WV LOCAL TECHNICAL ASSISTANCE PROGRAM

COUNTRY ROADS & CITY STREETS

VOL. 33 NO. 2 WEST VIRGINIA UNIVERSITY® BENJAMIN M. STATLER COLLEGE OF ENGINEERING AND MINERAL RESOURCES FALL/WINTER 2018

SNOW AND ICE CONTROL WORKSHOP MILESTONE

This is one of two Henderson Brine Extreme mobile brine making trailers the WVDOH purchased in summer 2018. This style of brine maker is able to be moved between organizations and make brine on site, instead of making brine at a central location with a fixed brine maker and trucking it to the organizations.

Heavy rain didn't bring a dark cloud over this year's workshop, at least metaphorically speaking. It also didn't stop 200 participants from making their way to the 27th annual Snow and Ice Control Workshop, held on September 27 in Summersville, WV. The WV LTAP was excited to meet this 27-year milestone of hosting this event! As in past years, this year's agenda featured a variety of presentations, outdoor demonstrations, and exhibitors to help West Virginia state and local agencies prepare for winter and its challenges.

Diana Clonch was this year's featured speaker; she presented two sessions regarding winter maintenance titled *The Basics, Part I and Part II*. Part I of her presentation discussed winter weather impacts, weather factors, materials and treatments, and common application rates. Part II reviewed emerging winter maintenance trends, operational techniques, new technology, equipment cleaning and maintenance, and safety.

ltap West Virginia
WV Local Technical Assistance Program

THIS ISSUE

WestVirginiaUniversity.
BENJAMIN M. STATLER COLLEGE OF ENGINEERING AND MINERAL RESOURCES

WV Local Technical Assistance Program

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Both local and state agency attendees participated in this year's event.

The WVDOH brought one of their new Ford F-550 Crew Cab 1 Ton dump trucks, with stainless dump body, stainless Henderson spreader insert, and Henderson plow. The specifications on these crew cab dump trucks will allow WVDOH work crews to travel to and from worksites more efficiently.

WVDOH trainers Chanon Mullens and Matt Long spoke to the group about backing safety.

In addition to using salt brine to pretreat roads or spray on rock salt as it leaves the spreader, many agencies have found a newer use for brine – direct liquid application (DLA), which sprays brine during the storm. Many agencies are finding success with liquid only routes. Jeff Pifer discussed ways the WVDOT and West Virginia municipalities could incorporate DLA into their winter maintenance operations in his presentation *Using Direct Liquid Application in Your Winter Operations.*

Ron Eck from the WV LTAP presented the workshop's last general session, titled *Public Works Agencies on Trial – You be the Judge/Jury.* Ron's presentation detailed liability exposure agencies face arising out of negligence claims in regards to snow and ice control activities. He presented facts associated with actual tort claims regarding both motor vehicle crashes and pedestrian slip and fall incidents. As part of a hands-on activity in this session, attendees assessed the merit of these claims, and if the claim had merit, suggested lessons learned on how the agency might prevent such incidents from happening in the future.

Outdoor demonstrations are a vital component each year. Unfortunately, Mother Nature was not on our side and our outdoor demonstration portion shifted to indoor demonstrations; however, attendees were still able to see equipment and demonstrations up-close.

The WV LTAP would like to thank everyone who was involved with this year's workshop, including attendees, presenters, exhibitors, the WVDOH for providing equipment, and the Summersville Arena and Conference Center staff. If you have topic ideas or any other suggestions for next year's Snow and Ice Control Workshop, scheduled for **October 2**, email Kim at kim.carr@mail.wvu.edu.

We want the 28th event to be even better, and we hope to see you there!

ROADWAY MANAGEMENT CONFERENCE

The fall Roadway Management Conference (RMC) was a success! Over 200 attendees joined the Mid-Atlantic LTAP Region in Gettysburg, PA October 15-17, 2018. The conference included a series of educational presentations, vendor interactions, and a showcase of educational and product demonstrations. Eighteen breakout sessions on maintenance, engineering, innovation, and communication skills topics comprised the bulk of the program. A sampling of the topics presented included high friction surface treatments, bridge inspection, sign installation and maintenance, working with difficult people, using salt brine, and pavement preservation.

During the demonstrations, participants were able to learn more about live electrical line safety, crack sealing, various asphalt patching materials, chainsaw safety, concrete culverts, salt brine tanks, a variety of equipment, and more.

To access resources and photos from this year's event, visit the dedicated Roadway Management Conference website **roadwaymanagementc.wixsite.com/home.** This website will also be updated as information becomes available for the 2019 conference. Tentatively, we are looking at October 21–23 at a location in Maryland.

Please take a few minutes to check out the conference website and consider attending the 2019 conference. Attendees sharing their successes, challenges, and making new connections is at the heart of this event, and we'd love to have your participation!

YOU SAID

Topics were all good. Looking forward to next conference.

Keep offering people skills sessions.

Glad that this conference started up again. I find this one of the most useful ones!

Great job! Keep up the good work!

This was a good mixture of topics and wish there were more conferences like this one.

roadwaymanagementc.wixsite.com/home

RMC participants learned more about chainsaw safety.

Cold mix patching materials were some of the products demonstrated.

The power line safety demonstration showcased the importance of working safely around power lines.

