

BETTER ROADS SAFER ROADS

TRENDS IN PERSONAL PROTECTIVE EQUIPMENT IN 2018



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- TxLTAP -

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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.

STAY COOL WHEN WORKING IN THE HEAT

by Laurie King, Director, HR and Safety, [Portacool](#), Center, TX

As you can imagine, heat is one of the biggest safety concerns during the summertime. In Texas, the high temperatures are with us even into September. Working in excessive heat can be more than uncomfortable – it can be dangerous to worker health and safety. [According to the Occupational Safety and Health Administration \(OSHA\)](#), thousands of people are affected by heat-related illnesses each year and, given that heat-related issues are preventable, any death is unacceptable.

California's Division of Occupational Safety and Health – also known as Cal/OSHA – has led the charge on developing more stringent regulations to protect employees working outdoors in the heat. This is outlined in [Cal/OSHA's rules, Title 8 Section 3395 – Heat Illness Prevention](#). Overall, this regulation requires California employers in agriculture, construction, landscaping and any other industry with outdoor workers to provide more than adequate water, shade, rest breaks and training. This rule applies when temperatures exceed 80° F. Additional rest-recovery requirements go into effect when outdoor temperatures top 95° F.

So, what do you need to know and what should you do for your employees to keep them safe?

First, it's important to understand how the body handles heat and hot conditions. As temperatures rise, the body releases heat more slowly. As humidity increases, sweat evaporation decreases and stagnant air makes sweat evaporation more difficult. When these three factors combine, you have a higher potential for health and safety concerns.

Second, as stated in section (b) in Title 8, acclimatization is key. You must build in time for employees to adapt to the heat. "Acclimatization means temporary adaptation of the body to work in the heat that occurs gradually when a person is exposed to it. Acclimatization peaks in most people within four to 14 days of regular work for at least two hours per day in the heat."

Third, beyond personal health risks, it's important to note that you're putting workers at risk when they're not properly prepared for the heat. The chances of incidents resulting because of sweaty hands, dizziness and decreased mental alertness increase considerably in hot conditions. Additionally, increased body temperature and discomfort can lead to irritability and frustration, which could lead to more careless behavior.

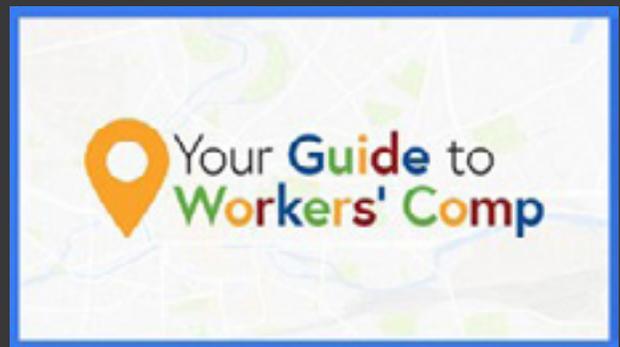
OSHA recommends employers train workers on the signs of heat illness and help workers to follow these tips:

-  **Water:** You need plenty of water throughout the day – every 15 minutes. Don't wait until you feel thirsty.
-  **Rest:** Rest breaks are needed to help your body recover.
-  **Shade:** Resting in the shade or in a cooled space helps you cool down more efficiently.

The best plan is to be proactive. Employers should explore portable cooling solutions to aid in keeping workers safe and productive on the job where heat is a factor. From portable evaporative coolers to cooling neckties, practical options are available to aid heat illness prevention.

NEW VIDEO AIMED TO MAKE WORKERS' COMP EASIER TO UNDERSTAND

Workers' compensation can be confusing. Most people don't even think about it until after they get hurt at work. But if you have a work-related injury or illness, you'll need a guide to the Texas workers' compensation system. A new video series from the Texas Division of Workers' Compensation (DWC), can help you get started.



"People are busy these days and are much more likely to watch a video to learn about something new," says Commissioner of Workers' Compensation Ryan Brannan. "Part of our mission is to educate all system participants and this is a proactive way to help injured employees get a better understanding of workers' comp."

The "[Your Guide to Workers' Comp](#)" videos give you the basics of workers' comp. We made them with the injured employee in mind.

You can watch all the videos, or just the ones that apply to you. Here are the video topics:

- Workers' Comp Basics
- Your Benefits
- Returning to Work
- Doing the Math
- Disputes vs. Complaints
- Resolving Disputes
- How to Get Help

The videos are a great way to get started. If you need more help after watching them, call DWC customer service at 1-800-252-7031, option 1.

