

IN THE ZONE

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MAY 2011



2010 Oregon Fallen Workers Memorial Ceremony, ODOT Headquarters, Salem. The "field of cones" display was originally introduced on the National Mall in Washington, D.C. for the 2001 National Work Zone Awareness Week. The formation signifies workers who have died in work zones.

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The ODOT Traffic Control Plans Unit develops the standards for traffic control plans for construction projects to provide safe and efficient movement of people and goods through work zones while allowing efficient completion of construction projects.

MAY IS TRANSPORTATION SAFETY AWARENESS MONTH

The 2011 road construction season is gearing up and Governor Kitzhaber has proclaimed May 2011 Transportation Safety Awareness Month. The month's events will include public service campaigns that highlight the importance of safety in transportation and in our work zones—for workers and road users.

Over the past 10 years in Oregon, there have been on average 475 work zone related crashes each year, according to ODOT's 2011 Work Zone Safety Fact Sheet. Over the same time period, there were 18 serious injury and

eight fatal crashes on average each year. Preliminary estimates confirm nine work zone fatalities last calendar year.

In the United States, the risk of death for roadway workers is seven times higher than an average worker's risk. Even so, more drivers and passengers are killed and injured in roadway work zones compared to workers. Some 42 percent of work zone crashes occur in the transition zone *prior* to the work area. This emphasizes the importance of *effective* traffic control design,

deployment, and maintenance in this critical area.

Anne Holder, ODOT's Work Zone Safety Program manager, asks TCP designers to "consider work zone police enforcement needs while designing." 23 CFR 630.1108(d) gives guidance on design conditions needing to be examined to determine a potential benefit of law enforcement. One such condition is frequent worker presence adjacent to high-speed traffic without positive protection devices, such as concrete barrier.

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Respect The Cone Zone—2011 Oregon Transportation Safety Awareness Month

(Continued from page 1)

“Designers should work closely with Region Construction staff, make notes and share with Region Construction or Region Transportation Safety Coordinators,” Holder says. “This can ensure potential police enforcement needs are provided for during construction.”

Holder also asks designers to be familiar with the Human Factors chapter of AASHTO’s Highway Safety Manual.

Nationally, the first known Work Zone Awareness Week occurred in 1997 in Virginia. The event spread in popularity until the first national event in 2000. Today, nearly every state DOT holds an annual work zone awareness event, according to FHWA’s *Public Roads*.

As part of the national goal, event content can include public service announcements, keynote speakers, safety messages to workers, safety-themed keepsakes, and fallen worker memorials.

In Oregon, instead of observing the national event, the month of May is

dedicated to transportation safety as a whole. This year’s events will include Crash Car Displays at high school proms and events, safety fairs, and EMS Day at the Capitol. For a calendar of events, visit ODOT’s home page at <www.oregon.gov/ODOT>.

For more information on ODOT’s Work Zone Safety Program, visit <<http://www.oregon.gov/ODOT/TS/workzonesafety.shtml>>.



Safety Statistics Source: 2011 Work Zone Safety Fact Sheet & Safety Tips. Salem, Oregon: Oregon Department of Transportation Safety Division, 2011. <http://www.oregon.gov/ODOT/TS/workzonesafety.shtml> (accessed April 21, 2011).

National WZAW Info Source: Scriba, Tracy. "A Decade of Safety Success." Public Roads, Mar. - Apr. 2010. <http://www.fhwa.dot.gov/publications/publicroads/10mar/08.cfm> (accessed April 26, 2011).



Oregon State Police crash car display in Klamath Falls in memory of Emilio Alfaro. Crash car displays like this will be displayed at high school proms and events around the state as part of Transportation Safety Awareness Month. Credit: Oregon State Police.



Region 4 Manager Bob Bryant places a rose on a memorial stone at the 2010 Oregon Fallen Workers Memorial Ceremony in front of ODOT Headquarters, Salem.



