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BETTER ROADS SAFER ROADS

SAFER BY DESIGN

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BETTER ROADS
SAFER ROADS

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- TxLTAP -

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.

THE NATIONAL SAFETY COUNCIL URGES DRIVERS TO CHECK FOR RECALLS DURING VEHICLE SAFETY RECALLS WEEK

One in five vehicles has an open safety recall and is eligible for free repairs.

All recalls are free to have repaired at authorized dealers, regardless of whether you purchased your vehicle from the dealer or take it there for regular service.

Check to see if you have an open recall:

- Visit CheckToProtect.org and enter your 17-digit Vehicle Identification Number
- Text "RECALL" to 99724 (Spanish speakers, text "REVISA" to 99724) and snap a picture of your license plate when prompted.

One in five vehicles have an open safety recall, eligible for free repairs.

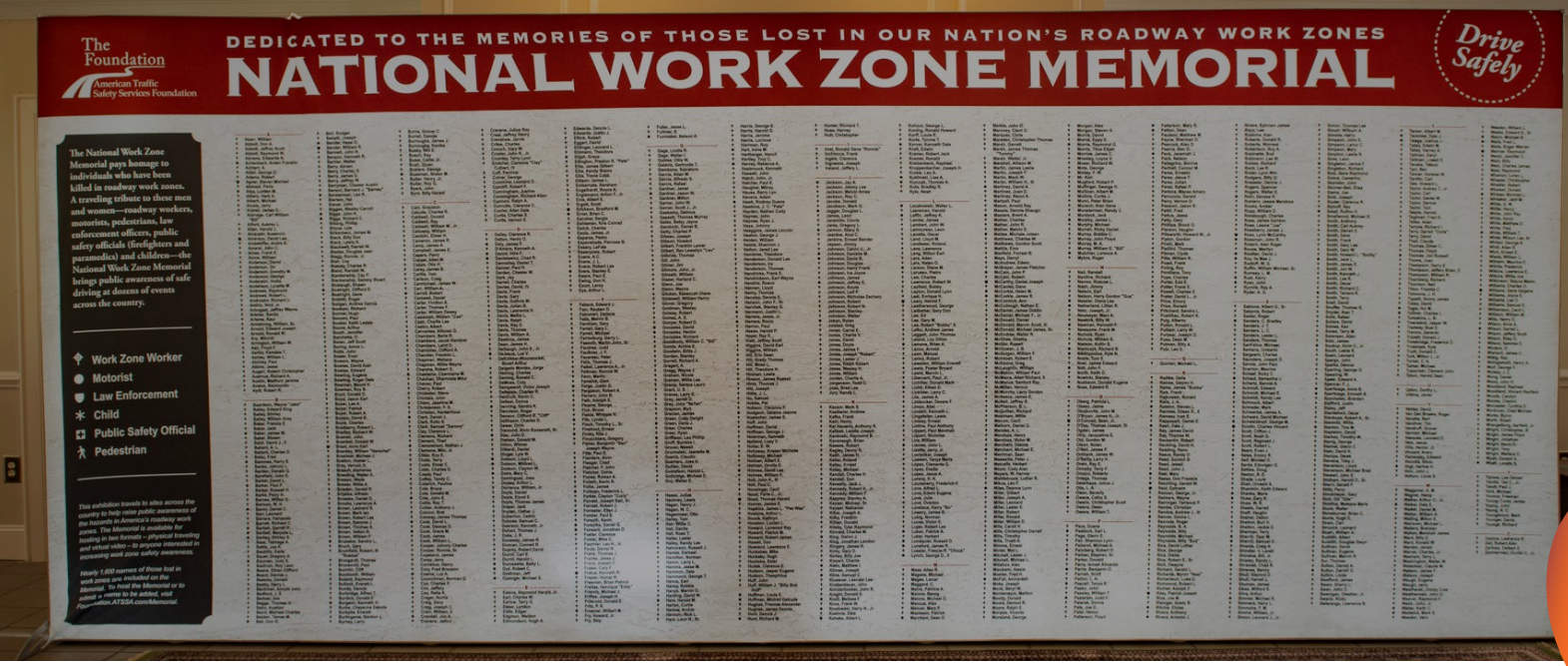
The National Safety Council (NSC) encourages every vehicle owner to check their recall status during NHTSA's Vehicle Safety Recalls Week from March 7 – 11, 2022.

Tens of millions of vehicles on the road today have unrepaired recalls, and many of those recalls involve defective parts that can pose life-threatening risks to drivers or passengers. Led by NSC, the Check To Protect campaign encourages all vehicle owners to proactively check their recall status and, if necessary, schedule a free repair as soon as possible.

"Safety is top of mind for families across America, and vehicle safety is an important part of that," said Mark Chung, Vice President of Roadway Practice at NSC. "We encourage everyone to take two minutes this week to check for recalls on their vehicles. You won't know if you're at risk until you check."

Any vehicle owner can learn whether they have an open recall by visiting CheckToProtect.org and entering their 17-digit Vehicle Identification Number, or VIN. The VIN can be found on the driver's side dash, inside the driver's door, on your registration documents, or on your insurance card. Another option for vehicle owners is to text "RECALL" to 99724 – or, for Spanish speakers, text "REVISA" to 99724 – and snap a picture of the license plate when prompted.

All recalls are free to have repaired at authorized dealers, regardless of whether you purchased your vehicle from the dealer or take it there for regular service. For more information on safety recalls, visit CheckToProtect.org.



OBSERVING 2022 NATIONAL WORK ZONE AWARENESS WEEK AND HONORING FALLEN ROADWAY COLLEAGUES THROUGH THE NATIONAL WORK ZONE MEMORIAL

National Work Zone Awareness Week (NWZAW), in its 22nd year, is a national public awareness campaign that spreads the message that we are all responsible for work zone safety. The annual spring campaign is held at the start of construction season and encourages safe driving through highway work zones. The key message is for drivers to use extra caution in work zones. This year's NWZAW is April 11-15, 2022 and the theme is "Drive Safe. Work Safe. Save Lives".

