

A quarterly publication for local governments responsible for roads, bridges and public transportation

HIGH FRICTION SURFACE TREATMENT REDUCES CRASHES AT CRASH-PRONE AREAS

Each year, approximately one quarter of highway fatalities in the United States occur at or near horizontal curves. While many factors contribute to these crashes, at some locations, the deterioration of pavement surface friction is a major contributing factor.



The introduction of High Friction Surface Treatment (HFST) technology now provides an overlay option that supplies more friction than traditional overlays, and holds that friction property for a much longer time. Additionally, HFST can be customized to specific roadway safety needs at site-specific locations.

See *High Friction*: Page 7

IN HARMS WAY

Avert danger by knowing where moving equipment is at all times

The Accident: A skid steer operator was back-dragging a section of a concrete contractor's yard used for concrete testing. A cement truck driver approaching the construction trailer failed to use the sidewalk, instead walking through the area behind the skid steer. A co-worker realized the skid steer operator could not see the driver, and called out to the driver to move from the path of the skid steer. The truck driver did not react to the warning, and the skid steer backed over him, killing him.

The Bottom Line: A post-accident investigation determined the skid steer operator thought the victim was inside the trailer and had not seen him walk behind the skid steer. Although the company had a written safety program, there was no formalized equipment training program. The investigation also found that employees had failed to wear safety vests.



See *In Harms Way*: Page 5

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Oregon Technology Transfer Center

Oregon's Technology Transfer (T2) Center

The center is jointly sponsored by the Federal Highway Administration (FHWA), the counties and cities of Oregon, and the Oregon Department of Transportation (ODOT)/ FHWA funds are provided through the Local Technical Assistance Program (LTAP).

The purpose of the Oregon T2 Center is to help local transportation agencies obtain information and training on transportation technology relating to roads, bridges and public transportation. To accomplish this purpose, we:

- provide low-cost seminars, training classes and workshops;
- publish a quarterly newsletter;
- provide a "Circuit Rider" service, taking video programs and informational materials to local agencies;
- provide a lending library service of audio/visual programs on a variety of transportation topics;
- Provide copies of technical bulletins or reports upon request; and
- respond to telephone and mail inquires relating to transportation technology or make a referral to a specialist.



From the Director...

While the T2 Center had more personnel changes in 2014 ([see article on personnel](#)), the Center had its busiest year to date. Training numbers are the highest they have been to date. The number of training sessions T2 presented in 2014 was 244, a 39% increase from 2013, which accounted for a 36% increase in participants and a 57% increase in participant hours compared to 2013.

The Road Scholar Level 1 program continues to be a successful program with over 1,000 active participants and 39 graduates of the program in 2014. There are now 373 individuals who have successfully completed the Level 1 program, many of whom are now working toward their Level 2 certificate. We plan to offer both Level 1 and Level 2 classes this spring. [See the Roads Scholar article for more information.](#)

Thank you to everyone who completed our survey last winter. We are taking the feedback from it and reviewing our programs and offerings. Stay tuned for more on the survey outcome.

The T2 Center has implemented a new program called the Safety Circuit Rider. Willard is available to agencies to assist with traffic safety and funding. See Safety Circuit Rider article below for more information.

Thank you all for your support of the Oregon T2 Center and we look forward to working with you in 2015!

Oregon T2 Center Director

Safety Circuit Rider

The T2 Center has implemented a new program called the Safety Circuit Rider. Willard Bradshaw accepted our offer to be the T2 Safety Circuit Rider. He is available to assist with:

- navigating the ODOT internet sites to help identify areas of improvement on the agency's road network,
- identifying crash sites by severity, number of crashes or types of crashes,
- identifying potential benefits for a variety of safety improvements for both spot and system wide crash reduction,
- calculating benefit-cost ratios,
- confirming the identification of both

spot and systemic crash history that could use funding improvements to reduce the number of crashes and the severity of each crash,

- the funding application process through ODOT, and
- determining if the project has enough benefit to be placed in the Statewide Transportation Improvement Program (STIP).

The safety projects will be funded based on ODOT Region (see region map) and the final list will be the responsibility of the ODOT Region Traffic Managers.

