

Every Day Counts: Weather-Response Traffic Management Fact Sheet

https://www.fhwa.dot.gov/innovation/everydaycounts/edc_5/docs/wrm-factsheet.pdf

Weather-responsive traffic management (WRTM) strategies increase the effectiveness of traffic operations during adverse road weather conditions, and weather-responsive maintenance management (WRMM) strategies help reduce costs associated with winter maintenance.

Over the last 10 years, vehicle crashes have averaged more than 5.7 million per year. Twentyone percent of those crashes—nearly 1.21 million— occurred under adverse weather conditions. On average, nearly 6,000 people are killed and over 445,000 are injured in weather-related crashes each year. Likewise, the delays associated with weather can be profound, resulting in significant losses in efficiency. WRTM strategies provide relevant and timely information to agencies on the need for appropriate traffic intervention methods to mitigate the impacts of weather-related road and traffic conditions. The result is improved mobility, reduced delays, and safer travel during inclement weather. WRMM strategies are also used by agencies to improve mobility and safety in adverse weather, as well as reduce the negative environmental impacts and costs associated with road salt use.



Weather-Responsive Traffic and Maintenance Management

The FHWA Road Weather Management Program develops and deploys road weather management strategies that help agencies respond to adverse weather conditions by providing traffic advisories and warnings to travelers and controlling the flow of traffic on the highways during inclement weather. A recent focus of the program is using mobile observations and connected vehicle data to support traffic and maintenance management. The program developed and published the Guidelines for Deploying Connected Vehicle-Enabled Weather Responsive Traffic Management Strategies. Adopting weather-responsive

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Get the Picture!



Can you tell what's wrong with this picture? Turn to page 4 to see what the problem is.

transportation**TRACKS**
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traffic and maintenance management strategies that use road weather data from Integrating Mobile Observations (IMO) and connected vehicle technologies, combined with informed decisions stemming from Pathfinder, will enable State and local agencies to be proactive and manage the system before negative impacts occur. In addition, more accurate and location-specific road weather condition data will allow appropriate traffic management strategies to be deployed where they are needed and will reduce costs associated with winter maintenance, including salt and chemical applications.

Integrating Mobile Observations involves instrumenting transportation agency vehicles with road weather sensors and other automated data collection technologies to acquire location specific data to support decision-making. Pathfinder is a collaborative effort among transportation agencies, their local National Weather Service forecast offices, and private weather service providers to provide clear, consistent, and impact-based messages for the public during weather events. www.fhwa.dot.gov/everydaycounts

Benefits

Safer Roads. Agencies can use traffic management and traveler information systems to reduce delays and crashes resulting from adverse weather.

Informed Travelers. Agencies can provide weather impact statements that enable drivers to make better decisions regarding whether, when, and where to travel.

Environmental Sustainability. The negative environmental impacts of road salt use by many agencies can be reduced as the right quantities

of chlorides and other chemicals are only applied where they are warranted.

State of the Practice

States and local agencies that have readily adopted Pathfinder and IMO are leading the deployment of WRTM and WRMM. States that have already implemented or are implementing WRTM strategies using mobile observations from vehicles include Wyoming, Michigan, South Dakota, Washington, and Delaware. States that have implemented winter maintenance/anti-icing strategies using IMO data include Minnesota, Michigan, and Nevada. In addition, several local agencies, such as the City of West Des Moines, Iowa, have made extensive investments in vehicle-based technologies for more efficient and effective traffic and maintenance management.

Resources FHWA EDC-5

Weather-Responsive Management Strategies: https://www.fhwa.dot.gov/innovation/everydaycounts/edc_5/weather_strategies.cfm

FHWA Road Weather Management Program <http://www.ops.fhwa.dot.gov/weather>

For additional information, please contact: Roemer Alfelor FHWA Office of Operations (202) 366-9242 Roemer.Alfelor@dot.gov or Paul Pisano FHWA Office of Operations (202) 366-1301 Paul.Pisano@dot.gov



Tailgate Talks: Cold Weather Precautions

Originally published as the January 2016 "Safety Pins" by Philip E. Spiezio, Safety Officer, Washington County Office of the Safety Officer

The four environmental conditions that cause cold- related stress are low temperatures, wind, dampness, and cold water. Two or more of these conditions together can make working outdoors very dangerous.