Everyone plays a role in work zone safety. NWZAW highlights the deadly dangers of inattention at highway work areas. Make plans now for the weeklong commemoration including:

- **MONDAY, APRIL 11** Work Zone Safety Training Day: Emphasizes the importance of laying the groundwork for safety through training of personnel. Employers are encouraged to pause during the workday for safety demonstrations, discussions about safety policies and other prevention steps.
- **TUESDAY, APRIL 12** National Kickoff Event
- **WEDNESDAY, APRIL 13** Go Orange Day: All roadway safety professionals are encouraged to wear orange as a visual reminder to others of work zones and to proudly show support for work zone safety.
- **THURSDAY, APRIL 14** Social Media Storm: Organizations, companies, institutions and individuals are asked to share messages and use hashtags #NWZAW and #WorkZoneSafety throughout social media between 8 a.m. and 3 p.m. CT. Draft your own post or use one of these samples:
  - If we slow down, we can save lives. Together we can achieve zero deaths on our roads and in our work zones! #NWZAW #WorkZoneSafety
  - Work zones are a sign to slow down. #NWZAW #WorkZoneSafety
  - You can be a part of the work zone safety solution – Slow down. #NWZAW #WorkZoneSafety
- **FRIDAY, APRIL 15** Moment of Silence: The Moment of Silence is new for 2022 and remembers the people whose lives were lost in a work zone incident.

To learn more about NWZAW, visit NWZAW.org.

NATIONAL WORK ZONE MEMORIAL - TOWARD ZERO NAMES

The American Traffic Safety Services Foundation offers the National Work Zone Memorial honoring lives lost in work zones to help make fatalities "real" to policy makers and drivers. "The National Work Zone Memorial - Respect and Remembrance: Reflections of Life on the Road" program is a living tribute to the memory of lives lost in work zones. The traditional Memorial travels to communities cross-country, year-round to raise public awareness of the need to respect and stay safe in America's roadway work zones. A virtual National Work Zone Memorial is also available for meetings and events.

SEE SOME OF THE FACES OF THE MEMORIAL:

- 2022 Faces Card
- 2021 Faces Card and watch the 2021 In Memoriam video

HOST THE MEMORIAL

The National Work Zone Memorial is available to anyone interested in increasing roadway safety awareness. The Foundation encourages ATSSA members, ATSSA chapters, state DOTs and industry leaders to host the Memorial at your next event. The new virtual Memorial is now available for use at no cost.

For 2022, ATSSA, in partnership with The Foundation, has agreed to cover the hosting fee for up to five public agencies to host the traveling National Work Zone Memorial. The agencies must be holding a media event in 2022 and not have previously hosted the Memorial.

HOST APPLICATIONS:

- Download the traveling Memorial Host Application Form
- Complete the virtual Memorial Request Form
- Frequently Asked Questions (FAQs)

SUBMIT A NAME FOR THE MEMORIAL

The Memorial, inscribed with more than 1,500 names, honors those who died in work zones*, including work zone workers, motorists, pedestrians, law enforcement officers, public safety officials (i.e., firefighters and paramedics) and children. Learn more about the process for submitting a name.

- Download the Name Submission Form
- View the database of names alphabetically or by state

To learn more about the National Work Zone Memorial, visit https://foundation.atssa.com/Programs/National-Work-Zone-Memorial.

TXDOT AND TTI WIN NATIONAL SAFETY AWARD:

"SAFER BY DESIGN" TOOL AIMS TO SAVE LIVES ON TEXAS RURAL ROADWAYS

The Roadway Safety Foundation honored the Texas Department of Transportation (TxDOT) and the Texas A&M Transportation Institute (TTI) with a 2021 National Roadway Safety Award Oct. 6, 2021. The foundation lauded the TxDOT-sponsored, TTI-developed "Safer by Design" tool for use by roadway designers to assess the safety characteristics of rural highway design.

TTI's Robert Wunderlich, Raul Avelar, and Greg Winfree hold the 2021 National Roadway Safety Award during the virtual awards ceremony hosted by the Roadway Safety Foundation.

Nearly 4,000 people died on Texas roadways in 2020, more than in any year since 2003.

Nearly 4,000 people died on Texas roadways in 2020, more than in any year since 2003. Texas roadway crash fatalities rose 7.5 percent over 2019, despite a 9.8 percent decrease in miles traveled during the pandemic. Fatalities on rural non-interstate roadways occur at twice the rate of other road types in the Lone Star State.

"Last year's jump in fatalities was alarming, but innovations like the Safer by Design tool will save lives by helping roadway designers better evaluate the safety outcomes of a wide range of design elements," notes Greg Cohen, Roadway Safety Foundation executive director.

Transportation engineers traditionally design roadways using established standards that focus on elements such as how sharp a curve should be for a given speed. Data gathered over time help engineers determine the actual safety performance of the roadway and whether improvements are needed.

"That approach has resulted in improved levels of safety, but it's inherently reactive," says TTI Senior Research Engineer Robert Wunderlich, director of the Institute's Center for Transportation Safety. "This simple and straightforward spreadsheet tool incorporates sophisticated analysis techniques in a way that allows designers to model how changes in design affect safety. It's a proactive approach designers can use at the planning stage to optimize roadway safety from the get-go."

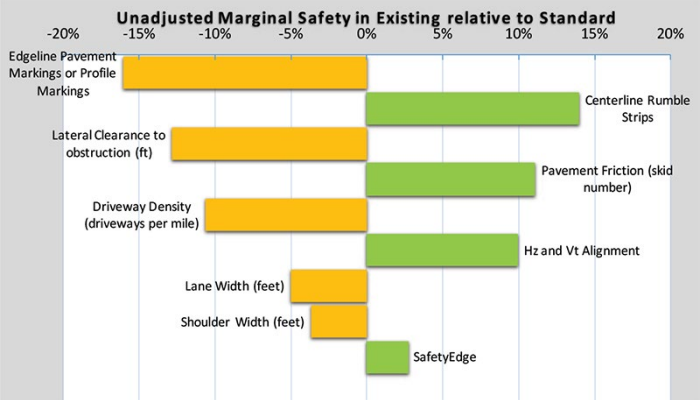
"Last year's jump in fatalities was alarming, but innovations like the Safer by Design tool will save lives by helping roadway designers better evaluate the safety outcomes of a wide range of design elements"

Using the Microsoft® Excel®-based tool, engineers can compare two design options at a time. The tool assigns a score between 1 and 100 for each safety option based on safety performance. The tool also compares alternatives designs to one another, to the standard design for the proposed roadway, and to a conceptual optimal design for that roadway segment. Engineers can use this information to make better design decisions when prioritizing safety options before construction.

