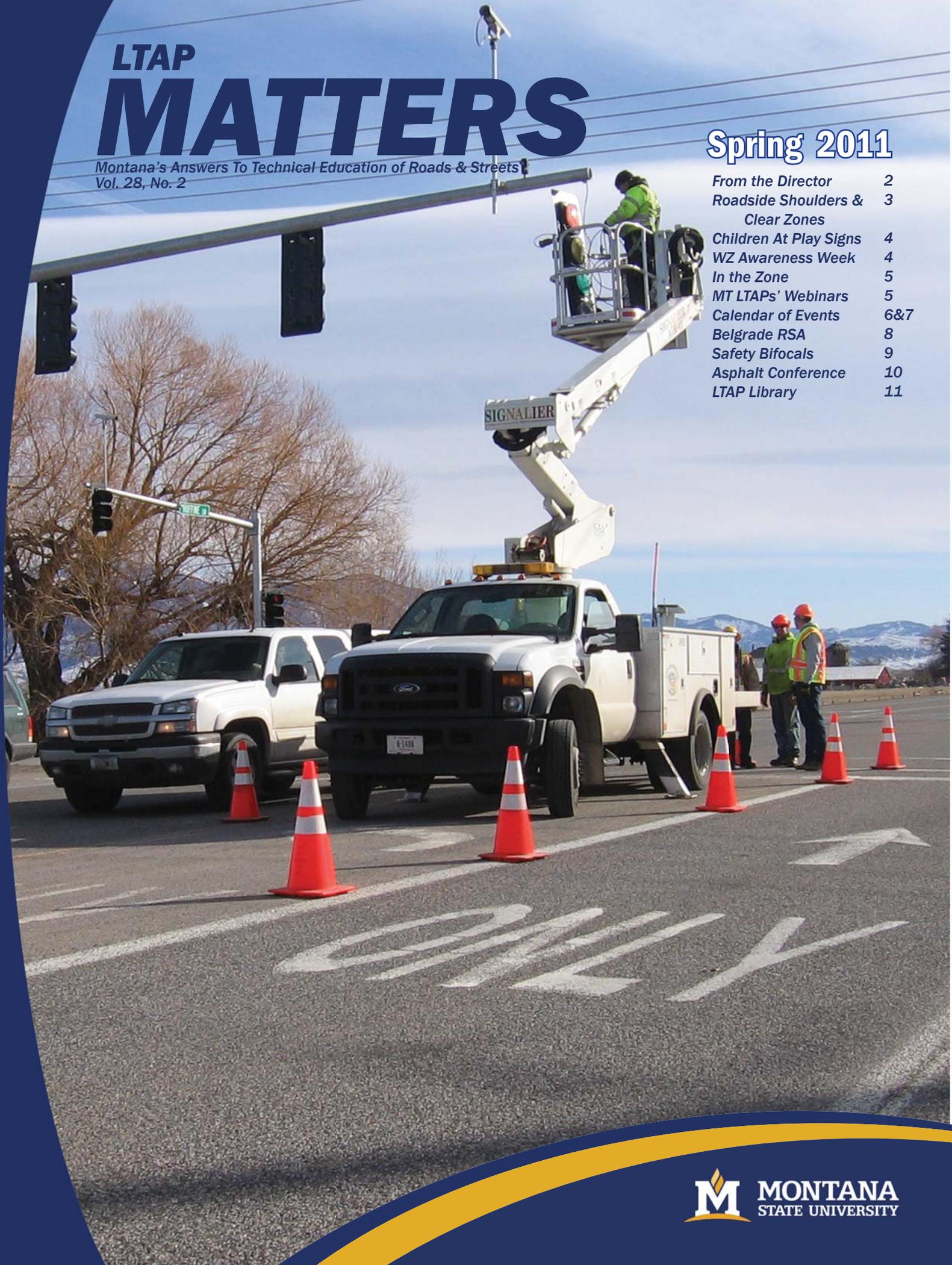


LTAP MATTERS

Montana's Answers To Technical Education of Roads & Streets
Vol. 28, No. 2

Spring 2011

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From the Director

Montana LTAP started out the new year with our Signing Basics and the new MUTCD courses. Three locations across the state were selected and all classes were filled. In an effort to assist local governments with the upcoming FHWA MUTCD compliance dates, these sessions provided lively question and answer periods. Ideas and methodologies were shared. Participants learned the importance of setting up a plan by January 2012 to track the location and condition of existing signs in preparation for meeting 2015 and 2018 deadlines for minimum sign retroreflectivity.

