

SAFETY COMPASS

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A Message from FHWA Associate Administrator for Safety Beth Alicandri



Embarking on the “Road to Zero”

In an effort to reverse the alarming increase in roadway fatalities over the past year, the FHWA recently embarked upon a new national initiative called “Road to Zero.” This effort, led by the National Safety Council, with the help of FHWA, NHTSA, and FMCSA, has the ambitious goal of eliminating roadway fatalities within the next 30 years.

I am particularly excited to see that Road to Zero includes partners from a wide range of disciplines such as transportation safety, urban planning, public health, and information technology. Road to Zero promotes proven lifesaving strategies with an emphasis on cross-discipline activities. The coalition will also lead the development of a new scenario-based roadmap which will help achieve zero traffic deaths using evidence-based strategies and a systematic approach to eliminating risks. An important element of this undertaking is developing a zero-traffic-deaths scenario that incorporates the strategic deployment of self-driving cars, which will reveal needs that haven't been considered and create a planning tool for policymakers and traffic safety organizations. The Road to Zero offers an exciting new way to work with colleagues across diverse disciplines on our mutual goal of driving the number of deaths on our roads to zero.

Sharing information on successful safety practices is a key component of Road to Zero. I'm happy to note that this issue of the Safety Compass is full of information on these kinds of practices. For example, data-driven safety analysis is taking a leading role in identifying which roadways aren't performing as they should and how they can be improved (page 3). Effective countermeasures such as road diets are being used in Honolulu, HI, as a tool to improve safety and livability as part of its Complete Streets initiative (page 7). And of course, we have issued a treasure trove of new guidance and information products on topics such as State Highway Safety Plans (p. 10), speed management (p. 16), and systemic safety implementation (p. 16), to name a few.

I encourage you to get involved and learn more about Road to Zero in the coming weeks and months. Read more at the NSC Road to Zero website www.nsc.org/learn/NSC-Initiatives/Pages/The-Road-to-Zero.aspx, and follow @RoadToZeroUS on Twitter.

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HSIP 2015 NATIONAL SUMMARY REPORT NOW AVAILABLE!

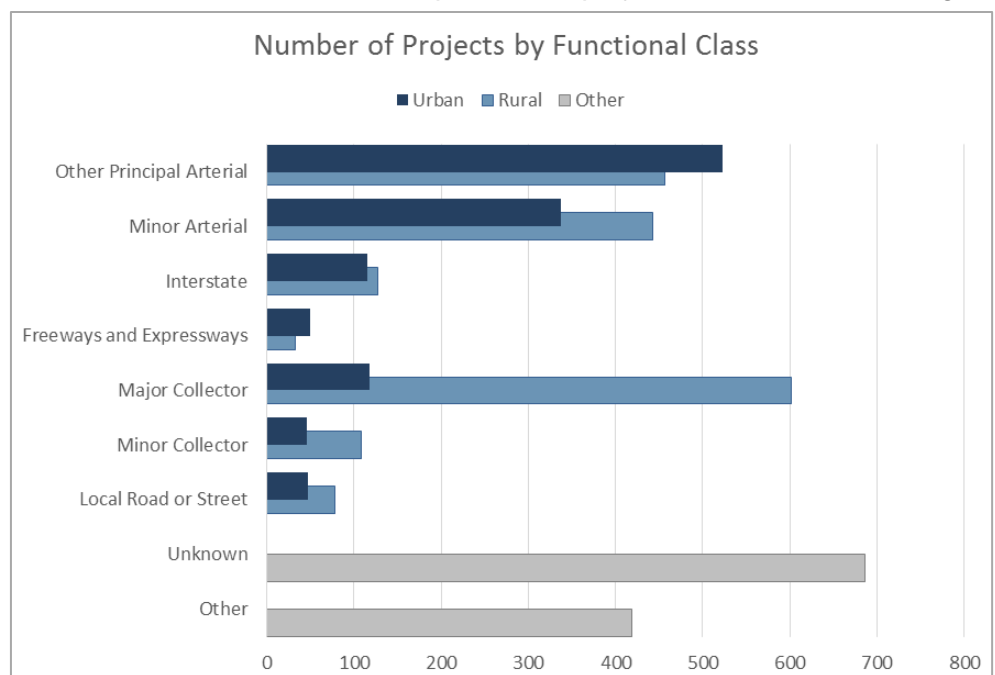
By: Karen Scurry, FHWA Office of Safety

The Highway Safety Improvement Program (HSIP) is a core Federal-aid program which aims to achieve a significant reduction in fatalities and serious injuries on all public roads. Under the Moving Ahead for Progress in the 21st Century Act (MAP-21), Congress authorized approximately \$2.4 billion per year to help States achieve this goal through the implementation of highway safety improvement projects. This is nearly double the amount that was authorized under the previous legislative act. Together, the States obligated nearly \$3.9 billion for over 4,100 highway safety improvement projects in 2015.

These highway safety improvement projects come in all shapes and sizes. Some are high-value reconstruction projects, while others consist of low-cost countermeasure installations across multiple sites. The 2015 HSIP National Summary Report provides an aggregate summary of the type and cost of projects across all States. Highlights of the States' 2015 HSIP implementation efforts are provided below.

- A majority (roughly two-thirds) of HSIP projects cost less than \$500,000 each, with 35 percent of all projects costing less than \$100,000.
- About 20 percent of HSIP projects would be considered high cost, coming in at over \$1 million each. These projects often include widening shoulders, adding auxiliary lanes, installing cable barriers, installing rumble strips, or modifying traffic signals.
- Projects associated with a functional class were most often categorized as rural major collector or other urban principal arterial.
- Projects on urban principal arterial interstates had the highest average total cost per project of \$3.01 million, whereas projects on rural local roads or streets had the lowest average total cost per project of \$330,000.

- There are fewer urban projects than rural projects but the average total cost per project of the urban projects is greater than the average total cost per project of the rural projects.
- About 70 percent of highway safety improvement projects occur on roads owned by the State Highway Agency.
- Projects on roads owned by State Highway Agencies had the third highest average total cost per project of approximately \$1.1 million, while projects on roads owned by County Highway Agencies cost just over \$400,000 on average.
- Seventy percent of highway safety improvement projects fall into the following



categories: roadway, intersection traffic control, intersection geometry, roadside, and shoulder treatments.

- Interchange design, animal-related projects, and advanced technology and ITS have the highest average cost per project. Roadway signs and traffic control, speed management, and work zones have the lowest average cost per project.
- States use HSIP funds to address the predominant infrastructure-related crash types – roadway departure, intersection, and pedestrian crashes.

The number and cost of HSIP projects has continued to increase from 1,684 projects with a total cost of \$1.61B in 2009 to 4,188 projects with a total cost of

\$3.90B in 2015. Over the past 7 years, States obligated \$16.6 billion for more than 19,000 highway safety improvement projects.

To view the complete Highway Safety Improvement Program 2015 National Summary Report or the individual State HSIP reports, visit <http://safety.fhwa.dot.gov/hsip/reports/>. For more information on the Highway Safety Improvement Program, please contact Karen Scurry at karen.scurry@dot.gov.

DATA-DRIVEN SAFETY ANALYSIS: PERFORMING A HEALTH CHECK-UP ON YOUR ROADWAYS

By: Jerry Roche, FHWA Office of Safety and John McFadden, FHWA Resource Center

[Data-Driven Safety Analysis](#) made great strides under Every Day Counts 3 (EDC-3) initiative, with more than 40 States applying DDSA on one or more projects in the areas of planning, alternatives analysis, design, and operations. Interest in DDSA has remained so high, that it was selected as one of the innovations to continue under EDC-4. Now that States have tried it, many State DOTs and local agencies have set their sights on integrating DDSA into their policies and procedures throughout their respective project development processes.

One of the areas in which we've seen progress in applying DDSA is planning. Predictive and systemic analysis tools can be applied early in the project development process to help identify which roadways aren't performing as they should, determine the scope and need of potential projects, and prioritize them.

For example, the Ohio Department of Transportation (ODOT) is incorporating data-driven safety analysis into its project development

process so that safety will be considered in all project planning - from minor resurfacing to major construction projects. The agency created safety-integrated project maps that identify priority locations where safety improvements should be considered on projects that overlap these areas.

The Colorado Department of Transportation is another State that's performing a safety analysis of all its projects as part of a transportation systems management and operations (TSM&O) evaluation. This evaluation process compares existing safety performance of a project location with how that particular roadway was expected to perform. Projects with a high potential for safety improvement are then scoped accordingly to address the identified safety issues.

The good news is that identifying roadway sites with the greatest potential for safety improvement doesn't have to be overly complicated. In fact, many State and local agencies have accomplished this by implementing the systemic approach to highway safety. For those not familiar with the systemic approach, it's really similar to how doctors provide care to their patients. First they inquire about your family health history, your personal health history, and your behavior (including exercise, diet, etc.). They then use this information to assess your risk of

Rx How Healthy is Your Road System?
Find out with systemic analysis

Systemic analysis is like a health screening for your road system. Just as your doctor identifies risk factors for illness, systemic analysis identifies locations that are at highest risk for severe crashes. Practitioners can then prioritize projects based on risk and apply low-cost safety treatments to reduce severe crashes across the whole of risk system.

LIVE COUNTY - KEY RESULTS

Symptoms	Diagnosis
Severe roadway departure crashes on curves.	11% of all curves have 3 or more risk factors.
Possible Risk Factors:	Lab Results:
• Avg. Daily Traffic > 1,000 vehicles	Curve A: 4
• Curve Radius < 1,000 feet	Curve B: 3 + 2 + 1
• Intersection within Curve	Curve C: 2 +
• Visual Trap within Curve	Curve D: 1 +
• Severe Crash within Curve	Curve E: 1 + 1
	Curve F: 1 + 1

Treatment
Prioritize highest risk sites and treat with low-cost countermeasures such as chevron signs or rumble strips.

Follow-Up
Track and evaluate safety improvements. Further remediation can be implemented as needed.

Systemic vs. Systemwide
Systemic does not mean treating all locations. It allows agencies to treat the highest-risk sites within limited budgets.

US Department of Transportation
Federal Highway Administration

For more information visit
www.fhwa.dot.gov/innovation/everydaycounts/edc-3/ddsa.cfm

developing certain diseases and proactively work to minimize that risk before major issues develop later in life.

Similarly, we can perform “health assessments” on our roadway systems using these steps:

1. Identify target crash types (e.g. severe roadway departure crashes).
2. Identify focus facility types (e.g. two-lane rural roads with curves).
3. Identify and evaluate risk factors (e.g. curve radius, traffic volume, intersection within curve).

