



➤ Message from the Associate Administrator for Safety, Cheryl Walker

Combating the Crisis of Rising Roadway Fatalities



Cheryl Walker
Associate Administrator
for Safety

I write this at a time when we are all appalled by the fatality numbers for the first half of 2021.

Secretary Buttigieg delivered the grim news during the American Association of State Highway and Transportation Officials (AASHTO) annual meeting in San Diego. We saw the *largest 6-month increase in fatalities ever recorded* in the history of the Fatality Analysis Reporting System (FARS). An estimated 20,160 people died in motor vehicle crashes on our roadways during this time, an astonishing 18.4-percent increase over the same period in 2020.

If this trend continues, 40,000+ people could lose their lives on our roads in 2021. To echo the Secretary's words, this situation is a crisis. This increase in fatalities is unconscionable. Back in 2020, we were shocked when fatalities increased even while vehicle miles traveled precipitously decreased. With this continued uptick in fatalities in 2021, we cannot view 2020 as an anomaly. We are truly in a crisis, and it's a crisis for everyone—particularly the people who lost their lives and the families and friends left behind. The stakes could not be higher as we continue to push forward and seek new ways to eliminate fatalities on our roads.

First and foremost, we have unprecedented opportunities to advance safety through the \$1.2 trillion Bipartisan Infrastructure Law. The Bipartisan Infrastructure Law has safety as a foundational mission and will enable crucial investments in safety for our Nation's roads.

In addition, the U.S. Department of Transportation (USDOT) is finalizing a National Roadway Safety Strategy, which will consolidate and streamline the safety-related work being executed by the modal agencies and will set forth a comprehensive set of actions to work with our partners to significantly reduce road deaths and serious injuries.

FHWA has also just released information on nine new Proven Safety Countermeasures (PSCs)—road design elements and strategies that markedly improve road safety (see page 2). The new PSCs include rectangular rapid flashing beacons, crosswalk visibility enhancements, bicycle lanes, lighting, pavement friction management, wider edge lines, variable speed limits, appropriate speed limit setting, and speed safety cameras. The data show that these strategies can have a huge impact on road safety.

Finally, our revamped Focused Approach to Safety (FAS) initiative (see page 3) will also provide key resources to focus States. These States will receive priority access to technical assistance to address the most common types of crashes that result in fatalities (roadway departures, intersection crashes, and pedestrian/bicycle crashes).

While we are dismayed by the increase in fatality numbers in 2021, we are mobilized to address this crisis. We look forward to working with our partners both inside and outside USDOT to reverse these numbers and decrease fatalities on our roadways.



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➤ WHAT'S NEW

Nine New Proven Safety Countermeasures Added

By Philip Bobitz, FHWA Office of Safety

In October 2021, the FHWA Office of Safety introduced nine NEW countermeasures to the Proven Safety Countermeasures initiative (PSCi). These additions enhance the

already diverse set of safety strategies for State, local, regional, and Tribal transportation professionals to consider implementing as part of their efforts to improve safety for all road users on the Nation's roadways.

In addition to nine new countermeasures and crosscutting

strategies, this most recent iteration of the PSCi adds recent research and considerations to the existing proven safety countermeasure (PSC) materials. New features have been added to the [PSC website](#), including a filter tool and search function that will help practitioners





Rectangular Rapid Flashing Beacons (RRFBs)



Lighting (Intersection and Segments)



Crosswalk Visibility Enhancements



Pavement Friction Management (CPFM and HFST)



Wider Edge Lines



On Road Bicycle Lanes



Variable Speed Limits



Speed Safety Cameras



Appropriate Speed Limits for All Road Users



FHWA’s nine new PSCs. (Source: FHWA)

identify applicable countermeasures that meet their needs.

Widespread implementation of PSCs, where appropriate, can serve to accelerate the achievement of local, State, and national safety goals. The updated PSC website is the one-stop shop for resources and information to advance the now 28 countermeasures for your jurisdiction.

For more information or assistance, please contact Phillip Bobitz, P.E., at Phillip.Bobitz@dot.gov.

Recalibrating the Focused Approach to Safety

By Jeffrey B. Shaw, P.E., FHWA Office of Safety

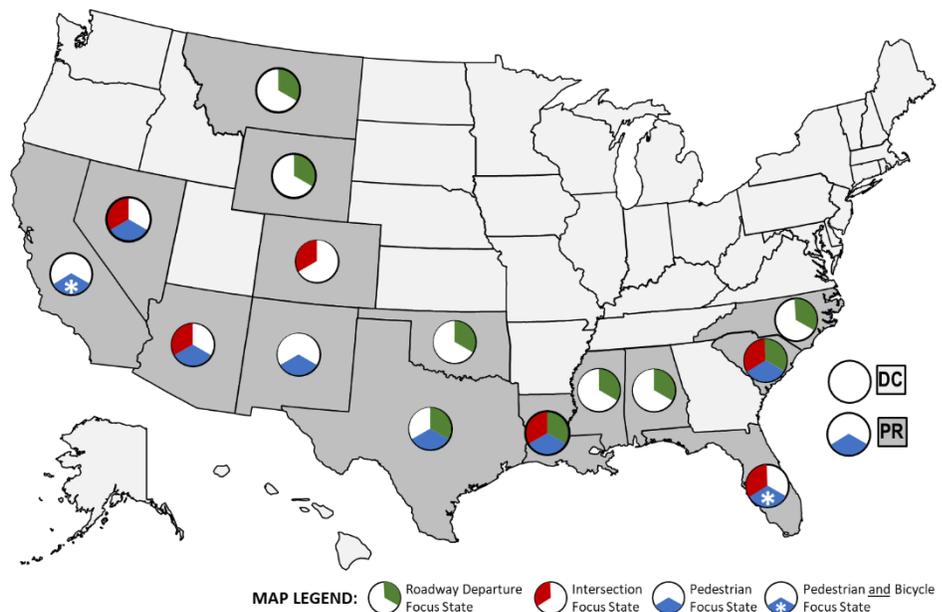
Since 2004, FHWA has used FAS, a unique, data-driven, agency-specific approach to safety, to offer priority assistance to select focus States in order to reduce fatalities and serious injuries on the Nation’s highways. In October 2021, an adjusted and updated FAS was rolled out based

on current data and program evaluation. A refreshed FAS [web page](#) includes the explanatory update memo, the list of new focus States, frequently asked questions, and a link to the public webinar recording.

This 2021 update relied on 6 years (2014–2019) of data from FARS, Census Bureau, and FHWA highway

statistics. Some of the notable changes implemented with this update include:

- Pedestrians and bicyclists are now treated as two separate focus areas for a total of four, including roadway departure and intersections.
- Speed management is featured as an emphasis area for all focus areas, and two-lane rural roads is featured as another emphasis area for roadway departure.
- The analysis procedures, techniques, and criteria to select focus States and metropolitan planning organizations (MPO)/regions were very different from prior iterations of FAS, but similar in identifying over-representation across the focus areas.
- A metric for equity was developed and used as a selection criterion.



Map of focus States. (Source: FHWA)



- The number of focus States was reduced from 25 to 16.
- MPOs/regions are identified within focus States instead of as individual cities.

These 16 new focus States, shown in the map, represent 51 percent of

AWARDS

2021 FHWA Safety Discipline Awards

By Cheryl Walker, FHWA, Office of Safety

The Safety Discipline Awards recognize individuals for their demonstrated leadership and accomplishments in safety. The four 2021 awardees are Carol Tan, Jessica Rich, Brooke Struve, and Mark Bartlett.