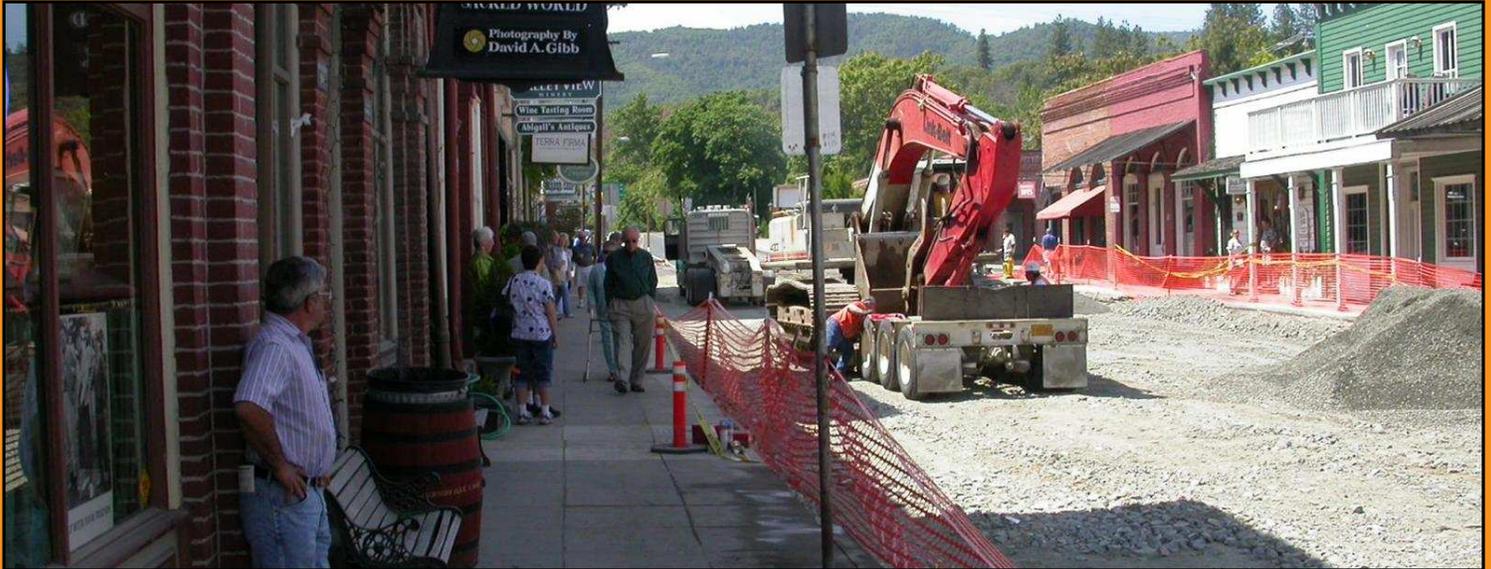
Work Zone Safety banner at the ODOT Technical Leadership Center in Salem. Banners like this will be displayed statewide in May.

Welcome to In The Zone—Your ODOT Source for TCP-Related News and Events

In January, the ODOT Traffic Control Plans Unit added this newsletter to its toolbox for our customers. It's intended to be an information sharing bulletin to keep our clients up-to-date on traffic control plans-related news, events, and activities.

The newsletter is also another outlet to share your ideas and experiences with the rest of Oregon's traffic control plans community. By sharing what's been working, or not working, in the field, you can help the rest of us learn from your experiences.

Look for the newsletter at our website. New issues will be posted quarterly or as needed. For questions, comments, article ideas, or letters to the editor, please contact Eric Leaming at eric.s.leaning@odot.state.or.us.



Pedestrians observe road work and navigate around a road closure along California Street (OR 238, Jacksonville Highway) in Jacksonville in 2004.

New “Temporary Pedestrian Detour Routing” Standard Drawing in June 2011 Series

The June 2011 ODOT Standard Drawing Series will include a new drawing incorporating updated pedestrian accommodation guidance. The drawing, TM 844—Temporary Pedestrian Detour Routing, replaces and updates the *Typical Sidewalk Closures* drawings formerly on TM 840. A new *Sidewalk Closure, Corner* drawing has also been added.

Sidewalk Diversion Drawing

Pedestrian Channelization Devices have recently been approved for the ODOT's Qualified Products List. Pedestrian Channelization Devices, or Longitudinal Channelization Devices, are the preferred method to guide pedestrians through a sidewalk diversion. The devices are more visible, ADA compliant, and MUTCD compliant.

Sidewalk Closure Drawing

This revised drawing is more in line with

the MUTCD requirements that “Pedestrian Detour signs should be used where pedestrian flow is rerouted” (2009 Edition, §6F.14). Pedestrian Detour signing has been added to the drawing to direct pedestrians around midblock closures.