We can then proactively treat locations that surpass the threshold for crash risk with low-cost countermeasures.

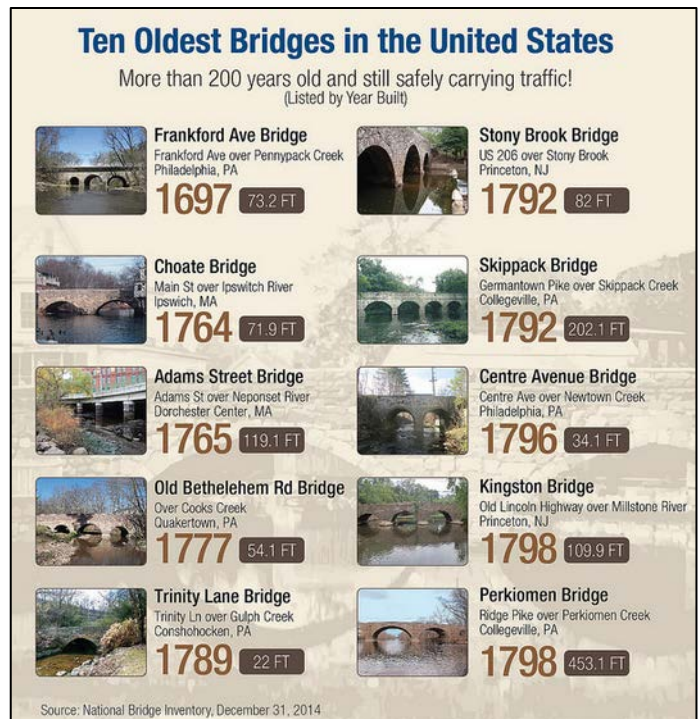
For more information on the systemic approach, visit <http://safety.fhwa.dot.gov/systemic/>. For DDSA-related training and technical assistance please contact Jerry Roche at jerry.roche@dot.gov or John McFadden at john.mcfadden@dot.gov.

DATA VISUALIZATION: TELLING THE DATA STORY

By: Lisa Bedsole, Leidos

Transportation professionals know that data tells a story and, for decades, FHWA has collected data that tells important stories about our Nation’s travel needs—from where and how old the country’s oldest bridges are to how many teenagers are getting drivers licenses each year. The safety story is also extremely important, especially now as data reveal that crashes and fatalities are rising. Data about our roadways tells stories that have widespread ramifications, and safety professionals can start using that data to share relevant information about our roadways with the public.

FHWA’s Office of Public Affairs has been working to develop a series of engaging graphics that help convey important messages about trends and other information that the public finds interesting or relevant. The effort started in 2014 when the staff was trying to figure out what would be appropriate to post on the agency’s new Facebook page.



This infographic generated nearly 4,600 impressions on its third appearance (October 2016).

“We started trying to pick things out to share, and we experimented with what the data world calls ‘data visualization’—which is just a simplified trend analysis that the average person might find interesting,” explained Doug Hecox of FHWA’s Office of Public Affairs. The result?

“We’re reaching thousands of people. We’re telling more Americans about their road system, and they are intrigued. The results from our infographics are outpacing anything we’ve ever done in informing the public,” Hecox added. “It’s not even comparable,” he added.

The FHWA public affairs team works closely with the Office of Policy to sift through reams of FHWA data to identify interesting and educational facts about our infrastructure and driving trends to showcase the changing nature of our transportation system and driving habits to the American public. They have found that, the more they can make it possible for viewers to interact with the data, the more fun it is, “like the Google doodle,” Hecox noted, adding that the staff is exploring the possibility of developing more interactive infographics in the coming year.

To date, their work has yielded several safety-related infographics. For example, one addresses the importance of nighttime visibility for trick-or-treaters

The Data Story

One example of the storytelling power of data happened in 2006, when the agency began tracking monthly declines in vehicle miles traveled (VMT)—a phenomenon not seen since the fuel shortages of the 1970s. After nearly 18 months of declines, which many attributed to higher fuel prices, the housing bubble burst.

“We saw economic realities playing out on the roadway months before anybody else did. We began to realize we have some fairly significant economic indicators [in these data],” said Doug Hecox of FHWA’s Office of Public Affairs, adding that the news media gave this specific trend significant coverage and has continued to follow the monthly VMT data with great interest.

on Halloween (see image below). Another showcases the rising instances of work zone fatalities as a means of drawing attention to the need for drivers to be extra careful when traveling through active work zones. A third uses a chart to point out that, ever since the first person in the U.S. was killed by an automobile in 1899, safety improvements have helped to reduce the fatality rate despite steady increases in VMT over the years.

FHWA’s infographics are important for many reasons, not least of which is because, once a user’s interest is caught, the person will typically stay on the website looking for other “tidbits” of interesting information. The infographics also drive traffic to the agency’s website, Twitter feed and other social



After publishing this Halloween-themed safety infographic, the agency’s Twitter feed saw a record increase of 212 Twitter followers in one week.

media channels, making FHWA an information “destination.” This allows FHWA to support its educational goal of helping the public understand the role its transportation network plays and other important truths, like who drives on the Nation’s roadways, where the money for infrastructure is spent, and how the transportation system acts as the backbone of our economy.

The next step is to think about how these social media can be used in schools, perhaps in conjunction with STEM curriculum. As an extension of that, Hecox urged data and statistical staff at transportation agencies to work with their public relations and communications staff to identify trends or stories that the public needs to know about when it comes to safety. The challenge, he added, is to keep the story told by the data fresh, timely and original.

Do you have ideas or know of data trends that might lend themselves to safety-related infographics that will capture people’s attention and educate them about the importance of roadway safety? We invite you to share your thought by contacting Doug Hecox at dhecox@dot.gov. To view the infographics published to date, visit FHWA’s Flickr page at <https://www.flickr.com/photos/fhwa/sets/72157649163936650>.

Interested in keeping up with the latest from FHWA? Pick your favorite social media outlet and sign up to follow us today!

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<https://www.facebook.com/FederalHighwayAdmin/>.

EXPRESS YOURSELF! SHARE YOUR EXCITEMENT FOR ROAD DIETS AND POST A SELFIE TODAY

By: Becky Crowe, FHWA Office of Safety

Want to share your love for Road Diets? Across the Nation, transportation specialists, travelers, and road practitioners have been posting photos online using the hashtag “#RoadDiets” to promote their enthusiasm for this effective road reconfiguration technique. Now, it’s your turn. Post a photo today and join the movement!

The goal of the Selfie Campaign is to raise awareness of a Road Diets to the general public and to promote the effectiveness of these successful road reconfigurations. This is one in a series of campaigns, led by the FHWA Office of Safety, to encourage agencies to institutionalize Road Diets as a safety solution.

Almost half of the States in the country have formally adopted policies to implement Road Diets to ease congestion and improve safety on busy corridors. Most of the remaining States are in the development, demonstration, and assessment stages and are moving toward establishing Road Diets as a standard agency practice. This comes as no surprise; when properly planned and tested, Road Diets work!

What’s the Big Idea?

Road Diets are a valuable tool in the transportation engineer’s toolbox and offer a variety of configurations that can be adapted to serve a community’s specific needs. Unfortunately, those most directly affected by the road reconfigurations—members of the public—are largely unaware of what Road Diets are or the extensive benefits they can offer.

The goal of Road Diets is to improve safety and livability at a low cost while significantly reducing crashes and making commuting safer for all road users. The term “Road Diets” is not well known, and this campaign is an opportunity to educate the public about the many benefits, allay concerns about the

possible negative impacts, and correct misinformation.

How can you Join the Campaign?

It’s easy! Here’s how it works:

1. Print out the hashtag (#RoadDiets).
2. Safely snap a selfie with the sign at your favorite Road Diet. (Points for creativity!)
3. Post the photo on Facebook or Twitter. Include “#RoadDiets” in your text along with your state or locality. For example, my tweet would be: In Henrico, VA, #RoadDiets are awesome!



I look forward to seeing your post! Remember, be safe when you take that selfie!

To learn more about use cases and scenarios for Road Diets, download the Road Diet Case Studies Guide at: http://safety.fhwa.dot.gov/road_diets/case_studies/roaddiet_cs.pdf.

To find out if a Road Diet is right for your area and to learn more about the history of Road Diets, visit the Office of Safety website and download our [Road Diet Informational Guide](#), or contact Becky Crowe at rebecca.crowe@dot.gov.

HONOLULU USES ROAD DIETS TO ADVANCE COMPLETE STREETS INITIATIVE

By: Becky Crowe, Transportation Specialist (FHWA)

The Department of Transportation Services (DTS) of the City & County of Honolulu is working hard to implement Complete Streets policies by applying new guidelines for maintenance and paving projects and by identifying projects that can be used to promote Complete Street designs to improve specific locations. One element of this effort involves expanding the application of Road Diets as a means of supporting the agency's vision for a comprehensive, integrated network of streets that are safe and convenient for all people whether traveling by foot, bicycle, transit, or automobile, and regardless of age or ability.

Since the Honolulu City Council adopted a Complete Streets policy and passed related ordinances in 2012, DTS has established a multi-disciplinary Complete Streets Team, headed by a newly established Complete Streets Program Administrator. To date, the team has conducted in-depth studies on 16 locations where it is considering implementing a variety of different treatments to promote a more complete road network. Of sites examined, a quarter includes recommendations for Road Diet applications, and several others recommend lane narrowing as a way to make room for pedestrian areas, bike lanes, or additional parking.

Going forward, the Complete Streets Team will continue to have great opportunities to implement



The Road Diet on Keolu Drive

Complete Streets principles through Honolulu's ongoing street rehabilitation efforts. Previously, there had been a limited amount of systematic efforts to look at optimizing multimodal roadway use through changes within the right-of-way. As a part of this new review process, roadways will be identified for needed changes to sidewalks and areas beyond the existing travelway to benefit all users.

"The road diet is seen as the perfect tool to address overbuilt travelways that suffer from vehicular speeding," said Mike Packard, the Complete Streets Program Administrator for the City and County of Honolulu. "They also provide a safer facility for pedestrians, bicyclists, and vehicles alike."

To learn more about implementing Road Diets in your locality, please contact Becky Crowe at rebecca.crowe@dot.gov.