Howard Anderson Lifetime Achievement Award



Dr. Carol H. Tan.
(Source: FHWA)

In 1974 Howard Anderson was named the first FHWA Associate Administrator for Safety. In honor of his safety contributions to FHWA, the Howard Anderson Lifetime Achievement Award was established in 2014 to recognize a current or retired FHWA employee with an exemplary career of outstanding and significant service to the FHWA safety discipline. Nominees are evaluated for continuous efforts to champion safety internally and externally to FHWA.

all traffic-related fatalities that occurred in the United States during the analysis period. Within these 16 focus States, there were also 23 MPOs/regions over-represented for fatalities in the intersections, pedestrians, and bicyclists focus areas.

For 32 years, Dr. Carol H. Tan has established herself as the technical authority for roadway and crash data elements, analytical and statistical techniques, and road asset management for safety and safety management systems. She is a nationally recognized expert on data analysis to determine the causative factors in crashes and identifying trends in the aggregate of those crashes. Her analyses have directly contributed to the development of several PSCs, which in turn have saved lives. Dr. Tan's work in the Highway Safety Information System, Model Minimum Inventory of Roadway Elements, Pedestrian and Bicycle Crash Analysis Tool (PBCAT), and so many other data and analysis efforts has left an enduring mark on the analyses conducted for safety. It is for this dedication to a lifetime of improving highway safety and commitment to quality that Dr. Tan is receiving the Howard Anderson Lifetime Achievement Award.

As with past iterations of FAS, FHWA is providing priority technical assistance and training to the focus States.

For more information, please contact Jeff Shaw at jeffrey.shaw@dot.gov or 202-738-7793.

Field Safety Peer Awards



Jessica Rich. (Source: FHWA)

Jessica G. Rich has led numerous efforts in improving highway safety in Tennessee, where she

has been the safety engineer for the past 18 years. She has also had an impact on national safety program initiatives. She has focused on several efforts that have helped her State make great strides in addressing roadway departures and improving intersection and pedestrian safety. She has promoted and institutionalized road safety audits (RSAs), created systemic safety programs, facilitated discussion with key stakeholders to improve crash data, and led the development of the local roads safety initiative. She has also served on the FHWA safety exchange website team, provided assistance for traffic control plans and interview panels for other States, served on the Highway Safety Improvement Program (HSIP) scan team, and developed safety profiles for 13 opportunity States identified as



having the highest number of fatalities nationwide. Her dedication and efforts in promoting highway safety in Tennessee and nationally demonstrate why she is well deserving of the Field Safety Peer Award.



Brooke Struve.
(Source: FHWA)

Brooke Struve has excelled in her national work as a safety and design engineer for the

Resource Center. She is noted for specific efforts to improve safety that went above and beyond in service to State initiatives to improve pedestrian and bicycle safety. In Alabama, for example, Brooke organized and led a pedestrian safety workshop that included all division office personnel and focused on selecting appropriate countermeasures to be included in project plans. She also pulled together review teams, conducted pedestrian safety reviews, and delivered the results on corridor projects in a timely manner. In Louisiana, Brooke provided technical reviews of pedestrian and bicycle designs for key projects. Additionally, she reviewed the City of New Orleans Moving NOLA Bike Plan, drawing on her national experience to improve the handling of mixing bike lanes and loading zones in the commercial business district, and provided training on the Americans with Disabilities Act to the Louisiana Department of Transportation and Development.

She has repeated these activities, and more, in States across the Nation. For her tireless efforts in promoting pedestrian and bicycle safety nationally and using that expertise to improve the safety of vulnerable users on numerous projects in multiple States, Brooke was selected to receive the Field Safety Peer Award.

Field Leadership Safety Award



Mark Bartlett.
(Source: FHWA)

Mark Bartlett is the inaugural recipient of the Field Leadership Safety Award. This award was

established in 2020 to recognize a division administrator, deputy division administrator, or Federal Lands Division director for outstanding leadership that advances safety. The professionals selected for this award establish a safety culture in their offices, provide safety leadership with partners, implement innovative practices, and participate in national leadership. Serving as the Alabama Division administrator, Mark provides support, guidance, and leadership in the division and the State. His personal commitment to safety has led to significant improvements in pedestrian safety, the expansion of local road safety plans, and increased implementation of roundabouts. Mark has also led national efforts to encourage increased integration of safety into project development. For these and

other efforts, Mark is recognized as the first recipient of this award.

National Roadway Safety Awards Winners Honored by FHWA and the Roadway Safety Foundation

By Norah Ocel, FHWA, Office of Safety, and Bruce Hamilton, Roadway Safety Foundation

FHWA and the Roadway Safety Foundation (RSF) announced the seven winners and three honorable mentions of the 2021 National Roadway Safety Awards during a virtual ceremony on October 6 keyed by Secretary Buttigieg.

The awards, which have been cosponsored by RSF and FHWA for 2 decades, honor public agencies that have demonstrated exceptional innovation, effectiveness, and an efficient use of resources in a roadway safety project or program. Winning projects of the biennial awards program are promoted in the [Noteworthy Practices Guide](#) for the benefit of other agencies that want to replicate or adopt them in their communities.

“Today’s honorees are proof that we have no shortage of willpower, good ideas or talent for improving roadway safety,” Secretary Buttigieg told attendees, adding that additional funding and resources are needed to scale up projects like these and embrace a Safe System Approach nationwide.

Winners of the 2021 awards in the infrastructure and operational improvements category were:

- Florida Department of Transportation (FDOT) for a first-of-its-kind study of smart work zone safety technologies



on arterial roads, which demonstrated a 10.6-percent reduction in approaching vehicle speeds and a nearly 40-percent increase in safe driving behavior.

- North Carolina Department of Transportation (NCDOT) for its long-life pavement markings safety initiative, which helped reduce lane departure crashes by nearly 20 percent and is estimated to have up to a 60:1 benefit-cost ratio due to reduced maintenance costs.
- Village of Whitefish Bay, Wisconsin, for its communitywide safety improvements, including a mix of immediate low-cost treatments and larger projects that together have reduced crashes by almost 40 percent since 2015.



2021 Roadway Safety Award.
(Source: FHWA)

There were four winners in the program planning, development and evaluation category:

- The City of Bellevue, Washington, for its video

analytics program that dramatically reduces the time it takes to conduct safety studies and check countermeasure performance, finding in one example a 60-percent reduction in critical conflicts at a major intersection.

- Broward MPO for its innovative *Complete Streets Master Plan*, which has cut severe injury and fatal crashes by 75 percent on Wilton Drive in Fort Lauderdale and sees similar benefits on other local roadways.
- California Department of Transportation (Caltrans) for its transformative *2020–2024 Strategic Highway Safety Plan* (SHSP) to reverse a trend of rising fatalities and injuries on State roads.
- Texas Department of Transportation and Texas A&M Transportation Institute for developing and implementing an all-new safety scoring tool, which is required for rural two-lane and multilane non-access-controlled projects, fostering a proactive approach to safety and strengthening the traffic safety culture in the State.

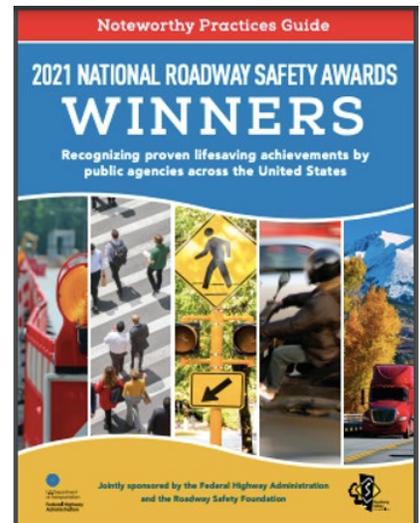
FDOT, Montana Department of Transportation, and the Town of Portland, Connecticut, received honorable mentions.

In addition to publication in the *Noteworthy Practices Guide*, award winners receive local media support to help generate publicity among their stakeholders and raise public

awareness of the importance of roadway safety investments. RSF and FHWA have traditionally hosted a representative from each winning agency at a luncheon awards ceremony in Washington, DC. In 2021, the ceremony moved to a virtual format.