Participants learned by January 2015 the new retroreflectivity standards require replacement of all regulatory, warning and ground-mounted guide signs with sign materials meeting these new standards. When the next deadline of January 2018 arrives, low-volume roads with speeds of 25 mph or less, and on urban streets with speeds of 25 mph or less, the street sign letters need to be at least 4 inches in height for all upper-case letters, or a combination of 4 inches in height for upper-case letters and 3 inches in height for lower-case letters. All street name signs need to meet these same minimum retroreflectivity standards. With a comprehensive sign inventory for an agency's replacement plan, it allows local officials to adopt budgets to balance safety and infrastructure needs over the next five years.

We have free copies of the FHWA **Sign Retroreflectivity Guidebook**, especially designed to assist small agencies meet the new national standards. There is a CD-Rom included with the book and contains the Sign Retroreflectivity Toolkit. It has an Interactive Budget Estimation tool that walks you through the process of choosing the best inspection method for your area. You answer a series of questions and, by doing so, fill out a sample budget that approximates the real costs associated with sign maintenance activities in your area. You can also print your sample budget. It contains workbook exercises to estimate costs based on total number of signs. Just contact our office if you need a copy, 1-800-541-6671.

At the January Loss Control Conference, provided by our MACo partners, I presented on road reviews and importance of documenting hazards and possible low-cost maintenance repairs. Tied in with this presentation was my module on lawsuits and the necessity of record keeping. Other topics during the Road Session included Montana Operation Lifesaver, stream access regulations, and the alcohol drug testing program.

Our January webinar covered the FHWA initiative of **Every Day Counts**. Be sure to visit this website: <http://www.fhwa.dot.gov/everydaycounts/>. February's webinar covered pavement preservation for local roads, with Doyt Bolling presenting from the National Center for Pavement Preservation. March's monthly safety webinar from Montana LTAP will cover culverts, ditches, and trench safety--a review to remember safety issues around local governments' spring cleaning challenges.

In order to fulfill requests from our 2010 Needs Assessment, we partnered with the Asphalt Institute again and held an asphalt conference in February. (See article on Pages 10 and 11.)

As instructor for our Work Zone Technician course and Traffic Control Supervisor class held the following week, I am happy to report both of these courses hit one of the top requests for work zone safety from our Needs Assessment survey. Following these courses, Montana LTAP provided ten flagging certification classes in February and March.

As you can see from our training calendar, Montana LTAP is also doing more with less. We recognize the importance of partnerships and the training need for local agencies. We thank you for your support and look forward to lowering those crash statistics with your help.

**Safe Driving + Safe Attitudes = Safety for All,
Steve Jenkins, Director**

LTAP Matters is published by the Local Technical Assistance Program. LTAP is located at Western Transportation Institute College of Engineering Montana State University Bozeman, Montana.

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On our website, we list upcoming training courses, registration forms, library information, our contact information, newsletters, various links, and MACRS information. Please go to: <http://www.westerntransportationinstitute.org/centers/ltap/>

The Local Technical Assistance Program/Tribal Technical Assistance Program (LTAP/TTAP) is a nationwide network of 58 centers - one in every state, seven serving Native American tribal governments and one in Puerto Rico.

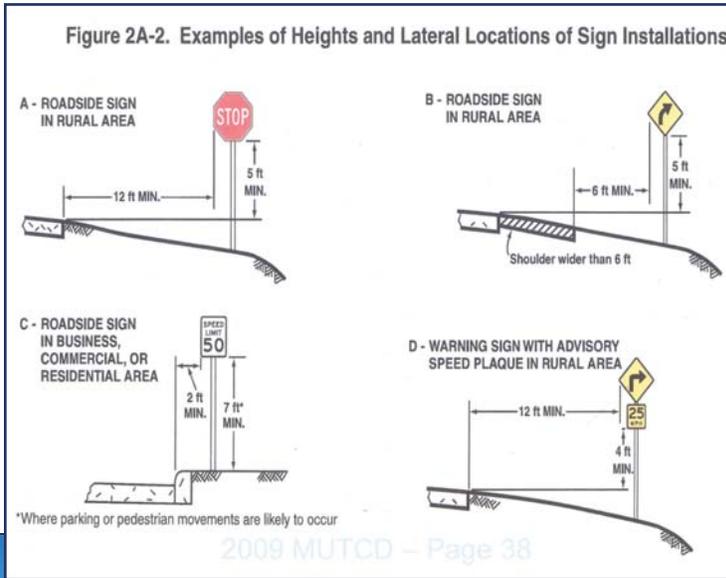
The LTAP/TTAP Mission is to foster a safe, efficient, and environmentally sound surface transportation system by improving skills and increasing knowledge of the transportation workforce and decision makers.