The Road Diet on Kamehameha IV Road

NEW RELIABILITY OF ROADWAY SAFETY MANAGEMENT METHODS SERIES

By: Frank Gross (VHB), Joshua DeFisher (VHB), Yanira Rivera (FHWA), and Stuart Thompson (FHWA)

High quality data and reliable analytical methods are the foundation of data-driven decision making. The new Reliability of Roadway Safety Management Methods series includes four information guides that identify opportunities and the latest tools to employ more reliable, state-of-the-art methods to support decisions throughout the roadway safety management process. The following information guides cover four specific components of the roadway safety management processes:

- [Network Screening](#)
- [Diagnosis](#)
- [Countermeasure Selection](#)
- [Safety Effectiveness Evaluation](#)

The roadway safety management process is an integral part of the project development process. The results provide information for system planning, project planning, design and construction, and operations and maintenance of a transportation system. Each guide introduces the roadway safety management process and provides an overview of the featured step.

The purpose of the Reliability of Roadway Safety Management Methods series is to demonstrate the value of more reliable methods in these activities, and demonstrate limitations of traditional (less reliable) methods. Each guide provides examples to illustrate the application of the various methods and highlights differences in results among the more reliable and less reliable methods. The guides conclude with sections concerning data requirements and tools and resources. The following is a brief summary of the four guides included in the Reliability of Roadway Safety Management Methods series:

Network Screening: Network screening is the process of analyzing the network to identify sites for further investigation. The [Network Screening](#) guide provides an overview of various performance measures for conducting network screening, including crash frequency, crash rate, equivalent property damage only, critical rate, level of service of safety, Empirical Bayes expected crashes, and Empirical Bayes expected excess crashes. The guide provides a discussion of the associated

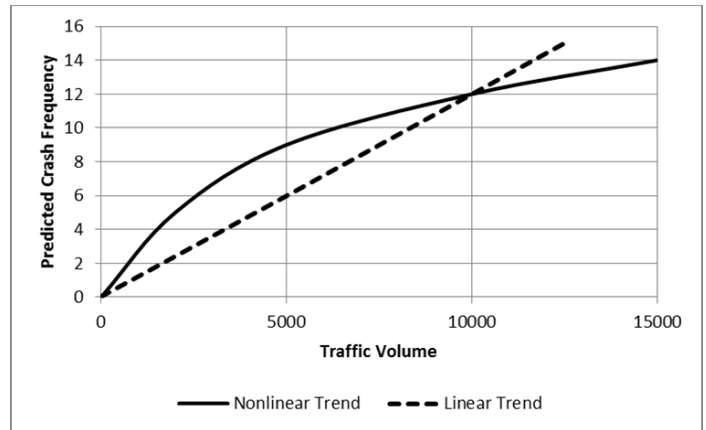
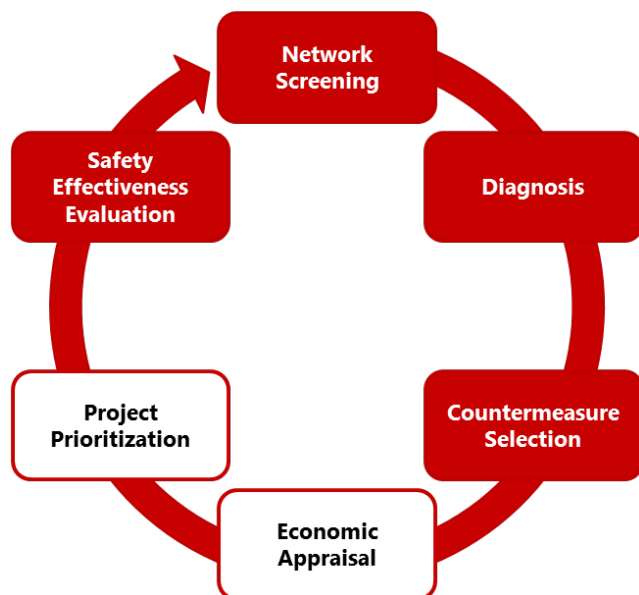


Illustration of linear and nonlinear relationship between crashes and traffic volume.

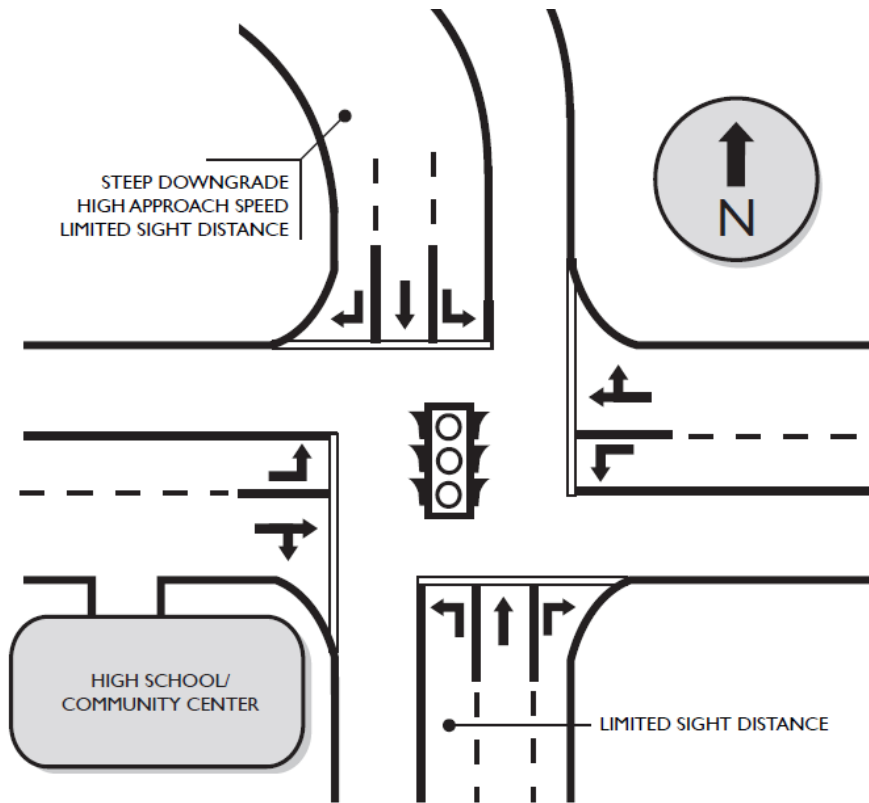
strengths and limitations for each performance measure and focuses on opportunities to employ more reliable performance measures to overcome potential limitations. (More reliable measures account for potential bias due to regression-to-the-mean, changes in traffic volume, the nonlinear relationship between crash frequency and traffic volume, and differences in crash severity.)

"I think it is the most thorough document on network screening I have ever read. The document is well written and organized."

-Ning Li, Virginia DOT

Diagnosis: Diagnosis is the process of further investigating sites identified in a network screening for existing and potential safety issues. The focus of the [Diagnosis](#) guide is applying more reliable diagnosis methods to understand the nature of reported crashes and identify factors that contribute to crashes. It describes how thorough diagnosis supports targeted countermeasure selection. The guide provides an overview of various methods to enhance the diagnosis process, including the Haddon Matrix (a framework for understanding the origins of injury problems and for identifying countermeasures to address those problems), test of proportions, and analysis of time trends. For each method, the guide provides a general discussion and examples focusing on opportunities to enhance the diagnosis process.

Countermeasure Selection: Countermeasure selection is the process of assessing ways to address or mitigate the underlying safety issues identified in diagnosis. The [Countermeasure Selection](#) guide focuses on the use of more reliable



Condition diagrams present an aerial view of site conditions such as roadway characteristics (e.g., number of lanes, presence of medians, traffic control devices, pedestrian and bicycle facilities), surrounding land uses, and pavement conditions. Analysts can overlay collision diagrams on condition diagrams to diagnose the crash patterns further.

Example condition diagram for diagnosis

data-driven countermeasure selection methods. It provides an overview of various methods for selecting countermeasures, including the Haddon Matrix, data-driven crash-based methods (e.g., expected crashes and crash modification factors), and data-driven behavior-based methods. For each method, the guide provides a discussion of the opportunities to enhance the countermeasure selection process. More reliable methods such as

the Haddon Matrix help safety professional's account for factors that contribute to crashes and will generally lead to the selection of targeted, effective, and defensible countermeasures. More reliable methods, such as the use of CMFs and the associated standard error, help to quantify and consider the range of potential safety effects for a contemplated countermeasure.

Example Haddon Matrix for urban crashes.

Period	Human Factors	Vehicle Factors	Roadway Factors
Before (causes of hazardous situation)	Poor vision, slow reaction time, alcohol, speeding, risk taking	Failed brakes, missing lights, lack of warning systems	Narrow shoulders, limited pavement markings, poorly-timed signals
During (causes of crash severity)	Failure to use occupant restraints	Malfunctioning safety belts, poorly engineered air bags	Non-breakaway sign supports
After (factors of crash outcome)	Age (high susceptibility), alcohol	Poorly designed fuel tanks	Poor emergency communication systems

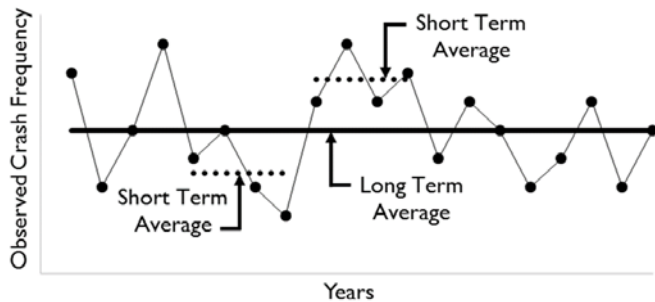


Illustration of regression-to-the-mean

Safety Effectiveness Evaluation: Safety effectiveness evaluation is the process of estimating the safety impacts of implemented projects, which provides a critical feedback link for future decisions. The [Safety Effectiveness Evaluation](#) guide provides an overview of various methods for conducting observational before-after studies, including simple before-after, before-after with linear and nonlinear traffic volume correction, before-after with comparison group, and Empirical Bayes (EB) before-after. For each method, the guide provides a discussion of the associated strengths and limitations, focusing on opportunities to employ more reliable methods to overcome potential limitations. More reliable methods account for potential bias due to regression-to-the-mean, changes in traffic volume, the nonlinear relationship between crash frequency and traffic volume, and general temporal effects.

"This is an excellent, concise summary of the advantages of the EB method for estimating CMFs."

-Matt Warren, Oklahoma DOT

The target audience for the Reliability of Roadway Safety Management Methods series includes data analysts, project managers, and program managers involved in projects that impact highway safety. Each guide provides information that will enable users to identify and adopt more reliable methods for roadway safety management. These guides will help users to:

- Understand the importance of safety management methods and how they relate to the roadway safety management process.
- Understand the strengths and limitations of various safety management methods.
- Understand the value of more reliable safety management methods.
- Select more reliable safety management methods.

