The Missouri Department of Transportation (MoDOT) recently co-hosted three regional technology showcases on chip seal technology and best practices in partnership with FHWA, Missouri LTAP and Vance Brothers Asphalt. The showcases were meant to transfer established best practices and procedures to city and county transportation agencies. City and county public works staff, along with area contractors, were able to learn about MoDOT’s best practices in using chip seal to extend pavement lives. New technologies related to chip seal were shared with state and local representatives. The course consisted of a 1-2 hour in-class workshop followed by an on-site chip seal demonstration of MoDOT jobsites. The showcases were funded through FHWA Deployment Funds. Lunch was provided, and all attendees received a free hardhat, reflective vest and safety glasses. Classes were held in Lebanon on August 12, Chillicothe on August 14, and Jefferson City on August 20.

Highlights of the Chip Seal Showcase are available in a video clip on the Missouri LTAP website. The clip includes information presented in the workshop as well video from one of the on-site chip seal projects. The narration of the video was produced from the instruction provided by Mr. Mike DeGraff of Vance Brothers Asphalt. Missouri LTAP wishes to thank Vance Brothers and DeGraff for their support of these workshops.
The entire MO-LTAP staff sends our greetings from the Missouri S&T campus. We welcome you to the fall newsletter. You might notice a few changes in the format. These have been made to improve the readability in both the printed format and as an electronic document. We noticed that not all formatting translates well to an eNewsletter. For this reason, we made some changes. We hope that you find the newsletter easier and more engaging to read. As always, we welcome your comments and suggestions on the format as well as the content. Please let us know if there is a topic you would like to see featured.

In addition to changes in the newsletter, we continue to add content to the website. It has been one of our priorities to make it as informative, useful, and user friendly as possible. One new item is a video that was put together by our graduate assistant, Nicole Anns. The video features classroom and onsite footage from the Chip Seal Showcase held in Jefferson City on August 18. The video is narrated by Mr. Mike DeGraff of Vance Brothers Asphalt. DeGraff taught the classroom portion. MO-LTAP thanks him for his time and expertise that he provided to this successful training opportunity.

We also recently recorded footage from one of our new classes, Full Protection and Personal Protective Equipment (PPE) class held at Boone County Public Works on September 18. Nicole will producing a five to ten minute video of the class, which will highlight some of the course content. We hope these videos offer people who have not used MO-LTAP training a glimpse of what they are missing and provide those who do regularly attend a chance to preview new classes being offered. The video of Full Protection and PPE should be finished within the month.

We have begun offering new classes as part of the new Road Scholar Level II format, which focuses on advanced maintenance topics. There will be a variety of classes offered throughout the state over the next few months. As we continue to award more Level I Road Scholar graduates (there are now 128), we will be offering various classes for those pursuing Level II recognition. The previously mentioned Fall Protection and PPE is one and will be offered next in Lebanon on December 12. Another is Comprehensive Winter Planning. It was held in Platte County on September 17. This course gives administrators and supervisors the knowledge needed to develop a plan for dealing with winter events. It covers the benefits of outlining a work plan to include such things as when to plow roads, apply chemicals, clean intersections and mailbox turnouts, and clean up equipment. Attendees will learn the importance of having a good employee work plan so their workers know what to expect when a storm hits.

A few others include Advanced Communication Skills in Maryland Heights on October 3 and Project Planning and Management in Springfield on December 11. The fall is always a busy time for MO-LTAP training as the days get shorter and the weather gets cooler. Watch the training calendar on the MO-LTAP website for upcoming classes in your area. Remember that classes can be requested if you would like to host a class at your agency. We hope to see you and/or your employees in class sometime in the coming months. As always, it is our pleasure serving the local agencies throughout Missouri.

Best wishes,

Heath Pickerill
Director, Missouri LTAP

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**Signs and Pavement Markings for the MUTCD that Meet the Needs of the Driver**

**Paul Carlson, Ph.D., P.E.,**

Research Engineer, Texas A&M Transportation Institute, Texas A&M University, College Station, Texas;

**Cathy Satterfield, P.E.,**

Safety Engineer, Office of Safety, Federal Highway Administration, Matteson, Illinois; presenters, 2013 APWA Congress

Nighttime driving is statistically more risky than daytime driving—the nighttime crash rate is about three times higher than the daytime crash rate. While many factors are at play during nighttime conditions, drivers generally acknowledge that their nighttime visibility of the roadway and roadside is significantly reduced compared to their daytime visibility. Traffic signs and pavement markings are made with retroreflective materials to help increase their visibility during nighttime conditions. Retroreflective materials are unique in that they shine headlamp light back toward the driver.