A FOCUS ON SAFETY DURING WINTER MAINTENANCE OPERATIONS

Information for this article is adapted from the Clear Roads Training for Winter Maintenance Supervisors and Operators Safety Module. Adapted and reprinted with permission. For more information, or to request access to these training modules, please visit http://clearroads.org/request-for-training-modules-form/.

Winter operations are a backbone of West Virginia street and roadway departments; focusing on safety while conducting these operations is a must. Winter weather inherently poses various hazards, such as cold weather, poor visibility (both when driving on the roads and in the agency's yard), long shifts, working in the dark, inexperienced drivers…the list goes on and on. While we can't control the weather and some of these other hazards, there are things that can be done to enhance safety.

SNOW PLOW OPERATOR BACKING SAFETY

Did you know that the number one cause of commercial motor vehicle crashes is backing up? Backing up is also one of the most dangerous maneuvers that drivers do in the yard. While you are never going to eliminate backing up your trucks, here are a few techniques that can help keep you and your co-workers safer.

Have someone act as a spotter. Make sure the spotter and driver agree on hand signals prior to backing up. The driver and spotter should both maintain visual contact with each other while the vehicle is backing.

Get out of the vehicle. Prior to backing, check your surroundings, including above, under, the sides, and the rear of the vehicle. Don't forget to look at the equipment on the back of your truck and factor this in when backing. For instance, note the spinner, chute, spray bar, tailgate and lights and account for them when backing.

Verify swing clearance. Do you have enough room to safely back where you need to?

Warn others that you are about to back. Public works yards are noisy, busy places. Giving others a heads-up that you are about to back helps keep everyone safer.

Back towards the driver's side when possible. This is called sight side backing. By backing toward the left side, the driver has better visibility and control when compared to blind side backing, which is backing toward the right side of the vehicle.

Eliminate distractions. Turn off the radio. Don't be on the phone.

Use your mirrors and drive slowly. This will help you be more aware of your surroundings and enable you to stop quickly if needed.

STOCKPILE SAFETY

The following tips regarding safe operating practices when working on or around stockpiles comes directly from the Salt Institute. http://www.saltinstitute.org/wp-content/uploads/2013/09/Salt-Storage-Handbook-2015.pdf

- Never approach the vertical face of a stockpile on foot or in a vehicle closer than the vertical dimension of the pile; it might collapse and cover you in an avalanche.
- Never park next to a stockpile or next to equipment working a stockpile.
- Never position yourself between the face of a stockpile and an immovable object (such as a loader or other vehicle).

- When working on top of a stockpile, never approach the crest closer than 15 feet.
- Always ensure that you have proper footing when accessing the top of a stockpile, and always be alert for sinkholes or other openings in the surface of the pile.

ON THE ROAD SAFETY

It's essential to conduct dry runs and be knowledgeable about your route as there are several hazards you might encounter while performing winter maintenance. Make sure to note any hazards and put them on your route map so you know exactly where they are located. Talk to other plow drivers that have driven your route and see if they have any guidance about hazards they have encountered. This could be something like a raised surface that has caused damage to the plow. There are many common items that may not be problematic in good weather, but can cause issues when snow and ice covered. For instance, obstacles to look out for might include: railroad crossings, manhole covers, bridge expansion joints, curbs, guardrails, storm drains, steep inclines, low overhead hazards, mailboxes, and so on.

It's important when you are operating the plow to always be aware of your environment, look ahead, stay alert, recognize potential hazards, decide on an appropriate response and execute your response. Remember, there are hazards you might encounter that weren't there during your fall dry run, such as a disabled car on the shoulder or a wreck.

Using caution when negotiating curves is another vital skill when operating a plow truck. The plow driver should enter curves at least 5 mph below the posted speed limit, avoid braking in a curve, and start at a slower speed and accelerate when moving into the curve.

MAINTAINING CONTROL OF YOUR PLOW TRUCK

Having strategies to control your truck, and being knowledgeable about how your truck performs loaded and empty, will make you a safer driver. Some questions that you need to be able to answer are: How fast can your truck stop with a full load? How does your truck handle when empty? How does your truck perform with the [bed] up?

Keep in mind, plow trucks do not maintain a constant center of gravity.

- Load stability changes constantly during a shift.
- Load stability is in constant flux.
- Load can shift front to rear and side to side.
- Plow and wing components can increase instability.
- Raising/lowering the dump [bed] will change the center of gravity.
- Amount of material in the dump [bed] will change the center of gravity.
- The higher the truck bed, the lower the truck's speed should be.

STAY ALERT. COME IN RESTED FOR YOUR SHIFT

While plowing:

- Stay hydrated – drink water.
- Eat healthy snacks – keep an even energy level.
- Avoid the ups and downs of high sugar or high caffeine drinks/foods.
- Open the window.
- Keep a cool cab.
- Get out and walk around when re-fueling, re-filling.
- Sing/talk out loud.
- Move during your breaks, don't just sit.
- Communicate with supervisor if longer breaks are needed.
- Develop a system that works best for you.

