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COMMUNICATING WITH THE PUBLIC IN EMERGENCIES

MOTOR FLEET SAFETY

SYSTEMIC APPROACHES TO
MAKE INTERSECTIONS SAFER

KEEPING AGING WORKERS SAFE

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The Local Technical Assistance Program (LTAP) is a nationwide effort financed by the Federal Highway Administration and individual state departments of transportation. Its purpose is to translate into understandable terms the best available technology for roadways, bridges, bicycle and pedestrian facilities, and public transportation for city and county roadway and transportation personnel. The TxLTAP, operated by the University of Texas at Arlington, is sponsored by the Texas Department of Transportation (TxDOT) and the Federal Highway Administration. This newsletter is designed to keep you informed about new publications, techniques, and training opportunities that may be helpful to you and your community.

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COMMUNICATING WITH THE PUBLIC IN EMERGENCIES

by Marc Shepherd, UTA Instructor

As a government leader, there's a good chance you have been up to your boots in at least one Texas-sized emergency. The Lone-Star State has seen its share of snow and ice storms, wildfires, flooding, tornadoes, and hurricanes. That does not include other emergencies such as industrial accidents, major wrecks, and other man-made disasters. According to the Texas Department of Public Safety, Texas has more federally declared disasters than any other state in the union.

It's tough enough dealing with the regular duties that come with a disaster or crisis. Communicating with the public during an emergency can also be an overwhelming job. Knowing how and what to communicate are crucial to any successful crisis communications plan. Accurate, quick, and concise messages can be a matter of life or death.

Successful emergency communication often comes down to at least four basic elements; the right message, methods, timing, and people.

The Right Message.

Know your communications goal. Useful and concise information is essential to good emergency communications and saving lives. The wrong information can have deadly consequences.

But communicating during a disaster is more than getting out the facts. It's about providing the right information that addresses the pressing needs of your audience. Put yourself in their position. Will the information you provide give people what they need to know in order to make a good decision? Telling the public there is a hurricane evacuation underway is good. Providing them with the designated hurricane evacuation routes is even better. Updating drivers on how routes are flowing is best.

Make sure your message is to the point and easy to understand. Make your statement and then repeat it. This will help solidify it in the minds of the public. Avoid "governmentese" or the language of government officials. Stay away from acronyms. Your public shouldn't have to interpret what you said. Never say "No comment." It implies you are hiding something.

The Right Methods.

Communication has drastically changed over the last several years and continues to evolve in ways few can imagine. Radio, TV, and newspapers remain as the top "go-to" sources for releasing information for at least a couple of reasons. First, the public still sees them as trustworthy sources during an emergency. Second, they can reach a huge audience far quicker than most other methods. Nearly all broadcast and print media have a strong social media presence. This means your message not only hits the airwaves, it is also posted on the internet and shared on social media sites.

Social media such as Facebook, Twitter, Instagram, have changed the communications playing field making it even more important for emergency officials to communicate in innovative ways. Social media is usually free and gives you the ability to quickly and better control your message. Unfortunately, bad information can spread quicker than a Texas wildfire, and it usually starts on social media. During an emergency, someone, somewhere, will put out information. If it doesn't come from an official source, then it's probably inaccurate or downright false. Having your own social media account means you can pass along accurate, concise, and important information that protects the public and your credibility.

Emergency notification systems are another excellent way to communicate with the public in an emergency. For a fee, these one-way systems send out mass announcements in the form of a text or a phone call to a large group. They can even be configured to reach targeted audiences.

The Right Time.

Be proactive. Release accurate and important information as soon as possible. It shows you are in control of the situation. More importantly, being proactive greatly reduces the possibility of wrong information spreading, especially on social media. Don't let the rumor mill take over. Don't delay giving information if you don't have to. If you don't talk, someone else will and that can turn into a communications nightmare.

Give scheduled updates even if the situation has not changed. Schedule news conferences in the morning and afternoon to allow media outlets plenty of time to craft their stories. Strongly consider providing reporters a late evening rundown of what you did that day and what you plan to do the following day. It updates your public as to what you did and plan to do, and it gives the media story ideas for the following day.

Make sure to post to your social media site as frequently as possible. Nothing shows unprofessional communication than a site with two-day old information. If you don't have any new information, then post photos or videos. Many sites even allow you to do live video. A quick live update will go far in calming the public's fears and concerns.

The Right Person.

The person giving the message is just as important as the message itself. The public is looking for leadership they can believe in and trust. Carefully consider your spokesperson. Choose someone who exudes confidence, knowledge, and the ability to communicate. They must be calm, collected, and concise. A spokesperson who comes across weak, confused, or lacking confidence will do more harm than good. The goal is to calm fears, build confidence, and provide important information. Putting a person in the middle of a crisis who comes across baffled or just parroting "canned" information is worse than not making any statement.

Just because you have a designated spokesperson on staff to handle situations doesn't mean you're off the hook. Passing everything off to someone paid to do the job may be easy, but it can undermine your ability as a leader. Give occasional statements to the media. It's very powerful in that it shows you care about the situation, and that you are responsible and working to solve the issue.

A good communications plan is built on a solid foundation. Knowing the right ways to communicate in an emergency will not only save lives, it can go a long way in building trust with the public and make the next crisis much more manageable.



MOTOR FLEET SAFETY

& FLEET SAFETY QUIZ

by Tom Musick

Take a moment to think about the vehicles in your organization's fleet. Depending on your line of work, you might have envisioned full-size vans, pickup trucks or sales sedans. Perhaps you thought about semi-trailers or school buses. Keep thinking. Do you have any all-terrain utility vehicles that you use on the grounds? How about riding lawnmowers or self-propelled snow blowers?

Your fleet might be larger than you realize, according to James A. Solomon, director of Defensive Driving Program Development and Training at the National Safety Council (NSC). Solomon has more than three decades of experience at NSC, and during that time he has helped train countless safety professionals about the importance of understanding their fleet and keeping workers safe.

"You've got to have a program to protect your people," Solomon said. "A proper operating fleet is a great investment. It saves lives, prevents injuries and saves money – which adds to the bottom line."

A safer fleet means a safer workforce. According to the Bureau of Labor Statistics, transportation incidents are the No. 1 cause of death in today's workplaces. In 2014 (the most recent year for which data is available), 1,891 workers were killed in transportation incidents. That represented 40 percent of all fatal workplace injuries. Roadway incidents and pedestrian vehicular incidents accounted for most transportation-related fatalities.

To help organizations protect workers, NSC recommends nine essential elements of a fleet safety program. The guidelines are chronological – an effective organization should complete step one before step two, step two before step three, and so on – and pertain to a variety of industries.



ELEMENT 1:

DATA ANALYSIS AND PROBLEM IDENTIFICATION

Turn data into information. Turn information into action. Those are the first two recommendations for implementing an effective fleet safety program, according to NSC's Driver Safety Training initiative.

