a motor vehicle unsupervised. In the United States, driver training curricula offer minimal practice and skill development to pass the on-road skill test. Despite the prominent role of experience in motor vehicle crashes, much more attention has been paid to the post-licensure “problem” driving behaviors of adolescents, and scant attention has been paid to the pre-licensure or permit phase. The objective of this research is to evaluate and measure the effectiveness of the current on-road driver skills tests and test-scoring methods and develop guidance that includes methods for on-road driver skills test administration and scoring that predicts high safety risk.

**Status:** Research underway.

## BTS-17: DETERMINING THE EFFECTIVENESS OF COMBINED HIGH VISIBILITY ENFORCEMENT



Funds: \$300,000

Contractor: Iowa State University

**Overview:** NHTSA has conducted a single evaluation of a combined traffic safety enforcement program—More Cops More Stops—in Oklahoma and Tennessee. The evaluation found some positive outcomes but found no evidence that the program enhanced the effects of the Click It or Ticket and Drive Sober or Get Pulled Over campaigns. The objective of

this research is to draw lessons from the evaluation of More Cops More Stops to structure alternative evaluation methodologies to determine the benefits and disadvantages of combined traffic enforcement and media efforts.

**Status:** To be published as *BTSCRCP Research Report 10*.

## BTS-18: OBJECTIVES, COMPONENTS, AND MEASURES OF EFFECTIVE TRAFFIC SAFETY PUBLIC AWARENESS AND EDUCATION EFFORTS

Funds: \$350,000

Contractor: Virginia Polytechnic Institute and State University

**Overview:** Some states have launched new behavioral-based traffic safety campaigns focused more on public awareness, education, and individual responsibility rather than enforcement to change unsafe road user behaviors. One example is Missouri's Buckle Up, Phone Down program, an initiative that asks individuals and organizations to increase two behaviors: using a seat belt when riding in a vehicle and putting down the phone while driving or walking. The objective of this research is to provide SHSOs with evidence of the effectiveness of public awareness campaigns and their essential components.

**Status:** Research underway.

## **BTS-19: MOPED AND MOTOR SCOOTER (50 CC OR LESS) SAFETY: ISSUES AND COUNTERMEASURES**

Funds: \$350,000

Contractor: University of South Florida

**Overview:** There are few studies examining the risk factors for moped and motor scooter crashes in the United States. The objective of this research is to investigate safety issues unique to moped and motor scooter riding and connect those findings with practical policy recommendations and educational programs. The research will use national and state traffic crash databases to determine the types of crashes and injuries most associated with motor scooter and moped use. The research will also develop a web-based tool that will allow stakeholders to create social media graphics, posters, and other visual content to improve safety.

**Status:** Final deliverables under review.

## **BTS-20: STRATEGIES TO ADDRESS MISREPORTING OF IMPAIRED AND DISTRACTED DRIVING IN MOTOR VEHICLE CRASHES**

Funds: \$450,000

Contractor: University of Wisconsin–Madison

**Overview:** Statistical and analytical models have been widely used to predict the counts and probabilities of crashes using historical crash data. However, the underreporting of certain behaviors in crash data, specifically alcohol and/or drug-related and distracted driving, may result in problematic model estimation results. Although previous studies have been developed to investigate the effects of crash underreporting on crash prediction models, most of the existing studies have relied on simulated data, which might be difficult to validate in real-world situations. With the growth of multidisciplinary datasets, research is needed to investigate to what extent impaired and distracted driving have been underreported in crash data and the potential negative impacts of underreporting on driver-behavior-related crash analysis. Additional sources of data that can be used to investigate this issue include hospital injury data, toxicology data, and citation data, to name a few. Research is also needed to propose solutions that can be used to reduce or eliminate the impacts of underreporting in crash data. The objectives of this research are to develop procedures to assess the existence and extent of under/over-reporting of impaired and distracted driving in crash data and to propose a methodology to improve the reporting of impaired and distracted driving in motor vehicle crashes.