TIPS FROM EXPERIENCED DRIVERS REGARDING NIGHT PLOWING

"During heavy snowfall, use the truck headlights on dim rather than the high mounted 'plow lights.' The plow lights tend to reflect heavy snowfall, blinding the operator."
- Monty Mills, Washington DOT

"If the road is wet, the temp is likely to drop as it gets dark, which could cause ice. Keep a close eye on the surface temp. As it starts to set up, it might sparkle under the head lights. Use bridge decks as a first read."
- Justun Juelfs, Montana DOT

"I have driven on roads where the wind is blowing in the same direction and at the same speed which you are trying to travel. The snow appears to be falling straight down, reducing visibility. You may have to reduce speed so that you are not traveling at the same speed as the wind. You may also have to adjust the plow direction so the snow plume does not reduce visibility even more."
- Cliff Spoonmore, Wyoming DOT

TAILGATE SAFETY BRIEFING

Known by different names, tailgate safety talks are a staple of safety programs with public works agencies across the country, as well as with safety-conscious contractors. They can take place as often as you find helpful, for instance weekly, monthly, or in connection with a new activity or season.

The idea of a tailgate safety talk is to take a discrete activity, practice, or piece of equipment and drill into it quickly in a way that is relevant to what your crews are doing or are likely to encounter. Typically, you'll talk about the dangers or risks, some best safety practices, perhaps some statistics, and try to relate case studies from OSHA or elsewhere. Used in conjunction with your existing practices and policies, tailgate safety talks can help build a culture of safety with your crews.

Safety Talk Guidelines

You can carry out tailgate safety talks however you find best, but some guidelines to consider include:

- Hold talks on a regular basis – weekly or monthly – so crews get used to them and see them as a regular part of the job and as a resource for their protection.
- Keep them short – they are focused on a specific, limited topic, so they needn't be more than 10-15 minutes long.
- Time them right so they don't "interfere" with the work – the beginning of a work shift is a great time, but they can also be part of a "lunch and learn" session.
- Refreshments – always a good idea if you can make it happen. If it's a morning briefing, coffee and pastries will get their attention. If it's lunch time, you can bring in sandwiches or pizza.
- Include props when you can – if the topic is ladders have one or more at the ready to point to or demonstrate with. If it's fall protection, have a harness on hand.
- Leave time for questions and encourage interaction.
- Keep it light – these safety topics are serious business, but the talks should be light-hearted and presented positively. They are not the place to single out crew members about incidents in the past. Although you can certainly make reference to them in a non-critical way.
- Incorporate your agency's policies and the specific challenges of your equipment, geography, climate, personnel policies, safety requirements, and so on.
- Later…lead by example – if your crew members see you practicing what they heard from you during the talk, it can be a powerful tool. However, when you fail to practice what you preached, it can quickly undermine your safety culture.
- Handouts – consider having handouts printed out in color or black and white for the crew members to follow along and refer to later.
- Sign in sheets – more than to just show active participation in safety training by your employees, these can also be used as positive documentation of your agency's commitment to safety should an accident occur.

COMPRESSED AIR – TAILGATE SAFETY BRIEFING

Compressed air is often misjudged and not recognized as a hazard because people think of air as harmless.

- Air forced into body tissues through skin can cause an air embolism (air bubbles in the bloodstream), which can be fatal if it reaches the heart, lungs, or brain.
- Inflation injuries of the intestine can be caused by air being directed at private body areas. A worker in the U.K. died of injuries sustained through horseplay with a compressed air hose. The act of horseplay can be deadly!
- Air blown into the mouth at only 5 PSI can rupture the esophagus or the lungs.
- Eye and ear injuries can occur from a blast of air or flying particles. These types of eye and ear injuries can cause partial or total loss of sight and hearing.
- The sound from a compressed air hose can reach 120-130 dB, which is well above OSHA's 90dB permissible exposure limit.
- 40 PSI can blow out an ear drum from 4 inches away and possibly cause brain damage.
- As little as 12 PSI can blow an eye out of its socket!
- Flying particles can cause cuts and bruises to any part of the body.

Remember:

- Hoses and lines should be rated to meet the maximum operating pressure of the equipment.
- Always wear proper Personal Protective Equipment (PPE):
  - Safety glasses with side shields and a face shield if needed
  - Hearing protection
  - Respiratory protection, depending on the material(s) being worked with
  - Normal work clothing is not protection against compressed air.
  - If you must clean with compressed air, do not use air that is set above 30 PSI. You must also have effective chip guarding and proper PPE (OSHA standard 1910.242(b))
- NEVER USE COMPRESSED AIR TO CLEAN CLOTHING OR HAIR!
- NEVER POINT COMPRESSED AIR AT YOURSELF OR ANOTHER PERSON!

Action Item:

Go through the manufacturer's safety recommendations in the air compressor's safety manual and read and understand the maintenance requirements for the compressor.

Resources and References:

VOSHA/OSHA Standards 29CFR1910.135 and 1926.100 for more information Standards are available at http://www.osha.gov/laws-regs.html

This safety talk is courtesy of the Cornell Local Roads Program in cooperation with the National Local Technical Assistance Program Association's Tailgate Talks.

TRAFFIC INCIDENT MANAGEMENT

Information from FHWA/DOT: https://www.fhwa.dot.gov/innovation/everydaycounts/edc-2/tim.cfm and the WV TIM website: timwv.com.

What are the differences between Traffic Incident Management, Incident Command and Emergency Management?

These three terms are often confused and sometime used interchangeably. They mean distinctively different things to different people.

Traffic Incident Management is the set of actions and procedures taken by multiple agencies and private sector partners acting cooperatively in a coordinated manner to prepare for and quickly and safely detect, respond to, and remove traffic incidents, and effectively address their lingering effects on traffic flow and safety.