The Manual on Uniform Traffic Control Devices (MUTCD) requires most signs and pavement markings to be retroreflective but until recently, it did not provide guidance or define how retroreflective signs and pavement markings should appear to meet the needs of the nighttime driver. As a way to increase nighttime safety, the MUTCD was revised in January 2008 to include minimum retroreflectivity maintenance levels for traffic signs to help ensure that nighttime drivers can see and read the signs in time to react safely. Agencies had until June 13, 2014 to identify and use one of the sign retroreflectivity management methods listed in the MUTCD to maintain regulatory and warning sign retroreflectivity at or above the minimum retroreflectivity levels in Table 2A-3 of the MUTCD. Agencies are expected to add signs other than regulatory or warning to their method as resources allow.

The new MUTCD minimum sign retroreflectivity levels were based on the nighttime needs of older drivers to see and read traffic signs. As a result, the minimum criteria provide guidance for agencies to ensure that their signs are adequately bright enough for all drivers at night. In addition, Table 2A-3 restricts the use of some retroreflective sheeting materials for signs because even when new and unworn, those materials do not meet the nighttime needs of older drivers.

The Federal Highway Administration (FHWA) is now working on developing minimum retroreflectivity levels for pavement markings. As the FHWA moves forward on their pavement marking efforts, their supporting research has produced new safety-related findings regarding pavement markings.

In January 2013, research was presented at the Transportation Research Board’s Annual Meeting that included statistical correlations between pavement marking retroreflectivity and safety. Previous research on this topic had provided mixed results and sometimes contradictory findings. Using data from Michigan, the researchers evaluated relationships between crashes and longitudinal pavement marking retroreflectivity. The retroreflectivity data consisted of pavement markings measurements representing white edge lines, white lane lines, yellow edge lines, and yellow centerlines.

The data included crashes and retroreflectivity measurements from 2002 to 2008. Only nighttime crashes that occurred at non-intersection and non-interchange segments during the non-winter months (between April and October) were considered (wet crashes were also excluded). While statistically significant findings were identified for both rural two-lane highways and freeways, a specific example of the findings for edge lines on rural two-lane highways demonstrates that nighttime and single vehicle nighttime crashes can be reduced by 1.5 percent when the edge line retroreflectivity is increased by 100 mcd/m²/lx. The findings for centerline pavement marking retroreflectivity showed that as the retroreflectivity decreases to 150 mcd/m²/lx and less, the effects in terms of nighttime crashes become statistically significant.

Not only does the retroreflectivity of the pavement markings appear to be linked to safety, but so does the width of the pavement markings. Recent research results from an FHWA-funded study performed by TTI show that wider edge lines on rural two-lane highways are a cost-effective, statistically-sound approach to reducing run-off-the-road crashes and fatalities. Overall, the findings demonstrated that wider edge lines on rural two-lane highways can reduce non-winter, non-intersection/non-interchange run-off-the-road crashes 15% to 30%. Interestingly, findings from these analyses do not support the... (Continued on Page 7)
Unfortunately, the Legislature ended the 2013 session in the same position as it began regarding 911. Missouri is still the only remaining state with no fee on wireless communications to help pay for 911 emergency services.

The good news for this year is that we gained a very strong ally in Rep. Jeanie Lauer, who was willing to take the lead as sponsor of HB 653. The 911 Directors Association also hired an aggressive consultant in Scott Penman and his assistant Maggie Thiel (Penman & Winton Consulting Group), who worked tirelessly in finding adequate wording for counter proposals for the substitute bills the telecoms and others kept coming up with.

What Did the Bill Propose?

- It enabled counties to go to their voters and, upon approval, apply a fee to devices – wireless and wireline – to fund 911 services.
- It proposed a fee up to a maximum of $1.50 per device.
- This enabling legislation was comparable to the motel lodging tax.

Why Is It Necessary?

- Changes in technology and wireless substitution have reduced funding from land lines.
- Over time, Missouri counties have established a variety of funding sources for 911 centers, making it difficult to create and pass a single statewide initiative.
- Creating an “individual county approach” allows counties that have adequate local financing to retain their present funding source (45 counties have a dedicated 911 sales tax, for example).
- Creating an “individual county approach” allows for a stronger focus on matching local financial needs with the best funding method.
- Creating an “individual county approach” allows for flexibility in consolidating PSAPs (Public Safety Answering Points) within a county and among counties, as well as in seeking local funding.

If this legislation had passed, it would have given counties the authority to ask their voters for permission to assess this fee. All revenue generated from the fee would have stayed in the county, and this is similar to the revenue generated from a dedicated 911 sales tax or from the surcharge on land phones.

Prepaid Wireless Problems

Because nearly 30 percent of wireless devices are from prepaid calling plans and not contracts with carriers, the bill also assessed a 3 percent fee at the point of sale when these prepaid phones or cards are purchased. The percentage of this market is rising rapidly as more consumers are dropping contract plans and switching to prepaid phones and calling cards. If this issue had not been addressed in the bill, we would have had another funding shortfall in a few short years. It’s comparable to the way consumers are dropping landlines for wirelines and the surcharge revenues are declining.