By identifying and analyzing high-probability factors that lead to crashes, organizations can develop targeted plans to reduce the risk. Factors to consider include a driver's record of traffic violations, weather conditions, road conditions, vehicle type, posted speed limits and drivers' hours on duty.

"Many companies mess up," Solomon said. "They don't keep their records all in one place. Maintenance has records because they work on vehicles. Human resources has personnel records. Then, over here, you have insurance records. You've got to put them all together before you establish a program."

ELEMENT 2:

MOTOR FLEET POLICY AND PROCEDURES

A formal, written fleet safety policy statement eliminates room for confusion and conveys a clear message to all employees about the importance of safe driving. Policies should clarify rules about seat belt use, impaired driving, distracted driving (NSC recommends prohibiting all cell phone use – including hands-free devices – while operating a motor vehicle), how to report a collision, what to do in the event of a breakdown, and scheduled maintenance, among other issues.

Organizations also should consider establishing the circumstances for which an employee would be allowed to drive a work vehicle on personal time.

"It needs to be collaborative," Solomon said. "Include anybody that has anything to do with the vehicle. It can't just be H.R. It can't just be the fleet safety person. Whoever in procurement is buying tires, whoever is getting insurance, whoever is training drivers – they all have to work together because they all have a different piece to the puzzle."

ELEMENT 3:

OBTAIN MANAGEMENT COMMITMENT AND SUPPORT

Leadership commitment is essential to support all aspects of worker safety, including fleet management. Safety professionals can bolster the chances of executive buy-in by educating and training the management team about the direct and indirect benefits of maintaining fleet safety practices.

"Before you tell your employees, 'This is what we're doing,' management has to commit to it," Solomon said.

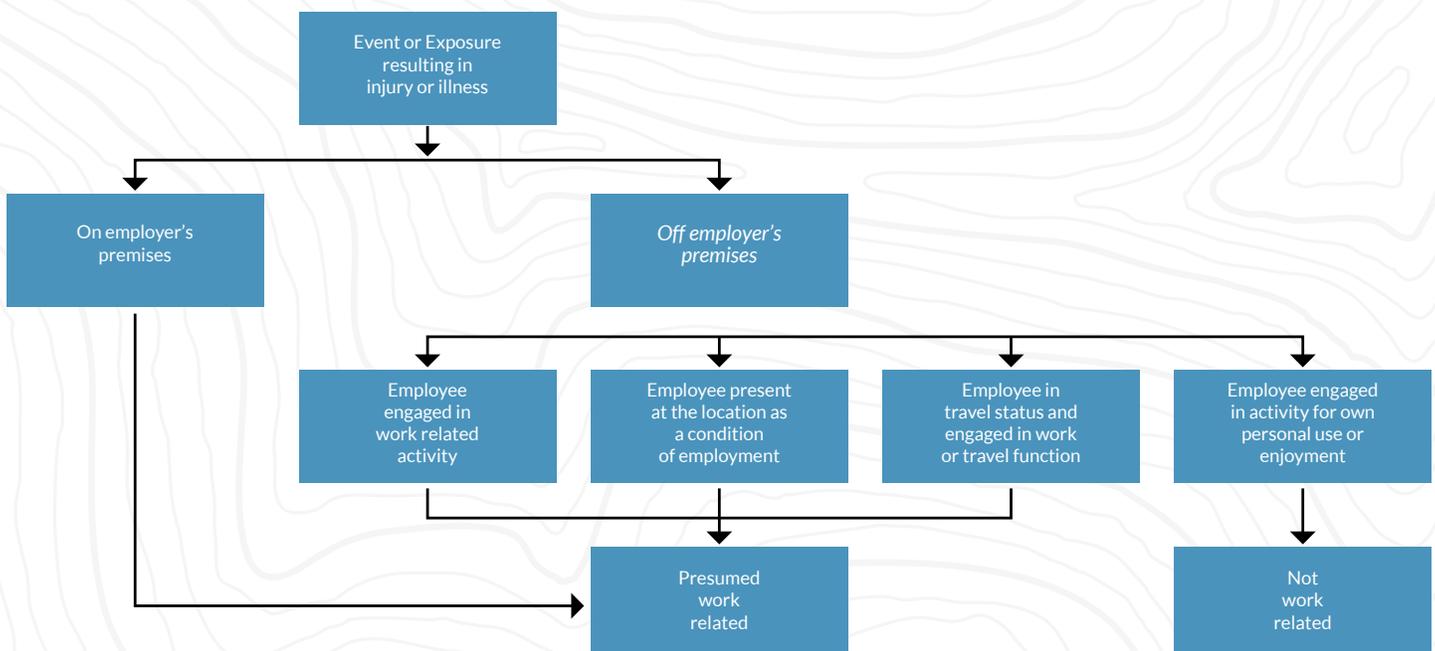
ELEMENT 4:

LOSS INVESTIGATION

Remember: Handle post-crash interviews with sensitivity as the organization establishes causal factors and whether the crash was preventable.

"It's all about how do you investigate?" Solomon said. "If law enforcement writes it up, they're looking at who gets the ticket? The insurance person or risk-management person says, 'What do I have to pay?' Your picture is: Did this have to happen? How do I avoid this in the future?"

GUIDELINE FOR ESTABLISHING WORK RELATIONSHIP



ELEMENT 5: DRIVER QUALIFICATIONS

Driving standards should be clear, concise and allow for organizations to monitor, evaluate and correct (if necessary) an employee's driving performance. NSC recommends that organizations follow four steps when writing driving standards:

- **Driver performance:** Clearly explain what is expected of the driver.
- **Performance monitoring:** Monitor and review driving records and other indicators.
- **Performance evaluations:** Compare employees' performance against the standards and communicate with employees about areas of strength and/or weakness.
- **Corrective actions:** Work with legal counsel to determine fair practices; many organizations use a progressive discipline process that includes remedial training such as defensive driving courses.

"Until you have all of the first four elements lined up, you don't need drivers," Solomon said. "But when you get to this point, you have to ask: How do you qualify your drivers?"

ELEMENT 6: SELECTION/MAINTENANCE/ INSPECTION

Although the fleet safety professional does not need to be an expert on all things maintenance, he or she should be well-versed enough to manage the process.

Keep safety in mind when selecting fleet equipment. Support the maintenance program, which may take place on-site or off-site depending on the organization.

An effective fleet management process can help reduce crashes, maintenance and downtime while improving employee morale and the organization's public image.

"This element usually winds up in three different departments, and it shouldn't," Solomon said. "This is the person who is buying the tires. This is the outside company that inspects the vehicles.

This is the maintenance person who goes, 'Ever since we switched brands of tires, I've had more side-wall blowouts than in the

last five years.'

"That's why it says selection/maintenance/inspection. They've all got to talk to each other. What is it you need? What is it you don't need?"