- Identify the data requirements to apply more reliable safety management methods.
- Identify tools and resources to support safety management methods.

For more tools to support your safety data and analysis needs, visit the [Roadway Safety Data and Analysis Toolbox](#). For more information contact Stuart Thompson at stuart.thompson@dot.gov.

NEW PRODUCTS SUPPORT THE SHSP PROCESS

By: Jennifer Warren, Office of Safety

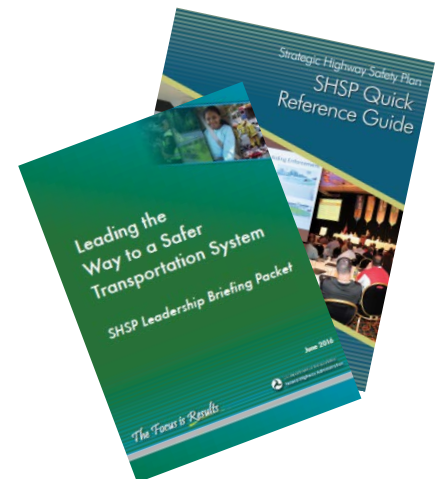
It has been said that "change is not only likely, it's inevitable." In the area of transportation safety we know this is true.

We regularly see changes in leadership, legislation, regulations, policy, personnel, roles and responsibilities and more. These are opportunity times to familiarize new stakeholders with the Strategic Highway Safety Plan (SHSP), particularly transportation leaders and newcomers to the SHSP process.

Two new resources from the

Office of Safety will help bring new stakeholders up to speed on the SHSP. To learn more, take a look at the [SHSP Quick Reference Guide](#) and the [SHSP Leadership Briefing Packet](#).

SHSP Quick Reference Guide: This guide is designed to provide professionals, especially those who are new to the SHSP process, with quick and easy access to the information they need to successfully understand and manage an SHSP. It both provides an overview of the basic elements and requirements of an SHSP and offers helpful resources and links where practitioners can go to learn more. The guide also contains practical tips



Two new products help practitioners responsible for the SHSP to access important information and gain the support of leadership for traffic safety initiatives.

and noteworthy practices from professionals involved in the daily operations of the SHSP process.

Leading the Way to a Safer Transportation System: SHSP Leadership Briefing Packet:

Leaders are critical to the success of any traffic safety effort, but nowhere can that leadership have such an immediate and lasting impact as through the State's SHSP. The purpose of this packet is to brief leaders on the importance of the SHSP, its role as part of the Highway Safety Improvement Program (HSIP), and why their involvement in this effort is crucial. The packet is particularly useful as part of a larger briefing on safety or as a way to gain more support for the SHSP, such as after passage of major transportation legislation or when there are changes in a State's administration.

For more information on these or other resources, please contact Jennifer Warren at jennifer.warren@dot.gov.



At the Fall 2016 meeting in Miami, Florida, the Task Force presented this plaque to Nick Artimovich of the Office of Safety for his 17 years of service as the Task Force 13 Secretary.

consultants, and others who need accurate information on crashworthy devices.

The group maintains a series of web pages with online guides designed to support transportation professionals in selecting the appropriate hardware and devices for their needs:

- [Online Guide To Barrier Hardware Systems](#)
- [Online Guide To Bridge Railings](#)
- [Online Guide To Standardized Small Sign Support Hardware](#)
- [Online Guide To Luminaire Supports](#)
- [Guides to Standardized Highway Drainage Products](#)

While most drawings currently in the guides show devices that have been crash tested to NCHRP Report 350, hardware meeting the AASHTO *Manual for Assessing Safety Hardware* is added after every Task Force meeting.

The Task Force accomplishes its mission through subcommittees that focus on the five guides listed above as well as Work Zone Devices, Certification of Crash Test Laboratories / Computational Mechanics, and Delineation. The Task Force also meets as a whole to discuss their on-line publications and improvements to the website.

For more information on Task Force 13, please visit www.aashtotf13.org or contact Nick Artimovich at Nick.Artimovich@dot.gov.

TASK FORCE 13 ENTERS ITS 48TH YEAR OF MAINTAINING ROAD AND BRIDGE HARDWARE GUIDELINES

By: Nick Artimovich, FHWA Office of Safety Technologies

Task Force 13 is a group of concerned and experienced representatives from industry, academia, and State and Federal transportation departments who are tasked with developing, recommending, and promoting standards and specifications for bridge and road hardware. Task Force 13 has met twice a year since 1969 and is the only remaining Task Force organized under the AASHTO-AGC-ARTBA Joint Committee, Subcommittee of New Materials and Technologies. This group is responsible for maintaining a treasury of drawings of roadside safety hardware, many of which used to be part of the AASHTO *Roadside Design Guide*. The drawings encompass both generic and proprietary roadside hardware and may be used by highway agencies, engineering

WORKING BETTER TOGETHER: PLANNERS AND SAFETY PRACTITIONERS CAN JOIN FORCES TO DO MORE

By: Chimai Ngo, Office of Safety

The FHWA Office of Safety and the Office of Planning, Environment, and Realty have jointly developed a guidebook entitled [Building Links to Improve Safety: How Safety and Transportation Planning Practitioners Work Together](#). This guidebook is designed to provide State DOTs, FHWA Division offices, metropolitan planning organizations (MPO), and local and tribal agencies a toolkit of strategies to integrate the safety and transportation planning processes.

The publication is written for both planners and safety practitioners and gives each group an introduction to the other's planning processes, highlighting areas of overlap where opportunities exist to collaborate to improve safety and mobility. The guide offers strategies and practices based on questionnaires and interviews conducted with transportation planners and safety specialists in five States that have a successful track record of linking transportation and safety planning efforts (Arizona, California, Iowa, Oregon, and Virginia). It also provides actionable steps for planners, safety specialists, and the broader community of State DOT engineers, city and county public works directors, and other transportation practitioners.

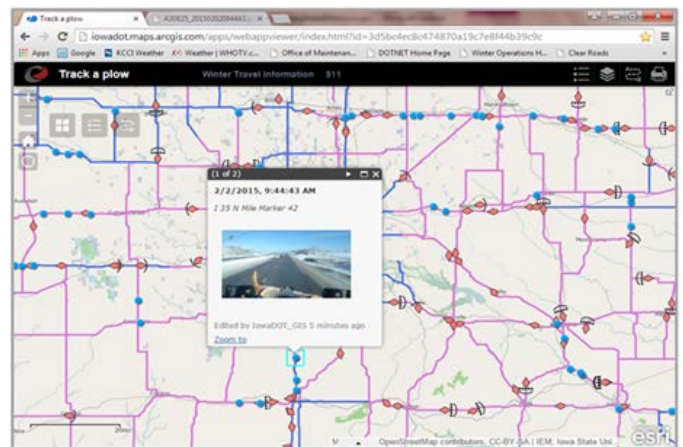
A companion presentation will be also available in early 2017 at <http://safety.fhwa.dot.gov/tsp/>. For more information, please contact Chimai Ngo at chimai.ngo@dot.gov.

NEW CASE STUDIES HIGHLIGHT USES OF GIS TO ADVANCE HIGHWAY SAFETY

By: Esther Strawder, FHWA Office of Safety

The Office of Safety's Roadway Safety Data Program (RSDP) team has been working directly with State and local transportation agencies across the country to identify noteworthy practices and success stories that can be broadly applied to improve roadway safety nationwide. Program staff recently released a new set of case studies focused on innovative ways to use GIS to advance highway safety.

Among the agencies identified is the **Delaware Valley Regional Planning Commission (DVRPC)**, which is successfully using GIS to incorporate safety into elements of the transportation-planning process. Integrating GIS-based safety analysis into the planning process promotes a data-driven decision-making process, which in turn leads to better safety decision making. Integrated safety data also helps agencies develop performance-based approaches to planning and programming that help them meet the requirements for accessing Federal safety funds. The principal benefit of a data-driven, GIS-based safety analysis is an improved ability to identify and prioritize high-crash locations and to glean fact-based information that can be integrated into transportation plans alongside other elements that drive the planning process, such as congestion, air quality, and sustainable design, among others.

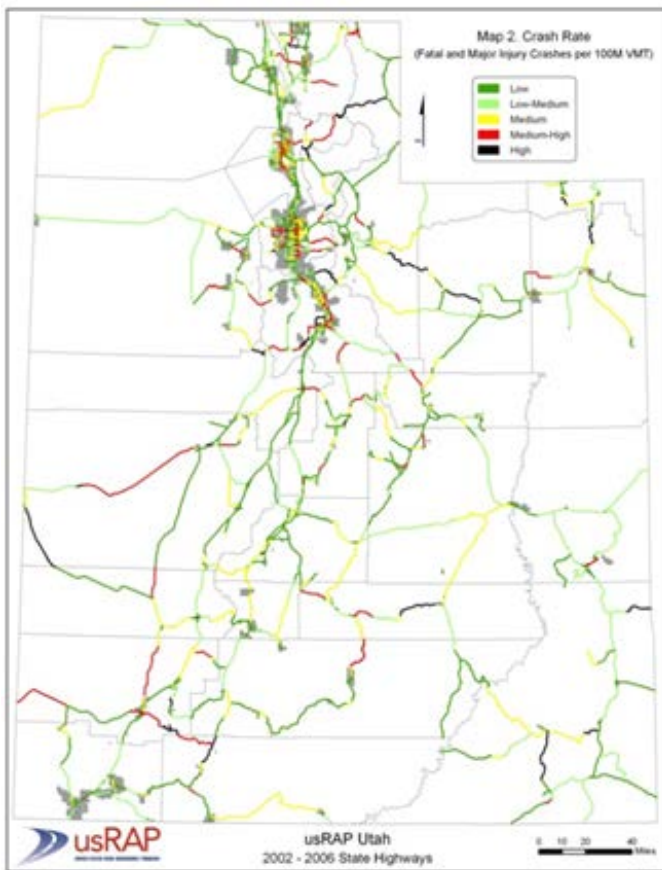


Iowa's "Track A Plow" website allows supervisors to view the roadway from onboard cameras, which gives them a view of road conditions in real-time.

Further west, **Iowa**, which has successfully used GIS to implement a snowplow project that provides real-time weather and road condition information. To gather this information, the Iowa DOT used its existing communications infrastructure and the snowplows deployed on a regular basis in the winter. The project has made it possible for Iowa DOT to:

- Combine "Plow Cams" and the agency's "Track A Plow" website to show garage supervisors real-time road conditions, helping them better manage resources.
- Provide real-time information on road conditions to assist the public in making safe, informed travel choices when weather is bad.
- Help control costs while eliminating the need for laborious record keeping.

