

THINK • ACT • BE SAFE

SAFE WINTER OPERATIONS FOR PROFESSIONAL SNOWFIGHTERS

Article information adapted from the Salt Institute

As a professional snowfighter, safety should be your number one priority. You need to constantly *think* safe and *act* safe so that you will *be* safe. It's the winning combination for safe winter operations.

If you think about it, most safety practices are just good common sense. But you need one other item—the right attitude. These two items together, good common sense and the right attitude, will lead you down the road to safety. With these two items, you realize the importance of safety and the importance of knowing your job. You know that safety has to be constantly emphasized, so that it remains in focus at all times. And as a professional snowfighter, your safety becomes ultra-important. You are out in that winter storm because the roads are unsafe for driving. You are the one that is making the roads safe, safe for all the motorists who need to get to work or carry out essential emergency operations or just need to continue on their life's journey.

Realizing the importance of safety, let's review the many safety issues encountered in your job of snowfighting. We will first look at safety items that can be addressed prior to winter and then deal with safety during actual winter operations.

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Conducting a preseason dry or wet run is an essential part of safe winter operations. In this photo, note the drainage inlets, curb, and other obstacles that may be hidden in deeper snow and would be items to note during the dry or wet run.

SAFETY PREPARATION FOR WINTER OPERATIONS

Are you prepared for the winter job ahead of you? Knowing your job is essential, and your safety starts with training. A well-trained snowfighter will be a safe snowfighter. Training is essential in preparing you for your snowfighting duties, for proper handling of materials, for proper maintenance of equipment, and for proper operation of the equipment.

Knowing your route is also essential. “Dry runs” can be a valuable safety practice. Dry runs mean running your routes just prior to winter. Take notice of what has changed since last winter. New developments with new roads, streets, and/or new driveways could have been constructed. New drainage facilities or new utilities with poles or manholes might be present. New curbs, medians, or guiderail may have been installed. Take notice of all these new obstacles, and make notes of locations and which obstacles can be marked or delineated to allow you to recognize them when covered with all that white stuff.

Better yet, do a “wet run,” because a good time to run your routes is during a rain. This will tell you where those drainage problems are; where the ponding occurs resulting in callouts for icy conditions.

Take notice of what is overhead—low hanging wires or tree limbs. Roadside trees have had all year to grow and spread their limbs. Scheduling a tree-trimming task prior to winter will insure that all those low hanging limbs have been removed. When setting a minimum height, remember that heavy wet snow will make limbs bow lower yet.

SAFETY DURING WINTER OPERATIONS

Having accomplished the above items, we can now turn our attention to safety during the winter, breaking this into additional areas: crew safety, material safety, vehicles and equipment safety, facility safety and operations safety.

CREW SAFETY

Are we ready to fight the storm? The first item is adequate sleep or rest prior to starting work. Plowing and spreading can mean long hours, leaving you tired and exhausted. Proper sleep or rest prior to beginning snowfighting will help keep you awake and alert.

The next item is warm clothes. Wearing multiple layers of warm clothing gives you an additional advantage of being able to adjust to changing temperatures or conditions. Driving in the truck cab

can be quite different than being out of the truck adjusting or repairing a part of the equipment.

Other personal protective equipment that is needed include a hard hat with liner, a safety vest, safety shoes, boots, and gloves. In addition, a well-stocked first-aid kit should be in the cab. And don’t forget a thermos and lunch box, particularly for those long rural routes that keep you several hours away from any convenient pit stop.

For your winter emergency survival kit, include a flashlight with extra batteries, ice scraper/snow brush, jumper cables and basic tool kit, flares or reflectors, flags for traffic control, shovel and sand or other material to aid in traction.

And every truck cab should be equipped with a fire extinguisher. Checking the pressure status of the extinguisher as a routine checklist item could prevent an unsafe situation.

The main objective is “being prepared!”