ELEMENT 7: DRIVER TRAINING

Hiring the ideal candidate is important for an organization's success. So, too, is training employees to learn new skills and improve their existing skills. NSC's "Motor Fleet Safety Manual" recommends establishing four types of training:

- **New hire training:** For all incoming employees
- **Refresher training:** Less formal training that can be presented in alternative formats such as safety posters, dash cards and brief speeches to reinforce best practices
- **Remedial training:** For drivers who have had an infraction or were involved in an incident
- **Ongoing or annual training:** For all drivers, typically combining classroom instruction and behind-the-wheel instruction to discuss new equipment, changes in procedures, updates pertaining to regulatory compliance, etc.

"At this point, I've got a vehicle," Solomon said. "I've got a driver. Now, what do I do for a new driver coming in? What do I do if I'm changing equipment? For example, if I've had standard braking or power braking, and I bring in air brakes, I need to retrain all my drivers about how to drive with air brakes."

ELEMENT 8: COMPLIANCE

Determine which government agency has authority over the organization's activities. Learn what requirements leaders face under the law. Be aware that state traffic laws may be different, which means workers in freight, sales and other operations that require interstate travel should understand the nuances of each state and local jurisdiction.

Compliance audits may vary depending on whether a fleet falls under Department of Transportation regulation. Regardless, such audits create opportunities for

organizations to make improvements.

"Who makes the rules for my operation?" Solomon said. "Is it federal? Is it state? Is it county? Who do I have to report to?"

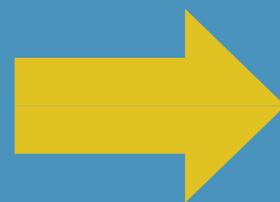
ELEMENT 9: COMPLIANCE

NSC's Driver Safety Training program describes effective goal setting as SMART (Specific, Measurable, Achievable, Realistic and Timely). Goal setting allows organizations to set a direction for their fleet safety programs. Goals can be specific to an individual or apply more broadly to a team.

"Goal setting is way down at the end," Solomon said. "Before I ever get there, I've got to have all of the policies and all of the procedures. If a company doesn't have that and they build from the middle, OK, fine, but they're going to have to go back and retrofit things to get it going forward."

Permission to reprint granted by the National Safety Council.

TAKE
THE
FLEET
SAFETY
QUIZ



QUIZ:

How much do you know about fleet safety?

Take this quiz from the NSC Defensive Driving Courses to find out.

1

Which collisions should be investigated?

- a. Those with fatalities
- b. Those with personal injuries
- c. Those with property damage
- d. All collisions/incidents

2

Which of the following is a DIRECT cost to the organization?

- a. Fleet manager's time to coordinate vehicle repair
- b. Property damage
- c. Inspection costs
- d. Overtime pay

3

Which of the following is useful when qualifying drivers?

- a. Past safety record
- b. Familiarity with specific equipment
- c. Driving experience
- d. All the above

4

Which is NOT a benefit of effective maintenance, inspection and selection?

- a. Improved driver morale
- b. Reduced downtime
- c. Increased downtime
- d. Accident reduction

5

Which of the following should be utilized prior to hiring and qualifying a driver to work at your organization?

- a. Drug testing
- b. Written testing
- c. Motor Vehicle Record (MVR) check
- d. All of the above

6

Which of the following is NOT TRUE of a fleet safety policy statement?

- a. Must be signed by executive management
- b. A copy is kept in the employee's personal file
- c. Three copies of the statement should be distributed to all who operate company vehicles
- d. Should be posted in a conspicuous location

7

Which of the following forms cover the necessary basic information regarding a fleet's vehicle maintenance program?

- a. Driver's vehicle condition report
- b. Service and inspection report
- c. Delivery ticket
- d. All the above

8

Effective goals should be:

- a. Measurable and specific
- b. Achievable and vague
- c. Timely and negative
- d. Realistic and open-ended

9

Which of the following criteria can be used to demonstrate fleet excellence?

- a. Safety standards incorporated into some job descriptions
- b. Reward and recognition of employees
- c. Lack of safety measurements
- d. Partial leadership participation

10

Fleets generally owned by firms involved in agriculture, canning, lumbering, and snow removal area called:

- a. Leased fleets
- b. Seasonally operated fleets
- c. Scattered fleets
- d. Special fleets

TARGETING THE CROSSHAIRS: SYSTEMIC APPROACHES TO MAKE INTERSECTIONS SAFER

by Matthew Albee, Kara Peach, Jeffrey Shaw, and Jonathan Soika

Crashes at intersections are one of the leading causes of highway fatalities. Nationally in 2014, intersection crashes alone resulted in 8,664 fatalities out of the 32,675 total roadway deaths across the nation. Comparatively in 2015, 807 of the total 3,531 traffic fatalities that occurred on Texas roadways occurred in intersections.

As a means to address traffic-related fatalities and injuries on the Nation's roadways, the Federal Highway Administration's Office of Safety employs a focused approach to safety. This approach is built around three technical focus areas--roadway departures, intersections, and pedestrians/bicycles--and prioritizes resources and efforts to help States and local agencies address their road safety needs. More specifically, the Intersection Safety Program focuses on the many variables that influence safety at intersections, from behavioral factors and special users to intersection design and facility type.

One of the key tools that falls under this program is the Intersection Safety Implementation Plan (ISIP), which can be instrumental in helping transportation agencies reduce intersection-related traffic injuries and fatalities. States develop ISIPs as a way to include intersection safety in their Strategic Highway Safety Plan, either as a standalone emphasis area or integrated across various emphasis areas. Although a State's Strategic Highway Safety Plan might identify some strategies for improving intersection safety, the ISIP establishes more detailed implementation activities, countermeasures, strategies, deployment levels, implementation steps, and required funding.

"The ISIPs can become the blueprint for advancing intersection safety across a State," says Tim Taylor, safety engineer in the FHWA Resource Center. "It's a proven approach to achieve incremental safety improvements to hundreds of intersections in a relatively short time. Eventually, enough small safety improvements can begin to have a profound cumulative impact."

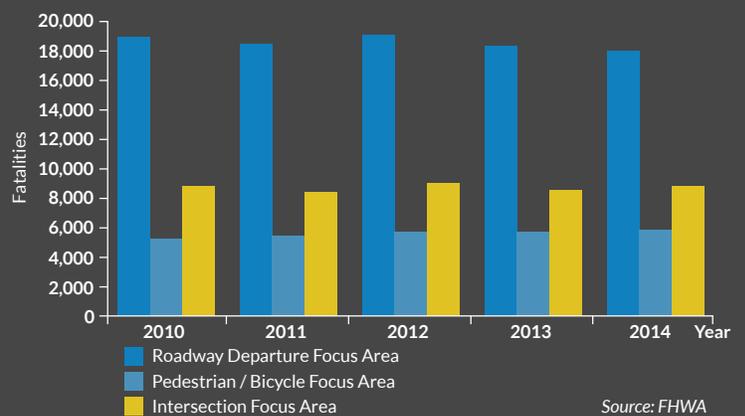
Identifying Barriers and Opportunities

Since 2012, FHWA has engaged with staff from State departments of transportation that have ISIPs through both one-on-one and peer group discussions to hear about their experiences and lessons learned. Through these discussions, FHWA officials realized that States faced similar issues, but their solutions were as varied as the States themselves.