In addition, **Colorado** is using GIS to spatially integrate roadway data with crash data, develop safety performance functions (SPFs), visualize data, and implement the Level of Service of Safety (LOSS) method to assess a roadway's safety performance. The principal output of LOSS is a collection of calibrated SPFs for highway types and intersection configurations. By analyzing these, analysts can develop sophisticated predictive and diagnostic tools, which in turn informs policies or safety countermeasures to maximize crash reductions across the State—and within budget constraints.



*Crash rate map for Utah from the usRAP Web site.
Source: usRAP.*

Another recent case study examines the effective use of usRAP and UPlan by the DOTs in **Kentucky** and **Utah**, respectively. The United States Road Assessment Program (usRAP) is a tool transportation agencies can use to rate their roadways for safety and identify strategies for systematic improvement. UPlan is an interactive mapping platform that helps the Utah DOT visualize its data, track its assets, and strengthen its transportation planning through better analysis and

collaborative information. Both programs include data collection and analysis methods that facilitate highway safety improvements. In addition, UPlan deploys usRAP protocols for risk mapping and has customized these protocols to provide maps and data for a series of safety performance measures. For more in-depth information on how GIS can be used to improve safety in your state, check out the case studies at http://safety.fhwa.dot.gov/rsdp/safety_casestudies.aspx. For examples of other noteworthy practices in using data to improve roadway safety, visit http://safety.fhwa.dot.gov/rsdp/noteworthy_practices.aspx. For additional questions, please contact Esther Strawder at: esther.strawder@dot.gov

ARE YOU READY TO RUMBLE?

New Handbook Offers Guidance for Installing of Shoulder and Center Line Rumble Strips on Non-Freeway Facilities

By: Cathy Satterfield, FHWA Office of Safety and Abdul Zineddin, FHWA Office of Safety R&D

Center line and shoulder rumble strips are proven safety countermeasures for reducing roadway departure crashes, including head-on crashes and run-off-road crashes, but not all roadways are good candidates for rumble strips. So how do practitioners know where rumble strips can be most advantageous for reducing roadway departures?

The Office of Safety and Office of Safety R&D developed the new [Decision Support Guide for the Installation of Shoulder and Center Line Rumble Strips on Non-Freeways](#) to provide a framework that will inform center line and shoulder rumble strip installation decisions. It describes methods for identifying appropriate locations for installation, assessing the potential crash reductions and benefit-cost ratio, and developing performance metrics for safety. In addition, the guide addresses special considerations for rumble strip installations – such as bicyclist activity, potential noise impacts, pavement quality, and maintenance activities. It also identifies variability in current practices.

The decision-support framework covers policy development for systematic rumble strip installation and provides a flowchart for decision-making for sites that can benefit from installation but do not



Install Rumble Strips

meet criteria for systematic installation. The framework can also be applied to sites that are identified based on crash history, such as for Highway Safety Improvement Program selection. Within this framework, this guide describes who may be involved in the decision-making process and at what points those individuals' inputs should be sought. It also provides an overview of safety performance measures that can be presented to policy makers and stakeholders. Performance metrics described in this guide can be used to inform stakeholders of rumble strip benefits.

For more information on applying rumble strips as a roadway departure countermeasure, please contact Cathy Satterfield at cathy.satterfield@dot.gov or Abdul Zineddin at abdul.zineddin@dot.gov.

CLEARINGHOUSE FOR OLDER ROAD USER SAFETY OFFERS A RANGE OF RESOURCES

By Guan Xu, FHWA Office of Safety

As America's driving population ages, resources addressing the needs of those drivers become increasingly important. Just over a year ago, the Roadway Safety Foundation, with support from the Federal Highway Administration and National Highway Traffic Safety Administration, launched the Clearinghouse for Older Road User Safety (ChORUS) at www.roadsafeseniors.org.

ChORUS serves as a centralized, user-friendly, and dynamic source of information pertaining to highway safety for aging drivers, passengers, pedestrians, and cyclists. Built as a comprehensive resource, ChORUS offers a wealth of information useful to researchers, engineers, industry, the media, and the general public. Safety practitioners will find that ChORUS offers quick, easy access to design guidelines for the aging population, technical documents, case studies and success stories, and information about innovative financing solutions. From retroreflective signage that helps older drivers navigate at night, to high-visibility crosswalks that allow drivers to more easily see pedestrians, to left-turn lanes that improve sight distance at intersections and prevent deadly right-angle crashes, infrastructure solutions are integral to enhancing safety for the aging road user.

Learn more about the many resources that can help your agency make the roads safer for older drivers. Visit <https://www.roadsafeseniors.org/>, or contact Guan Xu at guan.xu@dot.gov.

NEW GUIDE HIGHLIGHTS STATE PRACTICES TO MITIGATE TREE, UTILITY POLE COLLISIONS

By: Joseph Cheung, FHWA Office of Safety

Roadway departures account for about half of all fatal crashes that occur each year in the United States, according to the Fatality Analysis Reporting System (FARS). The *FHWA Roadway Departure (RwD) Strategic Plan* defines a roadway departure crash as one that occurs after a vehicle crosses an edge line or a center line, or otherwise departs the traveled way. FARS data also show that 40 percent of these crashes involved a collision with a fixed object. Roadside trees and utility poles comprise 63 percent of the fixed objects struck, making them the most harmful event in 14 percent of all fatal crashes.

By working to reduce run-off-road crashes that involve collisions with trees and utility poles, States can reduce fatal crashes significantly. To help agencies address this safety concern, the Office of Safety recently released a guide entitled [*Noteworthy Practices: Roadside Tree and Utility Pole Management*](#). The practices described within this

report offer a snapshot of many alternative approaches in use by State agencies. Leveraging a comprehensive 2014 roadway departure survey, FHWA was able to examine responding States' levels of engagement with all aspects of roadway departure, including crashes into trees, utility poles, and other fixed objects. The resulting report provides agencies with examples of a dozen successful—and immediately deployable—tree and pole practices in use today.

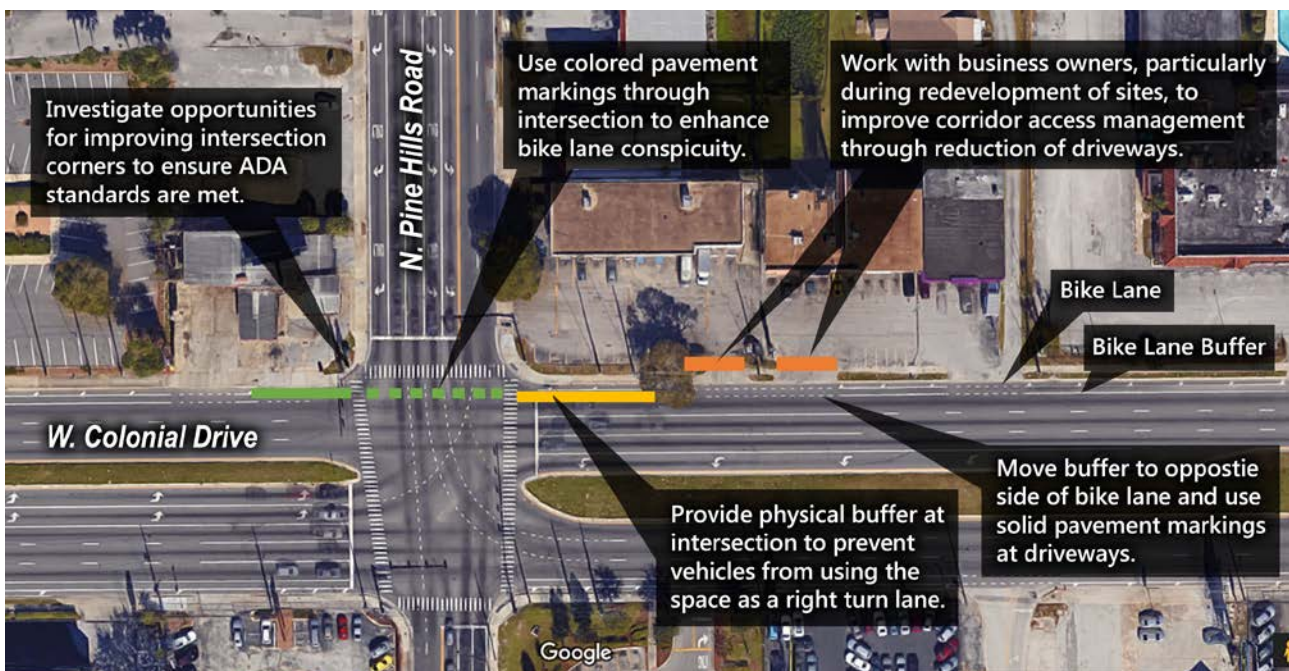
These practices, which range from complex, multi-million dollar contract solutions to in-house efforts that can be accomplished with minimal resources, have been drawn from every region of the United States as well as from previous research. In this report, readers will learn how Washington is using network analysis to target problem locations, how New Jersey is using utility poles that absorb crash energy to mitigate the severity of crashes, and how Nebraska has adopted the practice of re-establishing clear zones during resurfacing, restoration, and rehabilitation (3R) activities. Other case studies highlight successful practices applied to address roadway departures involving tree and utility pole collisions in culturally sensitive or environmentally constrained areas.

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

NEW CASE STUDIES SHOWCASE RSAS TAILORED TO TRANSIT

By: Becky Crowe, FHWA Office of Safety

Incorporating a transit access focus into the RSA process is a unique undertaking due to the complexity of facility ownership. In many instances, transit agencies are responsible for providing local service to the community and operate on roadways maintained by the State or local road agency or a private authority. However, lighting and intersection traffic signals may be maintained by different sections within a locality's transportation or public works agency. The transit agency may work with the locality to solicit input, but the transit agency is ultimately responsible for planning routes, operating service, and selecting and maintaining transit stop locations. The transit agency may need to work with a variety of agencies or entities to install the transit stops and any associated amenities. A Transit Access RSA provides the opportunity for these agencies to improve their working relationships as they identify and address safety concerns related to transit use and access.



An RSA focus area in Orlando, FL showing possible intersection improvements. (Map data: ©Google).

To help Federal, State, Tribal, and local agencies understand and address the conditions and road safety issues that affect transit users, the FHWA recently published four case studies focused on improving access to transit using Road Safety Audits (RSA). The RSA locations included urban and suburban areas with transit facilities and included a multidisciplinary team of planners, engineers, transit managers and operators, and law enforcement. This multidisciplinary perspective was critical to defining approaches to improving transit rider safety using the 4-E approach to safety.