Winners are selected by a blue-ribbon panel of judges representing diverse perspectives within transportation, including State and local government, academia, and public health. To learn more about the projects the panel selected for this year's awards, [visit the RSF website](#). Prospective applicants should keep an eye out for the official call for nominations around January 2023.

For more information, please contact Norah Ocel at norah.ocel@dot.gov or Bruce Hamilton at brucehamilton@roadwaysafety.org.



The 2021 Noteworthy Practices Guide details each project and provides agency contact information for readers interested in learning more. (Source: RSF)



➤ SAFETY DRIVEN CHANGES AND IMPROVEMENTS

Safe System Strategic Plan: A New Resource on Implementing the Safe System Approach Together

By Norah M. Ocel, P.E., FHWA, Office of Safety

The FHWA Office of Safety is pleased to share a new resource with the transportation community: the [Safe System Strategic Plan](#). This publication is the product of collaboration and cooperation among many organizations that are part of the Road to Zero Coalition. These organizations worked together and shared input on how to move the Safe System Approach forward in the United States.

Other countries that have embraced the Safe System Approach have seen impressive outcomes. The United States has unique perspectives and it will take many partners working together, including transportation system planners, designers, builders, operators, and users (drivers, bicyclists, and pedestrians) to advance the Safe System Approach. Embracing this approach will take:

- Leadership and working together beyond silos.
- Striving for new ways of doing business in many disciplines.
- Stepping out of our comfort zone.
- Talking to others who have the same goal of zero road fatalities and serious injuries.

When we have the political will, the adequate processes, and the public

demand for facilities that accommodate every single road user regardless of their mode of transportation, we'll get closer to zero.

The *Safe System Strategic Plan* is a roadmap for transportation professionals in the United States to implement the Safe System Approach with immediate, near-, and long-term time frames. FHWA is committed to its partnership role in implementing the Safe System Approach, and hopes transportation stakeholders will work together and have meaningful conversations about what it will take to implement the items identified in the plan. We hope everyone in the transportation community will be part of the conversation and implement, to the best of their abilities, many of the action items to further advance the Safe System Approach. The Safe System Approach should be the way our transportation system is planned, designed, built, and operated.

And remember, let's work together because one life lost on our roads is one too many!

For more information about safety partnerships, please visit https://rspcb.safety.fhwa.dot.gov/champions_partnering.aspx or contact Norah M. Ocel at Norah.Ocel@dot.gov.

High-Friction Surface Treatments: Creating Friction for Crash Reduction in Pennsylvania

By Joseph Cheung, P.E., FHWA, Office of Safety

In Pennsylvania more than half of fatal and serious injury crashes involve a lane departure. Intersection crashes account for 21 percent of annual fatalities and 30 percent of serious injuries, with a significant fraction of these crashes attributed to slippery and wet road conditions. To reduce wet pavement crashes at curves and intersections throughout the Commonwealth, the Pennsylvania Department of Transportation (PennDOT) has been installing high-friction surface treatments (HFSTs) at strategic locations.

HFSTs are a safety countermeasure with exceptional skid-resistant properties intended to restore and maintain pavement friction in wet and dry conditions to reduce crashes. These properties are the result of the application of durable aggregates bonded to the existing pavement by a layer of polymer resin. HFSTs are effective in reducing crashes on horizontal curves and ramps, intersections, and pedestrian crossings, especially those with limited sight distance. HFSTs are also suitable for high traffic volume, conditions where the road will need to reopen to traffic quickly, and roads within an environmentally sensitive area. An FHWA advanced statistical study



using empirical Bayes methodology shows a crash reduction of 57 percent for total crashes and a crash reduction of 83 percent for crashes on wet curves.

PennDOT piloted its first HFSTs at a high-crash location along State Route 611 in Northampton County (District 5). The treatment was located at a sharp horizontal curve on a rural, two-lane road with 9-foot travel lanes and no shoulders. In the 10 years prior to installation of HFSTs, 20 wet pavement-related crashes occurred at the site. An analysis of the crash data over the next few years after HFSTs were installed revealed the project experienced zero wet pavement-related crashes. Since then, PennDOT has used the treatment in areas with a history of a high number of rear-end or off-road crashes. PennDOT says studies in other parts of the State have shown HFSTs to

be highly effective. According to PennDOT, 47 locations reviewed 3–5 years after the surface was applied experienced a “significant crash reduction.” Most notably, [one location in Northampton County](#) saw a 100-percent reduction in crashes.¹

While PennDOT has installed HFST at approximately 500–600 locations Statewide, District 11, including Allegheny County, has just started installing HFSTs in the past couple of years. Recently, PennDOT and Allegheny County targeted several locations with dangerous curves or intersections with high rear-end collision rates. In September, PennDOT and Allegheny County installed HFSTs at five locations in Penn Hills on Frankstown Road and Allegheny River Boulevard, Westinghouse Avenue in North Versailles, Lincoln Way in White Oak, and Route 88 in Castle Shannon. In parallel, Allegheny

County began installing HFSTs on September 27 on Vanadium Road between Route 50 and Main Street in Collier Street and Scott Street. The work was completed with little or no traffic interruption, as most of the work was performed at night, and the road segment reopened to traffic the next morning.

PennDOT considers HFSTs an innovative low-cost option to deal with high crash locations, especially when dealing with friction and wet weather-related crashes. It is much more cost-effective than redesigning the roadway. The rolling terrains with steep grades and horizontal curve sections in District 11 lead PennDOT to believe applying HFSTs to reduce crashes will be widespread in this region as well.

For more information, please contact Joseph Cheung at joseph.cheung@dot.gov.

➤ LEARNING TOGETHER

FHWA Hosts Virtual Peer Exchanges on Safe System for Pedestrians and Bicyclists

By Tamara Redmon, FHWA, Office of Safety

On March 19, FHWA hosted a virtual peer exchange on the Safe System Approach for pedestrians and bicyclists, which followed along with the recently developed [Primer on Safe System Approach for Pedestrians and Bicyclists](#). The purpose of this primer is to provide

transportation agencies a baseline understanding of the Safe System Approach and how it relates to bicycle and pedestrian safety. The FHWA Office of Safety has been encouraging applications of Safe System to be adopted nationally.

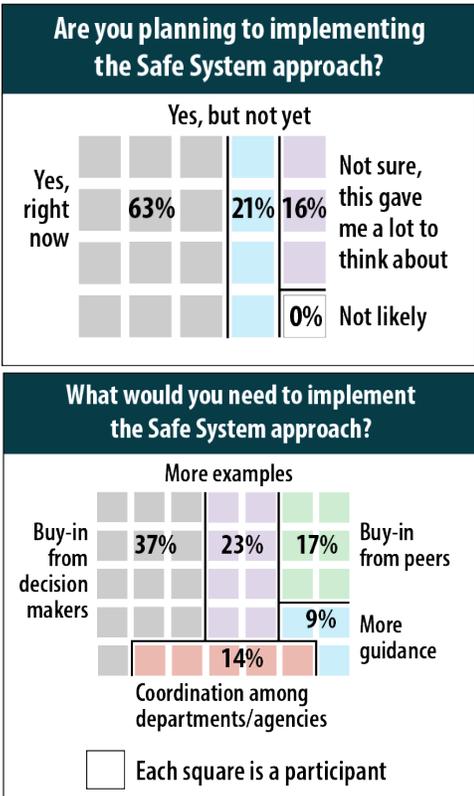
The peer exchange discussion focused on planning-level applications, followed by project-level applications of Safe System. The goal of the meeting was to talk about how to implement the [Safe System Approach](#) with an eye to

prioritizing safety for pedestrians and bicyclists and to reflect big takeaways, participant concerns, and lessons that could be useful for other agencies doing similar work.