FHWA even found that some DOTs were employing strategies that could address an issue reported by a different State. For example, States often cite limited data as one of the most common barriers to developing an ISIP. The Texas Department of Transportation (TxDOT) is working with local agencies to address this issue--a

strategy other States might be able to replicate. FHWA's goal is to create more awareness of various approaches to encourage others to either develop or update an existing ISIP.

Traditionally, States implement intersection improvement projects at locations with the greatest number of crashes (the hotspot approach) or by deploying countermeasures at all at-risk locations (the systemic approach). The systemic approach deploys countermeasures at locations with the greatest risks for crashes rather than at the locations of actual crashes.



The risk factors at intersections are associated with focus crash types and facility types. For example, risk factors associated with angle crashes (focus crash type) at unsignalized intersections (focus control type) along rural, two-lane roads (focus facility type) could include visibility on the approach to the intersection; conspicuity of the intersection; sight lines and distances between legs of the intersection; and presence, condition, types, and sizes of signs and pavement markings.

To advance the systemic approach further--for intersection safety and other priority areas--FHWA developed the Systemic Safety Project Selection Tool. The tool provides transportation agencies with step-by-step guidance on conducting a systemic safety analysis.

Many States are adding a systemic component to their Highway Safety Improvement Programs. The States range in size, number of roadway miles owned, and progress. Yet their stories, from development to implementation and evaluation, highlight the notion that all States can apply and adapt the ISIP process to their needs. States and regions with completed ISIPs include Arizona, Florida, Georgia, Indiana, Louisiana, Massachusetts, Mississippi, Missouri, Ohio, Pennsylvania, South Carolina, Tennessee, North Carolina, Oklahoma, Oregon, Washington, New Hampshire, New Jersey, New York, and Texas-North Central Texas Council of Governments.

The systemic approach to safety is a three-pronged approach: (1) analyze system-wide data to identify a problem, (2) look for similar risk factors present in severe crashes, and (3) deploy one or more low-cost countermeasures based on the risk factors to address the underlying circumstances contributing to crashes.

FHWA developed the Systemic Safety Project Selection Tool to assist transportation agencies in conducting systemic safety planning. The tool provides a step-by-step process and guidance for determining the distribution of safety countermeasures using a systemic versus hotspot approach. Even States with limited data can use this tool, because they can tailor it to fit the available data.



Source: FHWA

The tool is available at <http://safety.fhwa.dot.gov/systemic> and in the TxLTAP Library.

Developing an ISIP

As is true with many plans, the development stage is the most important because it lays the groundwork for the future. One of the earlier documents on using a systemic approach, FHWA's Intersection Safety Implementation Plan Process (FHWA-SA-10-010), provides a template for developing an ISIP. The template details the activities, countermeasures, strategies, deployment levels, implementation steps, and funding scenarios needed to advance intersection safety. From setting a goal for the reduction of intersection crashes to developing a draft plan, the actionable steps detailed in the document set the stage for future success and enable States to anticipate and plan for future issues.

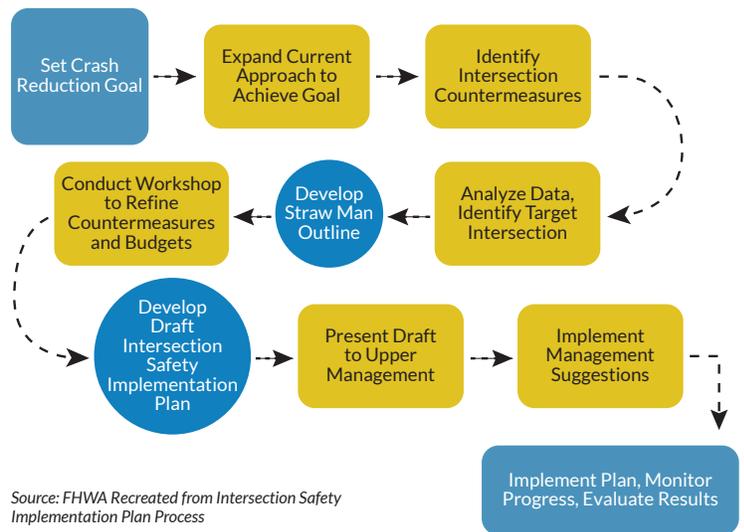
An ISIP is a data-driven plan, and the systemic approach to intersection safety requires accurate and up-to-date roadway, crash, and other data files. Many transportation agencies that own a large portion of roadway mileage report having strong roadway data systems, but they still face many hurdles with crash data, such as identifying and filling gaps and the timeliness of data.

For example, TxDOT initiated its ISIP in 2015 using its robust Crash Records Information System® as the basis for prioritizing projects. Once the TxDOT staff members identified the gaps in data, they worked with other transportation agencies at the State and local levels to develop strategies to address the issues. The efforts in Texas have strengthened both the data systems and the relationships with local agencies.

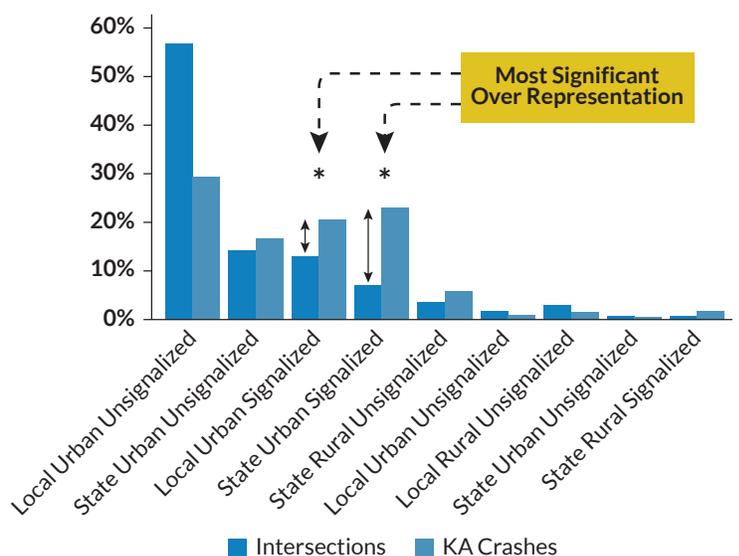
“Crash data currently drive the effectiveness of our ISIP, and we will continue to collect roadway characteristic data from the local transportation agencies and [metropolitan planning organizations],” says Carol Rawson, past director of traffic operations with TxDOT. “By providing traffic volumes and other roadway characteristic data to TxDOT in a timely manner, our local partners recognize the benefit of obtaining additional ISIP dollars in the future.”