For more information, or to speak with Willard, call (503) 986-2855 or email T2Center@odot.state.or.us

Winter Operations Safety Checklist

Reprinted with permission from the Pennsylvania LTAP. Information provided by The Salt Institute.

INTRODUCTION

Completing the checklist below can help you “think safe” and “act safe” to be safe in winter operations. Make photocopies and use a copy before each winter operation. Dry runs, an item at the beginning of the checklist, ideally should occur in rainy weather just prior to snow season, so that areas of poor drainage where water may “pond” and freeze can be identified more easily.

SAFETY PREPARATION FOR WINTER OPERATIONS

- ⇒ Training for crews
- ⇒ Dry runs (wet runs) – make notes
- ⇒ Marking obstacles
- ⇒ Trimming trees

SAFETY DURING WINTER OPERATIONS

Crew Safety

- ⇒ Adequate sleep / rest
- ⇒ Personal protective equipment
- ⇒ Multi-layered warm clothing
 - Hardhat with liner
 - Safety vest
 - Safety shoes
 - Boots
 - Gloves
- ⇒ Emergency survival kit
 - First-aid kit
 - Flashlight with extra batteries
 - Ice scraper/snow brush
 - Jumper cables
 - Basic tool kit
 - Flares or reflectors
 - Flags for traffic control
 - Shovel and traction material (sand)
 - Fire extinguisher – check pressure
 - Thermos and lunchbox

Material Safety

- ⇒ Safety Data Sheets (SDS)
- ⇒ Emergency procedures

Vehicle and Equipment Safety

- ⇒ Emergency procedures
- ⇒ Preventive maintenance
 - Daily checks
- ⇒ Pre-trip inspection
 - Fluid levels
 - Tire tread and inflation
 - Brakes
 - Heater
 - Defroster
 - Windshield wipers
 - Clean windows and mirrors
 - Lights
 - Backup alarm
 - Plow flags
 - Warning signs on rear of truck
 - Radio communications
 - Full fuel tank

Facility Safety

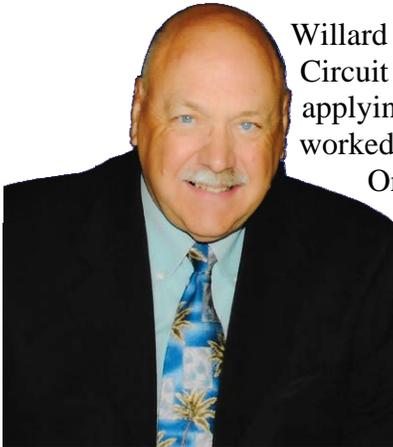
- ⇒ Good housekeeping
- ⇒ Well lit facility

Operations Safety

- ⇒ Safety belt
- ⇒ Defensive driving
- ⇒ Obey traffic laws
- ⇒ Do not speed
- ⇒ Safe backing circle-of-safety
- ⇒ Allow sufficient stopping distance
- ⇒ Dump bed no higher than cab top when moving
- ⇒ Block plow before changing blade
- ⇒ Disconnect spreader before unclogging
- ⇒ Be aware of fatigue

Personnel Changes

Linda Beth Milligan was hired December 2014 as the full-time Training Coordinator to replace Tasha Martinez who resigned earlier in the year. Linda Beth came to T2 with over 20 years of experience in the training and development field. Most recently she was a self-employed contractor providing technical writing, document systems, training development, and video production for the private industry. Linda Beth looks forward to the challenges awaiting her as the new T2 Training Coordinator. She enjoys meeting new people and is excited about getting to know everyone associated with the Oregon T2 Center program.



Willard Bradshaw was hired in July 2014 as a Safety Circuit Rider to assist local agencies in identifying and applying for funding of cost effective safety improvements. Previously, Willard worked for five years as a Traffic Engineer on Oregon highway bridge projects for the Oregon Bridge Delivery Partners. Prior to this, Willard spent 30 years working on traffic issues for the Oregon Department of Transportation, the last 17 in Region 2 as the Traffic Engineer. Willard has a B.S. in Civil Engineering from Oregon State University and is a Vietnam Veteran with 3 ½ years of service in U.S. Navy Communications. Willard is looking forward to working with agencies on areas of safety concerns and identifying what solutions will work, as well as guiding agencies on what funding is available depending on the solution.