Here are a few tips to keep in mind when working outdoors in cold weather:

- Wear appropriate protective clothing—Dress in layers
- When working outside in the winter it is very important that you dress appropriately. When dressing for outside work, think of the THREE W's when building your layers, WICKING, WARMING and WEATHER.
- The first layer should be a WICKING Layer that will draw moisture away from your body. Use synthetic base layers with a wicking apparel to draw sweat away from your body.
- The second layer should be a WARMING Layer. This layer should be your insulation. Select wool, fleece or multiple flannel shirts to insulate yourself from the cold and trap air that will be warmed by your body heat. You can then remove pieces of the warming layer as needed.
- The third layer should be your WEATHER Layer. Select a garment that will provide additional warmth and protect you from the snow, rain and wind. The Weather Layer should not absorb moisture.
- Pay special attention to protecting your feet, hands, face and head. Up to 40 percent of your body heat can be lost when your head is not protected properly.

- Eat high calorie foods and drink liquids that do not contain caffeine or alcohol when working outside in cold temperatures. Proper hydration is a must. Even though it is cold continue to hydrate and drink plenty of water.
- Take frequent short breaks, avoid exhaustion or fatigue as energy is needed to keep your body warm as well.
- When possible, work during the warmest part of the day.
- Work in pairs, when the weather is very cold and windy.
- Seek warmth when you first start to feel the early signs of your body getting cold.
- Keep in mind that even at 10 degrees with a wind speed of twenty miles per hour— exposed skin can freeze in as little time as 1 minute.

REMINDER: You can access many other tailgate talks at https://www.t2center.uconn.edu/tailgate_talks_for_ltap_center_use.php

Resources and References:

American Red Cross Top Ten Cold Weather Safety Tips

<https://redcrosschat.org/2015/01/06/top-ten-red-cross-cold-weather-safety-tips/>

National Weather Service "Prepare for Cold Weather" Webpage

<https://www.weather.gov/safety/cold-before>

OSHA Cold Stress Guide

<https://www.osha.gov/SLTC/emergencypreparedness/guides/cold.html>

Outstanding Service to the State of North Carolina

As part of LTAP's partnership with the North Carolina Chapter of the American Public Works Association we are excited to recognize two public servants who received special awards in 2018.

The 2018 Streets Achievement Award was presented to Robert Cooper of the Town of Matthews, NC in recognition of Outstanding Achievement and Contributions to the Public Works Profession.

The 2018 Streets Manager of the Year was presented to Ronald Moore of the Town of Wake Forest, NC in recognition of Significant contributions to the advancement of Street Management and Operations, specifically for effective and innovative leadership and management, contributions to the local community, the use of sustainable practices in daily operations, and exemplary customer service practices





Get the Picture!

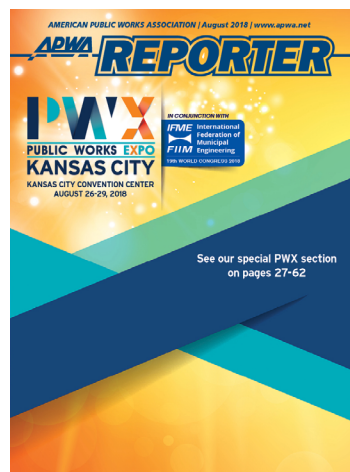
by Timothy B. Baughman, PE, ITRE's Highway Operations and Safety Manager

You'll probably note the obvious – sign condition. But what about sign support?

The Manual on Uniform Traffic Control Devices states that sign supports shall be crashworthy. To determine if something is crashworthy, there is extensive testing criteria where traffic devices are hit by crash-test vehicles to determine if they cause loss of control of the vehicle, undesirable roll or pitch, intrusion into the vehicle compartment, injurious deceleration, etc. And this crashworthiness is required of all roadside appurtenances – both temporary and permanent – such as

guardrail, crash cushions, bridge railings, permanent sign supports, as well as work zone temporary sign supports. This criteria has been required since the early 90's when the 'National Cooperative Highway Research Program Report 350' was adopted by the Federal Highway Administration. And it is incumbent upon manufacturers to guarantee that their products are NCHRP 350 compliant, and for those making these purchases to ensure the manufacturer can show their product is NCHRP 350 approved.