**Status:** Research underway.

## BTS-21: ASSESSING AND MITIGATING RACIAL DISPARITIES IN THE ENFORCEMENT OF PEDESTRIAN, BICYCLE, AND MICROMOBILITY TRAFFIC-RELATED LAWS

Funds: \$500,000

Contractor: RAND Corporation

**Overview:** The magnitude of racial profiling, biased policing, and police-based violence and the impacts on the safety and health of Black pedestrians, bicyclists, and drivers have been well documented. One study of more than 100 million traffic stops in the United States showed that Black drivers were stopped 40% more frequently than White drivers. As communities wrestle with the role of enforcement in their injury prevention efforts, there is a need for research to comprehensively document and describe the effects of pedestrian and bicycle enforcement programs on the safety, mobility, health, and well-being of people of color. There is also a need to better understand practices to mitigate inequities and provide alternative or supplemental approaches to policing that could foster restorative justice and better meet underlying goals regarding traffic safety, health, and mobility.

The objectives of this research are to:

- Provide evidence of the nature and magnitude of racial disparities in policing with respect to pedestrians, bicyclists, and micromobility users, as well as the impact of such disparities on people of color.
- Describe steps communities are taking to consider and address the effects of biased enforcement of pedestrian and bicycle-related laws, including alternatives to police enforcement.
- Develop and apply a framework to evaluate the impacts and equity outcomes of these approaches and establish guidelines and recommendations for mitigating inequities in the enforcement of traffic laws with respect to pedestrians, bicyclists, and micromobility users.

**Status:** Research underway.



BTSCR Project BTS-21 Panel  
From left to right: Parry Frank, Jennifer Dill, Dennis Randolph, Luana Broshears, Anne Phillips, Ngani Salisha Ndimbie (chair)

## **BTS-22: GUIDELINES FOR SELECTING COMMUNICATION CHANNELS TO DELIVER TRAFFIC SAFETY MESSAGING**

**Funds:** \$350,000

**Contractor:** Virginia Polytechnic Institute and State University

**Overview:** All SHSOs are contacted by media companies that offer innovative ways to share traffic safety messaging with the motoring public. Some of these ways of sharing messaging include television, gas station tank toppers, ice cube chests, gas tank handles, and bar and restaurant jukeboxes. Traffic messaging can also occur at supermarkets, sporting events, and concerts. Little is known about the effectiveness of such messaging, whether one form is better than others, or what demographic groups might be most impacted by each form of messaging.

The objectives of this research are to (1) evaluate traffic safety campaigns of varied innovative driver behavior messaging types in multiple locations across the nation and (2) prepare guidance for delivering effective behavioral traffic safety messaging. The research is expected to involve several SHSOs and a diverse set of media companies.

**Status:** Research underway.

## **BTS-23: OUTCOMES OF VARIABILITY IN TEEN DRIVING EXPERIENCE AND EXPOSURE: EVIDENCE FROM THE NATURALISTIC DRIVING STUDY**

**Funds:** \$400,000

**Contractor:** Virginia Polytechnic Institute and State University

**Overview:** An important question is whether teenagers who are exposed to a greater diversity of traffic and road environments early in their driving career have lower crash involvements than those who are exposed to less diversity. Ideally, this question would be addressed by analyzing how driving exposure—both the amount of driving and driving conditions—changes when teens make the transition from supervised to unsupervised driving. While supervised driving data are not available in the Strategic Highway Research Program 2 Naturalistic Driving Study (SHRP 2 NDS), it is possible to compare the diversity of experience in the early months of unsupervised driving with later months and to examine the association of exposure to greater diversity with crashes and near-crashes. Distracted driving has become a growing concern over the past few decades with the advent of smartphones and other technologies with the potential to divert attention from the task of driving. However, the contribution of distracted driving to crashes is not well established. The SHRP 2 NDS data provide an opportunity to address a number of questions related to teenagers and distracted driving.



The objectives of this research are to use the NDS data files to (1) evaluate how exposure to greater diversity in traffic and road environments is associated with teen driver performance indicators such as crashes and near-crashes and (2) gauge the association between confirmed incidences of teen distracted driving behaviors and inattention to the driving task with crashes and near-crash involvement and determine if the relationships change with increasing driving experience.