TxDOT sponsored development of the tool as part of its continuing efforts to improve roadway safety. TxDOT's #EndTheStreakTX campaign aims to end the 20-year streak of daily traffic fatalities on Texas roadways, part of its larger goal of achieving zero roadway deaths by 2050 and cutting those fatalities in half by 2035.

"Safety is top of mind for everything we do at TxDOT," says TxDOT Executive Director Marc Williams. "I am proud of the work we have accomplished on this and the continued collaboration with TTI to develop tools and technologies that will help us combat the growing number of traffic fatalities that we have seen across both Texas and the nation."
TxDOT now requires use of the tool for all non-interstate rural projects, ranging from routine maintenance to complete reconstruction projects. While initially focusing on rural roads, the department plans to incorporate similar Safer by Design practices for all Texas roadways.

"This tool is an excellent example of how TxDOT and TTI have worked together for more than 70 years to improve transportation safety for Texans," says Greg Winfree, TTI agency director. "We recognize that rural traffic safety is an issue in all 50 states, with rural roads being a major contributor to vehicle fatalities. This tool can help save lives, not only in the Lone Star State but nationwide."



Rating each enhancement on a scale of 1 to 100, the Safer by Design tool empowers design engineers to see how various rural roadway enhancements can add to the cumulative safety performance of a roadway segment.

Wunderlich and Winfree were joined for the award presentation by TTI Research Scientist Raul Avelar, the project's principal investigator, and TTI Senior Research Engineer Karen Dixon, head of TTI's Traffic Operations and Roadway Safety Division. TxDOT personnel were also present to represent the department.

"All of us know friends, family, acquaintances, loved ones lost in traffic crashes in the United States. ...But we know that it doesn't have to be this way," U.S. Secretary of Transportation Pete Buttigieg told recipients during the ceremony. "From cutting-edge video analytics in Bellevue, Washington ... to an innovative new safety scoring tool from [TxDOT and TTI] that's making rural roads safer, these award recipients serve as models for other states and cities to emulate."

Reprinted from Texas Transportation Researcher, Volume 57, Number 4.

TXDOT URGES DRIVERS TO END THE STREAK OF DAILY DEATHS ON TEXAS ROADS AS 21ST ANNIVERSARY APPROACHES

It was late in the afternoon when Isaac Simmons got the call: a vehicle was broken down along a stretch of I-45 in Fairfield, and Simmons, a 35-year-old tow truck driver, headed out to help.

While winching the car onto his tow truck, the routine stop suddenly became horrific. A speeding car careened off the road, rolled up the tow truck's sliding bed and flew through the air. The airborne car slammed into Simmons. Two days later he died, making him one of more than 3,200 people who have been killed on Texas roads so far in 2021.

"He was one of the best men I've ever known. He always wanted to make everybody smile," said Nathan Bryant, a fellow tow truck driver who considered Simmons a brother. "Sometimes it can be a little dicey out there because nobody moves over, nobody slows down. They don't care about human life on the side of the road."

On November 7, 2021 Texas marks 21 years of daily deaths on our roadways with more than 75,000 innocent lives lost to preventable fatal crashes. For the past several years, about 10 people have died every day in crashes in the state. During the height of the pandemic when traffic dropped nearly 50 percent, the death rate climbed to more than 11 a day, shocking state transportation leaders.

Texas Transportation Commissioner Laura Ryan, a champion for road safety and TxDOT's #EndTheStreakTX campaign, said every Texan must do their part. And while the goal of ending the deadly streak is ambitious, Ryan said, it is far from impossible.

"We stick with it. We keep telling the story. We fight back when people say personal responsibility is not a thing. It is. And we don't give up," Ryan said. "I am hopeful that it will happen sooner than later, but I am confident that it will happen."

Most crashes and fatalities are preventable and caused by things such as speeding, drunk driving and distracted driving. That's why the approach to reaching zero deaths must be through what TxDOT calls the 3 E's – engineering, education and enforcement. That way, everyone has a responsibility to keep our roads and fellow drivers safe.

Because #EndTheStreakTX is a social media, grassroots and word-of-mouth effort, Texans are being asked to do any or all the following to raise awareness:

- Make the best and safest decisions behind the wheel and encourage others to do the same.
- Post pictures on social media with this downloadable sign displaying the hashtag #EndTheStreakTX.
- Share personal stories on social media of loved ones who have been lost in a crash and use the hashtag #EndTheStreakTX.
- Follow @txdot social media pages and share the content we post.

FEDERAL HIGHWAY ADMINISTRATION ADDS NINE NEW PROVEN SAFETY COUNTERMEASURES

by Philip Bobitz, FHWA Office of Safety

In October 2021, the Federal Highway Administration (FHWA) Office of Safety introduced nine NEW countermeasures to the Proven Safety Countermeasures initiative (PSCi), a collection of countermeasures and strategies effective in reducing roadway fatalities and serious injuries on our Nation's highways. These additions enhance the already diverse set of safety strategies for State, local, regional, and Tribal transportation professionals to consider implementing as part of their efforts to improve safety for all road users on the Nation's roadways.

In addition to nine new countermeasures and crosscutting strategies, this most recent iteration of the PSCi adds recent research and considerations to the existing proven safety countermeasure (PSC) materials. New features have been added to the PSC website, including a filter tool and search function that will help practitioners identify applicable countermeasures that meet their needs.

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

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

TEXAS TRAFFIC GETS A PANDEMIC PAUSE AND A BOUNCEBACK

TRAFFIC CONGESTION RECEDED IN SPRING 2020, THEN BOUNCED BACK IN FALL

Roadway bottlenecks were back to near pre-pandemic levels in Texas in late 2020 after overall hours wasted in traffic dropped by more than half in the early part of that year, according to a new traffic study performed by the Texas A&M Transportation Institute (TTI).

Perhaps no year in our memory has seen more attention brought to trucking, transportation logistics, and the global supply chain than the pandemic year of 2020

The study of the state's most congested street and highway segments, conducted annually by TTI, noted very little movement in rankings. However, the overall delay on these roads was sharply reduced by a pandemic-driven drop in traffic volume and a temporary shift of traffic concentration away from peak "rush hour" periods.

These factors were first illustrated in July by the 2021 Urban Mobility Report (UMR), also managed by TTI.

Funding for both the state and national studies was provided by the Texas Department of Transportation (TxDOT).