In response to the issues identified during each of the RSAs, a variety of opportunities were identified, including improving ADA compliance, evaluating the need for pedestrian crossing measures, implementing corridor access management techniques, and increased separation of modes. In one location, a Road Diet was suggested to allow for on-street parking, a bike lane, bus-pullout bays, and a combination of curb bulbouts and a pedestrian refuge island at a busy intersection. Any or all of these configurations would serve to improve pedestrian access and safety.

The [Improving Access to Transit Using Road Safety Audits: Four Case Studies](#) case studies document is available today! For more information about Road Safety Audits, or to learn how you can tailor your RSA to address a specific safety concern, visit: <http://safety.fhwa.dot.gov/rsa/resources/> or contact Becky Crowe at: rebecca.crowe@dot.gov.

NEW SPEED SETTING AND SPEED MANAGEMENT RESOURCES NOW AVAILABLE!

By: Guan Xu, FHWA Office of Safety

Speeding is a complicated problem that involves the interaction of many factors including public attitudes, road user behavior, vehicle performance, roadway design and characteristics, posted speed limits, enforcement strategies and judicial decisions. To help tackle this complex and cross-cutting safety issue, the Office of Safety has developed a set of case studies and fact sheets designed to illustrate

how to set appropriate speeds and to highlight some effective speed management countermeasures.

[Speed Limit Basics](#) [PDF, 1.25 MB] provides introductory information about various types of speed limits and speed concepts and the available technical tools and informational guide for setting different type of speed limits.

[Speed Management Countermeasures: More than Just Speed Humps](#) [PDF, 1.37 MB] talks about the variety of speeding countermeasures that are available and which factors should be considered when selecting the most appropriate one.

[Speed Management Case Study: Georgia Department of Transportation Setting Speed Limits with Help from USLIMITS2](#) [PDF, 1.01 MB] provides an overview of how the Georgia DOT used an engineering speed study supplemented by the USLIMITS2 tool to evaluate existing speed limits in Greenville, Georgia.

[Speed Management Case Study: Reducing Excessive Speeding in Rural Communities in Iowa](#) [PDF, 1.15 MB] explains how several communities in Iowa employed a variety of traffic calming techniques to inform motorists of incrementally reduced speed limits on the approaches to town centers, encouraging them to slow down and comply with the slower, safer speed limits.

RELIABILITY OF ROADWAY SAFETY MANAGEMENT METHODS SERIES: SYSTEMIC SAFETY PROGRAMS

By: Frank Gross (VHB), Joshua DeFisher (VHB), Yanira Rivera (FHWA), and Stuart Thompson (FHWA)

High-quality data and reliable analytical methods are the foundation of data-driven decision making. The new Reliability of Roadway Safety Management Methods series demonstrates the value of more reliable methods and the limitations of traditional methods in roadway safety management. The series includes a guide that demonstrates opportunities to employ more reliable methods to support systemic safety analysis and decisions.

*Using the **Systemic Approach**, agencies select and treat sites based on site-specific geometric and operational attributes known to increase crash risk.*

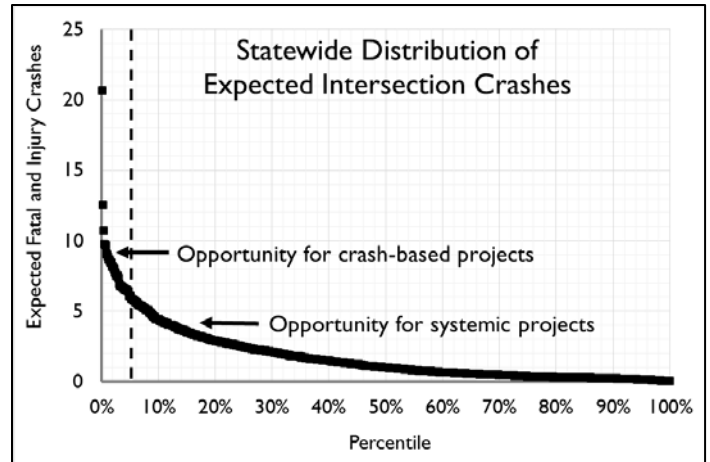
The [Systemic Safety Programs](#) guide identifies and describes the systemic approach as a process that is complementary to the crash-based approach. In the crash-based approach, agencies select and treat sites based on the types of crashes that occur at a location. In the systemic approach, agencies select and treat sites based on site-specific geometric and operational attributes known to increase crash risk. Together, these two approaches support a comprehensive approach to safety management.

The guide has several objectives:

1. Raise awareness of the systemic approach to roadway safety management.
2. Characterize typical projects implemented through a comprehensive safety management program.
3. Demonstrate the value of integrating systemic approaches as part of a comprehensive safety management program.
4. Provide information on allocating funding to systemic projects within a comprehensive safety management program.

The target audience for the Systemic Safety Programs guide includes data analysts, project managers, and program managers involved in projects that impact highway safety. The guide provides information to the user toward implementation of more reliable methods for systemic safety programs. This guide will help users to:

- Understand how the systemic approach relates to the roadway safety management process.
- Understand the complementary nature of the systemic approach and crash-based approach.
- Understand the high-level strengths and limitations of systemic and crash-based approaches.



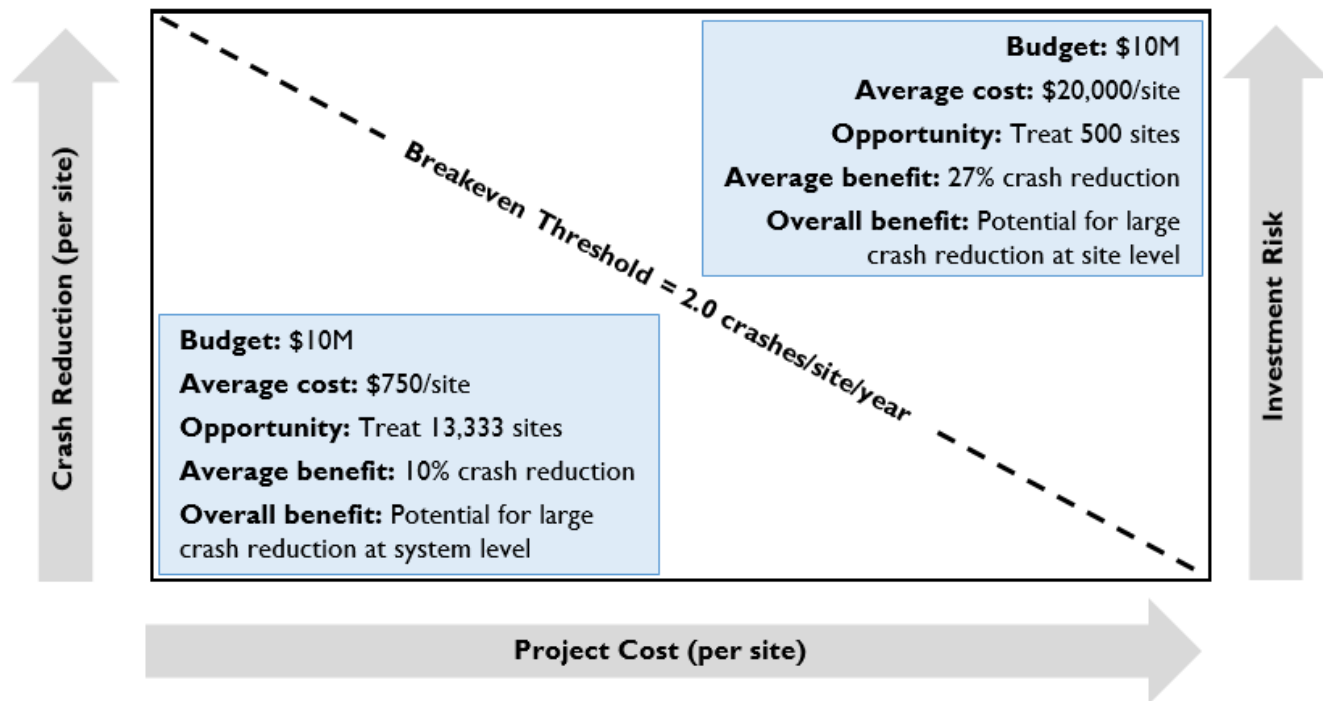
Understand the value of integrating systemic approaches as part of a comprehensive roadway safety management program.

- Allocate funding to systemic projects within a comprehensive roadway safety management program.
- Identify the data requirements to employ systemic approaches to roadway safety management.

The guide begins by introducing the roadway safety management process and the purpose of safety programs. It describes the similarities, differences, strengths and limitations of the crash-based and systemic methodologies and includes a discussion of how they support a comprehensive approach to safety management.

Systemic improvements are generally low-cost and widely implemented at sites characterized by specific geometric and operational attributes (i.e., those factors known to increase crash risk). This provides an effective way to address safety concerns at a large number of sites, particularly for sites that have few, if any, crashes, but which cumulatively account for a large percentage of crashes in a jurisdiction. For example, there may be few high-crash locations on local or rural roads, but these roads may collectively represent a relatively large safety concern statewide.

Similar to the crash-based approach, a primary challenge related to systemic improvements is justifying the project cost. Using the crash-based approach, an agency can often justify project costs based on the expected crash reductions at the proposed site. This can be a challenge for systemic



projects, particularly when the improvements target sites with no recent crash history. Instead of focusing on site-specific benefits, there is a need to focus on system-level benefits, which can be substantial.

The guide demonstrates the value of implementing projects through both crash-based and systemic approaches using empirical examples that provide estimates of average project costs and benefits based on sample systemic projects. Using an optimization equation, the guide demonstrates how an agency can use average project cost and benefit information to allocate funding to different project types, including crash-based and systemic projects.

The following example presents an optimization exercise, assuming hypothetical safety projects and a budget of \$10,000,000. The question is how to allocate a safety program budget between relatively high-cost, high-impact projects and low-cost, low-impact projects. In this example, the breakeven threshold is 2.0 crashes per site per year. For sites with more than 2.0 crashes per year, an agency can achieve relatively attractive benefits through higher-cost and higher-impact projects. For sites with less than 2.0 crashes per year, an agency can achieve relatively attractive benefits through lower-cost and lower-impact projects.

The final sections of the guide summarize the data requirements to employ, and available tools and

resources to support, a comprehensive approach to roadway safety management. The guide also explores future research needs to enhance the state of the knowledge on the systemic approach as a conclusion to the guide.

For more tools to support your safety data and analysis needs, visit the [Roadway Safety Data and Analysis Toolbox](#). For more information contact Stuart Thompson at stuart.thompson@dot.gov.