▼ *Can you spot what's wrong with this picture?*



See Page 10 to find out

Technical Assistance Opportunity

The Kiewit Center at Oregon State University, in cooperation with the ODOT Traffic Safety Office, is providing a technical assistance opportunity for local jurisdictions in Oregon. The objective of the program is to review and evaluate the traffic control devices, design elements and potential safety problems on major roads in selected local jurisdictions in Oregon, including counties and smaller cities. Jurisdictions who have participated previously may apply for a follow-up study.

A team of consultants will come to your jurisdiction and drive your roads/streets for one or two days to determine compliance of your signs with the MUTCD, use of accepted design standards and practices, and presence of potential safety hazards. There is no cost to the local jurisdiction for this assistance. We would anticipate having one or more local jurisdiction personnel ride with us on the initial evaluation and review drive.

This program was initiated with two eastern Oregon counties a number of years ago, with good success. Since that time, 37 local jurisdictions have participated. An evaluation team of at least three traffic engineers will include Rob Burchfield (Portland City Traffic Engineer), Ed Fischer (retired, ODOT Traffic Engineer), Tom Lancaster (Traffic Engineering consultant), Rick Nys (Traffic Engineer, Clackamas County), or Robert Layton (Professor, OSU).



A summary report is prepared to document conditions and results of the evaluation. A sample report is shown on the Kiewit Center website, <http://cce.oregonstate.edu/node/216>.

Please contact [Robert Layton](#) or [Nancy Brickman](#) to let them know of your interest in participating in this program.

In Harms Way: from Page 1

Alert and Aware

When you are working around equipment that is in motion, always remain alert. Knowing what is in front of you, behind you, beside you, and above you is the best way to stay safe. Additionally, your employer will provide additional protection for you. Ask your foreman about the following:

Barriers—If you are working on a fixed worksite or in the yard, concrete barriers should be in place to separate machines from commonly-used walkways. Portable barriers are also helpful, as they are generally brightly colored and provide high visibility to both operators and workers on foot. Avoid walking on the wrong side of the barrier.

High-Visibility clothing—The American National Standards Institute has a hi-vis guideline that, when properly enforced, will increase the likelihood of an equipment operator seeing you. Ask your foreman to provide you with a high-visibility vest.

Clearance policy—Your employer should have a policy in place that dictates you maintain a safe distance from mobile equipment and use designated pathways. Learn this policy and follow it. Avoid unapproved pathways.

Training programs—Your comprehensive training program on heavy equipment operation will include backing procedures. If you are in the operator's seat, use an assigned spotter to help ensure your path is clear.

Backup alarms—The equipment you use will have an audible backup alarm or may have electronic sensors installed. If you are on foot, keep your ears open for the sound of an alarm.

This information is from an accident report and the Center for Disease Control's National Institute for Occupational Safety and Health Fatality Assessment and Control Evaluation Program. It is meant for general information only.

This article originally appeared in Better Roads Magazine, October 2012 edition.

Winter Maintenance Resources

Forecasting and Responding

www.tripcheck.com provides video feeds from highways in Oregon, as well as real-time information on traffic incidents.

[The National Center for Atmospheric Research](#) allows you to view real-time weather data including satellite, radar, surface and air temperatures, and forecasts.

[Response to Extreme Weather Impacts on Transportation Systems](#) (2014) is an NCHRP Synthesis that identifies common themes in state-level responses to extreme weather events, including case reports on communications, data, knowledge management and lessons learned.

Anti-icing and De-icing

[Strategies to Mitigate the Impacts of Chloride Roadway Deicers on the Natural Environment](#) (2013) is an NCHRP Synthesis of proactive and reactive mitigation strategies as well as new technologies for ice removal.

[An Experimental Study on the Effectiveness of Anti-icing Operations for Snow and Ice Control of Parking Lots and Sidewalks](#) (2013) investigates studies done to assess the effectiveness of anti-icing.

[The Salt Institute](#) provides informational handbooks, brochures and newsletters on winter operations, focusing on effective and safe salt use.

Plowing

[Snow Plowing Near Railroad Crossings](#) (2009) includes tips regarding snow removal and de-icing pertaining to rail safety.