What is Traffic Incident Management?

Traffic Incident Management, known as TIM, includes a multi-disciplinary approach to identify and respond to incidents quickly and safely. The United States Department of Transportation, Federal Highway Administration has an initiative to provide TIM training opportunities in every state. In our state, the program is managed by the West Virginia Department of Transportation, Division of Highways, Traffic Engineering Division.

West Virginia's TIM Training Program

The WV TIM Training Program now has a dedicated website: **timwv.com** that is a great resource to learn more about TIM, such as the West Virginia laws supporting safe quick clearance and responder safety. You can also request training or see training events that have already been scheduled on the event calendar. You will definitely want to visit this website if you are in any way involved with assisting with traffic incidents.

Incident Command (ICS) is the command and control structure for the effective management of personnel and equipment resources during an incident. Through ICS, agencies working at an incident scene are able to achieve:

- Common terminology
- Modular organization
- Integrated communications
- Unified command structure
- Consolidated action plan
- Manageable span-of-control
- Predesignated incident facilities
- Comprehensive resource management

Emergency Management is a general term that describes public safety agencies as well as the set of practices and procedures used in response to an emergency incident. There are also Emergency Management agencies at the state and local level that are tasked with the planning and preparation for major natural and man-made emergencies.

The WV TIM Training Program now has a dedicated website: timwv.com.

HEADS-UP! DISTRACTED PEDESTRIANS

Information adapted from the Connecticut Strategic Highway Safety Plan. Reprinted with permission from the CT LTAP.

According to the National Highway Traffic Safety Administration's (NHTSA) National Survey on Distracted Driving, 86 percent of people feel unsafe when they see a distracted driver texting or reading emails.[1] Even more vulnerable, and yet less discussed, are distracted pedestrians. A study published by Ohio State University found that the number of pedestrian emergency room visits for injuries related to cell phones tripled between 2004 and 2010.[2]

In 2012, more than 1,500 pedestrians nationwide were treated in emergency rooms because they were injured while walking and engaging in cell phone conversations.[3] Nearly 129,000 pedestrians were treated for non-fatal crash-related injuries in 2015.[4] Pedestrian deaths increased from 11 percent of all traffic fatalities in 2001 to 16 percent in 2016.[5] While smartphone-induced distracted pedestrian behavior is not the sole factor contributing to pedestrian fatalities, it is an acute concern.

Smartphone use results in visual distraction, which can reduce pedestrian alertness to surroundings and shift focus from where it is needed: roadways, upcoming intersections, and crosswalks. Smartphone use has increased 236 percent from 2010 to 2016, and during that same time period, the number of pedestrian fatalities in the United States increased by almost 50 percent.[3] Pedestrian deaths, as a proportion of all motor vehicle crash deaths, is the highest its been in 30 years.[6]

Time to Live

Distractions while walking or driving can make a bad situation worse by increasing the amount of time it takes for an individual to react to a dangerous situation. Research indicates that mean reaction times increase from 0.99 seconds to 2.72 seconds if the individual is engaged in a complex text (defined as sending a text that is more than 10 characters long).[8] If the person is distracted, their slowed reaction time may cause them to miss their window to take evasive action. Slower vehicle speeds and undivided attention to surroundings provide pedestrians and drivers a greater amount of time for both parties to actively avoid a collision. Only a few seconds could be the difference between a collision and no-collision, or a fatality and an injury.

Mean Reaction Time(s) in Seconds

3.0 Complex Text

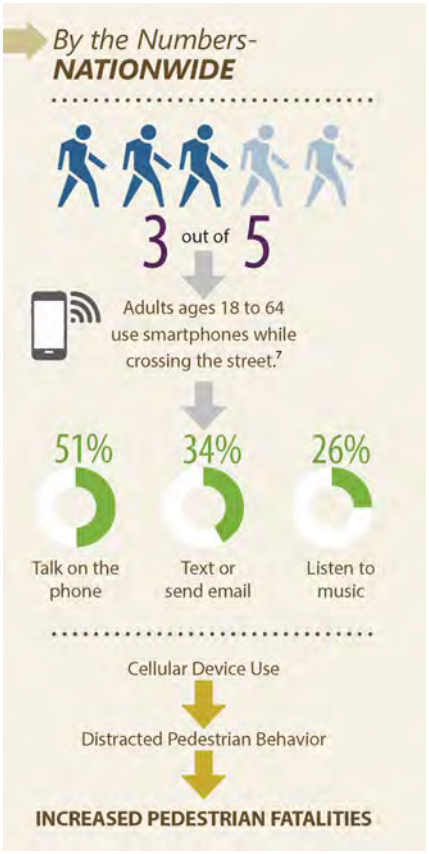
2.5 Simple Text

2.0 Complex Conversation

1.5 Simple Conversation

1.0 No Phone

Phone Use Conditions



Innovative Solutions

A variety of countermeasures that either address distraction or generally promote a safer walking environment can be deployed to reduce the risk of pedestrian crashes, serious injuries, and fatalities. Some noteworthy examples include:

High-Visibility Enforcement. Between 2009 and 2016, pedestrian deaths increased by 50 percent at non-intersection locations.[9] A high-visibility enforcement campaign can be used to increase the awareness levels of pedestrians. The Florida Department of Transportation used high-visibility enforcement and a branded campaign, "Alert Today Alive Tomorrow," to increase awareness in the communities targeted by the campaign.[10]

Pedestrian-Friendly Crossings. Historically, intersections have been an especially vulnerable place where pedestrian fatalities occur in the highest numbers.[11] Therefore, making roadway crossings pedestrian friendly can help reduce pedestrian fatalities. Pedestrian refuge islands create a safe halfway point where pedestrians can pause before completing their crossing. In addition, raised crosswalks can be installed to encourage a reduction in the speed of oncoming traffic, making it safer for the pedestrian to cross.