At an average purchase cost of $50 per card, the 3 percent fee would have been $1.50 per transaction, and would have generated approximately $8 million per year. This revenue would have gone into a statewide grant pool managed by a special 911 Oversight Board to assist the 16 counties that currently have no 911 service at all, to upgrade equipment within a 911 center, to certify telecommunication operators (call takers and dispatchers), to consolidating PSAPs, to mapping and addressing, to obtaining technical advice, as well as to statewide coordination. This fee would have been assessed upon passage of the bill and without voter approval (a provision that some legislators did not like, even though Missouri’s 911 problem is viewed as a public safety issue among most all of the lawmakers). Currently 22 states already have fees on prepaid devices.

The four charter counties in the St. Louis and Kansas City areas protested this point and requested they be excluded from the bill and, therefore, from paying this fee because they believe they have adequate 911 service in their areas and did not want to fund the rest of the state. Excluding the charter counties, this 3 percent fee on prepaid cards would still have generated approximately $5 million from across the state. Counties that exempted themselves from paying into this fund would not have been eligible to receive money from the grant pool.

Find the Safety Seat That Fits - Keep Your Kids Safe

JEFFERSON CITY - National Child Passenger Safety Week is Sept. 15-21. The Missouri Coalition for Roadway Safety wants to ensure all caregivers of young children know the importance of buckling children in an appropriate child restraint. Motorists can also expect increased enforcement of Missouri’s child seat safety laws during this campaign.

In 2012, nine children in Missouri under age eight were killed and 92 suffered serious injuries as occupants in motor vehicle crashes in Missouri. Missouri law requires all children under eight to be in an appropriate child safety seat or booster seat, unless they are at least 80 pounds and 4’9” tall. “All parents and caregivers need to understand the importance of booster seats. It’s not just about following the law – boost er seats help prevent serious injury and may even save your child’s life,” said Leanna Depue, chair of the executive committee for the coalition.

When used correctly, child safety seats are 71 percent effective in preventing fatalities for infants and 54 percent effective for toddlers. Serious injuries can result from improperly fitted safety belts, particularly for children ages four through seven who are secured only in a regular safety belt during a crash. These injuries are commonly known as “seat belt syndrome,” which are often life-threatening or disabling. Booster seats help prevent this syndrome from occurring by raising the child up so the lap and shoulder belt fits them properly.

Child safety seat technicians will provide education and car seat inspections at locations across Missouri.

SaveMOlives.com.

For more information on Child Passenger Safety Week, visit saveMOlives.com.
More Mileage from Every Mile
roller-compacted concrete may soon revolutionize the way roads are built

Patrick O’Brien, News Editor, Prairie Material, Bridgeview, Illinois

Cities and towns across the country are tapping the cost-saving potential of roller-compacted concrete (RCC) as a durable foundation for roads, service lanes, plazas and more. Used on its own or capped with asphalt, RCC relieves the headaches caused by sags, rats and potholes common with all-asphalt paving. Columbus, Ohio, has used RCC in its composite pavement program for more than 20 years. In Indiana, county governments have utilized it as a final riding surface for rural roads with speed limits up to 45 miles per hour. News of these and other RCC successes reached Matt Mann, P.E., Public Works Director for the Village of Streamwood, Illinois, around the time asphalt prices took a sharp turn upward. “We were already looking for an alternative base material that would cut overall costs,” Mann reports. “We saw other towns trying RCC with good results, and realized we could place this material ourselves if we could find a source for it.”

Tests Inspire Early Confidence
Streamwood self-funds about half of all maintenance work that its own crews perform on the roads that serve the village’s 40,000 residents. Comfortable and working with asphalt, workers were reluctant to try RCC at first, Mann says—so starting small seemed the best option. In 2009, Mann asked Prairie Material to supply RCC for a 100-foot-long test segment to be placed in the Village’s public works maintenance yard. The material held up well under truck traffic, so the following year officials chose a 450-foot-long cul-de-sac as Streamwood’s first public RCC project. Workers gradually gained confidence with the mix. In 2011, they used RCC to rebuild Crestwood Drive, a low-traffic, 1200-foot residential roadway. “This year’s project is 1,850 feet long, and our guys have come to appreciate how easily this material goes down, especially in hot weather,” Mann says.

Seeing the Advantages
RCC’s low-moisture, zero-slump mix is placed with the same equipment used to place asphalt. A vibrating roller follows the paver and compacts the material to 98% density. In Streamwood, crews must match the nine-inch depth specified for village roadways. They remove all asphalt and excavate down to the sub-base, then add four inches of stone base and six to seven inches of RCC, finishing with a two-inch layer of asphalt. The RCC is placed in a single pass, eliminating at least one of the lifts needed for an all-asphalt roadway.

