

# *T<sup>2</sup> Roads on the Range*

## From the Desk of the Director

by Khaled Ksaibati, Director, Wyoming T<sup>2</sup>

Every once in a while, it is good to remind everyone of the some of the programs and activities with which the Wyoming T<sup>2</sup> Center is involved. Some of these programs might be of interest to your agency and all it takes is a phone call to our Center to get more details.

Our sign retroreflectometer loan program is still going strong. The two retroreflectometers which were purchased with funding from the Wyoming DOT Safety Committee have been loaned to over 13 counties and cities around the state. We have been fortunate in that only once we have had to send one of the retroreflectometers for repairs after a long time of use and abuse and we are hoping that our success with these devices will continue. It is never too late for you to call our office and have your name added to the list so that you can have access to free use of one of the retroreflectometers.

A new loan program for traffic counters has been introduced in our Center. A couple of weeks ago, we received fifty traffic counters and their accessories. The Center will make these counters available to those who are interested in collecting traffic

counts. Traffic counts are useful in establishing traffic volume trends, evaluating the impact of drilling activities, measuring current demands, establishing functional classifications of roadways, etc. The Center can provide training on setting up traffic counters to those who are interested.

Another exciting project that is going into full implementation is the Wyoming Rural Road Safety Program (WRRSP). Although we featured this program in a previous newsletter, it is important to mention here that this five-step program will help you in identifying high risk rural locations in your

jurisdiction. Appropriate and effective safety countermeasures can then be selected to reduce crashes and fatalities at these high risk locations. WYDOT has sent out notices to all counties about this program. The Center will help you with the implementation of the program in your county. In addition, we can help you in preparing your proposal to the Local Government

Office of WYDOT to get funding for eligible projects. The deadline for submitting proposals for this year is April 19<sup>th</sup>, so you need to act fast to take advantage of this program.



Traffic Counts are Unique in Wyoming

Our Recycled Asphalt Pavement (RAP) study is progressing very well. The aim of this study is to look at the effectiveness of incorporating RAP in gravel roads. As part of this experiment, the Center has been monitoring tests sections which were constructed in Laramie and Johnson Counties. In addition, the center will be working with Sweetwater County on the construction of additional test sections in the summer of 2009. Some of the preliminary findings of this interesting project will be presented at the 14<sup>th</sup> Annual Transportation & Safety Congress in Casper.



Blending RAP and virgin aggregate.

The results of our pilot asset management study were presented at the Transportation Research Board Meeting in Washington D.C. In addition, some of these findings will be published in the ASCE Journal of Trans-

portation Engineering. The Center staff will be willing to assist you with any tasks or questions that you might have with regard to the implementation or improvement of an asset management program in your jurisdiction.

Our 14<sup>th</sup> Annual Transportation & Safety Congress will be held on the 1<sup>st</sup> and the 2<sup>nd</sup> of April in Casper this year. We are really excited about the program which will contain topics related to transportation safety, dust, chain saw safety, RAP in gravel roads, subdivision impacts, a traffic count demonstration and a detailed discussion about the federal stimulus package.

The topics discussed at this important event will be suitable to everyone in your agency. I am looking forward to seeing all of you there.

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## **‘All About Culverts’ Workshops**

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The Center put on three workshops in early February with nearly 150 participants in Laramie, Buffalo, and Riverton. George Huntington of the T<sup>2</sup>/LTAP Center was the instructor with assistance from Tom Viall and Andy Seiller with Roscoe Culvert.

The workshop began with basic discussions of the various aspects of culverts – flared ends, barrels, cover, and so on just to get those without much experience up to speed. Next we looked at some of the ways in which culverts may fail or have problems. A discussion of how water flows in and around culverts ensued, with particular emphasis placed on inlet and outlet flow conditions. This was followed by a video of a spectacular culvert failure, highlighting the problems associated with piping around the outside of a culvert. Next

we addressed some of the considerations that go into locating culverts, along with some ways to reduce scour and erosion around culvert ends. Tom showed us some of the new materials and techniques that can be helpful in these efforts.

Sizing culverts was next on the agenda with a brief description of some of the complexities that may be involved in designing culverts. A brief discussion of the Rational Method followed. We spent considerable time using Talbot’s Method, a very simple culvert sizing procedure. Finally, we went over the basic aspects of culvert installation and maintenance.