[Repurposing Truck Tires](#) (2013) gives instructions on how to utilize old truck tires as wing plow cutting edges.

[Snow Plow Orientation DVD](#) (2012) Developed as a training tool for winter snow maintenance personnel, this video includes a comprehensive overview of truck attachments for plowing/sanding and best practices for

snow removal in rural and urban environments. Contact the T2 Center to borrow this video.

[Working Safely With Snow Plows and Other Snow Removal Vehicles DVD](#) (2008) This video covers inspecting your equipment, knowing your route, safe driving and operation, sharing the road, how to handle getting stuck, and after your route. Contact the T2 Center to borrow this video.

Traffic Signals

An article in a recent issue of *Public Roads* describes field tests of a secure, dependable, real-time and

weather-responsive control system for traffic signals. Using weather data from the Clarus Initiative, researchers at the University of Idaho have developed a prototype traffic signal control system. Simulation results show reductions in crash numbers, average intersection delays and average number of stops compared with normal operations during both snow and ice conditions. The article can be viewed [here](#).



Winter Driving

[Reduce the Risk of Drowsy Driving](#) (2011) illustrates the risks of extended driving schedules during winter maintenance, and outlines ways to prevent workers from driving while tired.

[Driving Safely in the Hazards of Winter DVD](#) (2011) Driving conditions in the winter months can be full of treacherous hazards, including winter ice, poor visibility, strong winds, snow, rain, and more. This safe driving video discusses each weather condition and the risks involved with driving in each. Important snow driving tips are also given. Contact the T2 Center to borrow this video.

[Driving Safely in Winter Conditions DVD](#) (2006) This DVD addresses the many common hazards of driving in bad winter climates and how to avoid them when driving in bad winter climates. Contact the T2 Center to borrow this video.

See **Resources: Page 8**

What is HFST?

High Friction Surface Treatments place a thin layer of specially engineered, durable, high friction aggregates as a topping on resins or polymers—usually urethane, silicon, or epoxy—with a binder. These aggregate systems have long-lasting skid resistance while also making the overlay much more resistant to wear and polishing. The resin or polymer binder combination locks the aggregate firmly in place, creating a rough, durable surface capable of withstanding everyday roadway demands, such as heavy braking and even snowplowing.

HFST restores pavement surfaces where high traffic volumes have worn down existing pavement surface aggregates and can also serve as an alternative that compensates for inadequate geometric designs (such as sharp curves and/or substandard or variable superelevations).

The available HFST products use aggregates that are polish- and wear-resistant and reduce hydroplaning on wet surfaces. The treatments can be applied by machine at a similar speed to other paving surface treatments or applied with hand tools.

Motorists may notice a slightly rougher riding surface in treated areas, but they will also experience greater pavement friction and thus better vehicle control. Increases or decreases in road noise will depend on the original surface. In general, HFST will be less noisy than transversely tined concrete pavement, chip seals, and possibly dense-graded asphalt, but may be noisier than open graded surfaces.

HFST has been tried and proven on a variety of treatment sites across the country as part of the Federal Highway Administration’s Surface Enhancements at Horizontal Curves demonstration program.

Benefits

- HFST has been thoroughly evaluated in the UK and in New Zealand with tremendous success, showing an approximately 31 percent reduction in crashes and a benefit-cost ratio of 40 upon the implementation of skid resistance policy. The U.S. crash data are confirming the experience from abroad—large reductions in vehicle crashes are being reported after installation of HFST. The Pennsylvania, Kentucky, and South Carolina DOTs report a before/after total crash reduction of 100, 90, and 57 percent, respectively, for their respective signature trial projects, for which the after periods equal approximately three to five years.

Every Day Counts

High Friction Surface Treatment is one of the FHWA’s Every Day Counts (EDC) 2012 initiatives. Launched in 2010, EDC is designed to identify and deploy innovation aimed at reducing the time it takes to deliver highway projects, enhance safety, and protect the environment. Teams from the FHWA work with state, local, and industry partners to deploy the initiatives and develop performance measures to gauge success. [Read more](#)

- HFSTs are relatively low in cost compared to geometric improvements. The square foot cost of HFST is not insignificant, but its durability makes the investment worth the cost, since the treatments are long lasting and the life-cycle cost is excellent. Further, the benefit-cost ratio is good, since the crash reductions continue for many years.