RCC can support car and truck traffic the same day it’s placed, enabling Village workers to reopen the road to local traffic. “Even though we could place asphalt immediately after laying down the RCC, we prefer to seal it and complete landscape restoration on the street first, laying the final riding layer down about seven days later,” Mann explains.

Streamwood’s results bear out the value of RCC in reducing first-dollar costs. “We’re saving 10% to 15% on materials,” Mann notes. “Since RCC virtually eliminates serious potholes, long-term maintenance costs will drop, too.”

Tough Enough for Trucks and Tank
Originally developed as an ultra-strong surface for Canadian logging yards in the 1970s, RCC has been used by the Army Corps of Engineers to build roads and storage tanks that can handle armored tank traffic.

“Weber delivers strengths of 6,000 to 9,000 psi, but without the forms or steel reinforcement needed with conventional concrete,” says Theron Tobolski, Marketing Product Specialist at Prairie Material. “It’s ideal wherever durability, fast construction and cost savings are equally important.”

Industrial and public works engineers have harnessed these benefits, using the material to build power plants, dams, industrial driveways and more, the Portland Cement Association reports. In the Midwest, Prairie Material has provided RCC for construction of heavy-duty crane runways for CSX and intermodal yards serving The Indiana Rail Road Company among others.

The Green Side of RCC
In 2011, Prairie joined APWA’s Chicago Metro Chapter in hosting a seminar and live placement demonstration for more than 100 members at Toyota Park, an outdoor sports arena in southwest suburban Bridgeview, Illinois. Speakers included Wayne Adaska, P.E., Director of Pavements for the Portland Cement Association, who explained why RCC also supports sustainable construction.

“RCC uses lower cement contents than conventional concrete and recycled materials like fly ash and slag,” Adaska noted in a recent interview. “It is placed quickly and outlasts competing materials, resulting in less maintenance.”

Adaska describes RCC as a “cooler, cleaner placer with no VOCs, and when left unsurfaced, RCC has a high solar reflectance which minimizes urban heat island effect and reduces lighting requirements.”

New Finishes, New Applications
As engineers and road builders gain more experience with RCC, new ways to utilize this versatile material are emerging. “Governmental units around the country are using it for highway shoulders and temporary roads during construction,” Adaska reports.

“Even though RCC is usually capped with asphalt for a smooth riding surface, it can also be left unsurfaced and dimonard-ground if necessary to achieve the required riding smoothness,” he says. “Further improvements and research, especially in the use of admixtures, will help us improve the surface appearance, extend the working time and expand the applications.”

DOT Standards Will Promote Wider Use
Unlike Streamwood, many local governments depend on motor fuel tax (MFT) funds to finance most or all of their road reconstruction work. Adoption of RCC specifications by city and state DOTs will open the door for broader use RCC, delivering a host of benefits for everyone involved. “Whether it’s topped with black pavement or white pavement, RCC is good for the taxpayer over the long run,” Adaska says.

Chicago’s Department of Transportation worked with Prairie Material to write standards now in place for RCC use within the city. In Illinois, industry groups are working with the state’s Department of Transportation to create specifications that will qualify roads built with RCC for MFT funding. Even though Streamwood has adopted RCC as a road maintenance standard, Matt Mann looks forward to IDOT’s new specs so that 100% of the Village’s roadwork can use the material. “In our view, it’s absolutely the way to go.”

Signs and Pavement Markings for the MUTCD that Meet the Needs of the Driver

(Continued from Page 3) use of wider edge line pavement markings for multilane highways. In the past, many states adopted wider edge lines (six-inch instead of four-inch) for a variety of reasons but adoption has been slow and uncoordinated without sound empirical findings to support the policy change. The recent study sponsored by the FHWA included data from three states (Michigan, Kansas and Illinois) and provides information that agencies can use to make sound decisions about the use of wider edge lines. The study included rural two-lane highways as well as multilane highways. Although it is well known that causation is hard to establish based on observational studies, results from the statistical analyses consistently indicate that wider edge line pavement markings on two-lane rural highways lead to lower crash frequencies and reduced severity. Wider edge lines are an effective countermeasure in their own right and can also be considered in combination with other countermeasures such as rumble strips. Ongoing research at TTI is starting to identify how wider edge lines and rumble strips mitigate different crash types. While rumble strips address crashes where the driver is distracted, drowsy, or otherwise inattentive and can be effective even when obscured by snow or rain, wider edge lines seem to be most effective where the driver is looking at the roadway/striping, or where the driver’s peripheral vision is picking up the marking.

Traffic safety professionals continue to improve the signs and pavement markings on our nation’s highway to provide a safer and more comfortable driving experience. As research findings continue to better define the relationships between nighttime visibility and roadway safety, agencies can develop specifications and practices to ensure adequate visibility for nighttime drivers.
Is There a Glass Ceiling?