**Status:** Research underway.

### **BTS-24: MULTI-SOLVING SAFETY APPROACH—STEPPING AWAY FROM SILOS TO ACHIEVE A SAFER SYSTEM**

Funds: \$500,000

Contractor: Iowa State University

**Overview:** The Safe System Approach (SSA) incorporates various stakeholders to coordinate, engage, and implement solutions that address safer roads, safer road users, and community goals in tandem. The SSA requires stakeholders to think differently, with emphasis on system solutions made by multiple disciplines working together. Committee structures, conversations, and outcomes can be re-framed to better achieve multidisciplinary solutions for the system. In addition, recent dialogue related to SSA implementation has created a divide on the value of improving the built environment versus changes to human behavior. These two are not mutually exclusive, and stakeholder engagement can be structured to move away from this way of thinking if advanced by a “multi-solving” approach. Multi-solving is a way of solving multiple problems with a single investment of time and money by bringing together stakeholders from different sectors and disciplines to address issues in a cost-efficient manner.

The objective of this research is to help redefine stakeholder engagement during the development of safety plans, interventions, programs, projects, and policies so that outcomes focus on multi-solving decision-making and implementation. The desired outcomes are to develop a guide to promote and facilitate diverse, cross-sectoral groups to collaborate on multi-solving decision-making and implementation.

**Status:** Research underway.

### **BTS-25: COST–BENEFIT EVALUATIONS OF DETECTION METHODS FOR DRIVING UNDER THE INFLUENCE OF DRUGS**

Funds: \$500,000

Contractor: Pacific Institute for Research and Evaluation

**Overview:** Drug-impaired driving is a significant and growing traffic safety concern. Policies to deter driving under the influence of drugs (DUID) require sound scientific evidence. Deterring DUID requires accurate roadside screening and detection for drugs.

- Drug screening and detection methods based on oral fluid samples are increasingly used by law enforcement. However, this approach is limited by the accuracy of screening technologies to identify the recency of drug use and to assess whether the amount of drug detected may be impairing.
- The Drug Evaluation and Classification program trains officers to serve as Drug Recognition Experts (DREs), who assist patrol officers in determining drug impairment. The use of DREs is limited by substantial training time and costs, as well as a progressive reduction in the DRE force in recent years. A shortage of DREs has been identified in several states as the main limitation of the program.
- Advanced Roadside Impaired Driving Enforcement (ARIDE) training provides officers with skills to identify and detect drug-impaired drivers and has the potential to bridge the gap between Standardized Field Sobriety Testing and DRE training. Providing ARIDE training to as many patrol officers as possible is a way to address the DRE shortage.

Because every resource has a cost, the optimal design, implementation, and use of policies should be guided by what is scientifically and economically sound. Economic evaluations of policy alternatives should help decide which strategies can reasonably be implemented.

The objective of this project is to perform a comparative cost–benefit analysis of three DUID detection methods: oral fluids, DRE, and ARIDE.

**Status:** Research underway.

## **BTS-26: ADVANCED DRIVER ASSISTANCE SYSTEM EDUCATION AND OUTREACH**

Funds: \$250,000

Contractor: University of Iowa

**Overview:** Proper use of advanced driver assistance systems (ADAS)—which are rapidly being introduced into the U.S. vehicle fleet—offers the promise of reducing motor vehicle crashes and fatalities. ADAS features, however, can be confusing to drivers, include a wide variance of terminology, and have many differences in design and functionality. ADAS technology differs from previous vehicle safety enhancements for which a simple message or warning conveys directions to drivers. ADAS require new models for messaging to help drivers understand and effectively use these complex new technologies. As ADAS technologies continue to advance and permeate the vehicle fleet, it is critical to ensure all roadway

users understand how the systems work and how to safely use them. There is no standard ADAS educational curriculum for novice drivers, older drivers, rental car customers, vehicle dealerships, business fleet operators, or others who may come into contact with such systems. In addition to drivers, nonmotorists who interact with ADAS-equipped vehicles are another target population.

The objectives of this project are to (1) characterize the current state of ADAS education, training materials, and methods of delivery; (2) identify populations in need of ADAS education and training; (3) identify gaps in existing educational materials and methods of delivery; and (4) identify effective methods of delivering ADAS information and educational materials to target populations.