MATERIAL SAFETY

Handling abrasives, salt and other chemicals does not need to be hazardous, if you know what you are handling, and if you follow common sense requirements for personal protection. All chemical manufacturers are required to have a Materials Safety Data Sheet (MSDS) for each of their products. These sheets are required by law to be available to the user, and the safe user will be familiar with all the information on these sheets and have a copy in the truck cab. Everything you need to know about the chemical is included in the MSDS. The manufacturer’s name, address, and telephone number; identification numbers for the chemical, a list of the major components of the chemical, its characteristics and reactivity with other materials, requirements for personal protective clothing and equipment needed in handling the chemical, and emergency procedures in case of exposure or a spill.

Also, unless you are the loader operator, you should be inside the truck cab when



During a WV LTAP Snow and Ice Control Workshop participants learned the importance of pre-trip equipment inspections and walk around safety inspections.

your truck is being loaded. This action will prevent you from being in the path of any spilled materials during the loading operation.

VEHICLES & EQUIPMENT SAFETY

Preventive maintenance is a component of safety. Good preventive maintenance ensures the vehicle will operate with optimum performance and less breakdowns, resulting in safer operation. Of course, you, as an operator, are a responsible part of the preventive maintenance program. The daily checks and pre-trip inspection you make on your truck are important at any time. Relative to winter operations, however, we'll deal only with some major points for safety. Checking fluid levels, tire tread and inflation, brakes, windshield wipers and wiper blades, mirrors, and the heater and defroster are all safety checks. Yes, even the heater relates to safety. If the heater is not working properly and you are too cold or too hot, your total concentration will not be on fighting the storm, making you less safe in operations. Additionally, an improperly working heater or defroster could limit visibility from windows fogging up or becoming covered with ice.

Check all lights! You will need all lights when plowing and spreading. You are out there because of unsafe conditions. Lights

are not only for you to see, they are for you to be seen!

A back-up alarm, plow flags, and warning signs on the rear of the truck are other safety items that may aid in preventing accidents.

Radio communications are a necessity for efficient operations but are also a necessity for safety. Every truck should be required to have a mobile radio for communications.

With a full fuel tank, and a final walk-around inspection, your last safety practice when you climb into the cab before driving off is to buckle up. The use of your safety belt should become a habit, a natural action prior to turning the key in the ignition. When that plow hits that raised manhole, you will realize the value of the safety belt habit.

FACILITY SAFETY

Your maintenance facility or garage can become a safety hazard, if not maintained properly. Good housekeeping within and around the facility results in a safe working environment for everyone. Having a well-lit facility and keeping tools and equipment put away when not in use is essential to safety. Keeping the floors clean and free of grease, oil, and debris also leads to a safe facility.

continued on page 5

Country Roads & City Streets is typically published quarterly. 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 the Federal Highway Administration or the West Virginia Department of Transportation. 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 West Virginia LTAP is part of the National Local Technical Assistance Program, which is funded by the Federal Highway Administration. West Virginia LTAP also receives funding from the West Virginia Department of Transportation.

MISSION:

The mission of the WV 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, personalized technical assistance, and resource materials are provided.

UPCOMING DESIGNING PEDESTRIAN FACILITIES FOR ACCESSIBILITY CLASS

NOVEMBER 1, 2011

WVDOH DISTRICT 4 HEADQUARTERS CONFERENCE ROOM
CLARKSBURG, WV • 8:30 AM TO 4:00 PM

COURSE DESCRIPTION

Facilities in the public right-of-way (including walkways, ramps, curb ramps and landings, crosswalks, and pedestrian overpasses and underpasses) must be designed, constructed and maintained to serve all users. To meet the needs of all users, those involved with designing, building and maintaining infrastructure need a clear understanding of the wide range of capabilities that occur within the population and the challenges in the public right-of-way faced by persons with disabilities. This course will identify applicable laws, regulations, standards, and guidelines pertaining to accessibility for persons with disabilities. Requirements for ensuring accessibility in existing facilities versus new construction and alterations will be discussed. Design elements necessary for achieving accessibility in the public right-of-way will be reviewed. Best practices will be identified. A detailed handout will be provided, including resources on accessibility.