Drivers experienced lower traffic delays on the monitored Texas roadways in 2020 than they did in 2019. More delays also occurred outside typical rush hours than in the previous year, likely due to the increased number of people working from home and school closures.

Delay for trucks was also down, especially during the early days of the shutdown, though truck volumes and associated delay recovered at a faster rate than passenger vehicles. This is perhaps an indicator of how home and store deliveries were sustained – and in many cases increased – throughout the pandemic. "Traffic delay reductions across the board were far greater than anything we've seen before," says David Schrank, a senior research scientist at TTI who directed the analysis. "Barring another unforeseen crisis, we are very unlikely to see such rare conditions ever again."

Houston's West Loop / IH 610 was the most congested road segment in the state in 2020, trading places with IH 35 in Austin, which held the top ranking in 2019. That same Austin road section was the most gridlocked for trucks in 2020, just as it was the year before.

The sharp drop in delay time on Texas roadways was short-lived, with traffic volume steadily vincreasing in the fall of 2020, as it did generally throughout the U.S. during the same time. Population growth in Texas continues to outpace national trends, prompting the Texas Transportation Commission to launch Texas Clear Lanes in 2015, an effort designed to relieve congestion in the state's major urban areas.

"While 2020 was a very unusual year for traffic patterns, it's

by Daniel Armbruster & Joshua Zuber

important to note that congestion jumped back quickly to almost pre-pandemic levels as we moved through 2021," says Brian Barth, TxDOT Deputy Executive Director for Program Delivery. "And even with an unprecedented set of circumstances for the early part of 2020 – to include a complete state shutdown – drivers still experienced some delays. With more people coming to Texas every day, especially in our metro areas, it remains imperative to improve mobility through efforts such as Texas Clear Lanes."

Congestion relief efforts are designed to improve conditions not only for travelers, but also for the increasing amount of truck freight activity. Researchers say the importance of that activity is underscored by the supply chain disruptions experienced during the nation's worst public health crisis in a century.

"Perhaps no year in our memory has seen more attention brought to trucking, transportation logistics, and the global supply chain than the pandemic year of 2020," says Bill Eisele, a TTI senior research engineer. "The results of this year's study of congested roads in Texas reflect this increased demand, as many of the worst freight bottlenecks are new to the top 100, including some along the U.S.-Mexico border where trucking was especially active to keep up with supply demands."

In addition to much-needed construction projects that increase roadway capacity, researchers note other factors that can help reduce congestion.

"The work-from-home and school-from-home aspects of our COVID-19 experience clearly show just how much delay reduction we can obtain if we change how we work, shop, and educate," Schrank says. "Maintaining the level of the 2020 delay reductions using telework, more travel options and better information for travelers when they're not forced upon us by a pandemic, however, could be more difficult, as more traffic is returning to roads and population growth continues."

Schrank points to a study last year by the U.S. Bureau of Labor Statistics, which estimated that 63 percent of American jobs require significant onsite presence, while the remaining 37 percent can be performed entirely from home.

With more people coming to Texas every day, especially in our metro areas, it remains imperative to improve mobility through efforts such as Texas Clear Lanes."

"The rankings for 2020 reflect some of the traffic anomalies that resulted from COVID-19," he says. "There is still much remaining for us to understand about how these impacts might be sustained, as traffic volumes have now returned to pre-pandemic levels in many urban areas."

U.S. DEPARTMENT OF TRANSPORTATION ANNOUNCES $1.39 BILLION IN EMERGENCY RELIEF FOR ROAD AND BRIDGE REPAIRS

LARGEST EMERGENCY RELIEF FUNDING AWARDS SINCE 2011

The U.S. Department of Transportation's (USDOT) Federal Highway Administration (FHWA) recently announced that $1.39 billion in Emergency Relief (ER) funds will be awarded to help 42 states, the District of Columbia, Puerto Rico and the U.S. Virgin Islands, to make repairs to roads and bridges damaged by a variety of storms, floods, wildfires and other events.

"Emergency relief funding is critical to restoring vital transportation links damaged by severe weather and other unexpected events that are heavily relied upon by communities for daily travel," said Deputy Federal Highway Administrator Stephanie Pollack.

Deputy Administrator Pollack added that the new programs in the Bipartisan Infrastructure Law -- including the Promoting Resilient Operations for Transformative, Efficient, and Cost-saving Transportation (PROTECT) program -- will advance the use of materials and structural techniques to ensure highways are better prepared to withstand weather events and natural disasters.

The ER program complements Bipartisan Infrastructure Law programs and provisions through its encouragement that agencies identify and implement measures to make the restored infrastructure more resilient and better able to withstand damage from future events. Further, FHWA is updating its ER Manual for 2022 to spotlight the program's impact on improvements to system resilience and the equity of infrastructure spending.