Jennifer Rose
Program Manager, Infrastructure Management, Region of Peel, Ontario; Member, APWA Diversity Committee

I have spoken to many people about this question and I have received many different answers. When I have spoken to highly successful women who work in either the public or private sphere I receive a hearty “No.” However, when I ask the men, they say “Yes.” I think that women who are highly successful have broken through the glass ceiling, so they have never encountered it, and highly successful men look around the table, don’t see many women, and assume it exists.

Does it exist? Or are the proportion of women, as a percentage, in leadership roles in the private and public sectors the same as the proportion of women in public works? The studies all say that few women choose engineering as a career path, so it is small wonder there are so few women in leadership roles in engineering?

To explore this topic further, the Ontario Public Works Association Chair of the OPWA Celebration of International Women’s Day Seminar (me) decided that this year’s theme would be, “Working in a Man’s World” with a focus on the glass ceiling.

International Women’s Day (IWD) began at the Conference for International Working Women in Germany in 1910. IWD is observed around the world on March 8 as a global day of celebration and recognition used to honour women’s advancements while reminding people of the need for continued vigilance and action to ensure that women’s equality is gained and maintained in all aspects of life. In fact, IWD is about creating opportunities for women where there were not before.

In preparation for this seminar I read a book called It’s not being a part of the sticky floor: These were the behaviours which were listed in the book as being a part of the sticky floor:

- Work/Life Balance – if you don’t have work/life balance, you will experience fatigue and burnout which leads to you not doing your best at work.
- Loyalty factor – only your boss gets to know how great you are and if they leave, you are on your own.
- Perfectionism vs. Excellence – perfectionism sends out a message that you are “over-trying” and are not confident in yourself. You will be perceived as a great doer but not very strategic.
- Building Strategic relationships – these are mutually beneficial relationships which are based on work and not (but could be) personal.
- Political savvy – this includes knowing who the decision makers are and getting their buy-in on your initiatives.
- Make your words count – stay on message, have confidence and develop the ability to read the room.
- Asking for what you want – don’t wait for someone to give you something, ask as this shows that you value yourself.

In my opinion, this book has great advice on all of the above points for all people aspiring to be in leadership roles in their organizations.

On March 5, 2013, 80 people (6 of whom were men) attended a seminar to share strategies for women who “work in a man’s world.” The speakers included APWA President Elizabeth Treadway; OPWA President Joe Johnson; Janet Glass, Associate Principal Project Manager for Hatchmott MacDonald; Mary Agro, Manager of Organizational Development; and journalist Karen Hamilton. The speakers were all asked to talk about the glass ceiling, its existence, and how to get through it.

Again, there were differing views on the existence of the glass ceiling. However, everyone did mention that to work in a “man’s world” you needed confidence and a career goal. They all talked about the need for women to understand the choices which must be made to achieve their goals and that these choices needed to fit in with their life goals as well as their career goals.

Elizabeth Treadway suggested that the glass ceiling could be a barrier in our own minds which can be transcended through finding a way around the barrier with the use of mentors and a clear career goal.

Joe Johnson stated that women bring a different perspective to the table and are an asset to any team as they seem to naturally have the qualities which make up a good leader—empathy, multi-taskers, etc.

Janet Glass emphasized that women need to decide what is important to them and craft life and work around this decision.

Mary Agro spoke about the different generations and pointed out the qualities of the people who made the glass ceiling (pay your dues, respect for authority and structure) to give us a better understanding of how it came to be and how to get around it.
Why Safety Training is Important in the Workplace

by Angela Hopson

If someone asked you why safety training is important, how would you respond? You may know it's important to keep safety in mind at work, but could you make a case for workplace safety training? Here are some things to consider:

- Safety training saves more money, in the long run, than it costs. Intangible savings are sometimes harder to calculate than those related to cutting manufacturing costs or increasing revenue with higher sales prices, but they ultimately translate into real money to the bottom line.

  The first thing that happens when there is an injury on the job is a halt in productivity in the area where the accident occurred. The injured employee must endure pain, suffering, and sometimes death. When an injured victim is removed from the workplace, that position must be filled by a replacement person, often requiring additional training and closer supervision than the person replaced. Corporate insurance premiums increase with the number and cost of claims, and this affects your company's bottom line, as well. Morale is dampened in an atmosphere where associates have a heightened awareness of their vulnerability to serious injury or death due to the negligence of the employers or co-workers. Companies have been bankrupted by legal claims when defending themselves against torts alleging wrongful injury or death; the legal fees, alone, can total more than a million dollars. Workplace injuries and the resulting litigation and insurance cost increases are often preventable, unnecessary expenses. They are terribly distracting and demoralizing to a force. There are good reasons why every employer in America has a legal responsibility under Federal law to provide a safe workplace.

- Safety Programs & Training Makes Good Business Sense

  Job-related injuries are avoided when companies allocate the necessary time and resources to the project determined the soil was not cohesive, might have fissures and could be subject to vibration from traffic. The trench dug to remove the gas line was within a few feet of a heavily trafficked drive, which served neighbors businesses. When uncovering the end of the gas line, the excavator operator dug the trench with straight sides instead of sloped, and no shoring system was used.

