IMMEDIATE ACTION REQUESTED by AUGUST 12, 2021

On June 3, 2021, the Governors Highway Safety Association (GHSA) Executive Board approved the BTSCRP 2022 research program. Four new research projects were selected:

- BTS-20: Underreporting of Impaired and Distracted Driving Behaviors in Motor Vehicle Crashes
- BTS-21: Equity in Pedestrian and Bicyclist Mobility, Safety, and Health: The Impact of Racial Bias
- BTS-22: Effectiveness of Different Forms of Innovative Traffic Safety Messaging
- BTS-23: The Impacts of Experience on Teen Driving: Evidence from the Naturalistic Driving Study

Descriptions can be found at http://www.trb.org/BTSCRP/BTSCRPProjects.aspx

We are asking for your help in identifying individuals with relevant expertise and experience to serve on each project technical oversight panel. Nominations should be submitted online from the TRB website at MyTRB at this link: https://volunteer.mytrb.org/Panel/AvailableProjects

We encourage the nomination of members of historically underrepresented groups, including women, young professionals (age 35 and younger), and members of minority groups. Contacts to determine an individual's interest in serving will be made by this office after we have matched available expertise with that required by the nature of the project.

Panels for the new projects are scheduled to meet beginning in October 2021. At this point we expect our offices to be open in October for in-person meetings.

Panel members are prohibited from submitting or participating in the preparation of proposals on projects under their jurisdiction. They serve without compensation, but are paid travel and subsistence expenses. Travel insurance is provided at no cost to panel members. In most cases, three meetings are held in the life of a project, and these normally occur in Washington, DC. At the first meeting the panel will develop a project statement that is used to solicit proposals; the second meeting is to select a research agency from among those submitting proposals. Typically, a third meeting will be held with the research team to review progress while the research is active. There are usually 6-7 panel members on each project, including a GHSA Monitor, and panels operate under the guidance of a permanent chair (see "The Roles of BTSCRP Panel Members and Liaisons"- http://onlinepubs.trb.org/onlinepubs/btscrp/BTSCRP-PanelFunctions.pdf). BTSCRP staff serves as the secretariat.

Please realize that if your nominee is not selected, there are several factors to be considered when forming well-balanced and objective panels. Although expertise is the primary factor, we also attempt a proper balance in terms of geographic areas, organization or agency types (e.g., public and private agencies, universities, associations, local and state government), and gender and ethnic diversity.

Christopher J. Hedges
Director, Cooperative Research Programs

BTSCRP FY 2022

NEW PROJECTS

Project Number	Problem Number	Title	Allocation	Page Number
BTS-20	22-16	Underreporting of Impaired and Distracted Driving Behaviors in Motor Vehicle Crashes	$450,000	2
BTS-21	22-04	Equity in Pedestrian and Bicyclist Mobility, Safety, and Health: The Impact of Racial Bias	$500,000	3
BTS-22	22-03	Effectiveness of Different Forms of Innovative Traffic Safety Messaging	$350,000	5
BTS-23	22-16 & 22-18	The Impacts of Experience on Teen Driving: Evidence from the Naturalistic Driving Study	$400,000	6

BTS-20
Underreporting of Impaired and Distracted Driving Behaviors in Motor Vehicle Crashes

Allocation: $450,000
Staff: Richard A. Retting

BACKGROUND

Statistical and analytical models have been used widely to predict the counts and probabilities of crashes on roadway locations using historical crash data. Unbiased model estimation is critical in accurately predicting crashes and allocating funds for improving traffic safety. 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. Underreporting of these behaviors also has the potential to impact other areas that rely on reported crash data, including drug recognition expert (DRE) training, high-visibility enforcement, existing laws on cell phone use, and marijuana legislation. Although previous studies have been developed to investigate the effects of crash underreporting on crash prediction models, most of the existing studies 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 also is needed to propose what solutions can be used to reduce or eliminate the impacts of underreporting in crash data.

RESEARCH OBJECTIVE

The objective of this research is to develop a framework that enables and facilitates uncovering the magnitude and overarching impact of underreported impaired and distracted driving behaviors in crash data, and to propose a methodology that can be used to address the underreporting issue in crash analysis. The research should (1) examine and document current statewide/jurisdictional efforts in (a) identifying current practices for collecting data on impaired (e.g., alcohol and/or drugs) and distracted driving in crash data; (b) identifying commonalities and differences between state practices; and (c) identifying and describing current challenges and gaps in data collection and reporting which might lead to underreporting; (2) develop a method to verify underreporting in crash data and quantify the impacts of underreporting on crash analysis; (3) develop guidelines to reduce or eliminate crash underreporting and improve crash data collection that includes best practices for capturing impaired and distracted driving behaviors in crash data; and (4) identify potential supplemental data sources (e.g., EMS, toxicology data) that can be used to identify and mitigate the underreporting issues in crash data.