Sidewalk Closure, Corner Drawing

This new drawing shows a sidewalk closure for an intersection corner. Pedestrian Detour signing is included in the drawing to direct pedestrians around the corner

closure. Be aware that work should be staged if several corners of the same intersection need sidewalk work, with each stage detailing pedestrian accommodations.

The TCP design process should include a plan for sidewalk closures and staging. Most sidewalk closures will require project-specific sidewalk staging plans. Construction personnel should consult the project-specific Transportation Management Plan before accepting any changes to the sidewalk staging and closure plans.

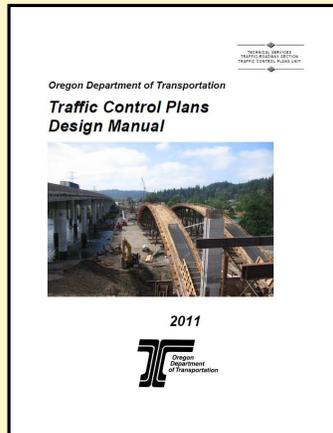
The new Temporary Pedestrian Detour Routing Standard Drawing provides a starting point to improve pedestrian safety and the pedestrian experience in Oregon's work zones. Please provide any feedback regarding the new Standard Drawing to the TCP Unit.

Updated 2011 Traffic Control Plans Design Manual Published Online

The Traffic Control Plans (TCP) Design Manual has been updated and posted to the TCP Unit's website. A change sheet has also been posted, listing major changes made from the last revision.

The goal of the update was to incorporate any recent changes to the standards, practices, devices, and technologies used in traffic control.

Major changes included incorporating standards from the Manual for Assessing Safety Hardware (MASH); clarifications for several design practices; updating pedestrian considerations; and updating pilot car operations.



The 2011 edition does not include updates associated with the 2009 MUTCD. ODOT has not yet formally adopted the 2009 MUTCD; any MUTCD updates will appear in the 2012 TCP Manual.

The manual is updated annually by the ODOT TCP Unit and is available online at the TCP Unit website. The online version is considered the official document. The manual will not be published and distributed as a traditional printed publication; however, a color printed copy is offered to students completing the TCP Design Workshop. See the ODOT HR website for more class details.

Moving Forward: New ODOT Smart Work Zone Specification for PTMS

Safety and mobility is paramount in any construction project. Providing notification of an upcoming speed drop can prevent work zone crashes—both primary and secondary crashes. These factors are some of the main elements moving complex projects toward including Smart Work Zone ITS applications.

A new Portable Traffic Management System (PTMS) specification has been developed by the TCP Unit and will be used when incorporating a Smart Work Zone into ODOT projects.

Several factors need to be considered when deciding to use a Smart Work Zone, including recurring congestion, staging, safety, mobility, and incident management.

An ideal project for a Smart Work Zone is one where traditional staging and static devices fall short of mitigating traffic demands. When recurring traffic congestion impacts compound with work zone impacts, a Smart Work Zone can be a good tool to manage traffic.

Better traffic management results in a more efficient construction operation as mobility is maintained. One cost effective example application is a simple queue warning system. The traffic responsive system continuously monitors traffic, processes real-time data, and provides advance warning to incoming drivers of prevailing work zone conditions.

The system's programming ensures the most accurate information is broadcast to the traveling public.