The peer exchange was attended by participants from departments of transportation (DOTs) in California, Florida, Maryland, Pennsylvania, Oregon, and Washington State. Moderators closed the day with a final discussion about implementation of Safe System moving forward. This started with a

¹ Ed Blazina, "Creating Friction: PennDOT, Allegheny County Install Rough Surface to Make Intersections, Curves Safer," *Pittsburgh Post Gazette*, September 19, 2021, <https://www.post-gazette.com/news/transportation/2021/09/19/PennDOT-Allegheny-County-rough-roads-safety-improvement-reduce-crashes-High-Friction-Surface-Treatment-HFST/stories/202109190039>.





Safe System Approach poll questions. (Source: FHWA)

few poll questions. The responses are summarized in the illustration above. Participants thought that it would be valuable to have Safe System messaging from all Federal agencies, and a few suggested that mandating the adoption of the [Safe System Approach](#) would be a big step forward.

FHWA held a second peer exchange on April 14 on Pedestrian and Bicyclist Safety Action Plan (PBSAP) development. The peer exchange followed a webinar held on the preceding day in which participants from State agencies were also invited to participate in the virtual peer-to-peer event. Representatives from 19 State and local governments attended.

PBSAPs are valuable tools that can help transportation agencies establish a framework and approach for reducing deaths and serious injuries among vulnerable road users. FHWA developed [How to Develop a Pedestrian and Bicycle Safety Action Plan](#) many years ago to help guide agencies through the steps required to develop their own action plans for improving safety. During the webinar, authors of the guide reviewed the elements of successful PBSAPs and described how State DOTs can develop their own plans. Panelists from Virginia and Oregon discussed their approaches to crafting and implementing their plans and offered lessons for the audience. You can [review the recording here](#).

During the peer exchange, participants discussed safety action plan development with other State agencies and representatives from FHWA. The session was largely a discussion and was intended to support agencies in the process of developing their own action plans.

Some key takeaways that agencies noted when establishing a vision and goals for their plans include:

- Coordination among agencies can be difficult and should be intentional when developing the scope and goals.
- Behavioral programs and infrastructure can be brought together through the inclusion of the State DOT and public health departments.
- Fatal and severe injury crash reduction goals—and zero fatalities overall—can be difficult

to achieve and track over a longer time line when States want to achieve reductions now.

- An assessment is key to establishing a baseline for developing a PBSAP, and it can also be used to bring together stakeholders for developing the vision and goals.
- Some State agencies, such as FDOT, are using their context classification systems to assess and craft more tailored PBSAPs and goals for small areas such as FDOT districts.

For more information, please contact Tamara Redmon at tamara.redmon@dot.gov.

Case Studies for FHWA Pedestrian and Bicycle Focus States and Cities

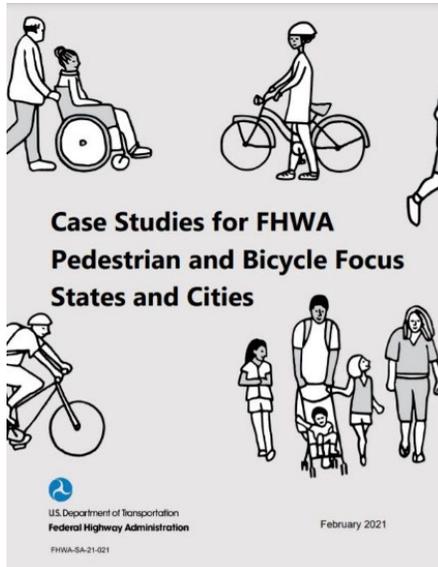
By Tamara Redmon, FHWA, Office of Safety

The Office of Safety has been working to aggressively reduce pedestrian and bicyclist deaths by focusing extra resources on the cities and States with the highest pedestrian and bicyclist fatalities and/or fatality rates. This effort is known as [focus States and cities](#).

As part of this effort, FHWA has been providing free training on designing safe pedestrian and bicyclist facilities and workshops that have led to the development of PBSAPs, and many other successes. More than 300 technical assistance workshops have been held over the past 17 years.



This new [case study document](#) provides information on how agencies have worked with FHWA to improve pedestrian and bicyclist safety through the Pedestrian and Bicyclist Safety Focused Approach Program. It includes case studies for Arizona, California, Florida, Georgia, New Mexico, New York, and the City of Austin, Texas.



Case study document. (Source: FHWA)

For more information, please contact Tamara Redmon at tamara.redmon@dot.gov.

Training Updates from the National Highway Institute

By Thomas Elliott, NHI, and Sabrina Sylvester, contractor for NHI

The National Highway Institute (NHI) focuses on providing innovative and relevant training that meets the needs of today's transportation industry. NHI recently released a course for highway safety practitioners and students to learn the concepts and processes of road safety and the reduction of road fatalities.

New Training: Road Safety Fundamentals

In 2017, FHWA published the [Road Safety Fundamentals](#) textbook, which introduces the fundamental concepts of road safety. In the textbook, students learn the landscape of road safety issues and human behavior pertaining to the road environment and identify ways to address safety challenges. This *Road Safety Fundamentals* textbook is widely used as one of the reference materials for the [Road Safety Professional Certification](#). The textbook's objective is to prepare the reader with foundational road safety knowledge.

Road Safety Fundamentals (Textbook) (FHWA-NHI-380124A) is a web-based training that teaches the concepts of road safety in all phases of roadway design, operation, and maintenance. Upon completing this course, participants will learn the history of road safety, multiple disciplinary methods, understanding of human behavior, various types and importance of safety data, problem solving through a safety management process, and the process of implementing road safety efforts. Participants also explore these concepts of road safety through resolving common safety issues, evaluating data to develop various road safety objectives, and strategizing achievable steps to enhance road safety and reduce fatalities.

NHI designed this online training in an innovative learner-centric format where instructors encourage learners to interact with the content

in various and meaningful ways. Through an in-video format, participants engage with the content, including infographics and downloadable worksheets, to reinforce key learning points throughout the course. These resources will help the participants refine and further their comprehension of the materials on road safety.

This course is expected to take an average of 12 hours of training time. Participants can work through the course materials and assignments at their own pace. At the end of the training period, participants who pass the exam with a grade of 70 percent or more will earn 1.2 continuing education credits. Participants who successfully complete the course will also grasp the fundamental concepts of road safety and be equipped to help develop a workforce that is better prepared to address road safety challenges.

To learn about the Road Safety Fundamentals training course, along with other safety training courses, visit NHI's website at <https://www.nhi.fhwa.dot.gov/>.

Safety Stories

By Chimai Ngo, FHWA, Office of Safety, and Kevin Elliott, ARA

Transportation safety boils down to people, including transportation practitioners themselves. Those who design and deploy safety treatments also travel the roads like everyone else. Many times, they are saved by those very treatments.



This is a series of real stories of people, including transportation practitioners, who had personal experiences being saved from harm by the safety strategies and countermeasures we promote every day. Their stories drive home the importance of making safety a top priority in the transportation industry.

Tony Kemnitz, Wisconsin DOT



Tony Kemnitz. (Source: FHWA)

Tony Kemnitz, a traffic safety engineer with Wisconsin DOT, knew something had to be done after the mother of a young man who had died on a curve in Tony's jurisdiction reached out to Tony. The young man was returning home following a friend's bachelor party. He was, no doubt, tired and drifted across the centerline on a curve, striking an opposing vehicle.

After this young man's death, Tony prepared an improvement plan for the roadway that justified the cost of installing centerline rumble strips on the curve with a nearby project. The man's mother was able to attend the installation.