A peer exchange or smaller workshops should be planned, inviting state departments of transportation to demonstrate how to implement the methodology and assist states with facilitating this effort on their own. Other deliverables may include a PowerPoint presentation detailing how the methodology was developed and how it can be utilized to correct this issue. This can be easily shared among stakeholders in various states.

URGENCY AND POTENTIAL BENEFITS

Impaired and distracted driving are largely understood to contribute to increased crash risk and motor vehicle deaths, regardless of jurisdictional or population differences. In recent years, there has been a substantial shift to data-driven initiatives in transportation safety research and planning. Without a better understanding of the true prevalence of these risky behaviors, efforts to combat impaired and distracted driving with limited data may be futile. Collecting timely, accurate, complete, and uniform data to formulate a complete picture of driver behavior, intention, and risk is imperative to the success of any strategies meant to reduce harm. The development of a methodology will help initiate the process to improve data quality and reporting of these behaviors. Identifying and providing a solution to the problem of underreporting has the potential to improve traffic safety on a national and possibly global scale.

BTS-21

Equity in Pedestrian and Bicyclist Mobility, Safety, and Health: The Impact of Racial Bias

Allocation: $500,000
Staff: Richard A. Retting

BACKGROUND

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 has been well-documented (Brown and Sinclair 2017; Brown 2016; Brown 2016; Baumgartner, Epp, Shoub 2018; Epp et al. 2014; Seo 2019). 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 (Pierson et al. 2020). A study using North Carolina data from 2010 showed Black drivers were 63% more likely to be stopped than white drivers, and the search rate for Black drivers was 116% higher than that for white drivers (Baumgartner, Epp, Shoub 2018).

In his 2021 presentation at the Transportation Research Board Annual Meeting, Charles T. Brown presented a long list of studies showing biased enforcement toward bicyclists, transit users, pedestrians (including those accused of jaywalking), and ride-share users.[1] Other studies have focused on the bias within institutionalized practices of approaching traffic stops as a means of fighting crime, such as investigatory stops—and in particular for pedestrians, “stop-and-frisk” approaches (Epp, Maynard-Moody, and Haider-Markel 2017; Gelman, Fagan, and Kiss 2007). For example, crime suppression was the motivation for the use of bicycle stops in Tampa, FL (Mitchell and Ridgeway 2018).

[1] https://annualmeeting.mytrb.org/OnlineProgram/Details/15703

In September 2020, the Governors Highway Safety Association (GHSA) released a statement offering recommendations to address racism in traffic enforcement, calling for more "initiatives to collect and report standardized data about race in traffic enforcement," more research to analyze these data, and the "development of frameworks to require law enforcement grant subrecipients to be taking proactive steps to root out bias in traffic stops."[2] They also called for efforts to invest in social and criminal justice programs as well as mental health programs and to develop rigorous evaluations "of effective public safety programs or technologies that can supplement existing and necessary traffic enforcement efforts conducted by sworn law enforcement officers." Most recently, the Transportation Equity Caucus called attention to concerns with NHTSA funded programs related to enforcement in which "we do not know the racial effects of these programs" and "whether these programs lead to police violence."[3] 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 Black, Indigenous, and People of Color (BIPOC). There is also a need to better understand practices to mitigate inequities and provide alternatives or supplemental approaches to policing that could foster restorative justice and better meet underlying goals regarding traffic safety, health, and mobility. National level research and guidance could support NHTSA, GHSA, and state highway safety offices (SHSO) as they review and modify their guidance, activities, and programs to move toward more just policing practices.

RESEARCH OBJECTIVES

The objectives of the research are:

- 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 BIPOC communities (which may include short-term and generational impacts related to legal/court/sentencing and economic outcomes, escalation to violence, individual and community trauma and psychological effects, perceptions of safety, changes to travel behaviors, and other impacts). This will be drawn from a variety of publicly available data (police reports where available, published literature, qualitative and quantitative studies, or other sources) and/or original research.
- 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. This could include community-led programs, technology-based systems, organizational or policy changes, changes to laws (e.g., efforts to decriminalize jaywalking), or other interventions.
- 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

[2] https://www.ghsa.org/resources/news-releases/Equity-In-Traffic-Enforcement20

[3] https://equitycaucus.org/find-library/NHTSA-role-in-police-reform

micromobility users. The recommendations should also speak to necessary data sources (qualitative and quantitative) and methods needed to evaluate alternatives.