TWO NEW INFORMATIONAL GUIDES ASSIST WITH INTEGRATING DATA-DRIVEN SAFETY ANALYSIS

By: Jerry Roche, FHWA Office of Safety

The FHWA Office of Safety recently published two new informational guides to assist with integrating data-driven safety analysis into agencies' business practices. Funding and input for these documents was provided by the [Highway Safety Manual Implementation Pooled Fund Study](#). The first is [State Policies and Procedures on the Use of the Highway Safety Manual \(HSM\)](#), a report designed to assist States in developing policies and procedures on the use of the HSM. Transportation functions addressed in the guide include transportation planning and

programming, engineering and design, operations and maintenance, and roadway safety management. The report provides noteworthy examples of existing language in States' policy documents and procedures manuals as well as sample policy and procedures language that can be adapted to a State's individual needs. The HSM provides methods for estimating safety performance that help practitioners, managers, and executives effectively implement strategies to reduce the number and severity of traffic crashes.

An effectively integrated safety data program helps agencies both address gaps in collected data as well as eliminate redundancy, which will stretch transportation dollars and maximize their impact on road safety.

The second document is [Scale and Scope of Safety Assessment Methods in the Project Development Process](#), an informational guide that assists State and local agencies in identifying and applying suitable methods for quantitatively assessing the safety performance impacts of project development decisions, such as comparing various design alternatives. The guide suggests assessment methods that may be suitable for answering safety performance-related questions that typically arise during each phase of the development process and for projects of various types. It also provides examples that illustrate the thought process for selecting a safety assessment method. This information on safety performance can then be considered in concert with other project criteria to make more informed highway investment decisions.

For additional information and resources to help implement the HSM into your project development process, visit the Roadway Safety Data Program web page. Also, don't forget that FHWA's Every Day Counts Data-Driven Safety Analysis Initiative offers valuable training and technical assistance opportunities to State and local agencies on how to implement the HSM. For more information on these publications, please contact Jerry Roche at jerry.roche@dot.gov.

TECHNICAL ASSISTANCE NOW AVAILABLE FOR DATA BUSINESS PLANNING TO SUPPORT STATE, TRIBAL, AND LOCAL SAFETY DATA INTEGRATION!

By: Stuart Thompson, FHWA Office of Safety, and Robert Scopatz, VHB

Under the Fixing American's Surface Transportation (FAST) Act and associated FHWA rulemaking, States are required to have in place a safety data system that can be used to perform analyses supporting the strategic and performance-based goals in the SHSP and HSIP on all public roads. Further, States are required to incorporate specific, quantifiable, and measurable anticipated improvements for collection of Model Inventory of Roadway Elements (MIRE) Fundamental Data Elements (FDE) into their State Traffic Records Strategic Plan update by July 1, 2017. [23 CFR 924.11(b)].

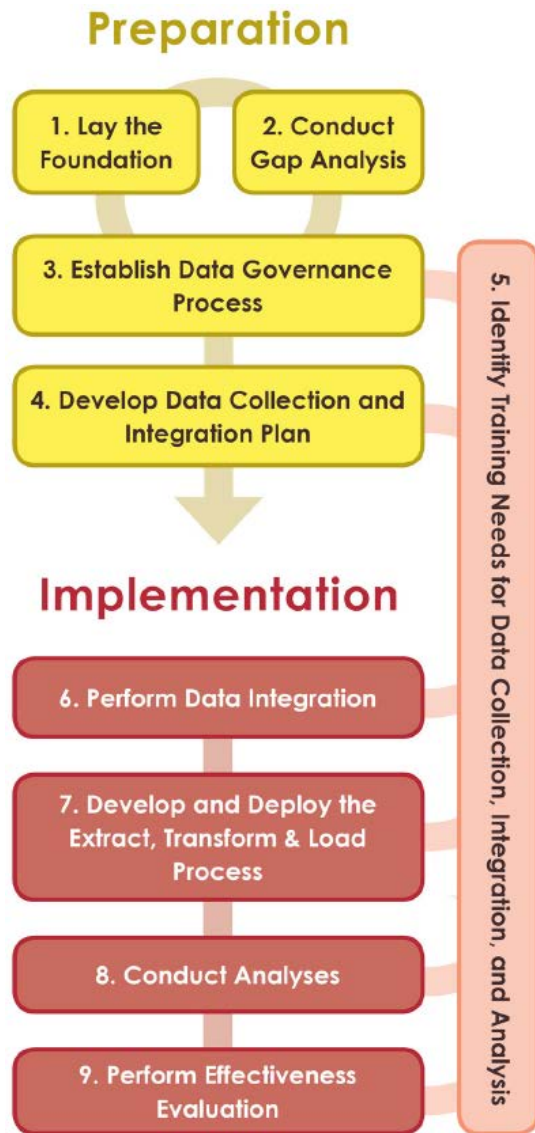
State, Tribal, and local agencies are now challenged to develop a fully linked system that includes essential data elements, provides geolocation data, includes the FDE subset of the MIRE, and has analysis and evaluation capabilities.

The FHWA Office of Safety intends to provide agencies with technical assistance to help meet these requirements. **FHWA is currently seeking State, Tribal, and local agencies interested in submitting project ideas for technical assistance implementing safety data integration to support safety decision making.** Ideal projects will illustrate one of the following:

- State-led data collection.
- Tribal-led data collection.
- Local agency-led data collection.
- Other support agency (LTAP, TTAP, MPO, RPC) approach.

Selected State, Tribal, and local agencies will have the chance to participate in demonstration projects to energize agencies with similar interests and challenges. FHWA will select up to seven projects with the intention of assisting agencies in implementing the first five of steps of the nine-step

safety data integration process shown. At the conclusion of the projects, agencies will receive a clearly defined plan for implementing the remaining four steps.



If your State, Tribal, or local agency is interested in learning more about the opportunity—or would like to submit a project for consideration—please contact your FHWA Division Office Safety Engineer. Download [Safety Data Integration Guide](#) today! For more information contact: Stuart Thompson, stuart.thompson@dot.gov

FHWA RELEASES VERSION 2016 OF THE INTERACTIVE HIGHWAY SAFETY DESIGN MODEL

By: Abdul Zineddin, FHWA Office of Safety R&D

On September 30, 2016, the Federal Highway Administration (FHWA) released version 12.0.0 of the Interactive Highway Safety Design Model (IHSDM), a suite of software analysis tools for evaluating the safety and operational effects of geometric design decisions. The **NEW 2016 Release** expands the IHSDM Crash Prediction Module (CPM) by implementing draft *Highway Safety Manual* (HSM) crash predictive methods for six or more lane and one-way urban/suburban arterials developed under National Cooperative Highway Research Program (NCHRP) project 17-58.



IHSDM supports the Data-Driven Safety Analysis initiative as part of FHWA’s Every Day Counts 3 (EDC3) efforts. The Crash Prediction Module (CPM), for example, is a powerful tool that implements AASHTO’s HSM Part C Predictive Methods for rural two-lane highways, rural multilane highways, urban/suburban arterials, and freeways/interchanges. Typical applications of the CPM include evaluating the safety impact of highway improvements, comparing the relative safety performance of design alternatives, and assessing the safety cost effectiveness of design decisions.

IHSDM includes six evaluation modules, which provide quantitative information on the expected safety and operational performance of a highway design: crash prediction, policy review, design consistency, traffic analysis, intersection review and driver/vehicle.

IHSDM software can be downloaded free of charge at www.ihsdm.org. For more information, contact Abdul Zineddin at abdul.zineddin@dot.gov

HOT OFF THE PRESS: SAFETY PUBLICATIONS PORTFOLIO

Your colleagues in the Office of Safety have been busy this year! Check out our newest products (released between July 1 and December 31, 2016)!

Data-Driven Safety Analysis

- [DDSA infographic--How healthy is your road system?](#)
- [DDSA infographic—Project Development](#)
- [DDSA NJ Case Study Video](#)
- [DDSA MN Case Study video](#)
- [Scale & Scope of Safety Assessment Methods in the Proj Dev Process](#)
- [State Policies and Procedures on the Use of the Highway Safety Manual](#)

Road Safety Audits:

- [Motorcycle Road Safety Audit Case Studies](#)
<http://safety.fhwa.dot.gov/rsa/resources/docs/fhwasa16026.pdf>

Roadway Departure

- [Decision Support Guide for the Installation of Shoulder and Center Line Rumble Strips on Non-Freeways](#)
- [Roadside Tree and Utility Pole Management Noteworthy Practices](#)

Road Diets:

- [Fall 2016 Road Diet newsletter](#)
- [Road Diet Policies: Expanding Beyond a Single Implementation](#)
- [Road Diets FAQ](#)
- [Debunking Road Diet Myths](#)
- [Did You Know a Road Can Go on a Diet? Get the Facts!](#)

Highway Safety Improvement Program:

- [HSIP National Scan Tour Final Report](#)
- [HSIP Safety Performance Targets Timeline](#)
- [HSIP 2015 National Summary Report](#)

Strategic Highway Safety Plan

- [SHSP Quick Reference Guide](#)
- [Strategic Highway Safety \(SHSP\) Plan Leadership Briefing Packet](#)

Intersection Safety

- [Intersection Safety Implementation Plans](#)

Publications Portfolio (continued)

Safety Performance Measurement:

- [Safety Performance Measures Q&A](#)
- [Safety Performance Measures Resources & Support](#)
- [Metropolitan Planning Organization Safety Performance PM Fact](#)
- [Serious Injury Conversion Tables and Summary](#)
- [The National Definition For Serious Injuries MMUCC 4th Edition](#)
- [Article on New National Definition for Serious Injuries in National Law Enforcement Liaison Newsletter](#)
- [Safety Target Coordination Report](#)

Roadway Safety Data Program:

- [Roadway Safety Data Program Noteworthy Practice: State Traffic Records Coordinating Committee](#)
- [Tennessee's Horizontal Curve Database: Roadway Safety Data and Analysis Case Study](#)

Pedestrian Safety:

- [Ped Forum newsletter, Summer 2016](#)
- [Ped Forum newsletter, Fall 2016](#)

Speed Management:

- [Speed Limit Basics](#)
- [Speed Management Countermeasures: More than Just Speed Humps](#)
- [Speed Management Case Study: Georgia Department of Transportation Setting Speed Limits with Help from USLIMITS2](#)
- [Speed Management Case Study: Reducing Excessive Speeding in Rural Communities in Iowa](#)

GIS Case Studies:

- [GIS DVRPC Integrating Safety and Planning](#)
- [GIS CO Level of Safety Service Implementation](#)
- [GIS Real Time Data Integration in Iowa](#)

ATTRI: USING ADVANCED TECHNOLOGIES FOR SAFETY AND MOBILITY AT INTERSECTION CROSSINGS

By: Mohammed Yousuf, FHWA ATTRI Program Manager

For the transportation community, evolving technologies mean safer and more efficient travel with expanded options. For people with disabilities,

they mean opportunity through access to improved mobility like never before.