"Unfortunately, it is an after-the-fact response. But we were able to

respond and make the highway safer," Tony said. "We did not save that young man, but we did help reduce the chance for another mother (family) to suffer the loss of a family member." Here is a link to news coverage of this story: <https://www.wsaw.com/2020/10/19/mother-of-man-killed-in-crash-gets-dot-to-install-rumble-strips-on-hwy-73/>.

For Tony, roadway safety is a personal matter.

"I lost my brother-in-law and his girlfriend in a fatal crash in 1990. This caused me to change my career path and pursue a traffic engineering position with a goal of improving safety and operations on our roads," Tony said. "That is why I do what I do. Best job I have ever had because in doing it you can save lives."

Yanira Rivera, FHWA



Yanira Rivera. (Source: FHWA)

Yanira, a safety engineer in the Eastern Federal Lands Division Office, was driving home after a long day. She had worked a full-time job and then attended evening classes while finishing her civil engineering degree. As she embarked on her 40-

minute commute home, tired from a long day, she didn't realize how fatigued she felt. When her vehicle began to drift from the travel portion of the road, rumble strips alerted her of the potential danger by causing a vibration and audible sound through the wheels of the vehicle.

"Thank goodness for those rumble strips. Otherwise I probably would have left the road and hit a tree or other fixed object," Yanira said. "That experience stayed with me so much that I decided to study centerline rumble strips for my master's project."

Did you know rumble strips are an effective deterrent to roadway departure crashes? According to the [FHWA Rumble Strips and Rumble Stripes Technical Advisories](#), milled centerline rumble strips can provide a 38–50-percent reduction in head-on and opposite-direction, sideswipe injury crashes on rural, two-lane roads. Milled shoulder and edge rumble strips provide significant reductions in single-vehicle run-off-road injury crashes: 10–24 percent on rural freeways and 26–46 percent on two-lane rural roads.

Visit the FHWA Rumble Strips and Rumble Stripes web page for additional information:

https://safety.fhwa.dot.gov/roadway_dept/pavement/rumble_strips/.

Do you have a story to share? Do you know someone in your organization whose life was saved by safety treatments or whose career was inspired by a safety story? If so, please contact Chimai Ngo at chimai.ngo@dot.gov.



► DATA AND ANALYSIS

Puerto Rico Highway Safety Corridor Program

By Grace Diaz-Estrada and Juan C. Rivera-Ortiz, area engineers, FHWA Puerto Rico and USVI Division

Puerto Rico is called the Island of the Enchantment for its national resources, friendly people, food, and other amazing things that anyone can see on a small 100-by-35-mile island in the Caribbean. At first glance at the Island of Enchantment, one may not notice its highway safety program. Under Section 165 of Title 23 of the United States Code, the Puerto Rico Highway Safety Program must annually obligate at least 25 percent of its Federal funds to projects or programs eligible under HSIP. The 25 percent of the total Federal funds is approximately \$30 million a year in highway safety projects. As highway safety engineers, this requirement is music to our ears. But what happens if the highway safety program of the Puerto Rico Highways and Transportation Authority (PRHTA), grantee of the FHWA funds, is not prepared to obligate highway safety improvements projects due to lack of a data-driven approach and a safety culture in engineering processes? These obstacles were overcome by a passionate group of professionals who pioneered the highway safety program in PRHTA and developed the Puerto Rico Highway Safety Corridor Program.

Let's go back in time to the year 2013 and begin the description of our program. In that year, Puerto

Rico completed its first SHSP. In developing the plan, the engineers found that crash reports in the police department of transportation had been completed manually and there was a backlog of 4 years of data to be entered into the crash database—meaning a data-driven analysis was not feasible due to lack of data. The first step in developing a Highway Safety Corridor Program was looking for innovative ways of having crash data for analysis. The Traffic Records Coordinating Committee worked on various efforts in this area, and from 2013 to the present, made achievements in the data category.

The 4-year backlog in the crash database was eliminated in 2015 in phases. The first phase entered only fatal and serious injuries crashes in the database. When the personnel of the Office of Collection and Analysis of Crash Data completed this first phase, they began entering the crashes with property damages only in the database. This effort required the collaboration of different agencies to provide staff on rotational assignments for evaluation and database entry of crash reports.

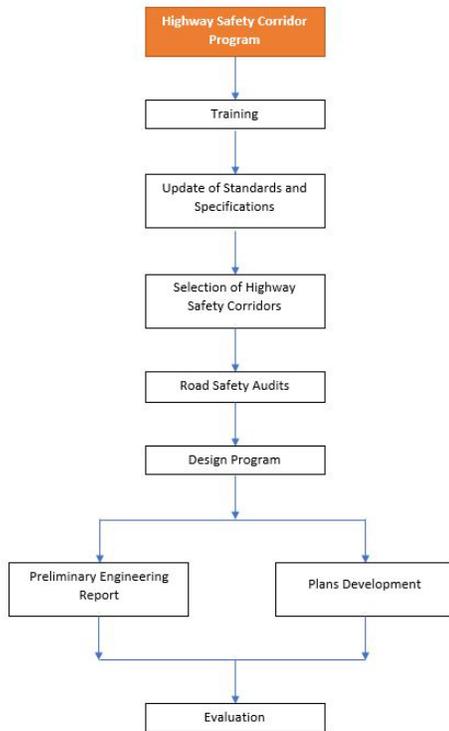
At the same time, the police department was updating the crash form with the Model Minimum Uniform Crash Criteria requirements and developing an electronic crash form that allows crash information to be obtained in 24–48 hours. The electronic crash form was completed in 2019 and began implementation in

2020. This was a breakthrough in data analysis.

“Knowledge is one of the most powerful tools in the decision-making process.” – *High Crash Location Report*

After data efforts were completed, the next step was to develop a data analysis approach. In 2017, the engineers from the public and private sector collaborated on the development of the *High Crash Location Report (HCLR)*. With the phrase, “Knowledge is one of the most powerful tools in the decision-making process,” transportation professionals developed HCLR to guide Puerto Rico to a better understanding of the roadway locations that need more attention from the 4Es of safety (engineering, education, enforcement, and emergency medical services [EMS]) to reduce the number of fatalities and serious injuries caused by traffic crashes. The HCLR defines corridors (3 kilometers or more), spots (500 meters), and intersections with higher crash cost factors and frequency indexes for specific 3-year periods. The list of roads by functional classification, SHSP emphasis areas, and special cases (motorcyclists, festive periods, older population, and transportation management areas) was vital for the initial steps of the Highway Safety Corridor Program. Another objective of the HCLR was to assist the other 3Es (enforcement, education, and EMS) in the development of their safety and security plans.





The Highway Safety Corridor Program process. (Source: FHWA)

Once the data barrier was overcome, the next goal was to promote a safety culture among senior management and engineering departments. Safety should be a top priority and must be evaluated in all projects with the inclusion of PSCs in other States and territories or recommended by FHWA programs (e.g., Every Day Counts).

The Highway Safety Division in PRHTA used the following process to implement the Highway Safety Corridor Program (see flowchart):

Training

A highway safety corridor project requires the evaluation of all road users and how the deficiencies and problems identified in the corridor will be impacted by the engineering measures. It was important to promote education to designers in

the public and private sector on the innovative engineering measures that will be included in the highway safety projects. With the collaboration of FHWA Puerto Rico and U.S. Virgin Islands Division and the Puerto Rico Local Technical Assistance Program, the transportation community received the following training:

- RSAs
- Data-driven safety analysis
- Low-cost safety improvements (i.e., rumble strips, signing on curves)
- Every Day Counts safety countermeasures (e.g., safety edge, HFST)
- Guardrail design
- Innovative intersection design (e.g., roundabouts, diverging diamond interchange)

Update of Standards and Specifications

The trainings helped us understand that our standards and specifications in the PRHTA needed to be updated to incorporate the new safety countermeasures. New specifications and standard drawings were developed for rumble strips, HFSTs, safety edge, and guardrails (in compliance with *Manual for Assessing Safety Hardware* [MASH] requirements).