**Status:** Research underway.

## **BTS-27: EVALUATION OF MOTORCYCLE LICENSING AND TRAINING REQUIREMENTS**

Funds: \$400,000

Contractor: Texas A&M University

**Overview:** Motorcyclists account for a disproportionate number of overall traffic fatalities. Past efforts to improve motorcycle safety have largely focused on helmets, rider impairment, and operator training. Another potential focus area—motorcycle licensing procedures—has received less attention despite being identified as a prospective focal point by the National Transportation Safety Board (NTSB). Motorcycle licensing requirements differ considerably across states with regard to tiered licensing practices, rider education, testing requirements, permit restrictions, and other aspects. Some studies have found that more restrictive licensing elements, such as requiring a skills test to obtain a permit, are associated with reductions in motorcyclist fatalities. However, research in this area has been limited and is somewhat out of date, which hinders the ability to assess best practices. Potential changes to motorcycle licensing procedures seldom gain traction, as most states lack the financial resources to investigate best practices. NTSB has concluded that motorcycle licensing practices have not been sufficiently evaluated with regard to their effectiveness and impact on rider safety.

The objectives of this project are to (1) evaluate the current state of the practice for motorcycle licensing in the United States and (2) develop recommendations for improvement based on the latest empirical data.

**Status:** Research underway.

## **BTS-28: TEEN DRIVING PERFORMANCE ASSOCIATED WITH DISTRACTION, ADHD, AND OTHER RISK FACTORS**

Funds: \$200,000

Contractor: Virginia Polytechnic Institute and State University

**Overview:** In recent years, distracted driving has become a growing traffic safety concern, particularly with young drivers, due to their limited driving experience and other factors. Young drivers with neurodevelopmental disabilities such as autism and attention deficit hyperactivity disorder (ADHD) may be at more risk for motor vehicle crashes due to behavior characteristics commonly associated with these conditions. In recent years, a growing body of research has examined driving risks for teens with autism and with ADHD. Research has identified concerns about the driving skills of teenagers with ADHD, as well as their increased tendencies to become distracted while driving and drive at higher speeds. Determining the role of distracted driving in crashes is difficult and inexact for many reasons, including a general lack of evidence. Researchers have turned to observational methods to examine the prevalence and increased risk posed by non-driving-related tasks. Naturalistic studies, most notably the SHRP 2 NDS, can objectively identify driver distraction behavior immediately before a crash or other event. SHRP 2 NDS data provide an opportunity to address a number of questions related to teenagers and distracted driving.

The objectives of this project are to (1) gauge the association between confirmed incidences of distracted behaviors and inattention to the driving task by teen drivers with crash and near-crash involvement, in relation to their incidence during baseline events; (2) determine whether these incidences contribute to crashes and near-crashes, and if and how these relationships change with increasing driving experience; and (3) compare exposure-based crash and near-crash involvement rates, and self-reported risky driving behaviors, for teen drivers with different levels of ADHD screen scores, taking into account the potential influence of other behavioral and demographic factors captured in NDS data.

**Status:** Research underway.

## **BTS-29/NCHRP 17-120: METHOD TO LINK CRASH, EMERGENCY MEDICAL SERVICE, AND TRAUMA REGISTRY DATA**

Funds: \$450,000 (jointly funded by BTSCR and NCHRP)

Contractor: To be determined

**Overview:** *NCHRP Web-Only Document 302: Development of a Comprehensive Approach for Serious Traffic Crash Injury Measurement and Reporting Systems* provides a roadmap for developing comprehensive crash-related data linkage systems. Newer versions of related systems have since been released; additional research has been conducted; and

technological developments have advanced capabilities in this area. For example, it is now possible to use a Universally Unique Identifier (UUID) to perform deterministic linkages between two records in emergency medical service (EMS) and trauma registry databases. UUID was added to the NHTSA Office of EMS's National EMS Information System Version 3.5 and is starting to roll out to states. The NHTSA Office of EMS has worked with the American College of Surgeons to get UUID included as a data element on trauma records in order to allow for a direct link of EMS to trauma records. Applying this method to link crash records with EMS, trauma registries, and other types of data will increase the availability of these linkages, allowing for advancements in traffic safety data analysis, which, in turn, supports the development of more effective and comprehensive traffic safety programs.