Roadside Shoulders and Clear Zones

By Steven V. Jenkins, Montana LTAP

The concept of a “Forgiving Roadway” is to allow survivability of users when driver error occurs. Drivers do become distracted and vehicles do leave the roadway. The wider and smoother of a recovery area provided, the more a driver has a chance to recover. This recovery area is sometimes referred to as a clear zone. The clear zone also allows the driver to see conflicts (pedestrians, animals, other drivers, etc.) and slow down or avoid collision. The smoothness of the transition from roadway to shoulder prevents tire scrubbing and over correction which can cause roll-over as a vehicle tries to re-enter the roadway. If attended to, all of these details will provide a safer roadway and reduce liability.



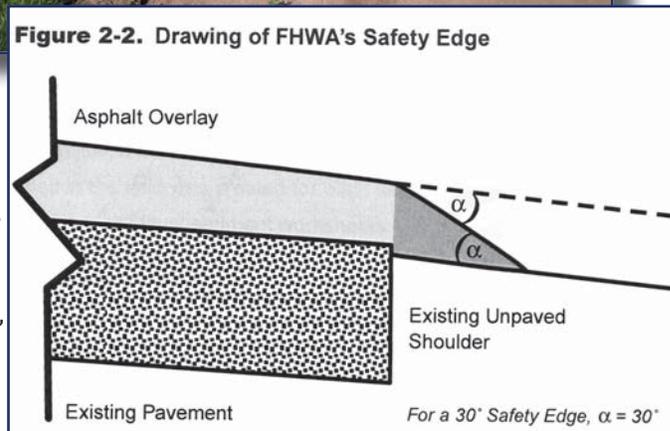
The Manual on Uniform Traffic Control Devices recommends that signs be placed at least 6 feet from edge of shoulder or 12 feet from traveled way. In order for sign visibility not to be affected, brush, trees and other vegetation should be cleared when they are within 12 feet of the roadway or 6 feet from the shoulder depending on which criteria is used for sign mounting.

The safety edge between the driving surface and the softer, lower shoulder should be carefully designed when working on paved roads and maintained often when on gravel roads. Paved surfaces should provide no more than a 30 degree angle transition to the unpaved shoulder. Gravel roads should have a hinge point from the 4% cross slope to the 3:1 shoulder. In some cases the shoulders may have a 2:1 slope which would require a more gentle transition.

Interstates use a 30 feet clear zone for recovery of errant vehicles. Ten to twelve feet is recommended for lower volume roads. Six feet should be considered a minimum in areas where signs are posted at that same distance. The US Forest Service uses two feet in areas where topography limits more clear space. Each road should be considered for factors such as traffic, prevailing speed, parked vehicles, curb and gutter, fences, ditches, urban or rural, etc. before setting a clear zone. For the sake of uniformity, policies within individual jurisdictions should conform as close to possible with national standards.



The American Association of State and Highway and Transportation Officials (AASHTO) discusses clear zones (AADT <400): At locations where a clear recovery area of 6 feet or more in width can be provided at low cost and with a minimum social/environmental impacts, provisions of such a clear recovery area should be considered. Fixed objects within the clear zone that may be struck by errant vehicles which would in turn injure or kill drivers should be removed or relocated.



ADVISORY COMMITTEE MEMBERS

The Advisory Board meets annually to make recommendations and evaluate the effectiveness of the Montana LTAP program.

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Federal Highway
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Transportation

Why **Children At Play** Signs Are Not Recommended

Reprint permission granted by West Virginia Local Technical Assistance Program, **County Roads and City Streets**, Fall and Winter 2010 issue.