Selection of the Highway Safety Corridors

Engineers and planners selected safety corridors that would be included in the program. The maps and tables of the HCLR were used in the selection of the corridors, and it

was important to schedule the projects for the next 4 years. A 4-year plan of highway safety corridor projects was included in the Statewide Transportation Improvement Program and in consultation with the MPO.

RSAs

An efficient highway safety program requires the cooperation and involvement of all road users and stakeholders. The development of RSAs in some of the highway safety corridors was a good exercise to know how representatives from other safety areas (enforcement, education, and EMS) think about and solve highway safety problems from their perspective. The results of the RSAs were included in the planning phase of future safety projects.

Design Program

PRHTA invested State funds in the selection of designers (private sector) to initiate the design of highway safety corridors that had been chosen in the 4-year plan. The design program was divided in two phases, with a total investment of approximately \$120 million over the 4 years. Designers will complete the plans of the highway safety projects in a two-step process: preliminary engineering reports (PER) and plans development.

PER

During this step, designers collected information on crash data, geometry, pavement, and RSA recommendations to produce a report with analysis of the crash data, expected reduction in fatal and



serious injuries crashes, and identification of safety countermeasures. Designers presented the report to State engineers and FHWA representatives. At the end of the presentation, designers received from PRHTA the notice to proceed for the elaboration of plans with the safety alternatives recommended in the PER and selected during the meeting.

Plans Development

In this step, the designer completed the environmental studies and developed the plans, specifications, and estimations for the projects. To develop a safety culture as part of the programs, all designers should consider the following countermeasures in their projects:

- Signing improvements, especially on horizontal and vertical curves.
- Pavement marking and raised reflective pavement markers.
- Guardrail update to MASH.

- Crash cushions and impact attenuators in gore areas and other locations with fixed objects and limited space.
- Lighting, especially in urban areas and intersections.
- Rumble strips, edge lines, and centerlines in rural areas.
- HFSTs on dangerous curves.
- Clear zone improvements.
- Pedestrian facilities (e.g., crosswalks, traffic calming measures, sidewalks, push buttons)
- Speed reduction with traffic calming options.
- Update to traffic signal systems and the inclusion of backplates with retroreflective borders.
- Road diets.
- Traffic delineators on exit ramps.
- Evaluation of traffic control devices in school zones.

Evaluation

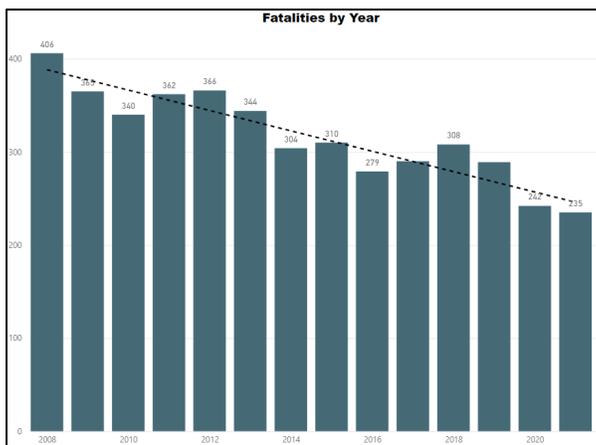
Most of the highway safety corridors are currently under construction, except for several that were

completed in 2019 and 2020. PRHTA expects to implement an evaluation program with the development of before-and-after studies with data from 3 years before improvements and 3 years after. This evaluation process with the before-and-after studies will provide us with the tools to improve our current highway safety program,

including trainings and new ideas for the design process.

Our Federal-aid program is not the largest in the Nation, but it is not the smallest either in comparison with other territories. With the lack of State funds for the development of preservation and construction programs, the use of Federal funds is essential to continue with improvements to our highway system. The efficient use of resources, labor, and funds is key in the implementation of the Puerto Rico Highway Safety Corridor Program. Our goal is to involve all design firms on the island (more than 20 firms) in the process of designing highway safety corridors to spread the seed of safety and innovation in their minds.

Puerto Rico has been working hard to implement a safety culture in the PRHTA and all engineering processes. Fatalities on the Island went from 308 in 2018 to 289 in 2019 and 242 in 2020. Collaboration among all stakeholders as part of the SHSP efforts and the implementation of the Puerto Rico Highway Safety Corridor Program have contributed to the reduction of fatal crashes on the island. In addition, the Puerto Rico Highway Safety Corridor Program has been effective in encouraging a safety culture in the Puerto Rico transportation community. This program is helping us prioritize highway safety in all project and investment phases. Fatalities on the island have been on a downward trend over the years, and the improvements in the highway system have played an important role.



Number of fatalities per year (the number included in year 2021 is until October 6, 2021). (Source: FHWA)



For more information, please contact Juan Carlos Rivera-Ortiz at juan.riveraortiz@dot.gov or Grace Diaz at grace.diaz-estrada@dot.gov.

Making Work Zones Safer with Better Data: Introducing the Work Zone Data Exchange

By Martha Kapitanov, FHWA, Office of Operations

Work zone safety is a national priority. USDOT, FHWA, and transportation agencies are working to reduce fatalities, injuries, and crashes in work zones nationwide. The United States [saw 842 work zone fatalities in 2019](#).

Looking to the future, technology will play a vital role in improving work zone safety. While intelligent transportation system tools such as smart work zone devices are rapidly advancing, the data they collect are much more valuable if everyone can easily access and interpret it. And that's where the [Work Zone Data Exchange \(WZDx\)](#) comes in.

What Is WZDx?

WZDx is a cooperative effort led by USDOT and stakeholders to advance a national data specification—a universal language—for all work zone data. WZDx supports the sharing of all data (and there are a lot of it), making it available for third-party users such as mapping companies, vehicle and vehicle equipment manufacturers, and automated vehicles.

Community-developed data specifications, such as the General

Transit Feed Specification for public transportation, are widely used by transportation agencies nationwide. The WZDx specification is the first open specification for sharing information on work zone impacts.

Partnering across the Nation

100+ organizations—including State and local DOTs, construction firms, mapping companies, and vehicle technology manufacturers—participate in the [Work Zone Data Working Group](#). Working group members are dedicated to developing and implementing the WZDx specification in work zones nationwide. Any person or organization is welcome to join, and several subcommittees address specific aspects of development and implementation.

Earlier this year, USDOT awarded grant funds for projects in 13 States, including Massachusetts and Arizona. Each project is working to get a WZDx data feed up and running, but each has its own unique elements. Minnesota DOT, for example, is working to create a mobile application that work zone operators can use to report real-time work zone information, such as lane shifts, closures, and worker presence.

Looking to the future

Like all technology, progress is incremental. In the case of WZDx, things are moving along at a rapid pace. Version 4 of the specification is coming soon, and with each version, the data that the

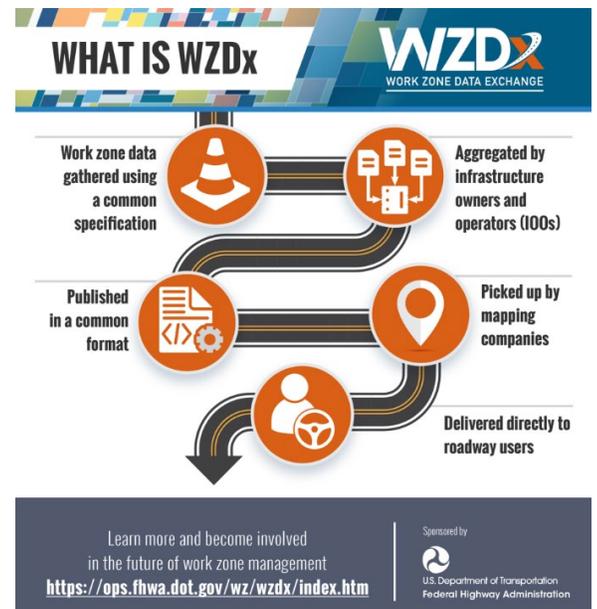
WZDx is capable of communicating become more comprehensive and more precise. And precise data are more useful data.