For more information, contact: MediaRelations@tdi.texas.gov.

STAY SAFE IN ROADWAY WORK ZONES



Federal Highway Administration (FHWA) statistics show that 24,745 people died in work zone crashes between 1982 and 2014, and the Bureau of Labor Statistics notes that 1,571 workers were killed at road construction sites between 2003 and 2015.

IF YOU'RE A ROADWAY WORKER

The Occupational Safety and Health Administration (OSHA) identifies the following as key elements of temporary traffic control management in highway work zones:

Training. All workers should be instructed on how to work safely near motor vehicle traffic. Additionally, workers with specific responsibilities need to be trained on the correct techniques, device use and placement.

Protective clothing. All workers should wear high-visibility apparel that meets OSHA standards. The apparel should be selected by a competent person designated by the supervisor responsible for the roadway worker safety plan. (Go to [osha.gov/SLTC/competentperson](https://www.osha.gov/SLTC/competentperson) for more information on what constitutes a "competent person.")

Barriers. Workers should know where to place temporary traffic barriers based on factors such as "lateral clearance of workers from adjacent traffic, speed of traffic, duration and type of operations, time of day, and volume of traffic."

Speed reduction. "Regulatory speed zoning, funneling, lane reduction or the use of uniformed law enforcement officers, or flaggers, should be considered" in an effort to reduce speeding in work zones, OSHA notes.

Activity areas. Work zones should be designed to reduce or eliminate the need for vehicles and equipment to back up.

IF YOU'RE A DRIVER

Odds are that if you drive a vehicle, at some point you'll drive through a roadway work zone. Follow these safety tips from FHWA:

Pay attention. Keep your eyes on the road and avoid changing the radio station, eating or drinking, or using a cellphone.

Keep your headlights on. This will help others see your vehicle.

Stay alert. Watch for brake lights on the vehicles ahead and the traffic around you so you are prepared to react, which may include merging into another lane. Refrain from tailgating. Know that traffic patterns in work zones can change daily, so don't become complacent if you drive the same route every day.

Slow down. Always obey posted speed limits, as workers may be only a few feet from your vehicle as you drive through a work zone. Be ready to slow down further if necessary.

Be mindful when changing lanes. Do so only where the road markings indicate and if traffic permits.

Pay attention to flaggers. Follow their instructions.

Prepare for the unexpected. Work zones can change rapidly, and workers and equipment may enter your lane without warning.

PUBLIC WORKS

FIRST RESPONDER

AMERICAN PUBLIC WORKS ASSOCIATION ANNOUNCES ROLLOUT OF NATIONAL PUBLIC WORKS FIRST RESPONDER SYMBOL

On May 7, 2018, American Public Works Association (APWA) President William “Bo” Mills announced the Association’s adoption of a national Public Works First Responder symbol. The symbol is to be used throughout North America to recognize public works professionals’ federally mandated role as first responders.

By displaying the symbol wherever appropriate, public works agencies can raise awareness among all citizens, government officials, and other first responders about the critical role public works plays in emergency management efforts.

President George W. Bush issued Homeland Security Presidential Directive 5 (HSPD-5), Management of Domestic Incidents, in 2003, in which a public works response to emergencies and disasters is recognized as an absolute necessity, and the federal government is directed to include public works in all planning and response efforts. The Public Works First Responder symbol is expected to increase recognition of public works as first responders throughout North America.

The Public Works First Responder symbol uses familiar colors—orange, black and white—and a design reminiscent of road construction, signs, safety cones and orange construction barrels.

By displaying the symbol wherever appropriate, public works agencies can raise awareness among all citizens, government officials, and other first responders about the critical role public

works plays in emergency management efforts. To ensure the symbol has maximum exposure in as many settings as possible—such as on fleet vehicles, license plates, letterhead, hard hats, uniforms, public buildings, and offices—APWA is making the symbol available in multiple formats at no cost to all public works agencies.

Public works agencies can obtain free access to the symbol’s artwork, as well as APWA’s simple guidelines for use of the symbol on the web or in all print formats, at www.apwa.net/firstresponder. For more information about the Public Works First Responder symbol, or about APWA, please contact Jared Shilhanek, Sr. Marketing & Communications Manager, at 816-595-5257 or jshilhanek@apwa.net.

TRENDS IN PERSONAL PROTECTIVE EQUIPMENT IN 2018

PPE manufacturers and industry insiders discuss technological advancements, what their customers want to know, and what's on the horizon.