WHO SHOULD ATTEND

The target audience for this workshop is local and state personnel with responsibility for designing, constructing and maintaining facilities in the public right-of-way. These include engineers, MPO staff, technicians, public works directors, street supervisors and crew leaders.

REGISTRATION INFORMATION

There is no cost to attend but pre-registration is required. Please email the information below to kim.carr@mail.wvu.edu or fax to 304-293-7109

Name: _____

Title: _____

Agency: _____

Address: _____

City: _____ State: _____ Zip: _____

Phone: _____

Email: _____

INSTRUCTOR

The instructor for this class is Ronald W. Eck, P.E.. Ron is Professor Emeritus of Civil Engineering at West Virginia University and Senior Advisor with the West Virginia Local Technical Assistance Program (WVLTAP). He has been involved in traffic engineering, including pedestrian transportation, for over 35 years.

Ron is a member of the Pedestrian Committee of the Transportation Research Board. He authored the chapter on Pedestrians in McGraw-Hill's Handbook of Transportation Engineering. He facilitates walkability audits and Walkable Communities Workshops for communities in West Virginia.

SPECIFIC TOPICS TO BE COVERED INCLUDE:

- Americans with Disabilities Act Accessibility Guidelines (ADAAG) and Public Rights-of-Way Accessibility Guidelines: Laws and Regulations
- Legal Requirements
- Pedestrian Characteristics
- Pedestrian Access Route (PAR)
- Curb Ramps and Other Transitions
- Detectable Warnings
- Pedestrian Crossings
- Street Furniture and Parking
- Work Zones and Maintenance
- Accessible Pedestrian Signals

Roads Scholar II Class
worth 6.5 PDHs and TDHs.

OPERATIONS SAFETY

As a snowplow driver, you already know how to drive a truck. But if you are a new snowfighter, practicing with a plow and a loaded spreader could be very beneficial. The extra weight and the different center of gravity gives a whole new feel to the 'monster' that you will be operating in adverse unsafe road conditions.

Know your truck and equipment. Know your safe backing rules. Do the circle of safety, back slowly, back straight, and use an outside guide if possible. Backing accidents are the primary type of accident in road maintenance operations. A backup alarm should be standard on all equipment.

We have already mentioned about staying in the truck cab when the truck is being loaded, so we will go right to spreading material. If you are spreading material with your truck bed up, the bottom of the truck bed should not be higher than the top of the cab. Remember to watch for overhead wires and tree limbs. For safety sake, perhaps a requirement to keep the truck bed down when moving is the better way to travel.

When changing plow blades, raise the plow and block it securely before proceeding to loosen bolts. Never place yourself under the blade or in an unsafe position.

When working on or unclogging a spreader, make sure your engine and all power to the spreader is turned off. In addition, relieve all pressure in the hydraulics and then use a tool to unclog. This bears emphasizing because of injury producing incidents that have occurred. Even though all power is off, the reserve pressure in the hydraulic lines can still turn the auger as it is freed. Using a tool to unclog prevents the habit of sticking your hands in hazardous places.

Defensive driving and obeying traffic laws are important, along with wearing your safety belt as mentioned before. Do not speed, and remember to keep enough distance in front of you for adequate stopping distance. The extra size and weight of your vehicle and the road conditions will necessitate a substantially greater stopping distance than you normally need.



Be aware of fatigue. Long hours of plowing and spreading can be exhausting. Know your own limitations. Twelve hour shifts are common, especially if crews are working 'round-the-clock' with twelve on and twelve off. Everyone needs a break—either a short coffee break or a rest/sleep break. And it can differ from one person to another. One individual may plow twelve hours without a break or with only a coffee break, while someone else can only go a few hours between breaks. Normally, someone who could plow twelve hours straight through, finds he or she was up all night with a sick child and now can only plow a short period between breaks. Supervisors should recognize that all individuals are different and snowfighters should know their limitations. Cooperation between supervisors and snowfighters is essential in this area for safe operations.