By Andrew Morgan, West Virginia LTAP

Traffic signs are a key part of our transportation network. They provide information to drivers, pedestrians and bicyclists about the rules of the road such as where drivers must stop and the permitted speed limit. Street name and directional signs help us find our desired destination. And when a hazard is present in or near the road, warning signs are there to caution us. Without good signage we might find ourselves lost, in a ditch, or stopped by law enforcement.

Proper signage also helps make communities more liveable and streets safer, something most residents tend to want. Sometimes residents view the street in front of their homes as more than just a place for cars. They may use the road as a walking path, a place to stop and chat with neighbors, or an extension of their front yard where they allow their children to play. Often, residents make requests to road agencies for additional signs which they believe will make their community safer.

One request that many road agencies receive is for "CHILDREN AT PLAY", "SLOW CHILDREN AT PLAY", or "SLOW CHILDREN" signs. Residents often argue that children play in or near the road, and there needs to be some warning given to drivers. Without these signs, some feel, children are at risk. Based on these arguments alone, it may seem logical that "CHILDREN AT PLAY" signs should be installed. However, there are other issues that need considered.

The Manual on Uniform Traffic Control Devices (MUTCD) is a federal manual that has been adopted by the State of West Virginia as law. The intent of the manual is to give roadway agencies a set of standards to help make roads safer. It is the source for when and where a sign should be installed and which sign it should be. The MUTCD does not include "CHILDREN AT PLAY" signs or any variation. But why is this? There are many reasons that "CHILDREN AT PLAY" signs are not recommended. These are just a few.

- They are typically designed to look like warning signs, diamond shaped and yellow with a black legend. Other warning signs provide information on the specific location of the hazard (pedestrian crossing, curve, etc.). "CHILDREN AT PLAY" signs do not give a specific location. They merely tell the driver that kids may be in the road somewhere.
- If you install "CHILDREN AT PLAY" signs in some neighborhoods and not others, drivers may be led to believe that there are no children in the areas without signs, making them more vulnerable.
- "CHILDREN AT PLAY" signs give parents a feeling of security in letting their children play in the roads. In fact, no level of signage could ever protect a child should they be hit by a car.
- Studies have shown that "CHILDREN AT PLAY" signs do not reduce traffic speeds or make drivers more observant.



Additionally, nearly 30 percent of tort cases filed against roadway agencies pertain to signs. When you install signs not in conformance with the MUTCD, you are increasing your agency's liability should a child be hit on your roadways.

There are some alternatives that can work in many instances. The playground sign is an appropriate sign alongside parks where children may often visit. Also the pedestrian crossing sign should be used in those locations where children and others frequently cross the road to warn motorists.

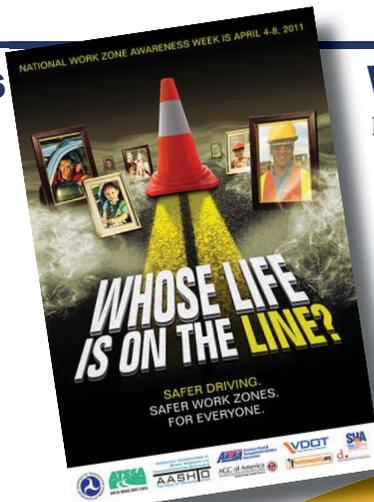
It isn't always easy to say no to residents of your community, but by not erecting "CHILDREN AT PLAY" signs, you may actually be making the community safer for everyone. ●

The Wisconsin Department of Transportation and CTC & Associates LLC prepared a Transportation Synthesis Report (TSR) in September 2007 called Effectiveness of Children at Play Warning Signs. To see this synthesis, please visit: http://rebar.ecn.purdue.edu/LTAP/Misc/FAQ_doc/Slow_Children_at_Play_signs-jah.pdf

11th Nat'l Work Zone Awareness

National Work Zone Awareness Week is an annual campaign held at the start of construction season to encourage safe driving through highway construction sites. It is observed across the country by state, local and federal transportation officials in April, the start of highway construction season across most of the country.