The Texas ISIP focuses on the five largest Metropolitan Planning Organization (MPO) regions in the state including:

- Alamo Area MPO (AAMPO) in the San Antonio region
- Capital Area MPO (CAMPO) in the Austin region
- El Paso MPO in the El Paso region
- Houston-Galveston Area Council (HGAC) in the Houston region
- North Central Texas Council of Governments (NCTCOG) in the Dallas-Fort Worth region



Source: FHWA Recreated from Intersection Safety Implementation Plan Process



Source: VHB, TxDOT

Continue on the next page.

Putting Plans into Action

Efforts to translate planning into real action in the form of projects vary widely among the States with formal ISIPs as well as those with informal intersection plans that are integrated into other documents. The implementation strategies reported by the States include partial systemic, corridor systemic, and full systemic approaches. The progress in some States has been more limited because of uncertainty about how far and how quickly to proceed.

Partial systemic treats locations with low-to-moderate crash histories, with a focus on widespread deployment of only low-cost improvement packages. The corridor systemic approach is narrower and focuses on multiple intersections with low-to-moderate crash histories along an extended distance of roadway. The third approach--full systemic--treats intersections entirely on risk characteristics identified through rigorous safety data analysis.

States with ISIPs commonly report progress with the partial systemic approach--treating some locations with low-to-moderate crash histories, as opposed to only those meeting high crash thresholds. In these cases, the focus is on widespread deployment of only low-cost packages of improvements, consisting mostly of enhancements to traffic control devices such as oversized signs, wider pavement markings, and traffic signal backplates with retroreflective borders.

Beyond a Partial Systemic Approach

The corridor systemic approach picks up where the partial systemic approach leaves off. The corridor approach is based on consistent treatment of multiple intersections along an extended distance of roadway with low-cost enhancement packages. Simply, when multiple intersections identified with low-to-moderate crash histories are located along a defined corridor, the transportation community deems that corridor to be a higher risk. In addition, this approach takes into account not only the safety performance, but also mobility and operational performance, adjacent land uses, and context.

The third implementation strategy is the full systemic approach, which differs from the first two categories in that it calls for treating an intersection entirely based on risk characteristics identified through the rigorous analysis of safety data. Because the systemic approach identifies risk factors, there is a need to correlate characteristics of various types to the locations having crashes. These characteristics include traffic operations (for example, traffic volumes, traffic control type, traffic signal phasing, approach speeds), geometrics (for example, number of lanes, number of approaches, median presence and width), land use (for example, rural/urban, driveway presence and density), and others (for example, lighting, pavement condition). The most commonly cited barrier to using the full systemic

approach is a lack of data, mostly an inventory of such intersection elements. However, the growing familiarity and experience with the partial systemic and corridor systemic approaches is driving an interest in some States to pursue a full systemic approach as better data become available.

Using Feedback to Move Forward

The States with ISIPs that provided feedback to FHWA and shared their lessons learned varied in terms of system size and organizational structure. Each also experienced unique organizational challenges. Despite these differences, those that demonstrated the most success from their ISIPs managed to adapt and tailor them to meet immediate needs within their respective States. For example, some States reported using the ISIP as a prescriptive document that identifies specific project locations and details the countermeasures. Other States have taken a more flexible approach, using the ISIP to inform changes to policies and standards, or informing safety improvements to projects scoped for other reasons. All the States that provided feedback agreed that ISIPs serve a valuable purpose in introducing the concept of systemic approaches. They also inspire further ideas on how to link Strategic Highway Safety Plans to tangible outcomes funded by Highway Safety Improvement Programs

Article excerpts reprinted from the Federal Highway Administration's November/December 2016 issue of Public Roads

To read more on the safety impacts evaluated through other states ISIPs, visit <http://safety.fhwa.dot.gov/systemic/>. For more information, see <http://safety.fhwa.dot.gov/intersection> or contact Jeffrey Shaw at 708-283-3524 or jeffrey.shaw@dot.gov.



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?

Continue on the next page.

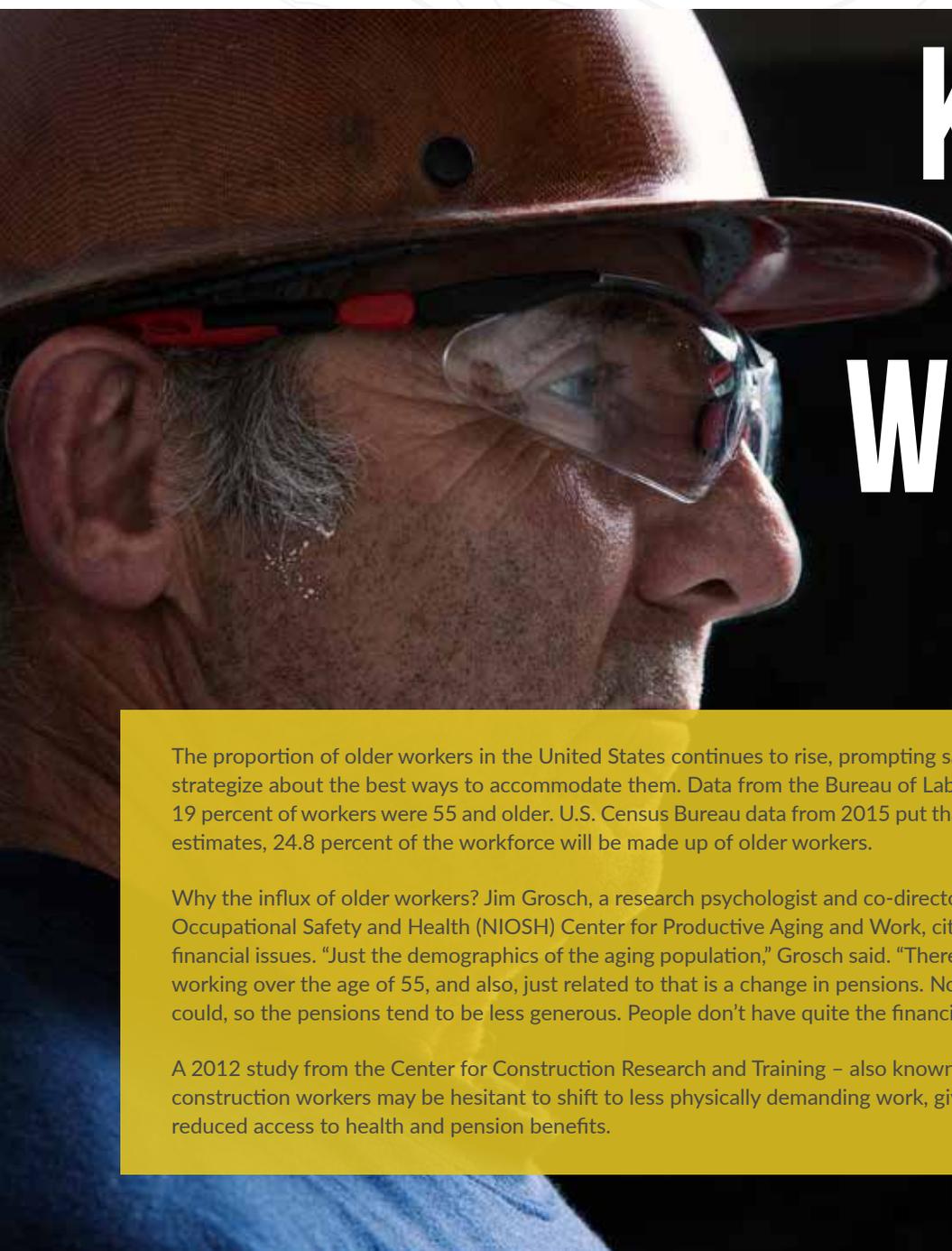
The Federal Highway Administration (FHWA) Office of Safety and Office of Safety R&D developed the new *Decision Support Guide for the Installation of Shoulder and Center Line Rumble Strips on Non-Freeways* to provide a framework that will inform center line and shoulder rumble strip installation decisions. 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 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.