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ROAD SLEUTH INFORMATION SHEET

WV LTAP

The WV LTAP is developing a series of information sheets—called *Road Sleuth*—on various transportation and public works related topics. The idea for *Road Sleuth* came about following various conversations WV LTAP staff had with public works directors, street supervisors, and others in transportation related fields. During these conversations, one common theme emerged: public works personnel repeatedly getting the same questions and requests time and again from their elected officials and residents and not having educational information readily available.

In addition to topics being covered in this newsletter, the *Road Sleuth* series can be downloaded from the WV LTAP website. The sheets were designed using Microsoft Publisher Software and are formatted so municipalities can add their individual contact information if desired, post these on their public work's webpage, distribute printed copies to new city council members, or send out in mailings, etc. For more tips on how to best use these materials and to access these materials, please go to wvltap.wvu.edu. The WV LTAP staff also welcomes your suggestions for additional topics.

MYTH: SPEED BUMPS AND SPEED HUMPS ARE THE SAME.



The top photo shows an example of a speed hump located in a residential neighborhood, while the bottom photo shows an example of speed bumps located in a business parking lot.

to three feet wide and three to six inches high. This design can slow drivers, but with the advancements in vehicle shocks, some have found the faster you drive over them the less jolt the driver experiences. There have also been reports of vehicle damage and personal injuries caused by speed bumps, and without an approved engineering design, road agencies have been found liable for such damages. Speed bumps are also a tripping hazard for pedestrians. Additionally, plow trucks cannot properly work around their rounded design causing the speed bumps to be frequently damaged during winter maintenance. For these reasons, speed bumps should not be used on public roads and streets.

The **speed hump** is a designed response to these concerns. Speed humps are typically twelve to fifteen feet wide and only three to four inches high. Humps have contoured approaches that allow the vehicle to cross over them, giving the driver more of a swaying motion than a jolt. Most speed humps are designed and constructed for an operating speed of eighteen to twenty miles per hour. If a driver tries to pass over the speed hump at a faster speed, they experience a very discomforting feeling, making the humps self-enforcing. The design is also more conducive to plow trucks, bicycles, and pedestrians.

The majority of citizens believe there is no difference between speed humps and speed bumps, when in fact, the two are very different.

The **speed bump** was first developed over a century ago as a way to slow traffic. The speed bump was seen as a success because drivers did not like the sharp bounce they experienced as they drove across it, causing them to slow down. Over time, more and more road agencies started using the speed bumps in residential areas to slow traffic, making the roadway safer for children and pedestrians. Business owners also started using bumps between their parking areas and storefronts for the same reason.

Speed bumps, though, were never engineered to ensure they worked effectively. They are usually six inches

WHAT TO DO DURING AN EARTHQUAKE

Many people on the East Coast were caught off guard when the August 23, 2011 earthquake occurred. The following information is taken mainly from the Federal Emergency Management Administrations' (FEMA) website and provides guidance on what to do should you be in an area that is hit by an earthquake.

Be aware that some earthquakes are actually foreshocks and a larger earthquake might occur. Minimize your movements to a few steps to a nearby safe place and, if you are indoors, stay there until the shaking has stopped and you are sure exiting is safe.

IF INDOORS

- DROP to the ground; take COVER by getting under a sturdy table or other piece of furniture; and HOLD ON until the shaking stops. If there isn't a table or desk near you, cover your face and head with your arms and crouch in an inside corner of the building.
- Stay away from glass, windows, outside doors and walls, and anything that could fall, such as lighting fixtures or furniture.
- Stay in bed if you are there when the earthquake strikes. Hold on and protect your head with a pillow, unless you are under a heavy light fixture that could fall. In that case, move to the nearest safe place.
- Use a doorway for shelter only if it is in close proximity to you and if you know it is a strongly supported, loadbearing doorway.
- Stay inside until the shaking stops and it is safe to go outside. Research has shown that most injuries occur when people inside buildings attempt to move to a different location inside the building or try to leave.
- Be aware that the electricity may go out or the sprinkler systems or fire alarms may turn on.
- DO NOT use the elevators.