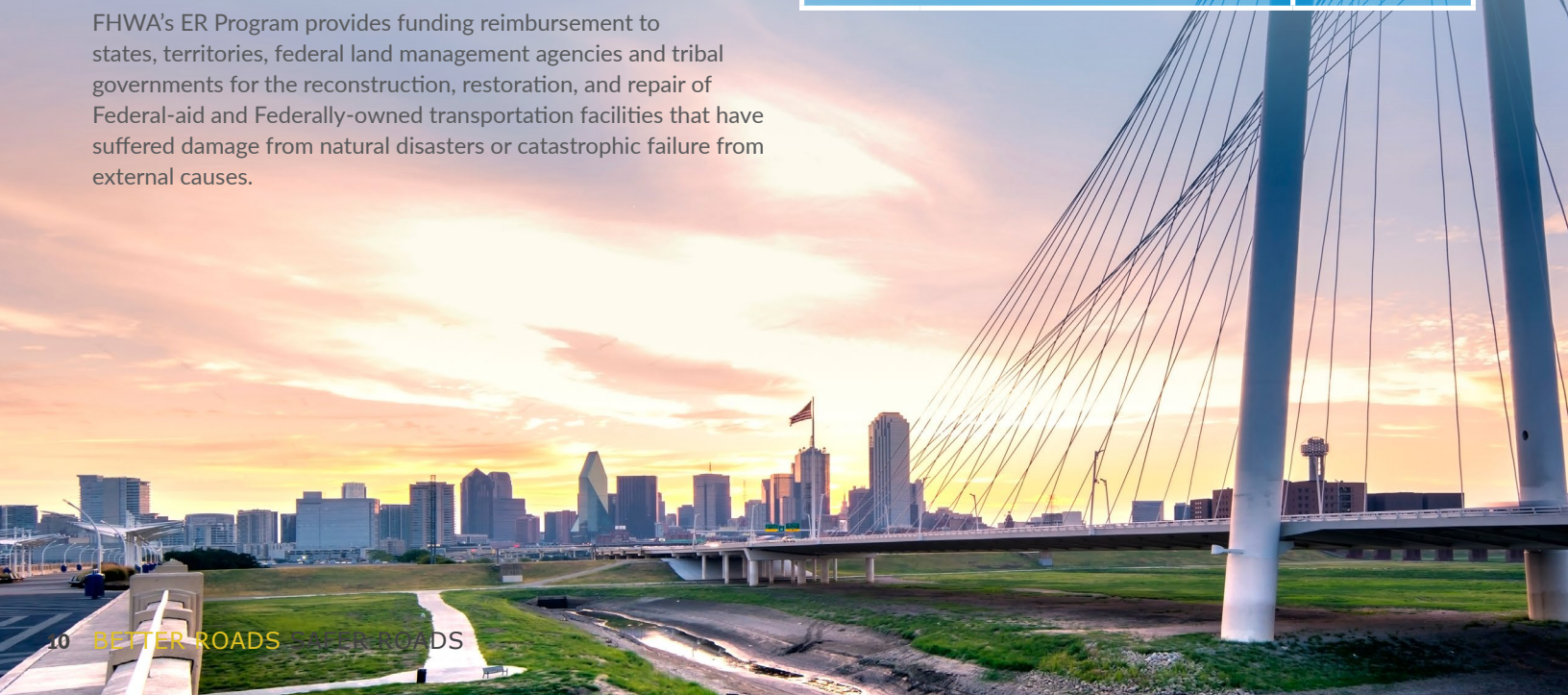
FHWA's ER Program provides funding reimbursement to states, territories, federal land management agencies and tribal governments for the reconstruction, restoration, and repair of Federal-aid and Federally-owned transportation facilities that have suffered damage from natural disasters or catastrophic failure from external causes.

The allocation will help facilitate recovery from nearly 200 different emergency events, including Hurricanes Irma and Maria in Puerto Rico; Tropical Storm Imelda and severe weather events in Texas; and many others. The funds will help pay for the reconstruction or replacement of damaged highways and bridges along with the arrangement of detours and replacement of damaged safety devices.

A listing of FY 2021 Emergency Relief Program allocations with funding information for each state, the District of Columbia, Puerto Rico and the U.S. Virgin Islands can be found at ER - Federal-aid Programs - Federal-aid Programs and Special Funding

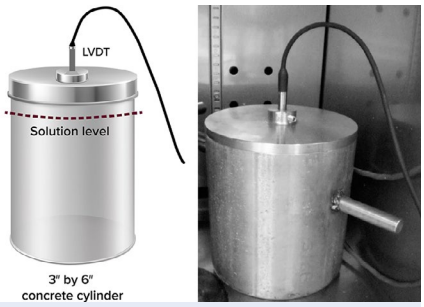
December 2021 Emergency Relief Funding Allocations

State	Event Name and Description	Allocation Amount
Texas	ERFA: TX19-4, September 17, 2019 Tropical Storm Imelda - Emergency Relief Program Repair Projects.	$8,000,000
	ERFA: TX20-1, October 20, 2019 Severe Weather Event - Emergency Relief Program Repair Projects.	$18,000,000
	TOTAL	**$26,000,000**



TEST METHODS FOR CRACKING-RESISTANT CONCRETE

Alkali–silica reactions (ASRs) cause cracking issues in precast concrete bridge structures. In collaboration with Texas A&M Transportation Institute (TTI) Assistant Research Scientist Kai-Wei Liu, TTI Senior Research Scientist Anol Mukhopadhyay developed two ASR test methods now accepted as American Association of State Highway and Transportation Officials (AASHTO) standards, as well as a four-step process for formulating ASR-resistant concrete mixes.

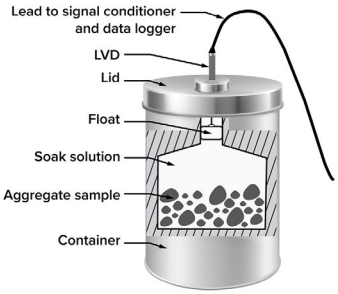


Left: The test setup for the ACCT method. Right: A fully assembled ACCT device placed inside an oven.

Mukhopadhyay manages TTI's Rigid Pavements Program and supervises the Concrete Innovation Laboratory in the Center for Infrastructure Renewal on The Texas A&M University System's RELLIS Campus. He is nationally and internationally recognized as a concrete durability expert.

"Developing the test methods and seeing them accepted as AASHTO standards were rewarding for me and my team," says Mukhopadhyay. "AASHTO's recognition enables the methods to reach a wider audience of concrete mix producers and owners, who can follow the steps to create their own ASR-resistant mixtures."

"AASHTO materials standards are recognized as vetted by experts in state departments of transportation — with academia and industry involvement — to provide materials protocols that transportation agencies can adopt confidently," says Georgene Geary, retired materials engineer, currently a consultant for AASHTO and former vice chair of the AASHTO Materials Committee.



This diagram depicts the test set-up for the VCMD method.

The first ASR test method, volumetric change measuring device (VCMD), is listed by AASHTO as the Standard Method of Test for Determination of Composite Activation Energy of Aggregates due to Alkali–Silica Reaction (Chemical Method) (AASHTO T 364). This method measures how an aggregate — similar in makeup to portland cement concrete — reacts with a simulated pore solution.

Several fully assembled VCMDs inside an oven used for conducting this test at a particular temperature in the Center for Infrastructure Renewal's Concrete Innovation Laboratory.

AASHTO lists Mukhopadhyay's second ASR test method, accelerated concrete cylinder testing (ACCT), as Accelerated Determination of Potentially Deleterious Expansion of Concrete Cylinder due to Alkali–Silica Reactivity (AASHTO TP 142-21). This method validates concrete mixes by offering further ASR-resistant testing. Mukhopadhyay applied the ACCT-based method to fly ash — a coal combustion product — and found that the ASR test method performs similarly fast, reliable tests on reactivity like the VCMD-based method.