Visit the TxLTAP Library for a copy of the *Decision Support Guide for the Installation of Shoulder and Center Line Rumble Strips on Non-Freeways*.

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.



KEEPING AGING WORKERS SAFE

by Kevin Druley

The proportion of older workers in the United States continues to rise, prompting safety professionals and researchers to strategize about the best ways to accommodate them. Data from the Bureau of Labor Statistics (BLS) shows that, in 2010, 19 percent of workers were 55 and older. U.S. Census Bureau data from 2015 put that number at 22.6 percent. By 2024, BLS estimates, 24.8 percent of the workforce will be made up of older workers.

Why the influx of older workers? Jim Grosch, a research psychologist and co-director of the National Institute for Occupational Safety and Health (NIOSH) Center for Productive Aging and Work, cites both a rise in life expectancy and financial issues. “Just the demographics of the aging population,” Grosch said. “There are more and more people who are still working over the age of 55, and also, just related to that is a change in pensions. Not everybody puts away as much as they could, so the pensions tend to be less generous. People don’t have quite the financial resources.”

A 2012 study from the Center for Construction Research and Training – also known as CPWR – found that older construction workers may be hesitant to shift to less physically demanding work, given the risk of reduced income or reduced access to health and pension benefits.

Added value ... and risk

Maryland Transportation Administration (MTA) construction director Dave Ferrara, 54, praises the “institutional knowledge” of his team’s older members. Construction workers realize they are in a profession in which roles often change as physical skills diminish, Ferrara said. Expectations may shift, but an emphasis on safety remains a priority.

If an older MTA worker lacks the strength or stamina to climb a bridge suspension tower as part of a job, for instance, the worker would be assigned to what Ferrara called “less demanding” work.

“I think they definitely work smarter,” he said. “I think you don’t see them getting injured as often as the younger worker. But when they do get injured – and we don’t have real major injuries – it definitely takes longer for things to heal.”

Injury concerns

Data from the 2014 Survey of Occupational Injuries and Illnesses backs up Ferrara’s latter claim. Among construction workers, median days away from work averaged 20 for the 45-54 age group, 21 for workers 55 to 64 years old and 37 for those 65 and older. For all industries, the median days away for those age groups were 12, 15 and 17, respectively. In contrast, the median for all ages was 10 missed days among construction workers and nine days for all industries.

“That’s just the physical changes that occur that make physical rehabilitation more difficult,” Grosch said.

Additional 2014 survey data shows that employees ages 45 to 54 experienced musculoskeletal disorders at a rate of about 40 per 10,000 full-time workers – the highest among all demographics. Older workers also experienced trunk, back, shoulder and knee injuries more often than younger workers, who were more likely to have head and hand injuries.

Further, the 2014 Census of Fatal Occupational Injuries data shows that the risk of fatal falls across all industries increases with age. Workers ages 20 to 24 years old accounted for 8.2 percent of fatal falls

in 2014, with the rate climbing for each ensuing age group:

- 45-54: 16.8 percent
- 55-64: 20.7 percent
- 65 and older: 27.3 percent

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A Moving Model

What can employers do to accommodate the aging workforce? Grosch points to a 2010 pilot project from German automaker BMW as “one of the few well-documented cases” of a successful aging worker integration strategy. Numerous, small-scale changes at an assembly plant in Dingolfing, Germany, helped create a productive operation – as well as important guidance amid changing demographics.

In an email to Safety+Health, Fabian Sting, Ph.D., co-author of a Harvard Business Review article detailing the strategy, wrote that “the most effective part of this initiative was the involvement effect.”

BMW says it made 70 small changes, many ergonomics-based, and saw productivity increase by 7 percent in one year. Plant officials began by reorganizing staff so the average worker age was 47, its year 2017 projection in 2010. They then asked workers for input about how to create a more accommodating work environment.

Changes included installing wooden flooring to reduce knee strain and static electricity exposure; providing orthopedic footwear to reduce foot strain; using angled monitors, magnifying lenses and larger computer screen typeface to reduce eyestrain; and using manual hoisting cranes to reduce back strain.

Analyzing the varying degree of physical strain workers experienced, management also set shift limits on the most physically demanding actions. Workers could work in the most strenuous environments for a maximum of three hours per shift, rotating to less physically demanding work to reduce injury risk.

“BMW’s aging workers felt respected for their specific skills and capabilities,” wrote Sting, now a University of Cologne (Germany) professor and director of the Department of Supply Chain Management – Strategy and Innovation. “And they were asked to think about changing the line. It was this empowerment that led to the impressive results.”

Looking forward

In October 2015, NIOSH launched the Center for Productive Aging and Work as part of its Total Worker Health initiative. The center aims to create a developing research model that focuses on:

- Work environment: Highlighting what workers can do to prevent injuries, as well as information on potentially adverse conditions and risks.
- Individual health: Asking which policies best promote health and maintain it over time, and determining which career-specific training would be best for a worker.
- Work organization: Determining how a job’s structure or design creates physical demands and what might be done to reduce them.

Grosch said the center plans to evaluate existing workplace programs – including those at BMW – and summarize advice regarding what does and doesn’t work to assist employers and employees. It’s all part of NIOSH’s mission to help strengthen strategies for creating more age-friendly workplaces.

One plan revolves around job design and involves changing the content of work to better meet a worker’s abilities or needs. Another strategy – workplace flexibility – gives workers greater autonomy over how, when and where work is completed. This could include telecommuting or reduced or flexible hours.

“The center is new and developing, and we hope to do more in some of these areas,” Grosch said. “We fully expect to be developing programs and testing things. A lot of what’s out there right now is not completely evidence-based. It’s what people might think would be good and anecdotal. One of the things we see the need for is some kind of evaluation. There’s a lot of ideas and opinions, but it’s really nice to see how things work.”

Permission to reprint granted by the National Safety Council.

PERFORMING A HEALTH CHECK-UP ON YOUR ROADS



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

Data-Driven Safety Analysis (DDSA) 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 imple-

menting 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 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:

- Identify target crash types (e.g. severe roadway departure crashes).
- Identify focus facility types (e.g. two-lane rural roads with curves).
- 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 DDSA-related training and technical assistance please contact Jerry Roche at jerry.roche@dot.gov or John McFadden at john.mcfadden@dot.gov.