Reduce Speeds. One way to reduce speed is to implement traffic calming measures such as a roadway configuration known as the Road Diet. Narrowing or decreasing the number of lanes reduces crashes and vehicle speeds and can provide designated space for pedestrians and bicyclists. Speed humps, curb extensions, transverse striping, and other traffic calming measures can also be used to slow traffic.

Pedestrian Hybrid Beacons (PHB), also known as High-Intensity Activated Crosswalk (HAWK) Beacons. The installation of pedestrian activated HAWK beacons helps to protect pedestrians by providing warning lights for drivers and requiring the active participation and attention of the pedestrian.

Crosswalk Visibility Enhancements. Data shows that 75 percent of pedestrian deaths occur at night.[12] Adding street lighting to pedestrian crossing areas can reduce pedestrian crashes by 57 percent.[13]

Look up or pay up. To reduce the chances of pedestrians being injured while crossing a street and actively using a mobile electronic device, Honolulu has chosen to fine citizens. The violation costs are progressive and can result in up to a $99 penalty for the violator.[14]

"Heads Up" Campaign. Delaware highway safety officials placed decals on the sidewalks of busy intersections. The decals prompted pedestrians to "look up" and were part of a walk smart campaign initiated to educate pedestrians about safe walking practices.[15] Placing these decals on the ground put them in the line of sight for pedestrians looking down at their phones.

1 NHTSA, Office of Behavioral Safety Research, National Survey on Distracted Driving Attitudes and Behaviors, DOT HS 811 729 (Washington, DC: April 2013), p. 106.

2 Marcene Robinson, "Think it's safe to type a quick text while walking? Guess again," February 26, 2014. University of Buffalo News Center.
Accessible at: http://www.buffalo.edu/news/ releases/2014/02/022.html

3 NHTSA, Office of Behavioral Safety Research, Effect of Electronic Device Use on Pedestrian Safety, DOT HS 812 256 (Washington, DC: April 2016), p. ii.

4 Centers for Disease Control and Prevention, Pedestrian Safety, Accessible at: https://www.cdc. gov/motorvehiclesafety/pedestrian_safety/index.html

5 Governors Safety Highway Association. Pedestrian Traffic Fatalities by State 2017 Preliminary Data. (Washington, DC: February 2018)

6 Wen Hu and Jessica B. Cicchino, "An examination of the increases in pedestrian motor vehicle crash fatalities during 2009-16," May 2018. Insurance Institute for Highway Safety. Accessible at: http://www.iihs.org/frontend/iihs/documents/masterfiledocs.ashx?id=2160

7 Judith Mwakalonge, Saidi Siuhi, and Jamario White, "Distracted walking: Examining the extent to pedestrian safety problems." Journal of Traffic and Transportation Engineering 2, no. 5 (October 2015): 327-37.

8 Pushpa Choudhary and Nagendra R. Velaga. "Modelling driver distraction effects due to mobile phone use on reaction time." Transportation Research Part C: Emerging Technologies 77 (April 2017): 351-65.

9 Wen Hu and Jessica B. Cicchino, "An examination of the increases in pedestrian motor vehicle crash fatalities during 2009-16," May 2018. Insurance Institute for Highway Safety. Accessible at: http://www.iihs.org/frontend/iihs/documents/masterfiledocs.ashx?id=2160

10 USF Center for Urban Transportation Research, Florida's "Pedestrian & Bicycle Focused Initiative," July 2018. Florida Department of Transportation.
Accessible at: https://www. alerttodayflorida.com/

11 Wen Hu and Jessica B. Cicchino, "An examination of the increases in pedestrian motor vehicle crash fatalities during 2009-16," May 2018. Insurance Institute for Highway Safety. Accessible at: http://www.iihs.org/frontend/iihs/documents/masterfiledocs.ashx?id=2160

12 Governors Highway Safety Association. Pedestrian Traffic Fatalities by State 2017 Preliminary Data. (Washington, DC: February 2018)

13 A. Polus and A. Katz, "An analysis of nighttime pedestrian accidents at specially illuminated crosswalks." Accident Analysis and Prevention 10 (1978):223–228.

14 City and County of Honolulu, Bill 6(2017), CD2, FD2, (Honolulu, HI), Accessible at: http://www4.honolulu.gov/docushare/dsweb/Get/Document-196183/DOC007%20(14).pdf

15 Judith Mwakalonge, Saidi Siuhi, and Jamario White. "Distracted walking: Examining the extent to pedestrian safety problems." Journal of Traffic and Transportation Engineering 2, no. 5 (October 2015): 327-37.

ASK AN ENGINEER

Andrew Morgan, P.E. and Ron Eck, P.E. - WV LTAP

Q Do more signs equal safer municipal streets and must every hazard be signed to reduce liability concerns?