URGENCY AND POTENTIAL BENEFITS
This urgent research is needed to measure and address the ways systemic bias impacts communities via traffic enforcement policies and programs. As NHTSA distributes funds related to reporting of traffic offenses and crashes involving vulnerable users, there is a need to develop strategies and plans to ensure that these policies do not unintentionally create inequity and inequality among communities, particularly communities with a majority of BIPOC members.

This research will help meet GHSA's call to action to evaluate racial bias in traffic enforcement and fill a gap in the research currently oriented to driver-based policing effects. It will produce findings that will provide a framework for future traffic safety enforcement programs to develop more responsible and just policing methods that are more likely to result in positive safety outcomes.

BTS-22
Effectiveness of Different Forms of Innovative Traffic Safety Messaging

Allocation: $350,000
Staff: Richard A. Retting

BACKGROUND
All state highway safety offices (SHSOs) are contacted by media companies that offer innovative ways to share traffic safety messaging with the motoring public. Some of these ways include supermarket, television, gas station tank toppers, ice cube chest messaging, gas tank handle messaging, bar and restaurant juke boxes, and messaging at 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.

RESEARCH OBJECTIVE
The objective of this research is to design, conduct, and evaluate traffic safety campaigns of varied innovative driver behavior messaging types in multiple locations across the nation. The research should involve several SHSOs and a diverse set of media companies.

URGENCY AND POTENTIAL BENEFITS
SHSOs need to know which, if any, of the innovative messaging types are effective, or conversely, if they are a waste of time and money.

BTS-23
The Impacts of Experience on Teen Driving: Evidence from the Naturalistic Driving Study

Allocation: $400,000
Staff: Richard A. Retting

BACKGROUND
An important question is whether teenagers who are exposed to greater diversity of traffic and road environments early in their driving career have lower crash involvement 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—change when teens make the transition from supervised to unsupervised driving. While supervised driving data are not available in the Naturalistic Driving Study (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.

The period of early exposure during unsupervised driving will be the focus of the proposed research. A research hypothesis will be that teens who spend a greater amount of either time or miles driving in a wider range of environments in their first 6 months of unsupervised driving are significantly less likely to experience a crash or near-crash in each subsequent 6-month experience band, compared to teens with a more restricted range of experience in their first 6 months of unsupervised driving. If it is found that not enough participants were enrolled in the NDS during their first 6 months of driving experience, this hypothesis may be modified to use the first 12 months of driving experience as the reference interval.

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. It can be challenging for an officer to determine whether a driver was distracted at the time of crash. For that reason, it is widely believed that distractions are underreported in crash records. Given the limitations of crash data, researchers have turned to observational methods to examine the prevalence and increased risk posed by non-driving-related tasks. Naturalistic studies, most notably the SHRP2 NDS, can objectively identify driver distraction behavior immediately before a crash or other event.

The SHRP2 NDS data provide an opportunity to address a number of questions related to teenagers and distracted driving: Which potentially distracting driver behaviors are most common among teenage drivers? Under what conditions do distracted driving behaviors most commonly occur (e.g., time of day, day of week, amount of traffic, and presence of passengers)? Which distracted driver behaviors are most likely to contribute to crashes and near-crashes? How does driver behavior change in presence of (teenage) passengers? These naturalistic data also support analyses of how

distracting behaviors by teen drivers—and their role in crash causation—change as these novices gain experience behind the wheel.

RESEARCH OBJECTIVES

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 distracting driving behaviors and inattention to the driving task with crashes and near crash involvement and determine if the relationships change with increasing driving experience.

URGENCY AND POTENTIAL BENEFITS

Expected outcomes include a better understanding of how more diverse early driving experience lowers risks for teens, with a translation to education and regulation as measured through updates to materials used for training curricula and revised graduated drivers license (GDL) requirements. Also expected is a greater appreciation in the traffic safety community of the roles naturalistic driving data collection can play in developing safe driving habits and in evaluating driver capabilities and performance, potentially stimulating the use of increasingly affordable technologies for capturing such data by trainers/educators, caregivers, and others.