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 guide book is designed to provide a toolkit of strategies for State DOTs, FHWA Division offices, metropolitan planning organizations (MPO), and local and tribal agencies 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 also be available in early 2017 at <http://safety.fhwa.dot.gov/tsp/>. For more information, please contact Chimai Ngo at chimai.ngo@dot.gov. A copy of the *Building Links to Improve Safety* publication is also available in the TxLTAP Library.

FHWA MEMORANDUM ON GUARDRAIL TERMINAL INSTALLATIONS AND REPAIRS

On November 29, 2016, the Federal Highway Administration (FHWA) Office of Safety issued a memorandum to bring attention to guardrail terminal installation and repair issues. The release of the memorandum is based on recent reports of highway crashes involving guardrails that have noted cases of incompatible components being used in the maintenance or repair of terminals. This use of incompatible parts will likely affect the performance of the crashworthy guardrail terminal, and may lead to serious injury or death.

All State DOT, city, county, and local agencies responsible for the operation and maintenance of their roadways are asked to review and, if necessary, update their policies, procedures, standards, and guidelines relative to the selection, installation, repair, and maintenance of roadside safety hardware, giving strong consideration to:

- A system wide inventory of in-situ roadside safety hardware, especially guardrail terminals.

- Accurate identification of safety hardware components in maintenance inventories.
- Training of contractors and maintenance forces responsible for guardrail terminal installation and repair.
- Training of inspectors who approve new and repaired guardrail terminals.

Agencies are strongly encouraged to follow the manufacturers' installation manuals for both new construction and repairs and to take advantage of manufacturers' training on proprietary products.

For additional information, contact Mr. William Longstreet at (202) 366-0087 or Will.Longstreet@dot.gov. The full memorandum can be found in the TxLTAP Library.

NEW USDOT REPORT ON HIGHWAY, TRANSIT CONDITIONS REVEALS AMERICA'S \$926 BILLION INFRASTRUCTURE INVESTMENT NEED

On January 12, 2017 the U.S. Transportation Secretary Anthony Foxx announced that a new report on the state of America's transportation infrastructure, "2015 Status of the Nation's Highways, Bridges and Transit: Conditions and Performance," confirms that more investment is needed not only to maintain the nation's highway and transit systems but to overcome a nearly trillion-dollar investment backlog.

"We have an infrastructure system that is fundamental to the nation's economic health, and it needs greater attention and resources," said Secretary Foxx. "Improving our nation's roads, bridges, and transit helps create jobs, connects communities and ensures that our nation is equipped for the future."

Secretary Foxx added that the Congressionally mandated report confirms the projections outlined in "Beyond Traffic," a U.S. Department of Transportation study issued in early 2015 that examined the challenges facing America's transportation infrastructure over the next 30 years, such as a rapidly growing population and increasing freight traffic.

"Conditions and Performance" is a biennial report to Congress that provides information on the physical and operating characteristics of the highway, bridge and transit components of the nation's surface transportation system.

The new report – commonly known as the "Conditions and Performance" report – identifies an \$836 billion backlog of unmet capital investment needs for highways and

bridges, or about 3.4 percent more than the estimate made in the previous report. Addressing the growing backlog while still meeting other needs as they arise over the next two decades – will require \$142.5 billion in combined transportation spending from state, federal and local governments. In 2012, the most recent year in which the report's data were available, federal, state and local governments combined spent \$105.2 billion on this infrastructure – 35.5 percent less than what is needed to improve highways and bridges.

"The case for more investment in our nation's transportation system is clear," said Federal Highway Administrator Gregory Nadeau. "A strong transportation system will make businesses more productive and freight shippers safer and more efficient while improving America's quality of life."

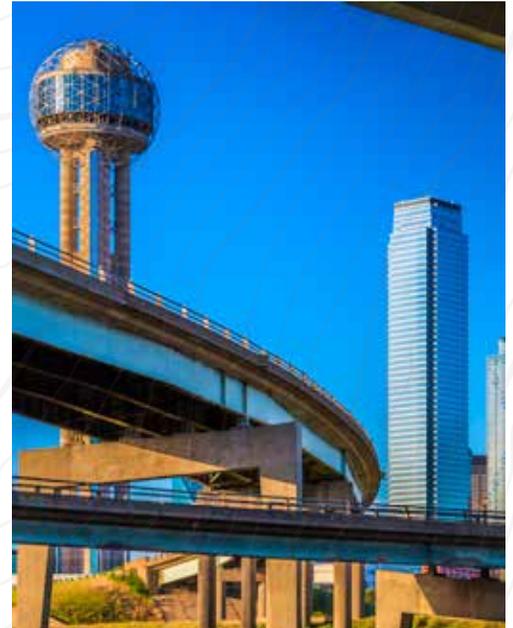
The report also indicates that \$26.4 billion is needed per year to improve the condition of transit rail and bus systems. In 2012, total spending to preserve and expand transit systems was \$17 billion. If transit investment is sustained at those levels, overall transit system conditions are expected to decline over the next 20 years, and increasing the transit system preservation backlog from an estimated \$89.8 billion to \$122 billion.

“This report shows the impact of the lack of investment in infrastructure,” said Acting Federal Transit Administrator Carolyn Flowers. “The results of that neglect can be seen throughout our country as both reliability and safety suffer. We must increase investment in public transportation nationwide, because we must take immediate action to bring our transit infrastructure

into a state of good repair and provide the world-class service that Americans deserve.”

Between 2002 and 2012, the report found that:

- The percentage of structurally deficient bridges decreased from 14.2 percent to 11 percent.
- Road quality improved, with the share of travel taking place on smooth pavement increasing from 43.8 percent to 44.9 percent.
- Delays in traffic cost the average commuter more time than ever, with an estimated 41 hours of delay per year in 2012, up from 39 hours in 2002.
- Transit route miles increased by 32 percent, with light rail growing faster than any other transit mode.



NEW FHWA RULES AIM TO IMPROVE PERFORMANCE OF NATION'S HIGHWAY SYSTEM

On January 10, 2017 the U.S. Department of Transportation's Federal Highway Administration (FHWA) released two final rules outlining new performance measures to improve the condition of the nation's roads and bridges and assess travel reliability, congestion and emissions at a national level. The rules call for states to account for air quality improvement by establishing performance targets, and greater transparency and accountability in setting and achieving performance targets for several key measures of highway performance, including pavement and bridge condition and travel reliability.

“Deteriorating and congested roads and bridges in our nation must be addressed head on, and today's actions help us do exactly that,” said U.S. Transportation Secretary Anthony Foxx. “These rules will play an important role in reducing travel delays and air pollution, and also improving infrastructure quality, giving the American people a better travel experience.”

Both rules are issued pursuant to the Moving Ahead for Progress in the 21st Century Act (MAP-21) and address the concerns outlined in the USDOT report “Beyond Traffic” which examines the trends and choices facing America's transportation infrastructure over the next three decades, such as a rapidly growing population, increasing freight volume and the need to mitigate environmental impacts.