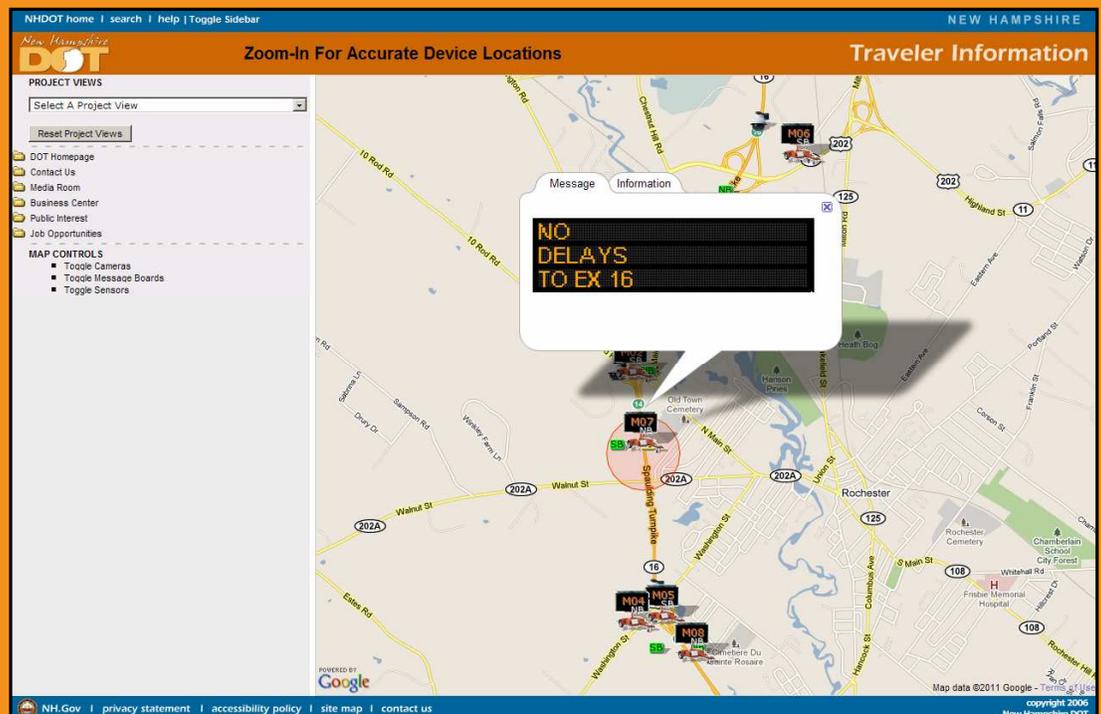
For project managers, automatic alerts can be sent to any mobile device or PC. Real-time camera views and PCMS messages are at the click of a mouse. These features can be crucial to a successful Incident Management Plan or avoid costly traffic impacts.

The potential of Smart Work Zone systems is just beginning to be realized as more tech savvy drivers have access to real-time travel information for their commutes.

Studies have shown drivers will adjust driving patterns when given credible information, which they can use to make informed travel decisions.

The new PTMS unique specification was posted on March 9 and can be viewed at http://www.oregon.gov/ODOT/HWY/SPECS/unique.shtml#Part_00200.

For more information on the new specification, Smart Work Zones, and other TCP-related ITS applications, contact Don Wence, TCP Standards Engineer, at donald.e.wence@odot.state.or.us.



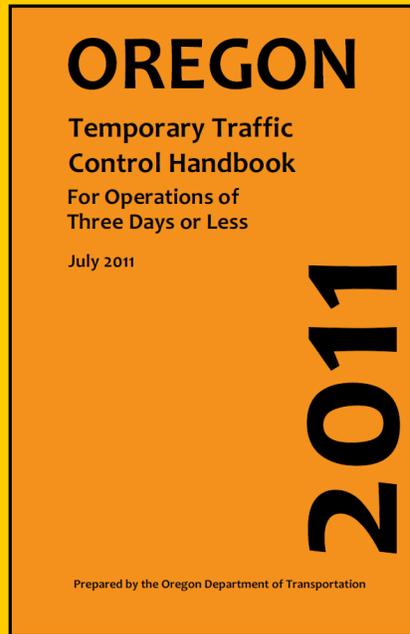
New Hampshire DOT Traveler Information Smart Work Zone feature. The site streams live traffic video, displays speed data, and provides message sign messages to keep travelers informed for their commute, part of an ITS Smart Work Zone application. Credit: New Hampshire DOT, <http://www.nh.gov/dot/511/index.htm>.

2011 Oregon Temporary Traffic Control Handbook Moving toward OAR Adoption

The Oregon Temporary Traffic Control Handbook (OTTCH) is being revised by the Traffic Control Plans Unit to meet the federal policies given in the 2009 Manual on Uniform Traffic Control Devices (MUTCD).

The draft has been finalized and is moving into the Oregon Administrative Rule (OAR) adoption process for final approval by the Oregon Transportation Commission. The process formally adopts the OTTCH along with the 2009 MUTCD and the 2009 Oregon Supplements to the MUTCD.

Major updates to the 2011 edition include a new flagging chapter and updated language to meet the 2009 MUTCD.



The OTTCH is an Oregon supplement to the MUTCD and applies to temporary traffic control zones of three days or less for any reason on any public road in Oregon. It is based on the premise that simplified traffic control procedures are warranted for short term activities in order to limit workers' exposure to traffic.

For work requiring traffic control devices in place longer than three days, the OTTCH does not apply and a more comprehensive Traffic Control Plan is required.