American Public Works Association Reporter



Have you heard of the Reporter, a monthly newsletter from APWA? This resource is chock full of useful tips and stories from other public works professionals. From the latest edition we particularly recommend the following articles:

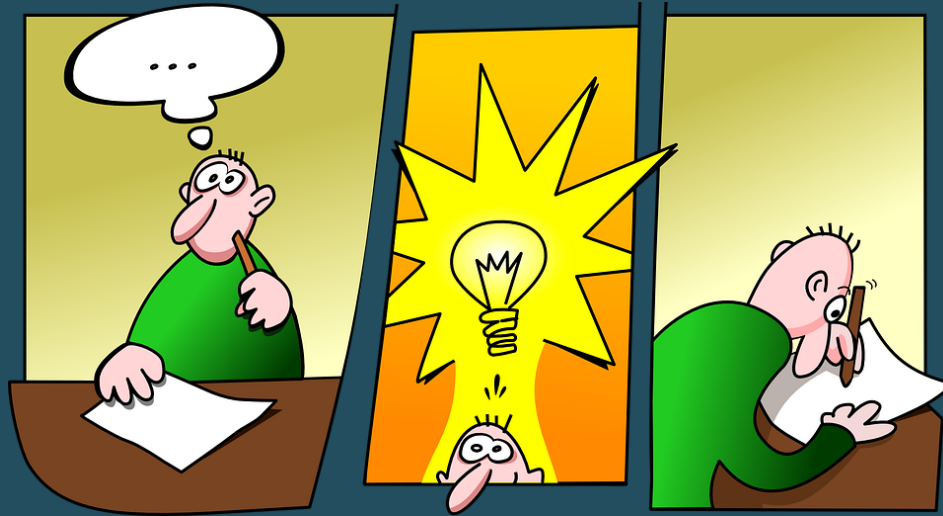
Top 5 Tech: Technology in 2019: The Five Key Trends in Public Works, Kelly Koepke

Count me in: Strategies for appreciating and engaging a diverse workforce, Kandace Thomas

Emergency management-related resources for public works, Bill Bowman

Find all of them at

https://issuu.com/apwa/docs/201901_reporteronline



Build a Better Mousetrap

Announcing North Carolina's first year holding a Build a Better Mousetrap Competition! We're excited to join in with other LTAP's across the country to hold a Build a Better Mousetrap Competition to recognize and celebrate the innovations of local government employees.

Have You Built a Better Mousetrap?

Have you or one of your coworkers recently built an innovative gadget or developed a better 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 NC 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.

ENTRY FORM <https://golinks.ncsu.edu/ltap-mousetrap-form>

Or to find out more about this competition, get links to previous winners from other states, and learn how to submit your own entry visit our webpage <https://itre.ncsu.edu/focus/ltap/build-a-better-mousetrap/>

Advanced Roads Scholar Graduates

This year we've had a record number of graduates from the Advanced Roads Scholar Program and we've been so excited to read all of their experiences with the program. However with 18 graduates (18!) we don't have room to print every single letter. Instead we've chosen to include selected quotes from each of the new Advanced Roads Scholars. Personally, these letters have provided great insight into the work we do as I work on the 2019 class schedule.

I learned a lot of helpful ideas that have and will continue to help make my jobsite safer and more productive. With classes ranging from ADA compliance and pedestrian facilities to trenching and silica safety, it was easy to select interesting and meaningful courses to advance my knowledge of transportation and public works. My training through LTAP over the past few years has helped make me a better operator and staff member. All cities can benefit from this training, just like Kannapolis has.

Alex Anderson, Kannapolis

Hearing stories from the Instructor and other students and actually adding a couple of my own made me more willing to communicate safety procedure and set up on my jobs. Voicing my opinion on a safety issue, in my opinion, has on more than one occasion helped assure that we all "Go Home Safe at the end of the day". That's the ultimate message I get from the LTAP program.