From hard hats to steel toe boots, personal protective equipment (PPE) covers workers from head to toe.

The National Safety Council's publication, **Safety+Health**, with the help from the International Safety Equipment Association, recently reached out to PPE manufacturers with three questions: What PPE trends are happening; what challenges are your customers reaching out to you with; and what technological innovations are here or on the horizon?

1 What recent PPE trends have you observed?

"In the light-duty manufacturing industries, we've seen an increased demand for seamless gloves with greater dexterity and increased cut-resistance. In addition, the pressure from purchasers to decrease costs on PPE seems to be higher than ever." - *Ron Henion, Director of Product Development, HexArmor, Grand Rapids, MI*

"One of the most common trends we see at our clients' locations is the lack of a formal hazard assessment. A hazard assessment, including a thorough PPE review, is the critical first step in the selection of the proper PPE for specific job tasks and the worksite." - *Shirley Thomas, Safety Consultant, J. J. Keller & Associates Inc., Neenah, WI*

"End-user demand for lighter protective apparel and equipment has been the driving force behind a significant number of innovations in textile, garment and faceshield design. The key is finding products that still provide the appropriate amount of protection but at a fraction of

the weight." - *Melissa Gerhardt, product manager, FR Clothing and Arc Flash PPE, National Safety Apparel, Cleveland, OH*

"In the molten metal sector, lighter-weight fabrics are keeping workers cooler and more comfortable while protecting them from molten metal splash. Instead of heavy, aluminized 16-plus-ounce fabric, which has been the industry standard for 30-plus years, the current trend is toward 10- to 12-ounce fabrics. These lighter-weight garments can offer the same protection and are more comfortable to wear." - *Mark Stanley, President, Stanco Safety Products, Atlanta, TX*

"As the dropped objects standard is nearing completion, PPE is being put under the microscope as a potential dropped object hazard. Companies nationwide are taking notice because the proposed standard is in its later stages and nearly prepared for ANSI adoption. While a lot of companies are seeing this upcoming standard as a way of improving tool safety, those who are really on the leading edge of safety are also taking note of PPE items and the effect they have on safety." - *Matthew Moreau, Vice President of Marketing, Ty-Flot Inc., Manchester, NH*

"We're seeing significant advances in fabric technology to address these encounters in industry, namely by providing waterproof protection and chemical resistance - in a durable garment - while meeting or exceeding ASTM F2733-09 (flash fire) and ASTM F1891 (arc flash) standards." - *Jason Rodriguez, Marketing Associate, Gore Workwear Division, W. L. Gore & Associates Inc., Newark, DE*

2 What PPE challenges are customers reaching out to you about?

"Worker training, especially in construction. Many new hires have not worked in construction and may have never worn PPE. While implementation of engineering controls is always preferred, the ever-changing, transient nature of construction leaves PPE as the only viable means to protect the worker. Training is essential to PPE functioning efficiently, being maintained properly and helping to keep the worker safe." - *Don Garvey, Technical Service Team, 3M, St. Paul, MN*

"We've heard a growing need from customers for cut PPE that also incorporates chemical protection. In fact, our customers ranked cut protection as the most desired improvement to chemical gloves. These workers exposed to sharp objects when working in chemical applications are at an increased risk of injury and loss of productivity." - *Mark Nicholls, Chief Commercial Officer Americas, Ansell, Iselin, NJ*

"We've had customers reach out to us about 'flimsy' safety glasses or lenses that seem 'thinned out' that they've received from other manufacturers, but are still marked with Z87+. When these products are measured against ANSI Z87.1 performance requirements, they frequently fail (optical quality and/or impact resistance). One way to steer clear of these products? Only provide employees with safety products that are independently, third-party tested by accredited laboratories. Third-party testing can be verified by checking the product markings for a testing body's logo (for example, the UL logo on safety



withstand specific exposure scenarios, and innovations in glove material allow for longer breakthrough threshold times. All of these innovations are critical to keeping workers at the front line of this epidemic safe.” – *Mark Nicholls, Chief Commercial Officer Americas, Ansell, Iselin, NJ*

“Innovations around wearability and user comfort will be a major focus in the coming years, in addition to smarter textiles and coating technology with increased breathability and moisture movement capabilities. Even more exciting, I believe, is that the use of 3D printing and knitting will soon alter the way components of PPE are constructed.” – *Ron Henion, Director of Product Development, HexArmor, Grand Rapids, MI*