A The more signs you have on your streets, the more likely the signs will be ignored. Drivers become numb to signage when it is overly abundant, a condition often called sign clutter. This tends to lead to violations (speeding, not stopping for stop signs, etc.), which can decrease safety.

Additionally, you are legally responsible for properly maintaining all of the traffic control devices along your roads. The more signs you have, the more signs you need to maintain and the larger budget that will be required to do so. Nearly 30 percent of tort cases filed against roadway agencies pertain to signs. When you have signs not in conformance with the MUTCD, you are increasing your agency's liability risk.

Speed Limit Signs – According to WV State Code (17C-6-1b2), the speed limit in any business or residential district is twenty-five mph, unless approved by the WVDOT (17C-6-3e). Because of this statute, there is no requirement to have speed limit signs on every road. Any unsigned road in the city has a speed limit of twenty-five mph. Speed limit signs should be kept to those locations where you may experience speeding regularly and at those locations where visitors enter the city. In other locations you should consider removing them. A supplementary plaque that reads CITYWIDE is available to notify road users that twenty-five mph is the limit everywhere in the city.

Street Name Signs – Street name signs are critical. They help ensure that your emergency services can accurately respond to emergency calls. Street name signs also help reduce confusion among motorists, reducing the amount of turnarounds required.

STOP Signs – STOP signs provide important information to drivers about right-of-way assisgnment at busy intersections. STOP signs should be installed at moderately used cross-streets where they intersect with a busier street. STOP signs are not required at every intersection, though. An intersection with no STOP signs is to be treated as an all-way yield (WV State Code 17C-9-1). Furthermore, drivers emerging from an alley are required to stop and yield to traffic on a crossing road (WV State Code 17C-12-6). Therefore, it is recommended that you:

- Evaluate your STOP signs with this knowledge to determine if the sign is actually needed.
- Consider eliminating STOP signs from alleys and not installing them in the future.
- If a STOP sign is not effective, consider a larger size or add a retro-reflective strip to the post.
- Remind residents, elected officials, and others of driver responsibilities related to intersections as per WV State Code. This may be part of a broader educational outreach program.

Warning Signs – Warning signs (yellow, diamond shaped) are intended to warn drivers of specific unexpected or not readily apparent conditions on or near the road. Warning signs should be used at places that meet this criteria (busy pedestrian crossings, sharp curves, parks and playgrounds, etc.). If the hazard is readily apparent, there is no need to mark it. One example is a DEAD END sign; if you can see that the road ends from the intersection, it is not needed, but if the end of the road is obscured, the sign may be useful.

The WV LTAP staff is available to conduct on-site technical assistance to street departments and municipalities regarding roadway signage. Please contact Kim or Andrew to schedule a free site visit.

EVERY DAY COUNTS ROUND 5

Information from the FHWA EDC Website: fhwa.dot.gov/innovation/everydaycounts/

The Federal Highway Administration's Every Day Counts (EDC) program is a state-based model that identifies and rapidly deploys proven, yet underutilized innovations to shorten the project delivery process, enhance roadway safety, reduce traffic congestion, and improve environmental sustainability. Proven innovations promoted through EDC facilitate greater efficiency at the State and local levels, saving time, money and resources that can be used to deliver more projects. EDC is your On-Ramp to Innovation

The innovations listed below are those that are included in the latest EDC Round 5. To learn more about this program or any of the initiatives, please visit fhwa.dot.gov/innovation/everydaycounts/ or contact the WV LTAP.

Advanced Geotechnical Exploration Methods

Conventional subsurface exploration methods provide limited data for project design, which can result in constructability issues and increased cost. Advanced geotechnical exploration methods offer solutions for generating more accurate geotechnical characterizations that improve design and construction, leading to shorter project delivery times and reducing the risks associated with limited data on subsurface site conditions.

Collaborative Hydraulics: Advancing to the Next Generation of Engineering (CHANGE)

Advances in hydraulic modeling tools are providing a more comprehensive understanding of complex flow patterns at river crossings versus traditional modeling techniques. These 2D hydraulic modeling and 3D computer visualization technologies also facilitate more effective communication and collaboration, improving agencies' ability to design safer and more cost-effective and resilient structures on waterways.

Project Bundling

Many States continue to see an increase in the number of highways and bridges needing attention, and those that are posted for reduced loads adversely affect travel, freight movement, and emergency response times. Project bundling helps address this national issue. By awarding a single contract for several similar preservation, rehabilitation, or replacement projects, agencies can streamline design and construction, reduce costs, and effectively decrease transportation project backlogs.

Reducing Rural Roadway Departures

Reducing fatalities on rural roads remains a major challenge in the United States. Roadway departures on the rural road network account for one-third of traffic fatalities. Systemic application of proven roadway departure countermeasures, such as rumble strips, friction treatments, and clear zones, helps keep vehicles in their travel lanes, reduce the potential for crashes, and reduce the severity of those crashes that do occur.

Safe Transportation for Every Pedestrian (STEP)

Pedestrians accounted for 16 percent of all roadway fatalities, and crashes are predominantly at midblock and intersection crossing locations. As pedestrian safety continues to be a concern for transportation agencies across the country, cost-effective countermeasures are available to assist practitioners in providing safer crossings for all pedestrians.