Don Smedes, Henderson

I have worked in the construction field most of my adult life and I always knew that concrete dust was not a good thing but I had not been educated on the different types of silica and the severity of some of the possible health problems that can be associated with breathing the dust. I'm glad to see that some compliance and education has been implemented to protect workers from these dangers. Keeping up with new procedures and techniques for keeping our personnel and citizens safe is of high importance to the City of Asheville. I only wish that everyone had the opportunity, as I did, to learn the hazards of being exposed to silica dust.

Brad Hunter, Asheville

I would start out by saying one of the most important classes I have taking would be Flagger Instructor Training. It taught me the importance of placing signs, cones, tappers and Flagger placement. This class helped to inform myself and co-workers the importance of safety, that your safety, the crews safety, and the public safety is the most important thing to remember when in a construction area.

Mike Semones, Monroe

All of the training was beneficial to the types of work that we do in the street department. I was already aware of some of the information on these topics but I came away from these classes with a lot more knowledge and was made aware of the different techniques and the safety procedures that make it all work.

Tim Bailey, Wake Forest

This program is more than just learning from the instructor teaching, with the classes I have attended I have learnt a lot from the other students in the class as well. The NCLTAP program is something that I feel that all municipalities should send their employees to and have them strive to complete the road scholar, advanced road scholar, and the master road scholar programs. I intend on completing my master road scholar requirement as soon as possible because I feel there are more things that I can learn to make me the best employee I can be.

Justin Nichols,

I am a firm believer that knowledge is power, with that said the roads scholar program provides a wide range of information. If someone were to ask me about the program, I would say it would behoove them to attend.

Jamie Beard, Kernersville

My management classes helped me to understand that even with different personalities you can still achieve creating a team. I also thought that it was nice to see that most of the instructors were professors or worked in the field of their expertise. The instructors were knowledgeable in their field, and very understandable for every level of learning ability.

Doug Beeson, Apex

All of these classes as well as the others play a huge role on a daily basis and also gives me knowledge to pass on to others. I also feel they will help me succeed within my organization. I look forward to continuing to take more classes and working towards my master road scholar.

Caleb Friedenbach, Greensboro

The Designing Pedestrian Facilities for Accessibility class was great because I learned things that pertain not only to work but also to outside life. I have noticed sidewalks while walking around Winston-Salem and Greensboro that do not meet disability standards. I am pleased to be able to notice these differences and can now imagine new ways to fix them and make it easier for people with disabilities to travel around town.

Nicholas Nickerson, Greensboro

"Stormwater Hydrology" made me realize what clean water means flowing down to our streams, creeks and tributaries. For example using different grasses and shrubs to help filter water. Also, I learned a great deal about pervious as well as impervious areas that are impacted by our environment.

John McManus, Monroe

I am currently in school for Occupational Health and Safety obtaining my bachelor's degree. These classes have also assisted me in some of my courses. This program has made my courses somewhat easier to understand.

Flecia Torain, Durham

The roads scholar program provides a wide variety of courses to accommodate a wide variety of professions. The majority of my work is either in roadway or on the side of roadway thus the Advanced Work Zone Safety and Traffic Calming go hand and hand with my day to day routine. These particular courses provided the know how to keep the public and our crew safe.

Mark Brown, Kernersville

The lessons that I have learned in the programs have made my work safer and more productive. From the beginning of my first class, to the advanced classes I have gained lots of knowledge that I have tried to pass on to all the crew members.

Ricky York, Greensboro

Thank you for a great technical program for folks in industries like the one I am in, not only to help further our educations, but to provide us with information to keep us safe on the job while we advance.

Brian Norris, Greensboro

It is very informative, the classes taught are very straightforward, and the instructors are very versed in the subject matter, and take their job seriously. The classes that really stood out to me were the Silica's new standard, trenching competent person, and traffic calming.

Lee Gosey, Kernersville

These classes have been beneficial in educating me on improving my work environment, my performance, managing skills, and above all ensuring safety for the public and my co-workers. The Guardrail design class was very helpful and I learned information about guardrail design that I did not have prior knowledge of, and that their main purpose is to protect motorists and pedestrians.