  Trench collapses are frequently fatal, as a cubic yard of soil can weigh as much as a car. Fortunately, trench cave-ins fatalities are often preventable. Taking the time to ensure the appropriate measures have been followed may save your life or that of a fellow worker.

  Safe Work Practices

  The employees working for this contractor were working in trenches deeper than 5 feet, and therefore should have taken the appropriate safety precautions.

  Ask the site's competent person to evaluate if a trench is correctly shored, shielded, benched or sloped before beginning work.

  Excavated materials and equipment should be placed away from the edge of the trench. There should be a minimum of 2 feet between the edge of the trench and materials or machines.

  Find the exit. Ladders or ramps should be provided for safe entry and exit. Never jump down into a trench.

  Finally, resist the temptation to take shortcuts. In this instance, cutting through the pipe would have taken a matter of minutes, and the workers didn't want to spend time on the far lengthier task of installing a trench safety system. Remember, taking a shortcut will often leave you unprotected.

  To download a tips card in English or Spanish on trench safety, visit http://www.oshia.gov/Publications/trench/trench_safety_tips_card.pdf

  Resource: Better Roads, April 2013

Trench Troubles: Shortcuts can be Deadly

By: Amy Materson

The accident: A subcontractor was removing old gas, storm and sanitary sewer lines on a site to prepare for new utility lines. A laborer was working in an 8-foot deep trench on the abandoned gas line, which was a 600-foot long high pressure line with a 10-inch steel casing. The worker climbed into the trench with a saw to cut through the gas pipe and the casing. The sides of the trench were not shored, and as the worker began to saw, the sides of the trench collapsed and buried the worker. He was pronounced dead at the scene.

The bottom line: Prior to beginning the work, the soil technician assigned to the project determined the soil was not cohesive, might have fissures and could be subject to vibration from traffic. The trench dug to remove the gas line was within a few feet of a heavily trafficked drive, which served neighbor businesses. When uncovering the end of the gas line, the excavator operator dug the trench with straight sides instead of sloped, and no shoring system was used.

Trench collapses are frequently fatal, as a cubic yard of soil can weigh as much as a car. Fortunately, trench cave-ins fatalities are often preventable. Taking the time to ensure the appropriate measures have been followed may save your life or that of a fellow worker.

Confined Spaces:

- covers how to protect those entering or working around a confined space. Confined spaces include, but are not limited to underground vaults, tanks, storage bins, manholes, pits, silos, process vessels, and pipelines. Attendees will learn the physical, chemical, and biological principles related to working safely within confined spaces. Attendees will also learn to work in a confined space environment to maximize safety for themselves and those around them.

Fall Protection & Personal Protective Equipment:

- shows a variety of methods to safeguard against falling at a height, how to properly use fall protection equipment, and how safety managers can ensure a safe workplace for their workers. Attendees will learn that the first step in reducing or eliminating fall hazards is identifying fall hazards and deciding how best to protect themselves and others. It also covers personal protective equipment (PPE). Attendees will gain an understanding of the types of PPE. They will also learn the basics of conducting a hazard assessment of the workplace and selecting appropriate PPE for a variety of circumstances.

Trenching & Shoring:

- gives an overview of the regulation for trenching and shoring and covers the general requirements, which include special health and safety considerations, the importance of identifying soil types and utilities before digging, having a decision chart, and doing daily inspections. Attendees will recognize that excavating is one of the most hazardous construction operations according to OSHA. They will also learn how to do a visual site evaluation and what protective systems are available.

Boom Truck & Forklift Safety:

- covers the crane components and boom truck setup as well as lift requirements, determining lifting capacity, leveling the crane, and insuring stability. Attendees will learn hazard signals, what is included in an inspection checklist, and how to complete safety inspections. It also covers types and characteristics of forklifts, the hazards of forklift operation, how to complete preoperational inspections and how to use a forklift safely. Attendees will learn basic driving, stability and load handling tips as well as how to safely handle the fuels, batteries and other attachments.
Worker Safety Alert!  
Potential Danger on the Side of the Road

Amy I. Terry; Marketing, Outreach and Publications Manager

Highway workers face many potential dangers on the side of the road. One danger they may not expect to face is exposure to waste from methamphetamine (meth) labs.

Five to six pounds of toxic waste is produced for every pound of meth manufactured. Those running the labs will often dump the waste or lab equipment on the side of the road without regard for the hazards it can cause to people and the environment.

In December, a road crew in District 9 (of Kentucky), Rowan County found meth processing equipment and called the authorities. It is important that road crews in your area know what to look for and what to do.

Although it can look like any other trash dumped on the side of the road, waste from meth labs may contain trace amounts of the chemicals used, which are toxic. The fumes can cause itching and burn the eyes, throat and lungs of inhalers. Physical contact with the chemicals can burn the skin and cause severe respiratory damage.