- HFSTs are customizable to specific state and local safety needs. Road owners can use HFST where most needed as shown by studies and their experience, such as on two-lane urban or rural roads at horizontal curves, areas near steep grades, areas at or near lane changes, and rural and urban intersections.

- HFSTs produce negligible environmental impacts and minimal impact on traffic. Typically, project lengths are very short, and the materials set up very quickly, so the treatments can often be applied in just a few hours.

More information about HFST, including a 12-page "frequently asked questions" document, is available on the [FHWA website](#). Adapted from FHWA website and materials, and reprinted with permission from Minnesota LTAP.

Several states are experiencing
CRASH REDUCTIONS OF
50 TO 100%
 after application of
A HIGH FRICTION SURFACE TREATMENT
 at specific sites.

Circuit Rider Corner *By Bill Kolzow*

Fatigue and sleep deprivation spill over into every area of our lives. Our mood, performance, relationships, and health all depend on good, quality sleep. Poor sleep habits can negatively impact our learning and memory, metabolism and weight, mood, cardiovascular health, and ability to ward off disease.

Sleeping long enough is only half the story. A good night's sleep that leaves us both mentally and physically refreshed must also be uninterrupted and good quality. Most adults need seven to nine hours of uninterrupted sleep each night. How well are you doing?

At one time or another, we all suffer from lack of sleep, whether caused by a sleep disorder or by not understanding the basic things we should – or shouldn't do – that can impact our sleep. If you're just not feeling as refreshed as you think you should be, try these tips to help get you sleeping soundly again:

- ◆ Avoid rousing activities before bedtime.
- ◆ Set a time after which you won't answer your phone or check your computer.
- ◆ Avoid stressful activities after supper.
- ◆ Exercise is good for all of us, but do it at least three hours before bedtime.
- ◆ Don't consume caffeine in the evening.



- ◆ If you're going to have a snack in the evening, choose a light, high-carbohydrate option. Avoid spicy, fatty, or fried foods.
- ◆ Eat your last full meal at least two or three hours before bedtime.
- ◆ Eliminate or minimize noise and other distractions in the bedroom.
- ◆ If you need to make a midnight bathroom run, use a dim nightlight instead of turning on bright overhead lighting.
- ◆ Drop your bedroom temperature to below 65 degrees, and keep your room dark, quiet, and comfortable.
- ◆ Invest in a good bed with a comfortable mattress and pillows.
- ◆ Avoid nicotine and alcohol close to bedtime.
- ◆ Establish a consistent bedtime and wake time.

If, after implementing all the tips offered here, you're still have problems getting a good night's sleep, talk to your doctor. He/she can help.

Resources: from page 6

Best Practices

[Best Practices for Road Weather Management, Version 3.0](#) FHWA updated this guide to capture state-of-the-art road weather management strategies employed in response to environmental threats. The guide contains 27 case studies of systems in 22 states that improve roadway operations under inclement weather conditions. Each case study includes a general description of the system, system components, operational procedures, resulting transportation outcomes, implementation issues, as well as contact information and references.

[Best Practices: Snow and Ice Control, Winter Formula DVD \(2013\)](#) Ohio DOT's fourth best practices video release gives an excellent overview of their snow and ice "winter formula." The Ohio "winter formula"

includes a well trained workforce, adequate stockpiles or supplies of the right material, well maintained plows, dump trucks and spreaders, and an extensive weather forecasting system. The video details how all of these elements work together in order to provide a timely deployment of manpower and equipment during deteriorating weather conditions. Contact the T2 Center to borrow this video.

Cost-Benefit Toolkit

This web-based toolkit takes the guesswork out of evaluating winter maintenance investments by facilitating cost-benefit analyses for 21 different winter maintenance materials, equipment and methods. There are also training materials and a user's manual to get you started. <http://clearroads.org/project/cost-benefit-analysis-toolkit-phase-ii/>.