The objective of this project is to develop, validate, and promote a scalable approach to use UUID to link person-level traffic crash data records with EMS and trauma data records for each crash event.

**Status:** Pending.

### **BTS-30: ENGAGING UNDERSERVED POPULATIONS FOR CHILD PASSENGER SAFETY**

Funds: \$400,000

Contractor: To be determined



**Overview:** Analysis of traffic fatalities by race and ethnicity finds that traffic crash fatalities disproportionately affect people of color. This reinforces the need to more equitably implement highway safety programs, with an increased focus on underserved populations.

Child passenger safety (CPS) is one of the focus areas for SHSOs for which the opportunity exists to more effectively engage underserved populations in protecting children from motor vehicle crash fatalities and injuries. Repeated requests for best practices have yielded some materials, but there is no step-by-step resource to help stakeholders engage and retain the participation of underserved communities. A broad-based toolkit of behavioral safety principles and practices, along with specific how-to items, would give stakeholders the strategies they need. SHSOs will use the toolkit themselves and will distribute the toolkit to stakeholders.

The objective of this research is to develop a step-by-step guide with specific strategies for use by CPS stakeholders.

**Status:** Anticipated.



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## **BTS-31: QUANTIFYING THE SAFETY IMPACTS OF REDUCED TRAFFIC ENFORCEMENT**

Funds: \$600,000

Contractor: To be determined

**Overview:** A decade-long downward trend in police traffic enforcement has been exacerbated by recent internal and external pressures on law enforcement agencies. Recent declines in traffic citations have been attributed, in part, to the COVID-19 pandemic and staffing challenges. The reduction in traffic enforcement activity may provide an opportunity to evaluate safety impacts when the enforcement treatment is reduced and thereby serve as an indicator of the relative effectiveness of traffic enforcement. Research is needed to develop a better understanding of the relationship between traffic enforcement and safety outcomes and to show how changes in enforcement activity/investments may or may not affect safety outcomes. Quantifying the safety outcomes of traffic enforcement can potentially contribute to the body of knowledge regarding the efficacy of enforcement. Outcomes can also help to calibrate enforcement efforts, favoring those that are more promising for given driving behaviors and violations.

The objective of the research is to identify how enforcement activity has changed in recent years and associate those changes with corresponding changes in crashes, injuries, and/or fatalities. Statistical comparisons can describe those factors that may be significant and guide future investments in enforcement and prioritization among policing agencies.

**Status:** Anticipated.

## **BTS-32: FORMATIVE RESEARCH AND RESOURCES TO PREVENT CANNABIS-IMPAIRED DRIVING AMONG TEENS AND YOUNG ADULTS**

Funds: \$500,000

Contractor: To be determined

**Overview:** Driving under the influence of cannabis is illegal in the United States and remains a significant public health problem, particularly for young drivers. Young cannabis users may perceive cannabis as a safe alternative to drinking and driving. Among high school students, cannabis-impaired driving may be more prevalent than alcohol-impaired driving. Almost half of teen drivers who use marijuana reported driving after using marijuana. Despite the magnitude of this problem, there are still many gaps in the understanding of young adults' knowledge, attitudes, and beliefs; the contexts in which they make the decision to drive while impaired; and what interventions are promising for promoting safer driving behaviors.

Research suggests that interventions focused on parental monitoring, knowledge, and support are protective against risky behaviors, including driving or riding under the influence. Formative research that addresses adolescent and young adult social norms, attitudes, knowledge, and perceptions is, therefore, needed to help prevent cannabis-impaired driving. Similarly, examining the body of work describing interventions that involve parents or other caregivers and the efficacy of them is also critical.