Once approved, the OTTCH will be posted to the TCP Unit website and be printed for hard copy distribution. Look for an announcement of final publication by the ODOT Traffic-Roadway Section in the coming months.

2010 Work Zone Tour Summary Report Published—What's Behind Lower State Score?

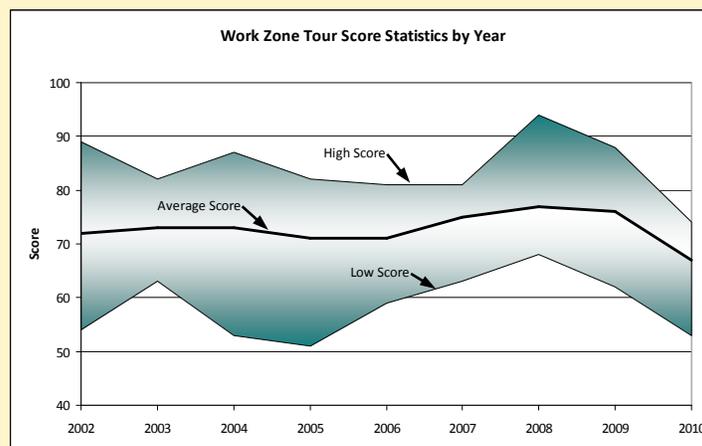
The final results of the 2010 Construction Work Zone Tours have been published in the Work Zone Tour Summary Report. To better understand the results, we need to take a closer look at the statewide trend data.

"The 2010 Work Zone Tours were very successful," says Scott McCanna, State Traffic Control Plans Engineer. The tours visited and reviewed 42 different construction sites in July 2010, the lowest number of sites since 2007. Sixteen reviewers scored projects on safety and quality of work zones. The projects ranged from multi-million dollar I-5 projects to smaller local agency projects on city and county roads.

"We accomplished a major goal this year by having every reviewer score projects from multiple Regions," McCanna continues. "This effort helped normalize the collected data and gives an unbiased look at the work zones."

The statewide average project score fell to 67 out of 100, the lowest score since formal scoring began in 2002.

Weaknesses included bicycle and pedestrian facilities, PCMS messages, and



Work zone tour score statistics by year. Source: 2010 Construction Work Zone Tour Summary Report.

sequential arrow use. Strengths included temporary signing, drums, and pavement markings.

The reason for lower scores compared to past years may include different scoring methods, among other factors. "There were several new participants, participants may have been more conservative, and there were fewer participants traveling to multiple areas to see a variety of projects," explains McCanna. "I understand our participants are busy individuals, and I'm extremely appreciative of the time they are able to commit to the tours. Next year's scores will help determine if 2010 was a statistical

anomaly or if having reviewers from multiple Regions is truly normalizing scores."

Since 2002, ODOT has reviewed work zones in an effort to strengthen the quality, efficiency, and safety of Oregon work zones.

The tour's purpose is to confirm standards and practices are being implemented uniformly; confirm the latest standards and practices are effective; reveal more techniques or technologies

needed to improve work zones; and, strengthen communication between ODOT design and construction staff, consultants, and contractor employees.

"Despite the scores, I remain convinced that safety for the traveling public and our workers is ODOT's first priority," says McCanna. "While we have some isolated issues to address, it is clear our employees want to do the right thing and optimize the safety and efficiency of our construction work zones."

The full report can be viewed at http://www.oregon.gov/ODOT/HWY/TS/publications.shtml#TCP_Publications.

Seasonal Considerations for Striping and Temporary Tape

As is the case with many Pay Items, it is important for Designers to communicate with their Project Managers and collect their input for product selection. Designers should also communicate with Project Managers about the need to bolster quantities should a project carry through winter months.

Whether calculating quantities for painted stripes or for temporary removable tape, it is important to understand the advantages and limitations for each product.

Temporary Paint is traditionally much less expensive, typically lasts longer, and is often easier to apply than temporary tape. However, paint loses most of its retroreflective effectiveness when covered with dirt, grit, or when it is rained on.

Temporary Tape, due to its thicker profile and ability to bead and drain water off the stripe, performs better in wet, winter conditions than Temporary Paint. Unfortunately, Temporary Tape requires a well-prepared surface that must be dry for the tape to properly adhere. Additionally, if placed in locations susceptible to high traffic volumes, Temporary Tape has a reduced life expectancy.