“Safety shoes (composites and steel toe boots/shoes) continue to evolve as manufacturers develop shoes that provide comfort in addition to protection. The number of choices for styles far exceed previous designs of the safety shoe.” – *Shirley Thomas, Safety Consultant, J. J. Keller & Associates Inc., Neenah, WI*

“Companies are taking a broader look at all of their potential hazards. They want garments that can be multifunctional and provide a wider range of protective benefits.” – *Melissa Gerhardt, Product Manager, FR Clothing and Arc Flash PPE, National Safety Apparel, Cleveland, OH*

“Speaking in terms of the history of workplace safety, tool and object tethers have been around for a relatively short period of time. Companies that think of dropped objects comprehensively, by including PPE in their plans, stand to benefit from being proactive.” – *Matthew Moreau, Vice President of Marketing, Ty-Flot Inc., Manchester, NH*

glasses). Or employers should call their manufacturer directly and inquire about their third-party testing procedures to verify product quality.” – *Katie Mielcarek, Marketing Manager, Gateway Safety Inc., Cleveland, OH*

“We continue to hear the request to create high-dexterity solutions that provide back-of-hand impact resistance and keep harmful fluids off workers’ hands. We also hear requests for more meaningful testing data to help users compare back-of-hand impact resistance.” – *Ron Henion, Director of product Development, HexArmor, Grand Rapids, MI*

“We’ve heard over and over two things about tool tethering: 1) their company won’t adopt it unless OSHA mandates it, despite the overwhelming evidence that improved safety saves lives, prevents injury and, above all to some, lowers costs; 2) when it comes to [Dropped Object Prevention], we get pushback because of the fear that tool tether is inherently unsafe for the worker wearing the tether. We need to provide solutions that are safe for the worker wearing the tether, as well as the worker below.” – *Nicholas Voss, Director of Product Management, Key-Bak, Ontario, CA*

“Customers are looking for increased flexibility and breathability without compromising visibility. Less-reflective material or reflective surface area means lower reflectivity on a new unwashed garment. Garments with breaks in the continuity of the trim are closer to the minimum reflectivity requirements than similar garments with continuous

trim, which are more highly reflective. Reflective material degrades and loses reflectivity with normal wear. Lower reflectivity can mean a shorter life span and increased replacement frequency for the garment.” – *Kelly Selander, Personal Safety Market Manager, ORAFOL Americas, Avon, CT*

“We’re seeing trends for protective apparel that is lightweight and breathable. Workers are already carrying around a lot of gear, and the last thing they need is a hot, heavy coat that traps in moisture.” – *Jason Rodriguez, Marketing Associate, Gore Workwear Division, W. L. Gore & Associates Inc., Newark, DE*

3 What innovations and technologies are here or on the horizon?

“Virtual reality training, allowing a mobile crane operator (trainee) to experience how to pick and move a load virtually before handling the real thing, simultaneously letting a trainer ‘watch’ and coach the trainee from a remote location.” – *Don Garvey, Technical Service Team, 3M, St. Paul, MN*

“The national opioid crisis is impacting an array of work environments and, what many don’t realize is, drugs such as fentanyl are just as dangerous to the workers who may come into contact with them as they are for the victims themselves. ... PPE standards and offerings have historically struggled to keep up, but new innovations and technologies are offering higher standards of protection against possible fentanyl contact. New quality assurance practices test PPE in real-world situations to ensure products

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THE ROLE OF CLIMATE CONTROL IN PPE

by Josie Larsen, RPB Safety LLC, Royal Oak, MI.

“Wearing PPE increases your risk for heat-related illnesses,” NIOSH’s “Prevent Heat-Related Illness” poster (publication No. 2016-151) states. Although this is true in a general sense, it’s somewhat of a paradox because incorporating climate control into your employees’ PPE could be the most effective way of preventing heat-related illness. (Note: Any recommendations in this article are not to contradict the poster but, rather, should be considered as further ideas).