The U.S. DOT Accessible Transportation Technologies Research Initiative (ATTRI) is committed to conducting research and developing innovative applications to realize the full potential of these evolving technologies. The program aims to improve the mobility of travelers with disabilities through research, development, and implementation

of transformative technologies, applications, or systems for people of all abilities to effectively plan their personal and independent travel.

At the U.S. DOT, safety is always a priority, so ensuring the safety of our intersections is one of ATTRI's key focus areas. In particular, ATTRI is researching applications that provide for Safe Intersection Crossings.

Safe navigation of crosswalks can be a significant challenge for people who need more time to traverse an intersection. For example, if there is no pedestrian refuge area mid-intersection, then signal light duration becomes very important to the individuals on the intersection crossing.

Within this application area, providing safe intersection crossing assistance for all travelers as they interact with existing traffic, signals, vehicles, and assistive devices is critical.

It is imperative that technological solutions—including product design—focus on assistive tools for people with visual impairments, cognitive challenges, and mobility issues. Assistive tools may be in the form of personal nomadic devices, wearable technologies, and kiosks on streets corners to allow for ubiquitous access to connected services.

Applications in this area should, for example, provide guidance, notifications, and alerts in various communication formats to assist pedestrians as well as all transportation users. This will allow users to navigate safely through intersections using real-time information when needed and at the right moment to promote decision making and actions.



ATTRI relies on collaborative efforts to develop and test applications that provide guidance, notifications, and alerts in various communication formats to assist pedestrians and all users of the transportation system.



Safe navigation of crosswalks can be a key challenge for people who need more time to traverse an intersection.

These applications could include the following components:

- Pedestrians interface with traffic signals
- Vehicles
- Nomadic devices
- Automated intersection crossing assistance
- Beacons
- Electronic tags

The applications should provide contextual information including geographic information and crowdsource-based information on curb cuts, bus stop locations, side walk grade and slope, and any disruption of the built environment (e.g., damaged infrastructure, dead ends, potholes, etc.) to aid all travelers.

Additional examples could include futuristic and innovative approaches to solving this issue with automated intersection crossing assistance, technical design solutions, or integrated beacons or electronic tags to interact with the built environment.

Using these advanced technologies for safety and mobility at intersection crossings, along with improvements in other priority topics in the development of ATTRI applications, transportation mobility will be enhanced for all road users.

Join the Initiative to Keep ATTRI Moving Forward

ATTRI is a joint U.S. DOT initiative, co-led by the FHWA and FTA, with support from the Intelligent

Transportation Systems (ITS) Joint Program Office (JPO) and the following Federal partners:

- Interagency Committee on Disability Research (ICDR)
- National Aeronautics and Space Administration (NASA)
- National Institute on Disability, Independent Living, and Rehabilitation Research (NIDILRR)
- U.S. Access Board
- U.S. Army Tank Automotive Research, Development and Engineering Center
- U.S. Department of Labor Office of Disability Employment Policy (ODEP)

ATTRI also relies on collaboration with research institutions, international partnerships, and private industry.

The success of ATTRI relies on these partnerships and collaborations and the collective efforts of several stakeholders. Thus, the program is exploring further cooperation with new and existing partners to test and develop technology applications and prototypes.

For more information about the USDOT ATTRI program and to learn how you can join our efforts, visit www.its.dot.gov/research_archives/attri/ or contact Mohammed Yousuf at mohammed.yousuf@dot.gov.

KSP TEACHES TEENS TO DRIVE SAFELY AROUND LARGE TRUCKS

By: Sherry H. Bray, Kentucky State Police

The Kentucky State Police (KSP) Commercial Vehicle Enforcement Division is reaching out to students across the Commonwealth with a safe driving campaign called “Teens and Trucks.” The program was developed by the Commercial Vehicle Safety Alliance (CVSA) to educate young drivers how to safely drive around large trucks and buses and to reduce crashes involving trucks.

KSP Officer Steve Douglas was in Corbin, Kentucky, recently teaching the class to high school students.

“The Teens and Trucks program is a great outreach tool for student drivers,” said Douglas. “Often times, driving courses focus on basic techniques, which is

important, but many of these teens never receive instruction about maneuvering around large trucks.”

Douglas says even though the course is targeted at teens the concept of the campaign is important for drivers of all ages.

“All drivers need to commit to sharing the road with other drivers—especially large trucks,” added Douglas. “Some motorists are under the false impression that because a truck driver sits up high they can see more of the road. When in fact, compared with passenger vehicles, trucks have more blind spots.”

Blind spots, also called “No-Zones,” are areas around large trucks where the truck driver cannot see a passenger vehicle. (see diagram below). These No-Zone areas are where passenger cars disappear from the view of the truck or bus driver and are where a majority of crashes occur.

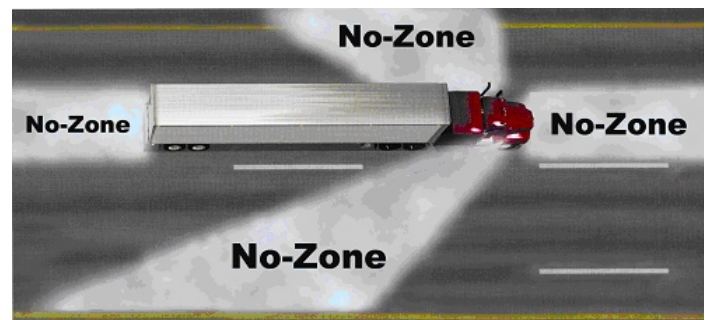


Photo courtesy of the Commercial Vehicle Safety Alliance.

“As a driver, if you can’t see the mirrors on the commercial trucks you are passing or maneuvering around, you can be sure that the truck driver doesn’t see you either,” noted Douglas.

He also emphasized to the students the importance of leaving plenty of space when passing large trucks or buses.

“Truck drivers work hard to get up to normal highway speeds, sometimes shifting through as many as 15 gears,” added Douglas. “For this reason, and because trucks take longer to stop due their size, I encourage the students to provide ample room when passing and not to cut off the truck.”

KSP Major Shawn Hines serves as Director for the Commercial Vehicle Enforcement Division and approved the program for implementation by agency personnel.

“Through education and working together, we can continue to reduce truck-involved crashes on Kentucky roadways,” said Hines. “Many of our officers who are teaching this program are parents themselves. They know how important it is for these



Photo courtesy of the Kentucky State Police.

young drivers to learn about sharing the road with large vehicles.”

KSP reports that in 2015, a total of 9,932 large trucks were involved in collisions, with 108 of those resulting in a fatality. School and commercial buses accounted for an additional 1,566 crashes during the same time period.

Hines says that the teen demographic is important when reducing the number of crashes.

“While teenage drivers only account for 6 percent of licensed Kentucky Drivers, they were involved in 15 percent of all crashes on our roadways last year,” notes Hines. “We need to be more proactive in educating our teens about safe driving habits, and this program is a great resource for them. If we can create good habits early, maybe they will stick with these teens into their adult lives as drivers.”

To learn more about the “Teens and Trucks” program, visit the CVSA website: <http://cvsa.org/program/programs/operation-safe-driver/resources/teens-and-trucks-youth-safe-driving-campaign/>

ANNOUNCEMENTS AND EVENTS

Lifesavers National Conference on Highway Safety Priorities, Charlotte, NC, March 26-28, 2017 (<http://lifesaversconference.org/>). The Lifesavers Conference brings together a combination of public health and safety professionals, researchers, volunteers, and practitioners who are committed to sharing best practices, research, and policy initiatives. Drawing more than 2,000 participants in 2015, the annual Lifesavers conference provides a forum for the presentation of proven countermeasures and initiatives that address today’s critical highway safety problems. Examples of workshop topics include:

- Criminal Justice/Law Enforcement
- Distracted and Impaired Driving
- Older Drivers
- Highway Safety Priorities
- Pedestrian/Bicycle/Motorcycle Safety
- Teen Traffic Safety

National Work Zone Awareness Week, April 3–7, 2017 (<http://tinyurl.com/7gfbykk>). This annual event is intended to raise awareness about the importance of traveling safely through work zones and paying attention to both driving activities as well as the locations of workers as the public passes through a work zone area. Maryland will host the national kick-off event on Tuesday, April 4, at 11 a.m.

5th International Conference on Roundabouts, Green Bay, Wisconsin, May 8-10, 2017 (<http://tinyurl.com/zeugqkw>). Sponsored by the TRB Committee on Roundabouts, the International Roundabout Conference brings hundreds of transportation professionals together as a community of roundabout proponents and practitioners. This triennial conference provides a forum for the exchange of technical, policy, planning, operational, and administrative information on all aspects of roundabouts, including the safety and operational performance that this unique intersection provides for all modes.

First International Roadside Safety Conference, San Francisco, California, June 12-15, 2017 (<http://tinyurl.com/jzm7z8b>). TRB is sponsoring the First International Roadside Safety Conference, the theme of which is “Safer Roads, Saving Lives, Saving Money.” The objective of the conference is to reduce deaths and injuries associated with run-off-road crashes by promoting the use of new or improved cost-effective safety treatments within existing roadside infrastructure. Subthemes include:

- Innovations in Roadside Safety Hardware and Features
- Advancements in Roadway Safety Features
- Roadside Safety Design and Hazard Mitigation Simulation, Testing, and Evaluation Methods
- Vehicle Technologies and Safety Considerations
- Roadway Departure Data Collection and Analysis
- Safety Policy, Guidelines, Plans, Programs, and Strategies

Attending TRB? Be sure to visit the FHWA Office of Safety at Booth 823 in the TRB exhibit hall!

If you are attending the 96th Annual Transportation Research Board meeting this January, be sure to stop by booth 823 in the exhibit hall to check out all the Office of Safety has to offer.

We will be featuring **free materials** from all of our program areas, including:

- The Highway Safety Improvement Program (HSIP)
- Intersection Safety
- Local and Rural Road Safety
- Pedestrian and Bicycle Safety
- Roadway Departure Safety
- The Roadway Safety Data Program
- Speed Management

We will be holding **live demos** of our offerings!

Exhibit Hours will be as follows:

Sunday, January 8, 4:00p.m.-7:00p.m.

Monday, January 9, 9:00a.m.-4:00p.m.

Tuesday, January 10, 9:00a.m.-4:00p.m.

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

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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.