With these considerations, communicate with your project manager to determine which striping strategy is best for your project. For more information, see Chapter 2 of the ODOT Traffic Control Plans Design Manual or contact the ODOT TCP Unit.



Worn temporary striping on an I-5 lane shift near Grants Pass in 2009.

Consider Non-Obvious Activities when Estimating Flagging Hours

Developing quantities for flagging hours can be a bit tricky. Besides the obvious needs for flaggers during two-way, one-lane operations or at intersecting side roads within the work area, there may be other flagging hour needs that often go unaccounted for.

TCP Designers should utilize available resources to help capture the majority of activities in the project that would require the use of flaggers. Project Management staff or contract administration personnel may have experience that can aide in estimating the project's flagging hour needs.

Here is a list of activities that may need additional flagging hours:

- Mobilization of construction equipment on and off the site;
- Hauling materials to and from the work area;
- Temporarily holding traffic to lift a bridge span, beam, or other component over traffic lanes; and
- Clearing debris in the roadway following demolition of a bridge segment or a blasting event.

Again, Designers should seek assistance from other discipline groups to help determine a reasonable quantity of flagging hours. Additionally, Designers should consider including a small quantity of hours (250 to 500 hours) as a contingency for activities not accounted for. Even if the project scope does not include activities where the use of flaggers is obvious, some minimal quantity of flagging hours should be included.



Flagging in the 1940's during WWII. Credit: ODOT History Center.

TCP Cost Estimator Tool Updated for Unit Prices, Obsolete Pay Items

The Traffic Control Plans Cost Estimator tool has been updated and posted to the TCP Unit website.

Highlights of the tool's update include:

- Minor reformatting of page headers and user-entered project information;
- Correction of minor formula errors;
- Additional guidance for quantity determination (striping, tape, TCS, etc.);
- Updates to some temporary signs,
- Updates to Pay Item unit prices for 2011; and
- Deletion of obsolete pay items such as narrow barrier and striping mobilization.

This update is part of routine maintenance to the tool in order to reflect statewide pricing changes to Pay Items in Section 00225 of the Oregon Standard Specifications for Construction. Unit costs for each Pay Item are adjusted annually following the yearly Average Pay Item Price Report generated by the ODOT Highway Division's Estimating Unit.

The tool is an Excel-based spreadsheet developed by the TCP Unit. The tool is designed to help designers across Oregon organize and manage traffic control devices, quantities, and costs. Using the spreadsheet is not mandatory; the tool is simply another available tool to aid in TCP design.

To download a copy of the tool, go to the TCP Unit website. For more information on the tool and how to properly use it, see Chapter 6 of the 2011 Traffic Control Plans Design Manual or contact Scott McCanna at scott.m.mccanna@odot.state.or.us.

Upcoming Opportunities

ODOT Traffic Engineering Conference

The Traffic Engineering Conference will provide technical training to ODOT, Local Agency, and consultant engineering staff on ODOT traffic engineering policies, procedures, standards, and technology transfer initiatives. Topics may include: Practical Design for traffic engineering; Mobility Operations Manual; legislative updates; safety and operations in mountain passes; and bike/ped grant program updates, among others. This is a valuable opportunity for ODOT Region staff and consultants who frequently work on traffic engineering and operations elements for ODOT projects.

June 7-8, 2011 | Portland South Holiday Inn, Wilsonville | \$100 | 6 PDH

Register Online: <http://www.oregon.gov/ODOT/HWY/TECHSERV/training.shtml>

FHWA Work Zone Training, Guides, and Documents

The Federal Highway Administration has compiled a listing of available work zone training and documents on several issues related to TCP design and safety. Categories include: work zone design; Intelligent Transportation Systems (ITS), work zone management; nighttime operations; work zone traffic control; and worker safety, among others.

Online: http://www.ops.fhwa.dot.gov/wz/outreach/wz_training/index.htm

If you know of any TCP-related classes, conferences, or learning opportunities, please let the TCP Unit know! We'll do our best to include it in the *Upcoming Opportunities* section of *IN THE ZONE*!



Your work zone photos are welcome to be included in future editions! Some photos used in *IN THE ZONE* and many others are available on the ODOT Flickr site at www.flickr.com/photos/oregondot/.



IN THE ZONE

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Crews work on the shoulder during a lane closure on Southbound Interstate 5 near Ashland.

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