Overall the workshop was well received and by most accounts a complete success. Maybe we’ll do this one again in a couple of years.

## National Work Zone Awareness Week 2009

### April 6-10, 2009

National Work Zone Awareness Week 2009 will be observed April 6-10. The theme for this year is "Drive to Survive - Our Future is Riding On It!" A national media event will be held April 7 at a location near the Boundary Channel Humpback Bridge Replacement Project between Washington, DC and Virginia.

National Work Zone Awareness Week (NWZAW) was created on Dec. 15, 1999 when senior representatives from the FHWA, ATSSA and AASHTO jointly signed a Memorandum of Agreement that pledged to increase public awareness of work zone safety issues through a national media campaign. Since then, these three founding organizations have led a national media event every April in every year since.

#### ***How Good is America's Roadway System?***

The U.S. roadway system's safety trends have resulted in a 2006 fatality rate of approximately 1.41 deaths per 100 million miles of travel (down from a 5.50 rate in 1966). However, that's still not good enough. In 2006, nearly 2.6 million people were injured and 42,642 people died on our nation's roads. At the same time, the number of vehicle miles traveled continues to grow, topping 3 trillion in 2006. This growing demand is placing an unprecedented amount of stress on a mature system that is approaching middle age and is in need of regular repair and rehabilitation.

#### ***How Significant is the Work Zone Problem?***

##### **Safety**

Over the last 10 years, the annual number of persons killed in motor vehicle crashes in work zones has increased 45 percent (up to 1,010 in 2006).

- Eighty-five percent of those killed in a work zone are drivers or occupants.
- On average from 2002 to 2006 about 15 percent of the fatalities resulting from crashes in work zones were non-motorists (pedestrians – including workers and bicyclists).
- More than 40,000 people are injured each year as a result of motor vehicle crashes in work zones.
- Of the 1,010 work zone fatalities in 2006, an estimated 235 occurred in crashes involving large trucks.
- In addition:
  - Approximately half of all fatal work zone crashes occurred during the day.
  - More than twice as many fatal work zone crashes occurred on weekdays as on weekends.
  - Fatal work zone crashes occurred most often in the summer and the fall.



##### **Exposure and Delay**

- Today, we are primarily rehabilitating and reconstructing existing infrastructure while maintaining a very high volume of traffic on the very facilities we are working on.
  - It is estimated that more than 20 percent of the National Highway System (NHS) is under construction during the peak construction season.
- More than 3,000 work zones are expected to be present on the NHS during the peak construction season.
- An estimated 12 billion vehicle miles of travel a year will be through active work zones.

### ***Can You Put This in Perspective?***

- One work zone fatality every 8.7 hours (almost 3 a day)
- One work zone injury every 9 minutes (160 a day)
- More than 60 million vehicles per hour of capacity lost to work zones each day during the peak construction period.

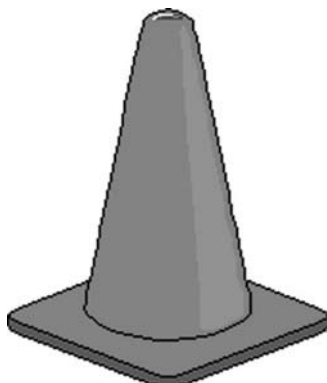
### ***10 Tips for Driving in Work Zones***

- **EXPECT THE UNEXPECTED!** (Normal speed limits may be reduced, traffic lanes may be changed, and people may be working on or near the road.)
- **SLOW DOWN!** (Speeding is one of the major causes of work zone crashes; obey posted speed limits.)
- **DON'T TAILGATE! KEEP A SAFE DISTANCE BETWEEN YOU AND THE CAR AHEAD OF YOU.** (The most common crash in a highway work zone is the rear end collision. So, don't tailgate).
- **KEEP A SAFE DISTANCE BETWEEN YOUR VEHICLE AND THE CONSTRUCTION WORKERS AND THEIR EQUIPMENT.**
- **PAY ATTENTION TO THE SIGNS!** (The warning signs are there to help you and other drivers move safely through the work zone. Observe the posted signs until you see

the one that says you've left the work zone.)