Technical Resources

Systemic Approach to Safety

Highway safety improvement projects are designed to improve safety by minimizing or eliminating risk to roadway users. Rather than managing risk at certain locations, a systemic approach takes a broader view and looks at risk across an entire roadway system. A system-based approach acknowledges crashes alone are not always sufficient to determine what countermeasures to implement, particularly on low volume local and rural roadways where crash densities are lower, and in many urban areas particularly those where there are conflicts between vehicles and vulnerable road users (pedestrians, bicyclists, and motorcyclists). For more information on the systemic approach to safety, see <http://safety.fhwa.dot.gov/systemic/> or call our office to speak with the Safety Circuit Rider, Willard Bradshaw.

Proven Safety Countermeasures



Over the past four years, highway fatalities and serious injuries have declined considerably – from 41,259 in 2007 to 32,885 in 2010. Highway safety programs across the country played a major role in that decline by analyzing where safety improvements were needed and by utilizing many of the nine safety countermeasures that we worked with your Division Offices to collectively advance. Those countermeasures are contained in the 2008 “Guidance Memorandum on the Consideration and Implementation of Proven Safety Countermeasures” (<http://safety.fhwa.dot.gov/policy/memo071008/>). Our efforts in advancing those countermeasures have paid dividends.

This guidance provides you with a revised list of research-proven countermeasures that supersedes the 2008 guidance. Through our collective efforts, many of the nine safety countermeasures in the 2008 guidance are thoroughly integrated into the options the States consider as they address their safety issues. However, some have not reached that level of wide spread application. Accordingly, some of the countermeasures from the 2008 guidance were brought forward with the new ones we've added. As you so successfully did with the 2008 guidance, we encourage you to advance these safety countermeasure options with your State DOT counterparts.

We encourage you to refer your safety partners to resources such as the Crash Modification Factors Clearinghouse (<http://www.cmfclearinghouse.org/>) and the FHWA web site (<http://safety.fhwa.dot.gov/provencountermeasures>), to find more detailed descriptions, related research studies, and evaluations of each of these countermeasures.

Improving Safety on Rural Local and Tribal Roads Toolkit

The Federal Highway Administration's (FHWA) Improving Safety on Rural Local and Tribal Roads - Safety Toolkit and accompanying User Guides are developed to help rural and tribal agencies address safety issues in an efficient and effective way on their roadways.

The Toolkit lays out, step by step, a safety analysis process and then provides the tools, examples, and resources to help apply that process. The user guides give practitioners examples through hypothetical yet typical scenarios.

The toolkit and user guides are now available online at http://safety.fhwa.dot.gov/local_rural/. We have put together a CD of all the information from this site as well as the HTML links. To order a CD, contact the T2 Center at (503) 986-2855 or T2Center@odot.state.or.us.



Technology Transfer Center Steering Committee

The Technology Transfer Center Steering Committee members listed below help guide and direct the policies and activities of the Oregon Technology Transfer (T2) Center. You are invited to contact any of them to comment, make suggestions or ask questions about any aspect of the T2 Program.

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Vacant

City Committee Member

Answer to *What's Wrong With This Picture*

—From page 4

1. The flagger should stand at least 100' this side of the pickup.
2. Lights on pickup should be turned off to avoid diverting the motorist's attention from the flagger to the pickup.
3. The flagger is supposed to be on the shoulder on the side of the cones.
4. A minimum of 4 cones at 20' spacing is required for a two-lane one-way (flagger) taper.
5. The flagger appears to be using the radio which is not positioned properly to allow the flagger to maintain eye contact with the motorists.

On a positive note, the stop slow paddle is positioned well above the flagger's eyes as mentioned in the OTTCHB.

See pages 84 and 85 in the OTTCHB on how to properly set up this work zone.

Costs and Benefits of Winter Maintenance Strategies

As part of the Clear Roads research project "Cost-Benefit of Various Winter Maintenance Strategies," they asked for participation in a [survey](#) about the costs and benefits of different winter maintenance methods and materials.

Any public agency was welcome to participate, including those outside the U.S.

The survey took up to 60 minutes to complete, depending on the approaches used by each agency and their complexity. The survey was developed and administered by Western Transportation Institute, which is conducting the cost-benefit project for Clear Roads.

If you would like to participate in the survey, please contact David Veneziano at the phone number or email listed below.