Climate control in PPE includes items that allow your employees to maintain their body temperature and work comfortably. Here are some examples:

- Climate control device. This is a flow-control device used with supplied-air respirators to cool or heat incoming air. It’s effective and includes temperature control, which the wearer can adjust as required.
- Air conditioning devices. These provide heating or cooling, and sometimes both. They also are flow-control devices, but increase or decrease the temperature by a fixed amount instead of providing temperature control.
- Cool vest. These typically are filled with a coolant that remains at around 59° F to help keep workers’ torsos cool. The coolant is effective, but adds extra weight to PPE.
- For blasting and heavy industry, the blast jacket is available. This attaches to your respirator and directs air down workers’ torsos and arms to cool the upper body. Even if the air is not temperature-controlled, air flowing over their bodies provides cooling.
- Coveralls, used in conjunction with an air-supplied respirator (supplied air or powered air) that connects to the coveralls or has a tuck-in collar, provide cooling similar to a blast jacket, as they direct air down over the body.

When the combined temperature of your body and your environment reaches levels at which your body can’t regulate heat gain through sweating, you can develop heat cramps. If promptly treated by drinking water and resting in a cool place, further illness can be prevented. If ignored, this can develop into heat exhaustion

and include symptoms such as heat cramps, confusion, nausea, headache, dizziness and fainting.

The worst form of heat stress is heat stroke (a type of hyperthermia), in which your body may stop sweating, collapse and go into seizure. This is life-threatening and requires immediate medical attention. The purpose of climate control in PPE is to assist your body in maintaining a safe and comfortable temperature to prevent the mildest forms of heat stress.

Also important is protection from the cold. Prolonged exposure to cold temperatures can develop into hypothermia, which also is life-threatening.

Whether it be an increase or decrease in temperature required, it’s important that your employees are comfortable. Uncomfortable employees are a lot more likely to lose focus and not pay enough attention to their job and surroundings, make unsafe decisions, or subconsciously violate safety measures and risk harming themselves. Some of the aforementioned symptoms of heat stress, such as fatigue, confusion and dizziness, are examples of how employees are at risk by not being comfortable.

It is in the best interest of employers to ensure their employees are comfortable so they can operate at maximum productivity. Climate control in PPE assists the body in maintaining a safe and comfortable temperature to prevent heat- and cold-related illnesses, which can be life-changing or life-threatening. It also is imperative for maximized safety and productivity. Research your options and do product trials, when possible, to find your ultimate climate-control solution.

Editor’s note: This article represents the independent views of the author and should not be construed as a National Safety Council or Better Roads, Safer Roads endorsement.

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FHWA AND NACE PARTNER TO PROMOTE LOCAL ROAD SAFETY PLANS

by Jerry Roche, FHWA Office of Safety

Local entities own about 75 percent of the road miles in the United States.¹ At the same time, local agencies tend to have the most limited resources to analyze and address safety risks.

To help local agencies, the Every Day Counts (EDC) data-driven safety analysis (DDSA) team added a local focus to its efforts for EDC-4.

A primary goal is to increase the number of local agencies that have a [local road safety plan](#) (LRSP). LRSPs are a [proven safety countermeasure](#) that provide a framework for local practitioners to identify the specific conditions that contribute to severe crashes on their roadways. Agencies can then analyze local data to establish emphasis areas, determine risk factors, identify countermeasures, and prioritize safety improvements and strategies.

As part of this campaign, the DDSA team has partnered with the National Association of County Engineers (NACE) on a pilot project to help 25 Counties in California, Colorado, Florida, Nevada, Ohio, and Wisconsin develop LRSPs.

The pilot provides agencies with a blended learning experience that includes technical assistance, a series of webinars, and, most recently, a hands-on workshop at the NACE Annual Meeting in Wisconsin that helped participants develop their draft LRSPs. During a follow-up webinar in May, counties shared their final plans and discussed next steps in implementation as well as lessons learned from the pilot.

"Our goal is to get several counties within each State to develop plans through the pilot," said Brian Keierleber, Executive Director of NACE. "Those agencies can then be spokespersons to influence their peers that there is value in investing time in a plan. If we can demonstrate success stories using a simple approach, people will be more comfortable starting their own."

Many pilot participants are already seeing the value of developing a plan and are eager to implement theirs.

The pilot was based on a streamlined approach to developing LRSPs first demonstrated by Washington State and also successfully implemented by several Tribal agencies.

In Washington State, where 33 of 39 counties have an LRSP, Thurston County saw a 35 percent reduction in severe horizontal curve crashes after plan implementation.

"Horizontal curve crashes represented 45 percent of our fatal and serious injury crashes from 2006 to 2010," said Thurston County Traffic Engineer Scott Davis. "Developing our LRSP helped us identify that as a high-priority crash type and also define the highest-risk areas so we could treat them."