Ultimately, WZDx will save lives and make travel on public roadways safer and more efficient—but to gather data from across the country, broad adoption is critical.

Let's Put Work Zones on the Map

The first step in accelerating adoption is to get the word out. Earlier this year, FHWA launched a partnership and awareness campaign, called Put Work Zones on the Map, to do just that. The purpose of the campaign is to educate and engage potential partners on the capabilities, benefits, and progress of WZDx. Those interested in helping spread the word can visit the [campaign's toolkit web page](#) to find fact sheets, social media content, and links to past webinars.

Together we can create smarter and safer roadways by putting work



WZDx. (Source: FHWA)



“Work zones are particularly problematic for commercial motor vehicles and automated vehicles. Just imagine if automated vehicles could access live data that tell them where workers are in a work zone, when the lanes are going to shift, and even when to slow down and avoid crashes.” – *Martha Kapitanov, FHWA*

[WZDx website](#) or email Martha Kapitanov at martha.kapitanov@dot.gov.

zones on the map and improving the way we navigate work zones daily.

For more information on WZDx and Put Work Zones on the Map, visit the

➤ NEW RESOURCE ROUNDUP

Pedestrian and Bicycle Crash Analysis Tool, Version 3, Available!

By Tamara Redmon, FHWA, Office of Safety, and Ana Maria Eigen, FHWA, Office of Safety R&D

FHWA has released version 3 of [PBCAT](#). PBCAT is a crash typing software product intended to assist State and local pedestrian/bicycle coordinators, planners, and engineers with improving walking and bicycling safety. PBCAT helps road safety professionals improve their understanding of non-motorist crashes. Through development and analysis of a database containing details associated with crashes between motor vehicles and pedestrians or bicyclists, transportation professionals can make their systems safe. One of these crash-associated details is crash type, which describes the pre-crash actions of the involved parties.

After developing a database of crash information, PBCAT users can analyze the data, produce reports, and select countermeasures to address the problems identified by the software. The application allows users to categorize their non-motorist crashes and create a data set for analysis. Version 3 of PBCAT has new graphics and logic, considers micromobility, and is now

a web-based tool. Version 3 is free through the [Highway Safety Information System web page](#) under Products/Safety Analysis Tools. The accompanying [User Guide](#) provides detailed information on how to use PBCAT.

For more information, please contact Dr. Carol Tan at carol.tan@dot.gov.

New Resources and Incorporation of the Bikeway Selection Guide into State Planning Documents

By Tamara Redmon, FHWA, Office of Safety

FHWA released its [Bikeway Selection Guide](#) 2 years ago. This resource helps transportation practitioners consider trade-offs and make decisions to accelerate the delivery of high-quality bicycle networks.

FHWA also recently completed supplemental resources to complement the [Bikeway Selection Guide](#). The first of these, [On-Street Motor Vehicle Parking and the Bikeway Selection Process](#), is intended to inform discussions about on-street parking and bikeway selection. It begins with a discussion of on-street parking and bikeway types, with associated dimensional requirements and trade-off

considerations. It then presents strategies involving choices relating to the overlap between general purpose on-street parking and passenger or commercial loading activities, design details, and bikeway selection.

The other resource, entitled [Traffic Analysis and Intersection Considerations to Inform Bikeway Selection](#), is intended to inform trade-off decisions associated with bikeway selection at intersections. It discusses common performance metrics, spatial needs of bikeways at intersections, safety- and equity-focused design principles, and operational traffic analysis trade-offs and assumptions.

FHWA held a webinar on these two new resources on April 7. The recording [can be viewed here](#). FHWA also held a webinar on the [Bikeway Selection Guide](#) when the guide was developed in 2019, which [can be viewed here](#).

As part of the project, 23 workshops were held across the United States between summer 2019 and spring 2021: El Paso, Texas; Jonesboro, Arkansas; Springdale, Arkansas; Chesapeake, Virginia; Columbus, Ohio; Harrisburg, Pennsylvania; Raleigh, North Carolina; Mesquite, Texas; Fort Worth, Texas; Fort Lauderdale, Florida; Denver,



Colorado; Coco, Florida; Tampa, Florida; Oklahoma City, Oklahoma; St. Louis, Missouri region; North Carolina DOT; Hawaii DOT; PennDOT; Mid-Ohio Regional Planning Committee; Washington County Council of Governments, Oregon; and Metropolitan Washington Council of Governments.

FHWA offered free technical assistance for 2 years to any State or locality that wanted to use the guide. During this process FHWA documented how States and localities are starting to use the guide. These are some known applications of the guide in local or State plans and documents:

- Minnesota DOT updated its [Bikeway Facility Design Manual](#) in 2020 and incorporated content from the *Bikeway Selection Guide* in its development of selection guidance.
- A bike/pedestrian master plan for East Baton Rouge Parish, Louisiana, is being developed and the guide has been used extensively.
- The City of La Crosse, Wisconsin, [cited the guide](#) as a reason for putting bike lanes on a busy street, which had been opposed by businesses and other groups because it would have removed parking on one side of the street.
- Arlington, Virginia, referenced page 46 of the guide in the bicycle element of its [Transportation Master Plan](#).
- Michigan DOT is incorporating information from the guide into its Training Wheels 3.0 course and into its new [Blueprint for Urban Design](#) (2020). The guide is referenced as a resource for applying design flexibility and creating low-stress bicycle networks in policy, planning, and project development.
- The Town of Bloomfield, Connecticut, referenced the guide in its [Complete Streets Master Plan](#) (2019).
- The Alaska Department of Transportation and Public Facilities included the guide as a resource and basis for describing different types of bicyclists and design users in its [Alaska Statewide Active Transportation Plan](#) (2019).
- The Waco MPO referenced the guide in its [Waco Metropolitan Area Active Transportation Plan](#) (2019) to describe bicycle suitability and how to address bikeways when selecting corridors for future study.
- The [Ohio State and U.S. Bike Route System Overview and Implementation Guide](#) (led by Ohio DOT) references the *Bikeway Selection Guide* to identify facilities appropriate for rural, suburban, and urban contexts.
- Virginia DOT included a bicycle facility matrix that is based on the *Bikeway Selection Guide* in “Appendix A-1” of its *VDOT Road Design Manual*. The matrix includes context considerations such as speed, average annual daily traffic, and whether the bikeway is alongside on-street parking.
- NCDOT hosted three workshops and began applying the *Bikeway Selection Guide* to refine the scope of roadway projects. In 2021, NCDOT incorporated the guide as a tool for designers in revisions to the *Roadway Design Manual*.
- Caltrans issued a memo on [Contextual Guidance for Bike Facilities](#) in 2020, encouraging the guide as supplemental guidance for making informed decisions related to bikeway selection. Caltrans envisions the guide being used during project initiation development, project approval, and environmental documentation to refine the preferred facility type selected during project scoping.
- The 2020 *Sarasota County Bicycle and Pedestrian Master Plan Update* highlights the guide in an appendix to its [Pedestrian and Bicycle Facility Design Guide Review](#).
- The Caldwell, Idaho, [Pathways and Bicycle Route Master Plan](#) (2020) incorporates several sections and exhibits of the guide when discussing preferred bikeway type and intersection design, and encourages using it to guide design decisions.
- The Montgomery County [Vision Zero Community Toolkit](#) (2021) references the guide several times to provide additional considerations for bikeway



selection and trade-offs of different bikeway types.