Combining both methods resulted in a four-step mix process to reduce ASR's impact on concrete in bridges. The steps are as follows:

- **STEP 1:** Determine the CAP (a measure of aggregate reactivity) and the aggregate threshold alkalinity (THA) by the VCMD method. A standard relationship between reactivity and THA has been developed based on several aggregate tests, which can be used to assign THA for an aggregate with known reactivity.
- **STEP 2:** Select suitable mix design controls depending on the aggregate reactivity and THA, and then estimate the concrete pore solution alkalinity (PSA). Mukhopadhyay and Pravin Saraswatula, a TTI engineering graduate student worker, developed an easy-to-use tool to estimate PSA.
- **STEP 3:** Make a mix design adjustment (if needed) based on the THA–PSA relationship. PSA needs to be below THA to mitigate ASR.
- **STEP 4:** Conduct mix design validation using the ACCT method. The expansion of the tested concrete cylinder should be less than or equal to 0.04 percent.

A leader in ASR-resistant concrete research, Mukhopadhyay coauthored the technical paper "An Innovative Approach to Fly Ash Characterization and Evaluation to Prevent Alkali–Silica Reaction" in the July 2019 issue (Vol. 116, No. 4) of the American Concrete Institute's (ACI's) ACI Materials Journal and "Innovative Approach for Formulating ASR-Resistant Mixtures" in the December 2018 issue of ACI's Concrete International.

"Having easy access to ASR test methods can help support the construction and longevity of bridges by making long-lasting, durable concrete, reducing costs for repair and maintenance, and ensuring safety for travelers," Mukhopadhyay says.

For more information, please contact Anol Mukhopadhyay at (979) 317-2298 or a-mukhopadhyay@tti.tamu.edu.

Reprinted from Texas Transportation Researcher, Volume 57, Number 3.

LONE STAR STATE LEADS IN NUMBER OF PEOPLE KILLED ALONG ROADWAYS OUTSIDE A DISABLED VEHICLE

by Daniel Armbruster & Joshua Zuber

An average of 24 emergency responders, including tow operators, are struck and killed by vehicles while working at the roadside each year.

This means someone in this line of work is killed, on average, every other week in America.

23% of survey responders are unaware of the Move Over Law in the state where they live.

In Texas, drivers who fail to give emergency and work crews, including tow trucks, space to safely do their jobs can receive a ticket with a fine of up to $200. If there is a crash that causes injury to a worker, drivers can be fined up to $2,000

AAA Texas calls on drivers in the Lone Star State to adhere to the statewide "Move Over or Slow Down" law which requires drivers to move over a lane or slow to 20 mph below the posted speed limit when approaching emergency vehicles, law enforcement, tow trucks, utility service vehicles, Texas Department of Transportation vehicles or other highway construction or maintenance vehicles using visual signals or flashing lights activated on the roadside. According to the latest data available from the National Highway Traffic Safety Administration's (NHTSA) Fatality Analysis Reporting System (FARS), Texas had the greatest number of people killed while outside a disabled vehicle from 2015 through 2019, totaling 263 people.

An average of 24 emergency responders, including tow operators, are struck and killed by vehicles while working at the roadside each year – meaning someone

in this line of work is killed, on average, every other week in America. With millions preparing to take road trips for the holidays, startling new data from the AAA Foundation for Traffic Safety finds not everyone understands the laws that require drivers to give roadside rescuers space or slow way down if they can't move over.

"Deaths like these can be avoided if drivers slow down and move over to give our roadside heroes room to work safely," said Daniel Armbruster, AAA Texas spokesperson. "We can't stress enough how important it is to pay attention so you have time to change lanes when you see AAA Texas, an emergency responder, or simply anybody along the side of the road."

New data from the AAA Foundation for Traffic Safety finds that among drivers who do not comply with Move Over laws at all times:

- 42% thought this behavior was somewhat or not dangerous at all to roadside emergency workers. This demonstrates that drivers may not realize how risky it is for those working or stranded along highways and roads close to moving traffic.

To protect these individuals, AAA and other traffic safety advocates have led the way in getting Move Over laws passed in all 50 states and the District of Columbia. Yet, the AAA Foundation finds that –

- nearly a quarter of those surveyed (23%) are unaware of the Move Over law in the state where they live, and
- among those who are aware of their state's Move Over laws, about 15% report not understanding the potential consequences for violating the Move Over law at all.

In Texas, drivers who fail to give emergency and work crews, including tow trucks, space to safely do their jobs can receive a ticket with a fine of up to $200. If there is a crash that causes injury to a worker, drivers can be fined up to $2,000.

It's not just tow providers and other emergency responders being killed on the side of the road. Since 2015, more than 1,600 people have been struck and killed while outside of a disabled vehicle across the country, with the highest number occurring in Texas. The reality is that drivers are increasingly distracted while driving. Previous AAA Foundation research has found that drivers are up to four times as likely to crash if they are talking on a cell phone while driving and up to eight times as likely to be in a crash if texting.

"If you see something, anything, on the shoulder ahead, slow down and move over," said Jake Nelson, AAA's director of traffic safety advocacy and research. "It could literally save someone's life."

ABOUT SLOW DOWN, MOVE OVER

Since 2007, AAA has been instrumental in passing Move Over laws in all states, including advocating for those laws to cover tow providers and other emergency responders. Additionally, AAA clubs have participated in educational and advocacy initiatives, creating public service announcements and reaching out to state officials. But, there is more work to be done. AAA is committed to raising awareness of the Move Over laws and the dangers associated with working at the roadside.

These laws require motorists to move over one lane or slow down when approaching an incident where tow providers, police, firefighters or emergency medical service crews are working at the roadside. Many states have also expanded their laws to cover other vehicles, such as utility and municipal (e.g. sanitation vehicles) fleets, as well as any disabled vehicle on the side of the road.

To protect roadside workers, drivers with disabled vehicles, and others, and to improve highway safety, AAA offers these precautionary tips:

- Remain alert, avoid distractions and focus on the task of driving.
- Keep an eye out for situations where emergency vehicles, tow trucks, utility service vehicles or disabled vehicles are stopped on the side of the road.
- When you see these situations, slow down and if possible move one lane over and away from the people and vehicles stopped at the side of the road.

COMBATING COMPLACENCY: SAFETY ISSUES ARISE WHEN WORKERS AND ORGANIZATIONS GO ON 'AUTOPILOT'

by Barry Bottino

Complacency in the workplace can have dire – and gruesome – consequences. Just ask Jack Jackson.