The objectives of this research are to (1) design and implement formative research to identify teen social norms, attitudes, knowledge, and perceptions related to cannabis and driving, and evidence-based approaches and models to support parents and caregivers of teens; and (2) develop educational resources that support parents and caregivers in talking with teens about cannabis-impaired driving. The project will develop educational resources to support parents and caregivers in talking with teens about cannabis-impaired driving and impaired-driving laws. Additionally, the educational products will serve as a resource for SHSOs and/or other organizations working with teens, parents, and caregivers to prevent cannabis-impaired driving.

**Status:** Anticipated.

## **BTS-33: OPTIMIZING PARENT–TEEN SUPERVISED DRIVES TO REDUCE TEEN CRASH RATES**

Funds: \$200,000

Contractor: To be determined

**Overview:** Teen drivers pose the greatest risk for motor vehicle crashes compared to any other age group. Motor vehicle crashes continue to be a leading cause of teen death, and crash risk for recently licensed teens is significantly higher than for other age groups.

Reducing the risk of teen driver crashes requires many countermeasures, including better preparing teens for driving before licensure. Previous studies have demonstrated parents' positive influence on teen driving behavior, increasing the likelihood of wearing their seatbelts to reducing the incidence of driving distracted or under the influence. Studies have also shown that teens who receive experience driving in various conditions (i.e., different road types, varying weather, new routes, etc.) during the permitting phase are safer drivers when licensed and driving independently.

More information is needed to demonstrate how to best prepare parents to optimize time spent behind the wheel with their teen drivers and how best to ensure this time is completed. Some states require a signed driving log to be submitted with the license application, while others simply require the parent to sign an affidavit stating the driving hours were completed.

The objective of this research is to provide actionable data for states to optimize the supervised driving requirement to ensure it creates safer teen drivers and reduces the crash risk for this vulnerable age group.

**Status:** Anticipated.



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## **BTS-34: ENHANCING BEHAVIOIRAL TRAFFIC SAFETY EFFORTS TO ENGAGE UNDERSERVED COMMUNITIES**

Funds: \$500,000

Contractor: To be determined

**Overview:** Traffic crash fatalities disproportionately affect people of color. This longstanding and systemic problem reinforces the need to more equitably implement highway safety programs, with an increased focus on underserved populations. SHSOs and other safety organizations have undertaken a variety of efforts to more effectively engage underserved communities. But despite such past and present activities, these state and local efforts are fragmented and not documented. SHSOs, their subrecipients, and other safety organizations would benefit from information regarding past and ongoing efforts that effectively engage underserved communities to address critical safety issues. Identifying lessons learned, best practices, and recommendations would be very helpful to this audience.

The objective of this research is to document efforts undertaken by SHSOs and other highway safety organizations to increase engagement with underserved communities and develop a noteworthy practices guide, which will include lessons learned and recommendations. Making this information available can help inform the SHSOs, their subrecipients, and others working in highway safety and bolster their engagement and outreach efforts with at-risk and underserved communities.

**Status:** Anticipated.

## **BTS-35: HOW TO REACH THE LAST OF THE SEAT BELT USE HOLDOUTS**

Funds: \$350,000

Contractor: To be determined

**Overview:** Buckling up is the single most effective thing drivers and passengers can do to protect themselves from death or serious injury in a motor vehicle crash. Seat belt use in passenger vehicles is estimated to save more than 10,000 lives annually in the United States. And although most Americans seem to understand the lifesaving value of seat belts—the national seat belt use rate was at 91.6% in 2022—large numbers of vehicle occupants still do not buckle up.

This project will design and conduct research on the remaining percentage of Americans who do not use seat belts, with the goal of identifying practical, actionable countermeasures that can be implemented by SHSOs and their partners to motivate the last seat belt use holdouts to buckle up. To reach the holdouts, understanding underlying issues is critical. The research should include a focus on state and regional data to develop customizable and scalable countermeasure approaches, as opposed to a one-size-fits-all approach.

Potential research methods may include surveys and focus groups to gather data about groups with low restraint use, including reasons why they are not buckling up and insights into motivational and environmental factors that could lead to more effective occupant-protection public outreach, traffic enforcement, and informational/educational programs.