IF OUTDOORS

- Stay there and move away from buildings, streetlights, and utility wires.
- Once in the open, stay there until the shaking stops. The greatest danger exists directly outside buildings, at exits and alongside exterior walls. Many of the 120 fatalities from the 1933 Long Beach earthquake occurred when people ran outside of buildings only to be killed by falling debris from collapsing walls. Ground movement during an earthquake is seldom the direct cause of death or injury. Most earthquake-related casualties result from collapsing walls, flying glass, and falling objects.
- If you are in a mountainous area or near unstable slopes or cliffs, be alert for falling rocks and other debris. Landslides are often triggered by earthquakes. *(This tip is from the Red Cross)*

IF IN A MOVING VEHICLE

- Stop as quickly as safety permits and stay in the vehicle. Avoid stopping near or under buildings, trees, overpasses, and utility wires.
- Proceed cautiously once the earthquake has stopped. Avoid roads, bridges, or ramps that might have been damaged by the earthquake.

For more information, please visit FEMA's website.
http://www.fema.gov/hazard/earthquake/eq_during.shtm

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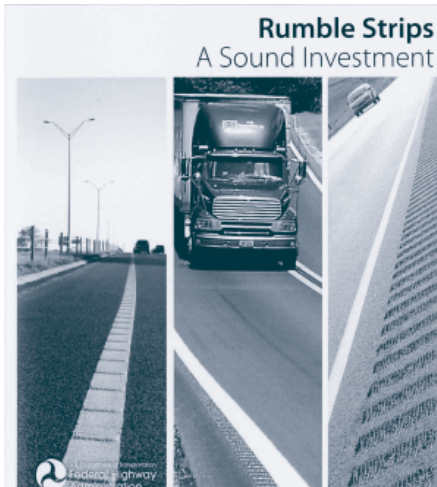
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NEW ITEMS IN WV LTAP LIBRARY

New materials are regularly added to our CD-ROM, DVD, and Publications Lending Library. We encourage you to visit our website at wvltap.wvu.edu to see a complete listing of materials available for loan. Please contact the WV LTAP Technical Assistant, Stephanie Spangler, at Stephanie.Spangler@mail.wvu.edu if you would like to borrow any materials from our library. Here are just a few of the latest materials that have been added.



MEDIAN BARRIERS: A SOLUTION TO CROSS-MEDIAN CRASHES—This informational DVD on median barriers is intended to introduce viewers to the various options that are available to help mitigate crossmedian collisions.

RUMBLE STRIPS: A SOUND INVESTMENT—This informational DVD on shoulder and centerline rumble strips and rumble stripes is intended to introduce viewers to a cost effective treatment that has been proven to increase driver safety.

SNAP (SOIL NAIL ANALYSIS PROGRAM) USER'S MANUAL, WITH DISC—Soil nail walls are internally stabilized earth-retaining structures. The main objective of this work is to develop a state-of-the-practice computer program (Soil Nail Analysis Program) for designing all components of soil nail retaining structures. This user's manual discusses the theoretical basis for the computer program, gives a comparison of design guidelines, discusses program execution and includes two examples.

TRAFFIC MONITORING: A GUIDEBOOK—This guidebook should aid the user in developing a basic understanding of traffic data collection principles and procedures. Different approaches to traffic monitoring and decision making based on the quality of the traffic data being collected and how well that traffic data reflects the actual events that occur are covered.

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The WV LTAP encourages you to share this newsletter with others or direct them to the electronic version on our website wvltap.wvu.edu.

- Road Supervisors
- Council Members
- Public Works Department
- Road Crew
- Managers
- City Engineers
- Mayors
- Others