What to look for:
- Unusual, strong odors like cat urine, ether, ammonia, nail polish remover or similar chemicals
- Pills that look like common cold pills or packaging from cold pills that contain ephedrine or pseudoephedrine
- Containers for antifreeze, lantern fuel, drain cleaner, starter fluid
- Red-stained coffee filters, bed sheets or pillow cases
- Starter fluid
- Ephedrine
- Pills that look like common cold pills or packaging from cold pills that contain ephedrine or pseudoephedrine
- Containers for antifreeze, lantern fuel, drain cleaner, starter fluid
- Red-stained coffee filters, bed sheets or pillow cases

Should you find items that you suspect come from a meth lab, do not investigate on your own. Immediately contact local police or the sheriff’s office and move away from the area.

If you come in contact with the equipment, seek medical attention immediately. Signs of exposure to meth chemicals include headache, nausea, dizziness, fatigue, shortness of breath, coughing, chest pain, lack of coordination and burns.

By providing this information to your crew, you have given them the knowledge necessary to stay safe should they face discarded meth equipment.


What’s Next for 911 In Missouri!

(Continued from Page 4)

Another concern with the bill centered on designating 10 percent of the grant funding (not to exceed $1 million annually) for the Missouri Poison Control Center. Some recognize the Poison Control Center as another emergency services agency where calls come into a 911 center and are transferred to them for handling. Others did not feel they warranted receiving 10 percent of the funding. Perhaps some additional education or a compromise is needed among 911 centers, legislators, the Poison Control Center, and the general public regarding the value of the Poison Control Center and its direct involvement from a 911 emergency call for assistance.

I hope this information helps to explain some of the problems encountered this year in dealing with HB 653. There was a good group of stakeholders representing 911 directors, Police Chiefs, the Sheriffs’ Association, MAC, Emergency Medical Services, the Poison Center, MOAPCO (Missouri Association of Public Safety Communications Officials), MONENA (Missouri National Emergency Number Association), and the telecommunications industry. Anyone wanting more information or wanting to get involved may contact “Doc” Kritzer, Callaway County commissioner, at 573-642-0737 or by email at comish@callawaycountygov.

Blind Spots

Blind spots are hazardous because workers on foot often perform tasks near moving equipment and vehicles, or walk by equipment en route to another destination. When they enter a blind spot, the worker is virtually invisible to the operator.

truck drivers and equipment operators should become familiar with the blind spots surrounding each piece of equipment he or she operates and should be sensitive to the fact workers and other objects cannot be seen in certain areas.

Construction equipment is typically large and has an enclosed cab. These characteristics can make the blind areas very large and difficult for the operator to see. Also, the size of construction vehicles and equipment often place truck drivers and equipment operators high above the ground. They cannot see workers on foot crossing close in front of them. Items placed on the dash board or attached equipment can create even larger blind spots and reduce visibility. There are several basic actions workers must take to avoid hazardous blind spots:

- Workers should not cross directly in front of, immediately behind or in close proximity to large heavy equipment or trucks.
- Workers should communicate with an operator (verbally and/or by confirming signal) before entering any area near heavy equipment or large trucks.
- If workers are required to be near parked equipment or trucks, they should stand in a location (ideally on the operator’s side). If equipment comes into use, the operator can see them, and they can see the operator.
- Drivers should use spotters, cameras or other devices when backing near workers on foot.
- If a vehicle has not been in motion for more than two to three minutes, the driver/ operator should walk around the vehicle and check its surroundings before moving it.

Backing Safety

Backing accidents statistically account for approximately 50 percent of all fatalities involving construction equipment in roadway work zones. These accidents can also result in serious disabling injuries.

There are several key principles to safe backing in work zones:
1. The work area should be organized to minimize backing.
2. Backing should only take place in designated locations.
3. There should be clear communication between the operator and workers on foot before backing begins.
4. Before driving, ensure mirrors are positioned properly.
5. All vehicles should be equipped with backup alarms & must be checked prior to operation to ensure they are in proper working condition.
6. Drivers should keep their windows down when backing or driving in the vicinity of pedestrian workers.
7. Radios, cell phones or other distracting devices should be turned off.
8. Park vehicles so the driver can leave in a forward motion, and choose a place free of congestion.

In addition to the safe backing principles, there are several good practices each worker in the construction zone should employ:
1. Spotters should be identified and used when possible and practical, especially when backing or maneuvering near workers on foot or other hazardous locations.
2. All workers should be trained to avoid approaching or working near backing equipment.
3. Operators and drivers should avoid backing up unnecessarily.
4. Operators and drivers must walk around their vehicle to check for hazards before moving.
5. Operators, drivers and workers on foot should be aware of blind areas.