FHWA is very encouraged by the amount of interest in the guide. Enthusiasm for bicycle facilities remains strong and there is increasing demand as popularity of this mode of travel increases throughout the country.

We always like to hear about any new uses and applications of the guide and supplemental resources. If your State, city, or locality is using the guide in other ways, please let us know by contacting Tamara

Redmon at tamara.redmon@dot.gov.

Moving Freight Safely: New Directions at FHWA

By Caitlin Hughes and Chip Millard, FHWA, Office of Freight Management and Operations

Freight safety is more than just safe vehicles and well-rested truck drivers—it's also about the operation of freight vehicles on roads, bridges and tunnels, at ports and grade crossings, and in emergency situations where greater loads may be needed. FHWA's Office of Freight Management and Operations (HOFM) is conducting a variety of initiatives to study, improve, and promote freight safety. These activities include:

- Researching and implementing initiatives recommended by the former Emergency Route Working Group to expedite emergency response and recovery through enhanced State permit automation and

standardization, emergency routing, and communication.

- Sponsoring an Automated Oversize/Overweight Vehicle Permitting Best Practices Roundtable to help States design and expand their automated permitting systems by learning from best practices of other States. By 2022, it is anticipated that all States will finally have some form of auto-issued permitting capability.
- With AASHTO, developing an emergency declaration web page to provide a single location for all States to post information and truck drivers to retrieve information on increased weight limits allowed by permit during emergency events. The web page is expected to be active by fall 2022.
- Collecting and sharing truck size and weight enforcement data on [USDOT's Data Hub](#). Data from 2019 and 2020 are currently posted, providing transparency and allowing for State-by-State comparison.
- Supporting the use of electronic camera monitoring systems (CMS) on trucks by not penalizing States for non-enforcement of vehicle length and width requirements. CMS technologies are being piloted for approval by the National Highway Traffic Safety Administration and Federal Motor Carrier Safety Administration for future widespread use.
- Developing a truck parking design guidebook that will provide practitioners with resources to plan for, advocate for, and implement safe truck parking facilities.
- Collaborating with the Office of Safety to promote increased investment in highway-railway grade crossing improvements and grade separations. As truck and rail freight activity grows, at-grade rail crossings will be an important area for increased safety solutions. The National Highway Freight Program can help fund these remediations, if States prioritize investment in multimodal freight projects.
- Working jointly with AASHTO to fund a Transportation Research Board (TRB) study on bridge strike prevention; independently funding a World Road Association Special Project that examined bridge and tunnel strikes by oversize vehicles, and sharing results to help States and localities reduce the incidence of these collisions.
- Completing an implementation plan and convening a working group of subject matter experts within USDOT to improve planning and collaboration on vehicle size and weight research.

To add freight safety initiatives to the HOFM work plan, please contact Caitlin Hughes at Caitlin.hughes@dot.gov.



➤ ANNOUNCEMENTS

FHWA Safety R&D Completes the Final Release of the Interactive Highway Safety Design Model

The Office of Safety R&D has completed development of the Interactive Highway Safety Design Model (IHSDM) 2021 Public Release (version 17.0.0), which is available to download at the [FHWA IHSDM website](#). IHSDM supports FHWA's Data-Driven Safety Analysis initiative through a suite of safety analysis tools designed to evaluate the safety and operational effects of project-level geometric design decisions on highways. Its Crash Prediction Module (CPM) implements "Part C Predictive Method" of AASHTO's *Highway Safety Manual* for rural two-lane highways, rural multilane highways, urban/suburban arterials, roundabouts, and freeways/interchanges. This 2021 release marks a major milestone, as it is the end of FHWA's long-term IHSDM software development efforts since 1998. FHWA will continue to provide technical support and training to IHSDM users through September 2024.

For assistance, please contact Dr. In-Kyu Lim at in-kyu.lim@dot.gov.

Winter 2022 Edition of Public Roads Magazine

The Winter 2022 issue of Public Roads is [now available online](#). This special issue focuses on the Safe System Approach—an internationally recognized practice

that no one should die or be seriously injured on the roadways—and how FHWA is integrating it into its program areas with a goal of zero deaths. Feature articles take into consideration the five elements of a safe transportation system—safe road users, safe vehicles, safe roads, and post-crash care:

- "Making our Roads Safer Through the Safe System Approach" by *Mark Doctor and Chimai Ngo*.
- "The Highway Safety Improvement Program: Paving the Road to a Safer Future" by *Danielle Betkey and Karen Scurry*.
- "The Safe System Paradigm: Reducing Fatalities and Injuries in the Nation's Intersections" by *Jeffrey B. Shaw, Richard J. (R.J.) Porter, Michael R. Dunn, Jonathan Soika, and Ivy B. Huang*.
- "NHTSA's Safe System Campaign: Educating and Protecting All Road Users" by *Robert Ritter, Dee Williams, and Gamunu Wijetunge*.
- "Speed Management is Key to Road Safety" by *Guan Xu, Abdul*



Winter 2022 Public Roads. (Source: FHWA)

- *Zineddin, Randolph Atkins, and Sarah Abel*.
- "The Safe System Approach: How States and Cities Are Saving Lives" by *Chimai Ngo, John Milton, Lily Reynolds, Rachel Carpenter, and Clay Veka*.
- "Applying a Safe System Approach Across the Globe" by *Dr. Matts-Åke Belin, Anders Hartmann, Mari Svolsbru, Blair Turner, and Michael S. Griffith*.

Upcoming Conferences and Events

[ATSSA Convention & Traffic Expo 2022, February 11–15, Tampa, FL.](#)

The theme of this year's convention and expo is "Reunite for Roadway Safety". Join roadway safety



transportation professionals for the 52nd convention.

2022 Lifesavers National Conference on Highway Safety Priorities, March 13–15, Chicago, IL.

The 2022 National Lifesavers Conference on Highway Safety Priorities brings together a unique combination of public health and safety professionals, researchers, advocates, practitioners, and students committed to sharing best practices, research, and policy initiatives that are proven to work.

2022 National Bike Summit, March 27–30, Washington, DC, & Online.

With the theme of “Choosing Our Future”, the 2022 National Bike Summit will take place March 27–30 in person and online.

National Association of County Engineers, NACE Annual Conference, April 24–27, Buffalo, NY.

The 2022 National Association of County Engineers will be gathering in Buffalo, New York, for its annual conference to share information and promote awareness of the latest innovations and best practices.

ITE International Annual Meeting and Exhibition, July 31–August 2, New Orleans, LA.

This meeting and exhibition is an international membership platform for professionals working to improve transportation mobility and safety.

Visit the FHWA Office of Safety Booth in the TRB Exhibit Hall and online!

If you are attending the TRB annual meeting, be sure to stop by booth #537 in the exhibit hall!

Exhibit hours are as follows:

Sunday, January 9, 4–7 p.m.

Monday, January 10, 9 a.m.–4 p.m.

Tuesday, January 11, 9 a.m.–4 p.m.

If you cannot make it to TRB this year, you can access all booth materials at our Virtual TRB Exhibit Booth. Visit <https://go.usa.gov/xtraA> or scan the QR code below!



For more information, please contact Tara McLoughlin at 202-366-2176 or tara.mcloughlin@dot.gov.

The *Safety Compass Newsletter* is a publication of the U.S. Department of Transportation, Federal Highway Administration (FHWA).

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Washington, DC 20590

The *Safety Compass Newsletter* is available online at the FHWA Office of Safety website at: <http://safety.fhwa.dot.gov/newsletter/safetycompass/>.

We welcome your comments and highway safety-related articles. The purpose of this newsletter is to increase highway safety awareness and information and to provide resources to help save lives.

We encourage readers to submit highway safety articles that might be of value to the highway safety community. Send your comments, questions, and articles for review electronically to Tara McLoughlin at tara.mcloughlin@dot.gov.