**Status:** Pending.

### **BTS-36/NCHRP 17-124: EFFECTIVENESS OF SPEED REDUCTION IN WORK ZONES**

Funds: \$400,000 (jointly funded by BTSCRCP and NCHRP)

Contractor: To be determined

**Overview:** According to the Federal Highway Administration's Work Zone Management Program, there were 774 fatal crashes in work zones in 2020, up from 765 in 2019. Speeding was determined to be a factor in 37% of fatal crashes in work zones in 2020, up from 32% in 2019.

The California Department of Transportation has been using the Non-Standard Special Provision 12-4.02C(12) since 2010, which requires the contractor to implement Construction Work Zone Speed Limit Reduction. To do so, contractors must install temporary construction signs and portable changeable message signs equipped with speed-sensing radars. The additional cost of the materials and labor is justified if the implementation is effective.

Many states have been lowering speed limits in construction work zones to reduce fatal and injury crashes. The objective of this research project is to confirm whether the current effort to lower speed limits in construction work zones is effective in reducing the rate and severity of crashes and injuries to workers and drivers. If not, the research will look at ways to supplement the reduced speed limits through enforcement and intelligent transportation systems solutions.

The purpose of the research is to gather data on motorists' compliance with speed limit reductions and on any consequent reduction of the rates and severity of work zone crashes.

**Status:** Pending.



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Research Reports		
No.	Project No.	Title, Pages, Publication Year
1	BTS-03	<i>Using Electronic Devices While Driving: Legislation and Enforcement Implications</i> , 260 p. (2022)
2	BTS-07	<i>Framework for Assessing Potential Safety Impacts of Automated Driving Systems</i> (joint with NCHRP Research Report 1001), 148 p. (2022)
3	BTS-02	<i>Behavioral Traffic Safety Messaging on Variable Message Signs</i> , 82 p. (2022)
4	BTS-12	<i>Promoting Older Driver Safety: Guide for State Practices</i> , 68 p. (2023)
5	BTS-04	<i>Strategies to Improve State Traffic Citation and Adjudication Outcomes</i> , 298 p. (2023)
6	BTS-11	<i>Identifying and Prioritizing Behavioral Interventions to Improve Child Passenger Safety in For-Hire Vehicles</i> , 60 p. (2023)
7	BTS-06	<i>Improving MPO and SHSO Coordination on Behavioral Traffic Safety: Guide and Toolkit</i> , 56 p. (2023)
8	BTS-15	<i>Highway Safety Behavioral Strategies for Rural and Tribal Areas: A Guide</i> (& WOD 4), 56 p. (2023)
9	BTS-10	<i>E-Scooter Safety Toolbox</i> (& WOD 5), 52 p. (2023)

Web-Only Documents		
No.	Project No.	Title, Pages, Publication Year
1	BTS-09	<i>Influence of Infrastructure Design on Distracted Driving</i> , 150 p. (2022)
2	BTS-08	<i>Development of Research Problem Statements That Utilize Naturalistic Driving Data to Improve Teen Driving Safety</i> , 33 p. (2022)
3	BTS-01	<i>Developing Employer-Based Behavioral Traffic Safety Programs for Drivers in the Workplace</i> (& WebResource 1), 199 p. (2022)
4	BTS-15	<i>Highway Safety Behavioral Strategies for Rural Areas</i> (& Research Report 8), 178 p. (2023)
5	BTS-10	<i>E-Scooter Safety: Issues and Solutions</i> (& Research Report 9), 235 p. (2023)
6	BTS-14	<i>Communicating Safe Behavior Practices to Vulnerable Road Users</i> , 192 p. (2023)

Research Results Digest		
No.	Project No.	Title, Pages, Publication Year
1	BTS-10	<i>E-Scooter Safety: Issues and Solutions</i> , 28 p. (2022)

WebResource		
No.	Project No.	Title, Publication Year
1	BTS-01	<i>Employer-Based Driver Safety Programs (&amp; WOD 3)</i> (2022)

**Notes:** Publications in parentheses with an ampersand (&) are companion publications.

## **DETAILED PROJECT WRITE-UPS**

Information about project status and detailed project write-ups are available on the BTSCRP website: [www.trb.org/BTSCRP](http://www.trb.org/BTSCRP).

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