Unmanned Aerial Systems (UAS)

UAS can benefit nearly all aspects of highway transportation, from inspection to construction and operations, by collecting high-quality data automatically or remotely. These relatively low-cost devices allow agencies to expedite the data collection needed for better-informed decisions while reducing the adverse impacts of temporary work zones on work crews and the traveling public.

Use of Crowdsourcing to Advance Operations

State DOTs and local agencies traditionally rely on data from fixed sensors and cameras that monitor single locations to operate and manage their transportation systems. Using new sources of crowdsourced traffic data, agencies have access to large amounts of reliable, real-time data with more geographic coverage of the transportation system than with traditional sources. Combining crowdsourced data with traditional data sources enables better management and operation of the transportation system through faster detection of and response to problems, faster and more accurate traveler information to the public, and more proactive and effective operations strategies.

Value Capture: Capitalizing on the Value Created by Transportation

When public agencies invest in transportation assets that improve access and increase opportunity in the community, adjacent property owners benefit through greater land value and other economic impacts. Many techniques are available to the public sector to share in a portion of this increased land value to build, maintain, or reinvest in the transportation system.

Virtual Public Involvement

Robust public engagement during transportation planning and project development can accelerate project delivery by identifying issues and concerns early in the process. Virtual public involvement techniques, such as telephone town halls and online meetings, offer convenient, efficient, and low-cost methods for informing the public, encouraging their participation, and receiving their input.

Weather-Responsive Management Strategies

More than 20 percent of crashes are weather-related, and weather-associated delays can result in significant losses in productivity and efficiency. Weather-responsive traffic and maintenance management strategies support state and local transportation agencies in deploying improved traffic control and traveler information systems that will significantly reduce highway crashes and delays resulting from adverse weather. It also promotes anti-icing strategies for reducing chloride use.

2019 BUILD A BETTER MOUSETRAP COMPETITION – *SUBMIT YOUR ENTRY TODAY!*

Have You Built a Better Mousetrap?

Have you or one of your coworkers recently built an innovative gadget or developed an improved way to accomplish an everyday task? If either of these apply, you've built a better mousetrap, and now is the time to show off your creativity and help other agencies solve problems by submitting an entry in the WV LTAP's Build a Better Mousetrap Competition.

Your entry can be anything from the development of tools or gadgets to equipment modifications to processes that increase safety, reduce costs, improve efficiency, or improve the quality of transportation. The purpose of this competition is to collect and disseminate real world examples of best practices, tips from the field, and assist in the transfer of technology.

Submit Your Entry

To enter the competition and complete the entry form, please visit the WV LTAP website at wvltap.wvu.edu. If you would prefer to submit your entry by paper copy, please contact Kim at kim.carr@mail.wvu.edu or 304-293-9924. Competition deadline is May 28, 2019.

We encourage you to also include photos and a video clip that showcases your project. Videos can be short clips taken on your smartphone or computer tablet. A WV LTAP staff member is available to help with your write-up or to take photos, should you want.

Examples

It may be helpful as you are thinking of a possible submission, to consider the following categories and examples. (The WV LTAP staff will decide which category to place your entry.)

Maintenance
tools, equipment fabrication, and methods
(e.g., lifters, reachers, modifications, assembly)

Transportation facilities improvements
(e.g., storage, access, operations, services)

Inspection and data collection
(e.g., automated/remote means, testing, time)

Asset management techniques
(e.g., GIS, mapping, decision-support systems)

Judging

Entries will be judged by WV LTAP Advisory Board Members using the criteria of cost savings, benefits to the community and/or agency, ingenuity, transferability to others, and effectiveness. Winners will be recognized in this newsletter and receive a prize.

The winning entries will be submitted into the National LTAP Build a Better Mousetrap Competition. Winners of the national competition will be announced at the annual LTAP/TTAP national conference being held in August.

Criteria

The competition is judged on the criteria listed below within the framework of a five-point rating scale. The winner is the entry that has the highest number of overall points.

Judging Criteria

Cost Savings	Benefits to the Community
Ingenuity	Transferability to Others
Effectiveness	

Five-Point Rating Scale

5 = Excellent 4 = Very Good 3 = Good
2 = Fair 1 = Poor

FREE ONLINE TRAINING OPPORTUNITY

Are you a public works employee from a local agency (i.e. street, water, sewer, park system) that would like the opportunity to participate in more online training? If your answer is yes, the WV LTAP encourages you to check out the online classes offered through the American Association of State Highway Transportation Officials (AASHTO) Transportation Curriculum Coordination Council (TC3).

Earlier this year, FHWA and AASHTO finalized an agreement providing practitioners that work for local agencies access to all the classes in the AASHTO TC3 library at no charge. Currently, free access to these classes for local agencies is guaranteed to June 2019, so we encourage you to take advantage of this training soon. The more this resource is used, the more likely it will be renewed.

What is TC3?

TC3 is AASHTO's online training library of more than 190 online training modules. Courses are developed by subject matter experts and include national best practices. All courses are available on the TC3 website and also a mobile app, available on iOS and Android systems. AASHTO's goal with TC3 is to create and maintain a fully optimized curriculum to respond to the changing needs of the transportation technical workforce.

To learn more about this opportunity and access these classes, please visit wvltap.wvu.edu.