Dale Jones, Rocky Mount

In today's busy schedules, it is difficult to keep up with all the training that needs to go in to managing a Public Works Department. The classes in the ITRE/LTAP Program are geared toward the people in the Public Works Sector. One more beneficial reason for being in the ITRE Program is a chance to connect with people that manage other municipalities. That has been helpful when talking about purchasing supplies, equipment, and other issues that come with managing a Public Works Facility.

Chris Cochrane, Mint Hill

We look forward to hearing from new Advanced Roads Scholars in 2019!

NC LTAP News & Updates

To update your mail information, add a colleague to the database, or obtain information about Roads Scholar Program fax this sheet to 919-515-8897 or complete online at go.ncsu.edu/NCLTAPcontact.



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Your Name _____

Company/Organization _____

Address _____

City _____ **State** _____ **Zip** _____

Phone _____

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Email _____

Check Appropriate Items

Add/Update email information to NCLTAP listserv NCTROADS

Send information about Roads Scholar program

Send schedule of training opportunities

NCTROADS Listserv

Subscribe to the NC LTAP listserv. It is free and easy. Send a message to linda_collier@ncsu.edu and ask to be added to NCTROADS.

This is an informal network for the exchange of news about current research, discussion of problems and solutions, request for advice and assistance, and announcements of upcoming conferences, events and training opportunities for transportation personnel. Once you are subscribed, you can send a message all the listserv members at NCTROADS@lists.ncsu.edu

NC Local Technical Assistance Program 2018 Schedule

Questions or Email Registration: kbdaviso@ncsu.edu

For Online Registration: itre.ncsu.edu/training/ltap-training/

Date	Class Title	Cost	RS/ARS/MRS	Location	Register
February 5, 2019	New Silica Standards – Strategies for Municipal Compliance	ARS	\$150.00	Raleigh	Click Here
February 7, 2019	Trenching Competent Person	ARS	\$150.00	Hickory	Click Here
February 12, 2019	Excavation Safety	RS	\$150.00	Raleigh	Click Here
February 14, 2019	Flagger Training	RS	\$90.00	Raleigh	Click Here
February 19-21, 2019	Work Zone Supervisor Safety Training	ARS	\$425.00	Raleigh	Click Here
February 22, 2019	Work Zone Supervisor Recertification	ARS	\$150.00	Raleigh	Click Here
February 26, 2019	Basic Concepts of Supervision	RS	\$125.00	Raleigh	Click Here
February 27, 2019	Advanced Computers: Practical Applications	ARS	\$125.00	Raleigh	Click Here
February 28, 2019	Writing Skills for Transportation Personnel	ARS	\$125.00	Raleigh	Click Here
March 13, 2019	Confined Space Entry & Lockout/Tagout	ARS	\$150.00	Raleigh	Click Here
March 18, 2019	Chain Saw Safety 11AM start	RS	\$150.00	Raleigh	Click Here
March 19, 2019	Basic Work Zone Installer Safety	RS	\$125.00	Hickory	Click Here
March 20, 2019	Intermediate Work Zone Safety	RS	\$150.00	Hickory	Click Here
March 21, 2019	Work Zone Supervisor Recertification	ARS	\$150.00	Hickory	Click Here

LTAP Links on the Web

NC LTAP

<https://itre.ncsu.edu/focus/ltap/>

National LTAP/TTAP

<http://www.nltapa.org/>

NC Department of Transportation (NCDOT)

<https://www.ncdot.gov/>

Federal Highway Administration (FHWA)

<https://www.fhwa.dot.gov/>

US Department of Transportation (USDOT)

<https://www.transportation.gov/>

UNC School of Government

<https://www.sog.unc.edu/>

Institute of Transportation Engineers

<http://www.ite.org/>

NC Section of ITE (NCSITE)

<http://ncsite.org/>

Road Weather Management Program

https://ops.fhwa.dot.gov/weather/weather_events/snow_ice.htm

OSHA FAQs about Silica

https://www.osha.gov/dsg/topics/silicacrystalline/generalindustry_info_silica.html

2018 NC LTAP Advisory Board

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David Deel (*City of Greensboro*)

Joe Geigle (*FHWA*)

Magda Holloway (*Town of Wake Forest*)

Mustan Kadibhai (*NCDOT*)

Eric Keravuori (*Summit Engineering*)

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