"It has been amazing," said Teresa Guagliardo, Traffic Engineering Specialist for Pueblo County, Colorado. "Now I have more knowledge about how to address the stakeholders and how to address the issues that we have so we can solve them. It's been phenomenal."

Hillary Isebrands, Roadway Safety Engineer for the FHWA Resource Center's Safety and Design Technical Service Team, said that one misconception is that counties must have an engineer or data analyst on staff to develop an LRSP.

"One of the great benefits of LRSPs is that they are scalable, so you can start small with the data you have on hand and don't need to be a specialist," she said. "Many effective plans are only a few pages."

In a survey of county officials in Washington State, most participants reported spending an average of 80 hours to prepare their LRSPs. More notably, all participants said the development of LRSPs was worth the effort.

"Given the benefits and results, there is no reason not to," Davis said.

View the DDSA webinar for local roads for more information, or to find out more about how to develop an LRSP for your community, contact Jerry Roche at jerry.roche@dot.gov.

¹ Bureau of Transportation Statistics - 2016.



Local Road Safety Plan infographic. Source: FHWA

BUBBLE, BUBBLE. TOIL. NO TROUBLE

TTI RESEARCHERS INVESTIGATE MYSTERIOUS PAVEMENT BEHAVIORS FOLLOWING HURRICANE HARVEY

Hurricane Harvey's impact on Texas was unprecedented in many ways, including rainfall amounts, property damage and human misery. There was also unprecedented disruption and damage to Texas roadways. About a mile of SH 6 in Harris County, from Clay Road to I-10, was covered with up to 7 feet of water for 14 days. Multiple farm-to-market roads in Brazoria County were also submerged for days by 1 to 7 feet of water.



As a result, many of these roadways exhibited characteristics that Texas Department of Transportation (TxDOT) Houston District personnel had never seen before. In five locations, the pavement bulged 12 inches above the normal road surface. In other locations, continuous streams of air bubbles escaped from cracks or joints in the road. TxDOT was concerned the bubbles might have been from damaged pipelines. When the bubbles were deemed harmless, the question became, "Where are these coming from?"

What was the explanation? Were areas beneath the pavement washed out? Was the pavement structure stable? Had asphalt delaminated from the concrete base? Could the roads possibly collapse? The roads couldn't be opened without answers.

TxDOT asked the Texas A&M Transportation Institute (TTI) Senior Research Engineer Tom Scullion and his team of forensic pavement investigators, Research Specialist Lee Gustavus and Research Associate Jason Huddleston, to survey the affected roadways and assess the damage. Using ground-penetrating radar (GPR), TTI's total pavements acceptance device (TPAD) automated rolling deflectometer and core sampling, TTI evaluated the health of all the affected roadways. SH 6 was first. It carries tens of thousands of vehicles each day, so getting it open was critical.

"TTI has some unique, specialized equipment," Scullion explains. "From the data we collected, we saw no indication of delaminations or washout, voided areas. We recorded deflections every 2 inches down the road. There were no anomalies in those data. After two weeks underwater, the asphalt was still bonded to the concrete, which was attributed to an excellent asphalt rubber seal coat bonding the asphalt and concrete layers together." Following the assessment, SH 6 was reopened to traffic.

Mark Wooldridge, director of maintenance for the TxDOT Houston District, states, "TTI's equipment and support were exceptional. The quick, timely response allowed us to verify that damage was not present on the roadways in question and enabled reopening of the roadways to traffic. The special



The TPAD is a highly modified geological surveying “thumper” truck designed for seismic testing. It combines rolling dynamic deflectometers with GPR.

equipment provided a much more thorough and accurate evaluation of the pavement structure than point testing, and the immediate interpretation and availability of data facilitated quick decision making.”

Scullion and his team moved on to Brazoria County near Angleton. These roads exhibited the strange air bubbles and domes — humped sections of pavement expanding upward as air is forced from beneath the pavement. “I’ve been in this business for a very long time. I had never seen anything like these domes,” says Scullion. “Neither had TxDOT personnel.”

Little is known about the original construction of these old farm-to-market roads. TxDOT wanted to be sure there were no voids under the surface that might collapse. The TPAD and GPR found no major anomalies beneath the road surface. As flood

waters receded, the domes sank back to normal pavement level. Fortunately, TxDOT personnel had marked the locations of the domes.

“When we cored the areas that had risen, we found 8 to 10 inches of asphalt on the surface. Next was an old concrete layer. There had been a number of variable asphalt layers placed on top of this concrete, some exhibiting stripping with a resulting very low density,” Scullion observes.