USDOT recently announced that overall roadway fatalities in 2009 - 33,963 - fell by nearly nine percent from 2008 to their lowest level since 1954. Highway work zone fatalities have fallen each of the last six years to the lowest level since 1996, even with the addition of thousands of new highway



Week • 4/4 - 8/11

projects as a result of the American Recovery and Reinvestment Act. Overall work zone fatalities and injuries have fallen by 30 percent since 2000. Work zone fatalities dropped by more than 13 percent from 831 in 2007 to 720 in 2008 - the most recent year for which data are available. ●

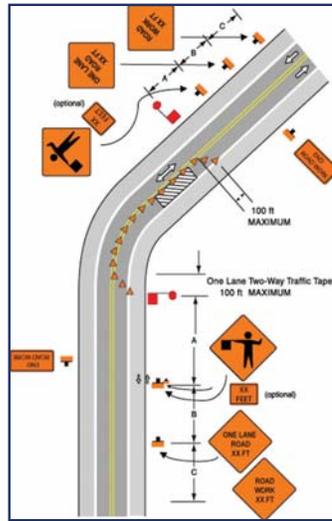
In the Zone...the Work Zone

by Michele Beck, Montana LTAP

"Our flagger certification classes have not only been filled, we had such a high demand, we opened up afternoon classes to meet the number of requests from participants," noted Director Steve Jenkins, Montana LTAP.

In addition to the Work Zone Technician Workshop and Traffic Control Supervisor Certification Courses held in early February, Montana LTAP provided Flagger Certification courses in Bozeman, Lewistown, Billings, Helena, Missoula, Kalispell, Miles City, Glendive, Wolf Point, and Plentywood during the months of February and March. Genevieve Albert, Montana LTAP Conference Coordinator, scheduled space for afternoon overflow courses. Albert indicated certifications numbered over 400, not including four more courses scheduled for May.

Jenkins said his Flagger Course combines lecture, Flagger Handbook references, video on controlling traffic, and hands-on problem solving when in a work zone situation. The five parts of a Work Zone are illustrated and discussed. He teaches what flagging duties involve as well as responsibilities of a flagger and their important role in keeping safety a key component in a work zone. Jenkins stresses that uniformity in work zones provides safety for the driver's expectations and outlines various liability issues.



After completing the exam, the student is issued a Flagger Certification Card that is valid for three years. Montana has a reciprocity agreement with Oregon, Idaho, and Washington where all agree to recognize each other's flagging cards.

"Montana LTAP is fortunate to have Bart Kraus, LTAP's Field Engineer, located in the eastern half of the state to cover Flagger courses," expressed Jenkins. "Bart is able to teach in that portion of Montana while I cover the western half. In these economic times, becoming a flagger is another avenue to meet the job workforce demand."

As noted in the brief article on Page 4 about April 4-8, 2011 being National Work Zone Awareness Week, Montana LTAP is providing a vital safety element in work zones by offering professional work zone training. The Montana flagger certification data base is maintained by Montana LTAP as well as Work Zone Technician, Traffic Control Supervisor, and Flagger Trainer data bases.

There will be four additional flagging and work zone technician classes available this coming May:

May 17 Great Falls
May 18 Lewistown
May 19 Billings
May 24 Bozeman

If your crew needs flagging certification, be sure to get signed up for these courses as soon as possible by going to our new website to obtain the registration form: <http://www.westerntransportationinstitute.org/centers/ltap/Training/Calendar> If you need more information, please call Montana LTAP at 1-800-541-6671. ●

MT LTAP's Monthly Webinar

Every Day Counts highlighted Montana LTAP's Monthly Safety Webinar in January. Genevieve Albert and Michele Beck, Montana LTAPers, led the charge by covering what EDC is and how EDC was designed to identify and deploy innovation aimed at shortening project delivery, enhancing the safety of our roadways, and protecting the environment.



Bringing matters closer to home, Bart Kraus, LTAP Field Engineer, discussed the use of prefabricated bridges for specific county roadways. He also noted that geosynthetic reinforced soil was very useful when installing cattleguards when subsurface road materials were questionable, as in a marshy area.

Discussion on the Safety Edge followed, noting this simple but effective solution was being used more and more on paved roadways in Montana, such as Big Sky Spur Road heading to Big Sky ski area. Note was made that Kevin McLaury, FHWA Montana Division Administrator, also spoke to the League of Cities and Towns Public Works Directors about this important initiative at their fall conference.

The Safety Tip for this webinar reminded crew members to always use Three-Point Contact for getting on and off machinery, especially this time of year when there is snow and ice built up on equipment steps.