What is AASHTO? (transportation.org)

Per the transportation.org website, AASHTO is a nonprofit, nonpartisan association representing highway and transportation departments in the 50 states, the District of Columbia, and Puerto Rico. It represents all five transportation modes: air, highways, public transportation, rail, and water. Its primary goal is to foster the development, operation, and maintenance of an integrated national transportation system.

AASHTO works to educate the public and key decision makers about the critical role that transportation plays in securing a good quality of life and sound economy for our nation.

AASHTO serves as a liaison between state departments of transportation and the Federal government. AASHTO is an international leader in setting technical standards for all phases of highway system development. Standards are issued for design, construction of highways and bridges, materials, and many other technical areas.

Example Subject Area: Winter Maintenance and Operations

Looking for additional training on winter maintenance and operations? Here are thirteen TC3 online training modules on this topic.

SICOP 1 – Introduction to Anti-Icing and Winter Maintenance

SICOP 2 – Winter Road Maintenance Management

SICOP 3 – Winter Roadway Hazards and the Principles of Overcoming Them

SICOP 4 – Weather Basics

SICOP 5 – Weather and Roadway Monitoring

SICOP 6 – Computer Access to Road Weather Information

SICOP 7 – Anti-Icing Practice in Winter Maintenance Operations

SICOP 8 – Blowing Snow Mitigation

SICOP 9 – Deicing

SICOP 10 – Equipment Maintenance

SICOP 11 – Performance Measures

SICOP 12 – Proper Plowing Techniques

SICOP 13 – Winter Maintenance Management

These courses were developed through AASHTO's Snow and Ice Pooled Fund Cooperative Program (SICOP). The SICOP 1 through 7 courses are part of the Anti-Icing/Road Weather Information Systems (AI/RWIS) series. The SICOP 8 through 13 courses are previously published winter maintenance topics from AASHTO. These courses include voice narration, photos, video clips, animation, and quiz questions to provide an interactive learning experience.

UPCOMING EVENTS

APWA WRX 61ST ANNUAL CONFERENCE
May 14-17, 2019 NORFOLK, VA

Registration is open for the American Public Works Association's (APWA) WRX Conference! The 2019 conference will be held in Norfolk, Virginia on May 14-17. The technical program, focusing on resiliency, promises to feature a diverse range of presentations covering the latest solutions to some of the toughest challenges facing public works professionals.

The APWA WRX technical conference provides the opportunity to learn about advanced techniques and cutting-edge technologies being employed across the Mid-Atlantic. Additionally, attendees will have the chance to network with equipment vendors, manufacturing representatives, public agency specialists, construction companies, and engineering firms.

Registration is open to both APWA members and non-APWA members. If you have been considering an APWA membership, but have not yet signed up for one, this is a great opportunity to network and learn more about this organization. Non-member registrants who have not been previous members of APWA may be eligible to receive a one-year membership with their paid full registration.

The **regional Road-E-O** is being held Wednesday May 15th at Norfolk's Harborfront park. Any capable manager, experienced supervisor or hard working labor force member knows the value of a good heavy equipment operator. The operators can be responsible for saving money as well as the back of their fellow employees. The nature of those who excel in the profession is to perform their job duties routinely and without much fanfare. It is rare that there is opportunity to display their talents in a competitive setting.

The APWA Equipment Rodeo affords the heavy equipment operator this opportunity. As a contestant, he or she will be competing with motorized equipment professionals from other municipalities or political entities. The focus of the competitions is on safe, fundamental driving and skillful operation of specialized heavy equipment. The rodeo events are tied directly to standard job requirements.

For more details, or to register for this event, please visit http://midatlantic.apwa.net/PageDetails/16292.

WV LTAP 2019 TRAINING

The WV LTAP staff is working on our 2019 calendar year training schedule. Please visit the website training calendar link at wvltap.wvu.edu/calendar.html. The calendar is updated on a regular basis as classes get scheduled.

The majority of our classes are offered by request, so if you would like to get specific classes scheduled at your location, please reach out to Kim at 304-293-9924, kim.carr@mail.wvu.edu, or submit a request on our website. As a reminder, with a few exceptions, there is no charge to municipalities for training, as long as you supply the training room and some light refreshments. We like to have a minimum number of ten attendees in each class, and we will gladly help you recruit participants from neighboring towns or other agencies.

Please take a look at our Roads Scholar I and Roads Scholar II classes, as well as our special topic offerings. If there is a topic that you don't see listed, please let us know. While we might not have the expertise in-house, we can often turn to the other 51 LTAP Centers to see if they have training available. Our training is applicable to a wide range of employees, including administrative, maintenance, operations, design, and technical staff.

We look forward to working with you in 2019!

COUNTRY ROADS & CITY STREETS
A newsletter of the WV LTAP

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Country Roads & City Streets is published two to four times per year. The purpose of this newsletter is to provide information that is beneficial to decision makers, elected officials, and roadway construction, maintenance, and management personnel.

The material and opinions included in this newsletter are those of the West Virginia LTAP and do not necessarily reflect the views of FHWA or the WVDOT. Every effort has been made to ensure the integrity and accuracy of both original and borrowed material. However, the West Virginia LTAP does not assume responsibility for any information that is found to be incorrect.

THE MISSION

The mission of the West Virginia LTAP is to foster a safe, efficient, and environmentally sound surface transportation system by improving skills and increasing knowledge of the transportation workforce and decision makers.

To help achieve this mission, training, demonstrations, technical assistance, and resource materials are provided.