After analyzing the data, Scullion and his team concluded the domes and bubbles were caused by the weight of the flood waters pressing down on the air trapped inside the low-density asphalt layers. Like water being squeezed from a sponge, air was being forced from the voids in the low-density asphalt layer.

“That air had to get out somewhere. If it found a joint or crack, that’s where the bubbles came from. If there was not a crack or joint nearby, the asphalt-concrete bond broke, causing the pavement to rise,” Scullion notes.

After the waters receded, there were no major safety concerns, and the roads were opened to traffic. Scullion says the condition of the roads after the flooding was a tribute to the Houston District’s pavement designs over the past 60 years.

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HOW INFRASTRUCTURE CAN POSITIVELY AFFECT DRIVER BEHAVIOR

by Roger Wentz
President/CEO of the American Traffic Safety Services Association

Statistics developed by the National Highway Traffic Safety Administration (NHTSA) indicate that driver behavior is responsible for 94% of all crashes.



The agency and its state counterparts support a variety of programs targeted at changing and improving driver behavior. Areas of focus include seat belt advocacy, distracted and drowsy driving, alcohol and drug-impaired driving, and law enforcement, especially in relation to speed reduction.

*Driver behavior
is responsible for
94% of all crashes.*

Behavioral programs require a change in culture, and there have been some significant and beneficial changes over

the last 20-plus years. As former AAA Foundation for Traffic Safety Executive Director Peter Kissinger has noted, a past cultural phenomenon was to “have one for the road.” Now, having a “designated driver” has become more of a cultural norm. Additionally, children learn to “buckle up” years before they obtain a driver’s license.



How do members of the roadway safety and infrastructure industry further influence roadway-user behavior positively and keep those users from making a fatal mistake? The answer lies in infrastructure.



Despite these commendable strides, there are still people who drive impaired or drowsy or who don't use their seat belts. How do members of the roadway safety and infrastructure industry further influence roadway-user behavior positively and keep those users from making a fatal mistake? The answer lies in infrastructure. Effective roadway safety infrastructure provides the last chance to influence and correct negative behavior at the very moment that it occurs.

Here are a few examples: Both permanent overhead message signs and portable changeable message signs serve as reminders to promote safe and compliant behavior. Many states use these to reinforce "Click it or Ticket" campaigns or to notify drivers regarding DUI enforcement. Speed feedback signs, especially in work zones, influence drivers to reduce their travel speeds. Red-light cameras assist in reducing the number of "T-bone" crashes at intersections. Channelizers separate cyclist traffic from automobile traffic and create a safer travel way for all road users. Both center and edge line rumble strips and stripes alert drowsy drivers that they are about to leave the roadway.

The roadway safety industry also has invented creative countermeasures to some very specific behavioral challenges. For example, impaired drivers—whether from alcohol or other substances—tend to focus on the roadway immediately in front of them rather than scanning further ahead. Raised reflective pavement markers, wrong-way flashing signs and bidirectional



pavement markings are just three examples of countermeasures that are intended to prevent an impaired driver from entering a roadway in the wrong direction.

Additionally, properly installed roadway safety infrastructure devices can save the lives of those who make the ultimate error. Both median barriers and roadside guardrails have saved countless lives of drivers who departed the roadway (see the recent ATSSA case study book on the Safety Benefits of Median Barrier and Roadside Guardrail). Crash cushions absorb the impact of errant drivers as well. Truck-mounted attenuators (TMAs) prevent vehicles from entering work zones to the benefit of both drivers and roadway workers, and various intrusion and wrong-way alarm systems alert workers when a work zone has been breached and law enforcement when a driver is traveling in the wrong direction.



Almost every state, major city and relevant trade association has adopted the goal of moving Toward Zero Deaths or achieving Vision Zero on our roadways. We need to ensure that life-saving roadway safety infrastructure devices continue to be properly deployed to aid in realizing that goal.