Next MT LTAP Monthly Safety Web:

March 24, 2011: Ditches, Culverts, Trench Safety; 7:30am-8:30am. Montana LTAP Steve Jenkins will be covering the importance of cleaning ditches and culverts with emphasis on trench safety. (See Page 11 for February's Webinar on Pavement Preservation by Doyt Bolling, National Center for Pavement Preservation; February 22, 2011; 8-10:30am) ●

Calendar of Events • January 2011 - June 2011

January 2011

S	M	T	W	Th	F	S
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2	3	4	5	6	7	8
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4, 5, 6: **Signing Basics & 2009 MUTCD (MT LTAP):**

4: Bozeman 5: Lewistown 6: Billings

9-13: Transportation Research Board, Washington, DC

11-13: **Loss Control Conference (LTAP Safety Congress) MACo;**

12: **MT LTAP Steve Jenkins**

17: Martin Luther King Day - Offices Closed

25: MT LTAP Safety Webinar - Every Day Counts: 7:30am-8:00am

MACo Loss Control Conference:

January 11-13 - Red Lion Colonel Inn, Helena, MT

January 12, Wednesday - Steve Jenkins Presents

Preregistration Required - www.maco.cog.mt.us

February 2011

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1: **Asphalt Institute, Colonial Inn, Helena (MT LTAP)**

7: **Work Zone Tech, Wingate, Helena, MT (MT LTAP)**

8&9: **Traffic Control Supervisor Two-Day Course, Helena (MT LTAP)**

21: President's Day - Offices Closed

22: **Flagging Certification Course - Bozeman (MT LTAP)**

23: **Flagging Certification Course - Lewistown (MT LTAP)**

24: **Flagging Certification Course - Billings (MT LTAP)**

Traffic Control Supervisor Two-Day Course

February 8 & 9 - Tuesday & Wednesday - Helena - Wingate

Pre-registration Required - Montana LTAP - 1-800-541-6671

www.westerntransportationinstitute.org/centers/ltap/

March 2011

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8: **Flagging Certification Course - Helena (MT LTAP)**

9: **Flagging Certification Course - Missoula (MT LTAP)**

10: **Flagging Certification Course - Kalispell (MT LTAP)**

14: **Flagging Certification Course - Miles City (MT LTAP)**

15: **Flagging Certification Course - Glendive (MT LTAP)**

16: **Flagging Certification Course - Wolf Point (MT LTAP)**

17: **Flagging Certification Course - Plentywood (MT LTAP)**

14-18: MSU Spring Break

28-31: **MACRS 31st Annual Conference**

Heritage Inn, Great Falls, MT (MT LTAP)

April 2011

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4-8: **National Work Zone Awareness Week (FHWA)**

11&12: **Gravel Roads - Helena (MT LTAP)**

10 - 13: **APWA North America Snow Conference, Spokane, WA**

Go to www.apwa.net/snow

13 & 14: **Gravel Roads - Lewistown (MT LTAP)**

17-21: **NACE 2011, Hilton Minneapolis, MN, www.naco.org**

20 & 21: **OSHA-Ten Hour Safety Training (MT LTAP) Billings, MT**

27 & 28: **Gravel Roads - Miles City (MT LTAP)**

Training Opportunities at NEW Montana LTAP Website:
www.westerntransportationinstitute.org/centers/ltap/

May 2011

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17: **Flagging Certification Course - Great Falls (MT LTAP)**

18: **Flagging Certification Course - Lewistown (MT LTAP)**

19: **Flagging Certification Course - Billings (MT LTAP)**

24: **Flagging Certification Course - Bozeman (MT LTAP)**

25: **MACRS Executive Meeting - Bozeman**

26: **Montana LTAP Annual Advisory Board Meeting - Bozeman**

30: Memorial Day - Offices Closed

June 2011

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1&2: **LTAP Region 7 Meeting - Nebraska**

Newsletter Costs Have Gone Up!

This newsletter costs \$2.03 each to print and mail. If you prefer to receive this newsletter electronically, please call Montana LTAP at 1-800-541-6674 or e-mail Michele Beck: [mbeck \(at\) coe.montana.edu](mailto:mbeck@coe.montana.edu) with your e-mail address. OR if this newsletter is going to an incorrect address, please let us know so we can correct our mailing addresses. Thanks for your help.

Some dates and locations are subject to change.