- **OBEY ROAD CREW FLAGGERS!** (The flagger knows what is best for moving traffic safely in the work zone. A flagger has the same authority as a regulatory sign, so you can be cited for disobeying his or her directions.)
- **STAY ALERT AND MINIMIZE DISTRACTIONS!** (Dedicate your full attention to the roadway and avoid changing radio stations or using cell phones while driving in a work zone.)
- **KEEP UP WITH THE TRAFFIC FLOW.** (Motorists can help maintain traffic flow and posted speeds by merging smoothly, and not slowing to "gawk" at road work equipment and crews.)
- **SCHEDULE ENOUGH TIME TO DRIVE SAFELY AND CHECK RADIO, TV AND WEBSITES FOR TRAFFIC INFORMATION.** (Expect delays and leave early so you can reach your destination on time. Check the National Work Zone Safety Information Clearinghouse for information on work zone delays throughout the country.)
- **BE PATIENT AND STAY CALM.** (Work zones aren't there to personally inconvenience you. Remember, the work zone crew members are working to improve the road and make your future drive better.)

This article was condensed from two articles on the following FHWA web sites: [http://safety.fhwa.dot.gov/wz/nwzaw\\_events/factsheet08.htm](http://safety.fhwa.dot.gov/wz/nwzaw_events/factsheet08.htm); [http://www.ops.fhwa.dot.gov/wz/outreach/wz\\_awareness.htm](http://www.ops.fhwa.dot.gov/wz/outreach/wz_awareness.htm).



## **Work Zone Traffic Control & ATSSA Flagger Certification Workshops**

The Center has four workshops planned that will combine work zone traffic control (WZTC) with flagger certification. In order to become a certified flagger, attendees must attend both the morning and afternoon sessions and they must pass written and demonstration tests. Those who don't want to become certified flaggers may attend just the morning



session. The afternoon sessions are limited to 20 people per class, so sign up early, especially if you want to go through the flagging part of the course.

The morning session will cover basic aspects of WZTC. We'll start with an overview of what WZTC is and why it's important, then move on to a discussion of drivers and how they behave in work zones (too bad we can't just give them timeouts). We'll discuss the proper use of traffic control devices, such as signs, cones, and barricades. Next we'll go over the basic elements of work zones and how to set them up. We'll learn how to follow the standards set in the Manual on Uniform Traffic Control Devices (MUTCD) and how to use the MUTCD to help with work zone layouts. We'll finish up the morning session with discussions on short-term setups, urban and



utility work, and ADA, pedestrian, and bicycle issues.

The afternoon flagging session will consist of about an hour both going over the fundamentals of safe flagging and preparing flaggers to handle unexpected situations. Then each participant will take a written test and will demonstrate their ability to go through the basic flagging procedures. Upon successful completion of the morning session, the afternoon session, and the tests, participants will receive an ATSSA Flagger Certification card.

These workshops will be held at the following locations on the dates shown:

- Rock Springs - May 12
- Casper - May 13
- Cheyenne - May 18
- Buffalo - May 20

We hope to see you there!

## **14<sup>th</sup> ANNUAL TRANSPORTATION & SAFETY CONGRESS**

**Casper Parkway Plaza  
April 1 & 2, 2009**

**Mark your calendar now and plan  
to attend this exciting annual event.**

**Send 5 people, get the 6th one free!  
Send 10, 2 more are free!**

## Liability Checklist for Local Transportation and Public Works Agencies

If you can answer yes to the following questions, your agency is in a good position to defend itself against tort liability. If you have other concerns, add them to the list. Consider sharing this list with your council members and other elected officials.

### Training

- Do all employees regularly receive training appropriate for the work they perform and for the materials and equipment they use?
- Do employees understand the importance of using reasonable care in performing their duties?
- Are employees instructed to report hazardous conditions and to act on them?

### Signs and markings

- Do we have an up-to-date copy of the Manual on Uniform Traffic Control Devices (MUTCD) and other Florida and agency governing documents available to all employees?
- Are employees familiar with the MUTCD and the other governing documents?
- Are signs and markings adequate, properly installed, and well maintained?
- Do we have an up-to-date inventory of signs, signals, and markings and a plan for maintaining conformance with the MUTCD and other governing documents?
- Do we have and follow a plan for periodic day-and-night review of signs and markings?
- Are identified road hazards posted with appropriate warning signs based on the MUTCD and other governing documents?

- Are all bridges properly posted for weight restrictions and low clearance?
- Are all dead-end roadways and railroad crossings properly signed?
- Do we provide proper temporary traffic control in work zones?
- Are sight lines clear at intersections?