Jackson

"I picked up seven fingers off the floor when I worked in the automotive industry," said Jackson, now a senior safety consultant with SafeStart. "Everyone (on the manufacturing line) knew the rule: Never try to free up a jam with the guard open, a finger on the trigger and the hose connected. And yet everyone had done it. "Several of them admitted to doing it in the past, but they just never got caught. People began to ignore the hazards."

Jackson describes complacency as "the act of doing routine tasks without thinking about it," adding that the issue is particularly difficult because "even the best of us get complacent." It can happen, the National Safety Council adds, simply by letting your guard down, losing focus or not looking for the hazards. Being in a state of complacency, also known as being in "autopilot" mode, can increase the risk of injury on the job, regardless of worker age or experience level.

In a 2021 survey of more than 300 NSC member organizations, "safety complacency among workers" ranked No. 1 – alongside "employee engagement in safety and health" – for most pressing safety and health issue in the workplace.

HOW WORKERS BECOME COMPLACENT

Galloway

Complacency usually is an unintentional byproduct of worker habits as well as being ill-informed about hazards and risks, according to ProAct Safety CEO Shawn Galloway, who works with numerous clients to address the problem.

"Often when somebody gets injured, they meant to be doing what they were doing," Galloway said. "They just didn't mean for it to turn out the way it did."

He offered the example of a worker opening a valve with a wrench and pulling the tool toward their face because they've done it that way for years and never gotten hurt. A worker's previous experiences of performing a task without injury create a perception that the action is safe. "We define success as not getting hurt, so 'anything that I do that doesn't get me hurt must be safe,'" Galloway said.

In addition, if they don't see or know the risks associated with a job or task, workers become desensitized to it. In some cases, Galloway points out, leaders don't talk to employees about the risks or safety conversations are delegated to safety professionals.

Regardless of how complacency comes about for workers, it's not an issue for the "someday file," Galloway said. "You have to keep these issues fresh."

Gold-Williams

Paula Gold-Williams, president and CEO of Texas-based CPS Energy, said complacency feeds off moments when workers feel they've got their tasks down pat.

"We like people to feel conscious in the moment so they're deliberate and they really are paying attention to all of their surroundings," she said.

HOW ORGANIZATIONS CAN ACT

Complacency can occur at the organizational level, too.

"From the company perspective, it's just acceptance of the status quo," Galloway explained. "It's a perception that, 'We're good.' I have a lot of conversations with leadership about this issue." He recommends looking at whether complacency exists within a system or is related to one outlying individual. "If it's a company issue, is this because they have a false sense of success?" Galloway asked.

When organizations say they're good in terms of safety, it can be an invitation to dig deeper, in many cases. "How they've defined 'good' has been, unfortunately, skewed or only measured by incident rates," Galloway said.

Warning signs of complacency are often quite evident. "They come in the form of close calls or near misses," Jackson said. Such incidents are valuable learning opportunities for employers. "What some companies fall into is a trap that they adopt a best practice, then they stop looking for a better way," Galloway said. "There's always going to be a better way. You always have to be constantly learning."

He recommends that employers investigate their safety successes just as vigorously as their failures. "That's a huge common thing that I find," Galloway said. "They can't just be learning from failures. They become complacent when not focusing on value creation."

WHEN EMPOWERMENT ARRIVES

At CPS Energy, leadership launched an initiative that gives all employees the authority to stop work if they deem it unsafe. "Even as the CEO, I can't trump that," Gold-Williams said.

For instance, when a frontline employee stopped Gold-Williams for spending too much time looking at her cellphone, her immediate reaction was, "Oh, I got it. I got it." Then, she realized she hadn't responded properly. "I stopped myself and I thanked them," she said. "You've got to give people that authority and then acknowledge that. They've got to see real examples."

Leadership reinforcement is key to empowering workers, Gold-Williams said. "We've got to get that empowerment in their hands on the front lines," she said. "Management should own ensuring the reinforcement and giving that authority away." That also goes for newer employees stopping the work of senior colleagues. "Time frame doesn't matter in terms of keeping the public safe and keeping each other safe," Gold-Williams said.

THE IMPORTANCE OF COMMUNICATION

At one of Jackson's previous jobs, leadership communicated with workers via what he calls a "spray and pray" strategy. "Spray the walls with posters and pray somebody reads them," he said. "After one or two times, you don't pay attention" to the posters – or their message.

At a time when workers are being peppered with information throughout their day – including cellphone notifications as well as electronic road signs and billboards before they even get to work – leadership must be creative in getting its messages across and making it stick to combat complacency. Jackson suggests rotating signage to different areas of a workplace and changing the wording frequently.

One of Galloway's clients has found the best way to get safety messages across to their employees is by displaying the messages on the inside of bathroom stall doors. "They call it 'The Porcelain Press,'" he said with a laugh.

At CPS Energy, an effort called "meeting in a box" has been a valuable communication tool. The leadership team shares articles of safety-related situations in the utility industry, such as a recent serious incident involving a crane.

"As leaders, we said, 'We haven't seen this particular situation, but why don't we share it with the organization?'" Gold-Williams said.

Each article is broken down into a one-page document that describes the situation and includes bullet points highlighting key preventive measures. The goal is for a two-way discussion to grow throughout the organization. "We let the organization teach management about what's practical and how we can do things better," Gold-Williams said. "That diminishes the impact of people becoming complacent."

LARGE OR SMALL, A SOLUTION FOR ALL

Organizations of all sizes can find solutions to disrupting complacency. "It's not about flashy programs and pretty models on a screen," Gold-Williams said. "It's just the conscious thought of engaging people and treating them with the most consideration that you have."

One-on-one conversations with employees likely will be easier for smaller employers, according to Gold-Williams, who points out that "a robust conversation" with employees about safety and complacency is free.

Whether your organization is large or small, "Your team members want to know that you care," Gold-Williams said. "The commonality is people."

KEY POINTS

- For workers, complacency can be the impetus for unsafe actions, which can lead to injury.
- By accepting the status quo when it comes to safety, leadership may unintentionally feed complacency.
- Communication, in various forms, can disrupt complacency and expand learning opportunities

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NEW GHSA REPORT AFFIRMS BEHAVIORAL ASPECT OF SAFE SYSTEM APPROACH TO REACHING ZERO TRAFFIC DEATHS

Report offers framework for states and partners to work together to achieve common goal of ending roadway violence

The Governors Highway Safety Association (GHSA) recently released a new report that makes the case for the integral role of behavioral safety and road user responsibility in the Safe System approach to traffic safety and includes recommendations for how organizations and advocates can work together toward ending roadway deaths. This new report, developed for GHSA by Cambridge Systematics, came ahead of the U.S. Department of Transportation's release in January of a National Roadway Safety Strategy that will be rooted in the Safe System approach.