“National Performance Management Measures; Assessing Pavement Condition for the National Highway Performance Program and Bridge Condition for the National Highway Performance Program” will increase accountability and transparency of the federal-aid highway Program. It also will help ensure that the nation's highways and bridges are in good condition and that the overall quality of transportation is improved through targeted investments.

“National Performance Management Measures; Assessing Performance of the Na-

tional Highway System, Freight Movement on the Interstate System, and Congestion Mitigation and Air Quality Improvement Program” is a rule that requires states to evaluate and report more effectively and consistently on transportation system performance, including travel time reliability, excessive delay during peak hours, freight movement reliability, and greenhouse gas and vehicle emissions.

“These new rules will improve the information available to state departments of transportation to help them focus their planning and programming decisions,” said Federal Highway Administrator Gregory Nadeau. “Overall, they are about targeting investment decisions more strategically and evaluating their impacts.”

The rules are expected to bring about greater accountability nationwide in addition to more consistency in data collection and analysis and more comprehensive practices.



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

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). In Texas, roadway departure crashes accounted for 35.54% of all motor vehicle traffic deaths or 1,255 deaths in 2015. 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.

Visit the TxLTAP Library for a copy of the *Roadside Tree and Utility Pole Management Guide*.
For more information on the guide, contact Joseph Cheung at joseph.cheung@dot.gov.
Article excerpts reprinted from the Federal Highway Administration's Winter 2017 issue of *Safety Compass*.

TAKATA AIRBAG RECALL

IS YOUR AIRBAG DEFECTIVE? CHECK YOUR AIRBAG TODAY.

Did you know that nearly 70 million Takata airbag inflators are or will be under recall by 2019? For Texas residents, the situation is particularly urgent because prolonged exposure to high heat and humidity degrades the chemical propellant in a defective airbag inflator over time; which makes it more explosive and increases risk of serious injury or death. Even a minor fender bender can cause the defective airbag inflators to rupture, spraying metal shrapnel into drivers and passengers. Two of the eleven confirmed deaths in the United States attributed to the Takata airbag inflator occurred in Texas.

The National Highway Traffic Safety Administration (NHTSA) is prioritizing the recall based on the risk of injury or death to vehicle occupants. The recalls are phased by the location of the vehicles and their age. Recall zones have been established based on the temperature and humidity of the region.

ZONE A: HOT AND HUMID

Alabama, California, Florida, Georgia, Hawaii, Louisiana, Mississippi, South Carolina, Texas, Puerto Rico, American Samoa, Guam, the Northern Mariana Islands (Saipan), and the U.S. Virgin Islands

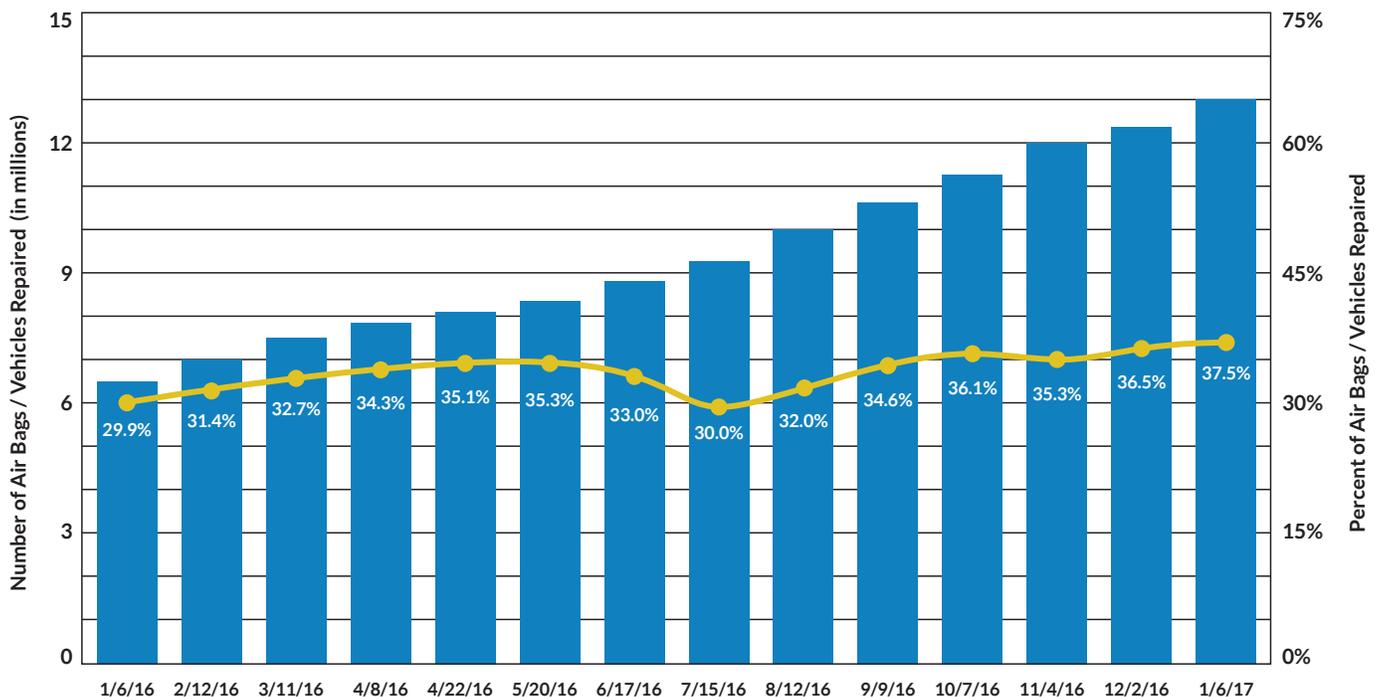
ZONE B: LESS HOT AND HUMID

Arizona, Arkansas, Delaware, District of Columbia, Illinois, Indiana, Kansas, Kentucky, Maryland, Missouri, Nebraska, Nevada, New Jersey, New Mexico, North Carolina, Ohio, Oklahoma, Pennsylvania, Tennessee, Virginia, and West Virginia

ZONE C: LEAST HOT AND HUMID

Alaska, Colorado, Connecticut, Idaho, Iowa, Maine, Massachusetts, Michigan, Minnesota, Montana, New Hampshire, New York, North Dakota, Oregon, Rhode Island, South Dakota, Utah, Vermont, Washington, Wisconsin, and Wyoming

According to the National Highway Traffic Safety Administration, as of early January 2017 nearly 37 percent, or 13.04 million of the total defective airbags have been repaired.



Visit nhtsa.gov/recalls to check your vehicle identification number (VIN) using the free VIN Look-up Tool for open recalls and learn if your vehicle has a defective airbag inflator. It is important to note, that even if your vehicle is not currently under a recall, it could be affected in the future. To be notified of future recalls, you can sign up for e-mail alerts at nhtsa.gov.



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