### Roads, culverts, and bridges

- Do we have a current inventory of road, culvert, and bridge conditions and a plan for addressing deficiencies?
- Is the right-of-way for our roads properly established and recorded?
- Do we keep good records on agency activities including roadway conditions, crashes, and maintenance work?
- Do we use current versions of accepted guidelines in road design, construction, operations, and maintenance?

### Administration

- Are all of our roadways inspected on a regular basis?
- Is our equipment in good repair and are employees instructed to report faulty equipment immediately?
- Do we follow objective procedures in setting priorities?
- Are our maintenance standards achievable with the resources available?
- Do we have an established procedure for receiving complaints, acting on them, and recording all actions?
- Do we meet periodically with our legal counsel to review the status of roadway-related claims filed against the agency?

This was reprinted from the Florida Technology Transfer Quarterly, which was adapted with permission and input from Dr. Ron Van Eck, P.E., WV LTAP Center, and from articles appearing in Lone Star Roads, Mar/Apr 2004, Nuggets & Nibbles, Fall 1996, and Technology News, Nov/Dec 2004.

# Mountain Pine Beetle

No doubt you have noticed them as you have traveled in the Rocky Mountains - the clusters of yellow- to red-colored pine trees. They stand out noticeably against the green beauty of their surrounding conifer neighbors.

## Beetle Kill

These trees have succumbed to an attack of the Mountain Pine Beetle (*Dendroctonus ponderosa*). This pesky little fellow is native to the forests of western North America and randomly chooses its victims from among lodgepole, ponderosa, Scotch and limber pine trees.

Most susceptible are unhealthy trees weakened by old age, poor growing conditions, lightning or fire damage, overcrowding or compromising of the roots. However, the pine beetle is not totally discriminatory and during epidemic outbreaks will take up residence in healthy trees, which are in close proximity to ones already infested. Thousands of acres can be infested in this manner during a period of drought stress or when tree overcrowding occurs.

About one year after a tree has been infested, foliage turns yellow to red throughout the entire tree crown. This is evidence that the Mountain Pine Beetle has been successful in killing the host tree.

## Beetle Effects on Trees

When beetles attack they introduce a blue-staining fungus (*Ceratocystis* species) into the sapwood which blocks transport of water in the tree and aids in killing it. When attacked, a tree responds with “pitch tubes” on the trunk in an attempt to seal off the beetle. These are popcorn-shaped masses of resin which may be brown, pink, or white in color.

A dry reddish-brown boring dust in bark cracks, crevices and at the base of a tree is further evi-

dence of beetle attack. Larvae can be seen in the inner bark of the tree. ‘J’ shaped egg galleries packed with debris are also in evidence.

From egg . . .



Egg Gallery

To larva . . .



To adult . . .



***As many as 15,000 adult beetles may infest one tree.***

## Controls

Woodpeckers and insects can help in the natural control of Mountain Pine Beetles. However, if a major outbreak is underway, these may be of little affect. The best natural control is tree vigor as a healthy tree can “pitch out” pine beetles and defend against their attack. Keeping trees thinned, which in turn promotes vigorous trees, is also a good preventive measure.

## Infestation Frequency

Outbreaks of Mountain Pine Beetle infestations ebb and flow. Epidemic levels are reached and then subside. Beetles and trees have co-existed for centuries without total forest destruction; there is no reason to expect this to change. Consequently, the visitor may see reddish-colored pine dead or dying trees, but it is all just part of the natural process.

Reprinted from a brochure produced by Rocky Mountain National Park, <http://www.heartoftherockies.net/MtnPine-Beetle.PDF>.

## Upcoming Events

### 14th Annual Transportation & Safety Congress

Casper Parkway Plaza  
April 1 & 2, 2009

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**Tom Bonds**

*The national Local Technical Assistance Program mission 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.*



The Wyoming T<sup>2</sup> Newsletter is produced by the Wyoming Technology Transfer Center at the University of Wyoming. The T<sup>2</sup> Center is financially supported by the Federal Highway Administration, Wyoming Department of Transportation, University of Wyoming, and the Cities and Counties of the State of Wyoming. Any opinions, findings, conclusions, or recommendations presented in the T<sup>2</sup> Newsletter are those of the authors and do not necessarily reflect the views of the supporting organizations. Any products mentioned are for informational purposes only and should not be considered as product endorsements.

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