The Safe System approach envisions eliminating fatal and serious crashes for all road users by creating a transportation system that accommodates human mistakes and keeps crash impacts on the human body at survivable levels. It is based on five key elements that, together, are designed to provide a systematic approach to traffic safety: safe road users, safe vehicles, safe speeds, safe roads and post-crash care. The redundancy offered by these multiple layers of protection – known as the "Swiss cheese model" – is the central tenet of the Safe System approach. If one layer fails, the others will provide a protective effect and lessen the likelihood of a serious or fatal injury in the event of a crash.

The GHSA report, *Putting the Pieces Together: Addressing the Role of Behavioral Safety in the Safe System Approach*, debunks the misconception held by some in the traffic safety community that infrastructure alone can end road deaths and that behavioral safety plays no role in keeping road users safe. The report stresses that it will take a comprehensive solution – including infrastructure improvements, changes to road design, equitable enforcement of traffic laws, education and public outreach, and emergency response – to reduce traffic crashes, injuries and deaths. This comprehensive Safe System approach has been highly effective in other countries, with traffic fatalities falling in Sweden, where the approach originated, by 67% between 1990 and 2017.

"The United States is heading in the wrong direction when it comes to traffic safety. Everything that should be decreasing is increasing, and vice versa. A public safety crisis of this magnitude requires a concerted, coordinated effort that uses every safety tool at our disposal," said GHSA Executive Director Jonathan Adkins. "The Safe System approach holds great promise in addressing the difficult task of ending roadway deaths, but only if we use all of its strategies. The traffic safety community needs to work together, not in silos, if we want to make progress on the road to zero traffic deaths."

GHSA's report features a new Behavioral Safety Safe System Framework to help states identify how to integrate Safe System elements into State Highway Safety Office (SHSO) programs and operations. It also provides actionable recommendations for SHSOs, GHSA and the National Highway Traffic Safety Administration (NHTSA) to help promote implementation of Safe System strategies and behavioral safety's role in that effort. The report was drafted with guidance and input from an expert panel of 21 representatives from SHSOs, government and private sector safety organizations, law enforcement and universities.

Safe System strategies can also be used as a tool for greater equity in areas that have been disproportionately exposed to traffic-related hazards, according to a 2021 study conducted by Johns Hopkins University. Making traffic safety programs and strategies more equitable is especially critical since Black, Indigenous and People of Color are disproportionately impacted by traffic crashes, as outlined in the report GHSA issued earlier this year, *An Analysis of Traffic Fatalities by Race and Ethnicity*.

After years of slowly declining fatality numbers, U.S. roadway deaths are rising again at an alarming rate. NHTSA estimates that more than 20,000 people died on U.S. roads in the first half of 2021. That is 18.4% higher than the same period in 2020 and the largest six-month increase in highway fatalities in the 46-year history of the Fatality Analysis Reporting System.

At the 2021 GHSA Annual Meeting held in Denver in September, National Transportation Safety Board (NTSB) Chair Jennifer Homendy discussed the Safe System approach, which is on the NTSB's Most Wanted List of safety improvements. Video of her remarks is available online.

For more information, visit txltap.org

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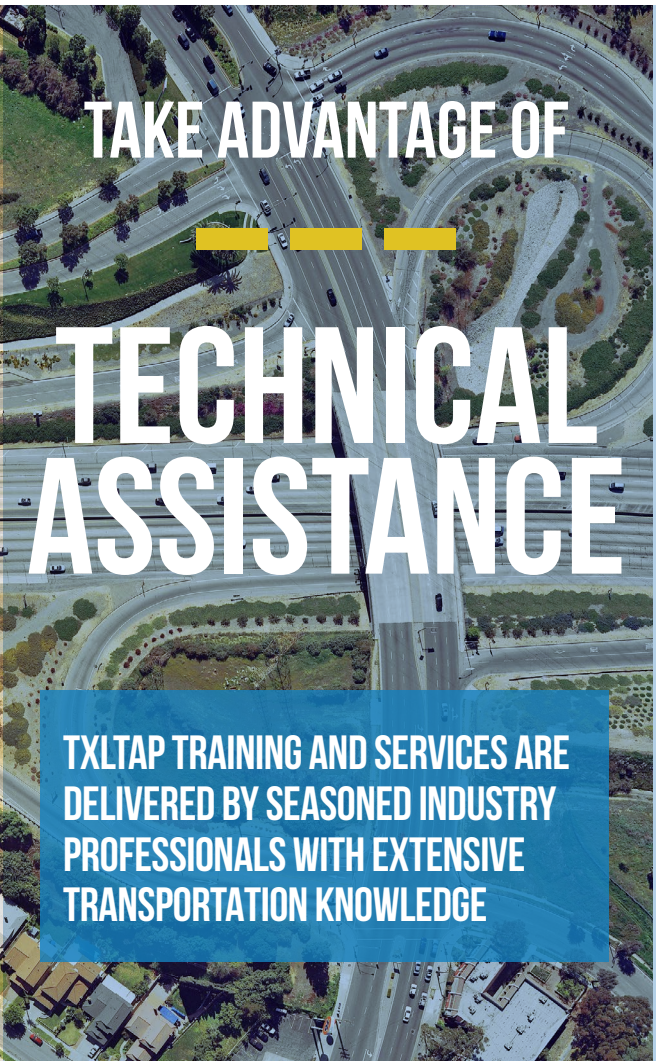

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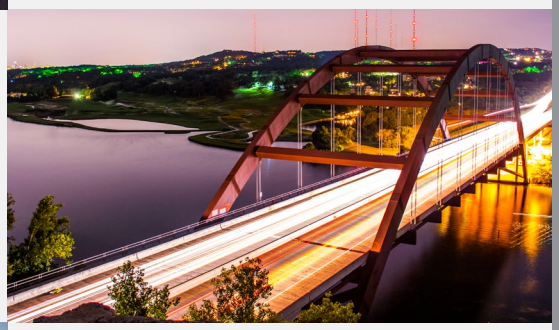

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