For more information about the survey or the project, contact principal investigator David Veneziano at 406-994-6320 or david.veneziano@coe.montana.edu. You can also read more at the Clear Roads [project page](#).

Calendar of Events and Training

ODOT http://www.oregon.gov/ODOT/HWY/TECHSERV/pages/pcomingengtrng.aspx		
<i>Date</i>	<i>Class Title</i>	<i>Location</i>
Apr 14-15	Temporary Traffic Control Design Plans Workshop	Salem
Apr 21-23	ODOT Geo-Environmental Conference	Eugene
Oregon State University (OSU) http://cce.oregonstate.edu/node/216		
<i>Date</i>	<i>Class Title</i>	<i>Location</i>
Mar 23-24	Highway Safety Manual	Portland
Apr 28-30	Manual on Uniform Traffic Control Devices	Corvallis
June 2-3	Applied Roundabout Design	Corvallis
AOC/LOC Oregon Local Leadership Institute http://www.orcities.org/Training/tabid/1026/Default.aspx		
<i>Date</i>	<i>Class Title</i>	<i>Location</i>
Feb 12-13 Feb 19-20	Elements of Effective Supervision	Sherwood
Mar 16	Financial Analysis & Planning	Sherwood
Mar 31	Customer Service on the Front Line	Newport
Apr 6	Grant Writing Basics	Sherwood
Apr 17	Connect with Your Community: Communication Strategies that Work	Newport
Apr 22-23	Leadership in Turbulent Times	Sherwood
Apr 25 May 11	Council/Manager/Staff Relations	Salem McMinnville
May 6	Coaching Great Performance: Developing a Winning Team	Sherwood
May 15	Media Relations Training and Crisis Communication Strategies	Sherwood
May 19	Effective Local Government Manager	Newport
American Public Works Association (APWA) http://oregon.apwa.net/MenuHomepage/711/Training		
<i>Date</i>	<i>Class Title</i>	<i>Location</i>
Mar 10-13	The Developing Leader	Bend
Mar 17-20	Spring Chapter Conference	Eugene
Apr 7-9	Street Maintenance & Collection System Spring School	Bend
Oregon T2 Center http://www.oregon.gov/ODOT/TD/TP_T2/		
A full list of training classes offered by the T2 Center is available on-line at www.oregon.gov/ODOT/TD/TP_T2/ . To schedule any of the "Circuit Rider" classes, please contact Linda Beth Milligan at 503-986-2855 or T2Center@odot.state.or.us .		

Roads Scholar Classes Coming Soon...

RS-9 Maintenance Mathematics and RS-10 Introduction to Survey and Grade Checking will be offered at host locations on the central/east side of the state this spring. Class locations and registration will be available at

www.oregon.gov/ODOT/TD/TP_T2/pages/roadsscholarclassschedule.aspx. If you are interested in hosting RS-9 or RS-10 at your agency, contact our office at (503) 986-2855 or T2Center@odot.state.or.us.



RS-9 & RS-10 will also be offered at the Spring School, April 7-9, 2015 in Bend. The Level 2 class, RS-16 Emergency Preparedness and Response will also be offered for the first time at this school.

Oregon Roads is a quarterly publication of the Oregon Technology Transfer (T2) Center, furnishing information on transportation technology to local agencies. It is distributed free of charge to cities, counties, tribal governments, road districts, and others having transportation responsibilities. The opinions, findings or recommendations expressed in this newsletter are those of the authors and do not necessarily reflect the views of the Oregon Department of Transportation or Federal Highway Administration. We do not endorse products or manufacturers. Where names of either appear, it is only to lend clarity or completeness to the article. Space limitations and other considerations prohibit us from providing an advertising service to our readership.

Co-Editors:

Rebekah Jacobson, *Director*

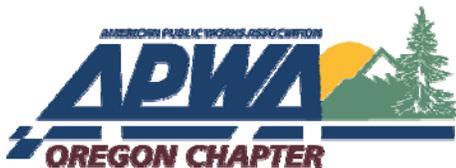
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Street Maintenance and
Collection Systems

SPRING SCHOOL

April 7-9, 2015



The Riverhouse Hotel and Convention Center

Bend, OR