RECALL

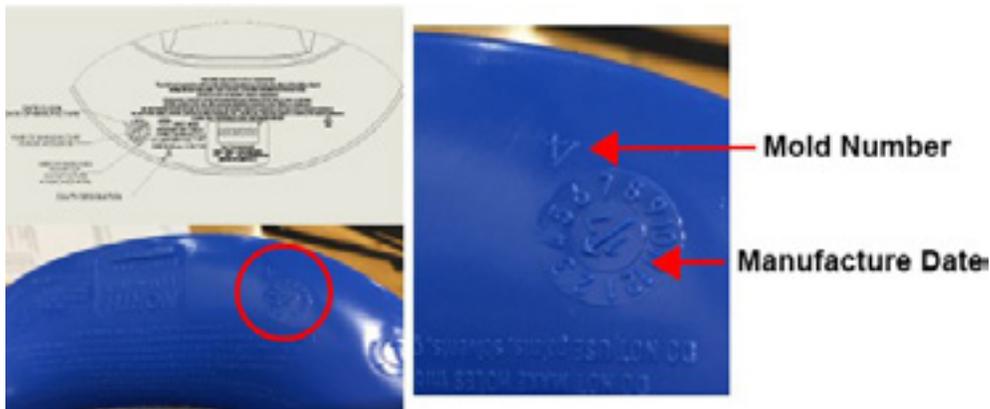
HONEYWELL ISSUES HARD HAT RECALL

Honeywell Safety Products has issued a voluntary recall of approximately 82,500 hard hats, stating that the equipment may provide insufficient protection from impact and put wearers at risk of injury.

According to the April 24, 2018 recall notice, Fibre Metal E2 Cap and North Peak A79 models are affected. The Fibre Metal E2 hard hats have manufacture dates of April 2016, May 2016, December 2017 or January 2018. The affected North Peak A79 equipment has a No. 4 mold identification and was manufactured

between April 2016 and January 2018. Manufacture dates and mold numbers can be found on the underside of the hat brim.

Affected customers should stop using the hard hats immediately and contact Honeywell Safety Products by phone toll-free at (888) 212-6903 from 8 AM to 5 PM Eastern, Monday through Friday, to obtain a product credit or voucher equal to the price of the recalled helmet. Users can also visit www.honeywellsafety.com and click on Voluntary Product Recall for more information.



For more information on upcoming events and workshops, visit txltap.org

Call the TxLTAP office at 817-272-9678 or email us at txltap@uta.edu to schedule an event or workshop near you.

CDL KNOWLEDGE TEST PREPARATION

The overall goal of this workshop is to improve a Texas Commercial Driver's License (CDL) candidate's chance of successfully passing the CDL written examination and walk-around, pre-trip inspection. Please note, this workshop does not involve drive time.

HEAVY EQUIPMENT RODEO

Heavy equipment operators will be given a chance to learn and practice new skills while stressing safety and excellence. Operators will use maintainers, backhoes, dump trucks, loaders, and more to steer through a series of exercises designed to test their abilities.

HEAVY EQUIPMENT FOR WILDFIRES

Heavy Equipment Operators are sometimes called out to assist fire fighters in wildland fire situations. Learn methods of attacking a fire, techniques of diminishing a fire with a dozer and grader, and dangerous situations to avoid.

SNOW AND ICE TECHNIQUES

Snow and ice control is a complex process. This workshop will cover personal and operational safety, plowing techniques, salt and abrasive application, and decision making based on the forecast and actual in storm conditions.



TXLTAP EVENTS & WORKSHOPS

TAKE ADVANTAGE OF

TECHNICAL ASSISTANCE

TXLTAP IS FORTUNATE TO HAVE SOME OF THE MOST EXPERIENCED AND KNOWLEDGEABLE TRANSPORTATION PROFESSIONALS ON STAFF.

This staff includes former maintenance managers, heavy equipment operators, road crew chiefs, civil and transportation engineers, inspectors, and the public works directors who all worked on the state's road system and in a nutshell "have been there, done that." Now Texas' local roadway agencies can directly benefit from their street smarts.

While training and information sharing at conferences or through a newsletter can do a lot of good, TxLTAP recognizes sometimes there is just nothing like rolling up your sleeves, experiencing the problem first hand and then offering a meaningful solution. That's why in addition to hosting classes and publishing Better Roads, Safer Roads, our program offers local roadway agencies an opportunity to consult directly with a TxLTAP subject matter expert to specifically address your organization's unique issue. And like all resources TxLTAP offers, there is no charge to receive our help or expertise.

Do you need information on proper method for fixing your lingering road problem? Would it help if someone came out to watch your road crew perform a repair and offer suggestions on how to save time and money in the future? Could you use the help of a traffic engineer who could assess a problematic intersection? Would it be a benefit to you if a subject matter expert came to ride the roads and developed a training presentation specific to your needs?

Take advantage of our technical assistance service!

Call 817-272-9678 or email us at txltap@uta.edu. We're ready to help!



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