Given the known hazards involved in backing large construction vehicles, several states have enacted statutes to govern safe backing practices.
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About LTAP
LTAP is composed of a national network of centers - one in every state, Puerto Rico and regional centers serving tribal governments. The LTAP centers enable local counties, parishes, townships, cities and towns to improve their roads and bridges by supplying them with:
• a variety of training programs
• an information clearinghouse
• new and existing technology updates
• personalized technical assistance
• newsletters

Through the core services, LTAP centers provide access to training and information that may not otherwise be available. Centers are able to provide local road departments with:
• work force development services
• resources to enhance safety and security
• solutions to environmental, congestion, capacity and other issues
• technical publications
• training videos and materials

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Web-Based Training
• Administrative Record #142062

Web-Conference Training
• Implementation of LRFD Geotechnical Design for Bridge Foundations #132083

Instructor-Led Training
• An Overview of the Railroad-Highway Grade Crossing Improvement Program #58097
• Introductions to Federal-Aid Right of Way (ROW) Requirements for Local Public Agencies (LFPA) #114105

Contact: www.nhi.fhwa.dot.gov

Institute of Transportation Engineers
• Telecommunications Technology
• Intermodalism
• Deploying ITS
• Corridor Management
• Traffic Signal Systems
• Traffic Management
• Traffic Signal Systems
• Traffic Management

Topics Include:
• Telecommunications Technology
• Intermodalism
• Deploying ITS
• Corridor Management
• Traffic Signal Systems
• Traffic Management
• Traffic Signal Systems
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ITE’s Online Learning Gateway offers transportation professionals the opportunity to earn professional development hours and to gain current, relevant training. ITE’s online courses are primarily geared toward transportation practitioners, designers and planners. Costs vary and are reduced for ITE members. Courses are available online at any time. ITE’s courses cover pedestrian facility design, capacity and safety analysis at signalized intersections, site impact analysis and traffic signal needs determinations.

Contact: www.ite.org/education/olg.asp

Instructor-Led Training
Web-Conference Training
Web-Based Training

Registration for Classes
To register for a training course, please fill out the information above, indicate which class you would like below and attach a list of all attendees. Fill out a separate form for each class you would like to attend and fax all pages to Missouri LTAP.

Course Location:
Course Date:
Course Name:
Attendees: (Name & Title)
Address:
City/State:
Zip:
Phone:
Fax:
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Fax: Back Form

Please select all that apply:
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Library Checkout Form: Publications, Videos & CDs
Just list the item(s) you wish to borrow below, fill out the information above and fax the page to us. It’s that easy!

For non-government or for profit organizations, call 1.866.MOSTROADS for rates

Attendence Policy
The Missouri LTAP staff would like to remind all agencies registering for classes that it is important to sign-up before the registration deadline to allow us to plan for course materials, refreshments, etc. It is equally important that you let us know at least 48 hours prior to the class if some of your employees will not be attending. Please note that you will be charged for no-shows; therefore, it is very important that you let us know at least 48 hours before. This policy was approved by our Missouri LTAP Advisory Board and ensures that we have an accurate count for class attendance. Thank you and we look forward to meeting your training needs.

Need Training But Don’t Have the Budget to Pay for Travel Expenses?
We can train your employees on location for a minimum of 21 people. You can invite other interested agencies in your area if necessary to meet the minimum. Call and discuss your training needs with our staff. Call Us to Find Out More!
Just Added to the Library

- Guidelines for Road Maintenance Levels
- Environmentally Sensitive Road Maintenance Practices for Dirt & Gravel Roads
- Beyond the Short Term: Transportation Asset Management for Long-Term Sustainability, Accountability and Performance
- Factors Contributing to Pedestrian & Bicycle Crashes on Rural Highways
- Development of a Speeding-Related Crash Typology
- Safety Evaluation of Transverse Rumble Strips on Approaches to Stop-Controlled Intersections in Rural Areas

MoDOT Cooperative Procurement Program

Become part of the joint purchasing program with MoDOT to purchase procurement items at MoDOT’s rates. Contact us to receive a Coop packet on how you can become a partner.

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Email: kristib@mst.edu
Website: www.moltap.org

SUDOKU

Missouri Chapter APWA Fall Conference
November 3-5, 2013
Lake Ozark, Missouri

2013 Damage Prevention & Excavation Safety Summit
Columbia, MO
November 6 - 7, 2013

Private vs. Public Fleets - What’s best for your agency?
APWA Web Broadcast - Nov 7, 2013

Low Impact Development Maintenance
Where’s the runoff going from YOUR streets?
APWA Web Broadcast - Nov 14, 2013

56th Annual Asphalt Conference
December 3-4, 2013
Campus of Missouri S&T

How to get buy-in for Asset Management Programs
APWA Web Broadcast – Dec 12, 2013

2014 North American Snow Conference
Duke Energy Convention Center
Cincinnati, Ohio - May 4 – 7, 2014