Call Genevieve Albert, LTAP, 1-800-541-6671 to confirm.

Calendar of Events • July 2011 - December 2011

July 2011

S	M	T	W	Th	F	S
					1	2
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17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

4: Offices Closed

Training on Request:

*Summer Survival
Hand Safety
Slips, Trips, & Falls*

August 2011

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21	22	23	24	25	26	27
28	29	30	31			

1-4: National LTAP Conference - Boston, MA

Aug. 31 - Sept. 1: 22nd Annual Equipment Safety Training and Snow Rodeo - Helena, MT (MT LTAP)

Training on Request:

*Forklift
Sign Safety
Road Audits*

September 2011

S	M	T	W	Th	F	S
				1	2	3
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11	12	13	14	15	16	17
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25	26	27	28	29	30	

Aug 31 - Sept. 1: 22nd Annual Equipment Safety Training and Snow Rodeo - Helena, MT (MT LTAP)

5: Labor Day Holiday - Offices Closed

18-21: APWA International Public Works Congress & Exposition, Denver, Colorado. Go to this link: <http://sites.apwa.net/congress/2011/home.aspx>

October 2011

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30	31					

MACRS Fall District Meetings: Topics, Dates & Locations TBA (MT LTAP)

80th League of Cities & Towns - Dates & Location TBA

10: Columbus Day - Observed

**9: Put On The Brakes Day - 11th Anniversary
(go to: www.brakesonfatalities.org)**

26th Regional Local Roads Conference, Rapid City, SD - Dates TBA

November 2011

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27	28	29	30			

2: Election Day: Offices Closed

2 & 3: MACRS Planning Meeting, Heritage Inn, Great Falls, MT

11: Veterans' Day - Offices Closed

24-25: Thanksgiving Holiday - Offices Closed

December 2011

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				1	2	3
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18	19	20	21	22	23	24
25	26	27	28	29	30	31

26: Christmas Holiday - Offices Closed

Training on Request:

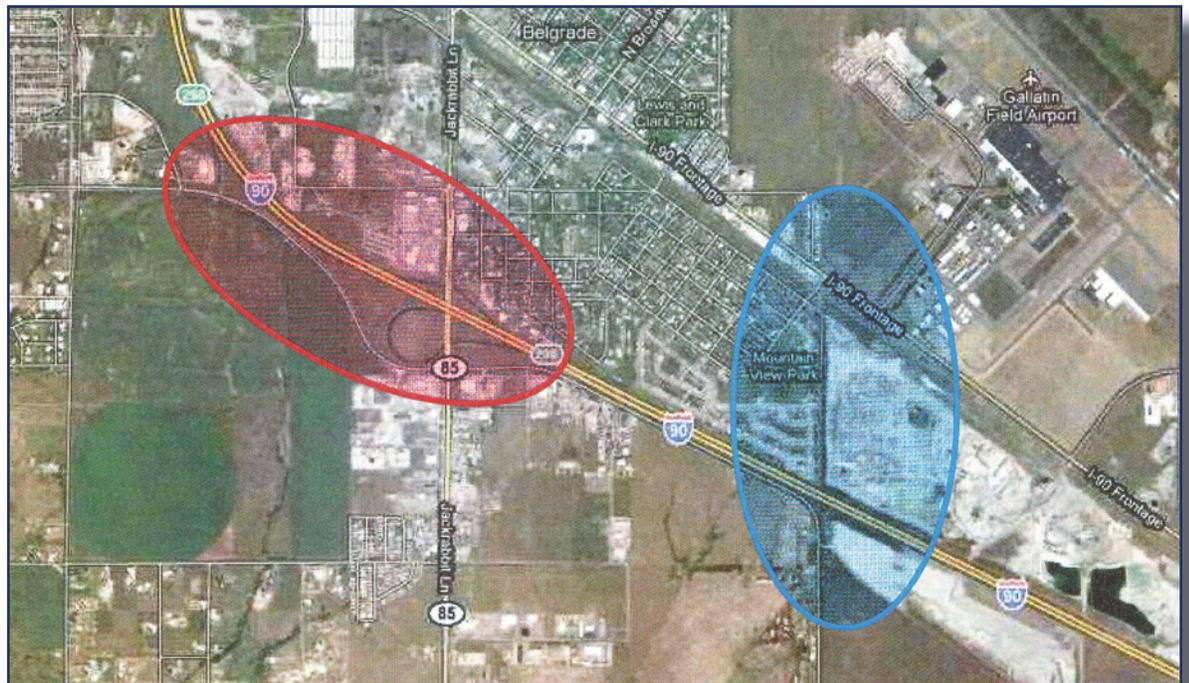
*Winter Survival
Winter Maintenance*

**Some dates and locations are subject to change.
Call Genevieve Albert, LTAP, 1-800-541-6671 to confirm.**

Road Safety Assessment for Belgrade On-Ramp

Permission granted by Montana Department of Transportation via Becky Rowe, RSA FHWA Program Manager, to use this report for the following article.

The importance of RSAs is coming to the forefront in transportation safety. Being able to identify roadway safety issues and then take steps to correct them is the entire point of performing an RSA. As with anything in life, when fresh eyes look at a road and are able to identify roadway hazards and offer solutions to correct the problems, everyone wins. RSAs are not only involving vehicular travel, but are being used in pedestrian areas such as the Safe Routes to School Program.



This past fall an RSA using 3D models was conducted in Belgrade. The RSA Team reviewed plans for several proposed improvements in connection with interchanges for Interstate 90 (I-90), including a proposed new on-ramp from Amsterdam Road (U-602) to eastbound I-90.

The overall purpose of this RSA was to determine if an additional on-ramp to the Interstate would potentially degrade safety with the two existing on-ramps. Additionally, the RSA explored several potential design options and their respective safety and operational impacts. The RSA team consisted of 7 members, represented were the consultant (VHB), the Federal Highway Administration (FHWA), the Montana Department of Transportation (MDT), and the Montana Highway Patrol. The RSA workshop was performed from August 31 to September 2, 2010. Observations were made by the RSA team during daytime and nighttime hours.

As part of the review, the team evaluated several design options for the proposed on-ramp construction. A 3D model was created and used to visualize existing and proposed conditions to assist the RSA team in performing their evaluation. The model allowed the RSA team to “see” what proposed conditions could be like given the physical characteristics within the project limits. This in turn enabled the team to evaluate the operational and safety pros and cons of the various design alternatives for the on-ramp.

Conclusions:

The RSA team evaluated the project limits for roadway and roadside safety. During the field reviews, a number of positive measures were identified. These measures help to mitigate potential safety issues and should be continued in practice throughout this area and on other Montana roadways.

The RSA team also observed other issues that may contribute to hazardous incidents for all road users. Some areas of safety concern include signing and pavement marking, traffic conditions, lighting, speed, cross section, and sight distance. A detailed discussion of the RSA team findings with regard to observed safety issues has been provided. Based on field observations and data analysis, suggestions for mitigating these issues have been identified. Beyond engineering measures, safety throughout the study corridor can be improved through education and enforcement.

The RSA team also evaluated several design options for the proposed construction of a new onramp from Amsterdam Rd. to I-90. A 3D model was used to visualize existing and proposed conditions and assisted the RSA team in performing the evaluation. The model enabled the RSA team to “see” proposed designs given the physical characteristics within the project limits. This allowed the team to evaluate the operational and safety pros and cons of the design alternatives, all of which have been summarized within the report.

Each of the options evaluated by the RSA team should be given further consideration by the MDT, as some alternatives have greater safety and capacity benefits than others. While the RSA team favored Option 4 (providing two eastbound through lanes at Jackrabbit Ln. / Amsterdam Rd.; constructing on-ramp from Alaska Rd. to I-90 eastbound) because of its apparent safety and operational benefits, it is suggested that the MDT conduct a more detailed operational and safety evaluation of the more favorable options presented in this report, establishing project goals and priorities with consideration for future development and traffic growth in the area. ●

For more information on the RSA design visualization project, please contact Becky Crowe at Rebecca.Crowe@dot.gov

Aging Eyes - Safety Bifocals Among New Eyewear Models

Reprint permission granted this article by Fred Ravetto, Elvex Corporation

Changing demographics of US workers create a challenge to ensuring eye protection. Our diverse workforce is made up of men and women with faces in all shapes and sizes and all ages too. If we look only at the changing demographics, we find the number of workers in the 40-to-64 age range has increased by more than 20 percent since 2000. We all know around age 40 the ability to focus on close objects lessens. With these obstacles, how can you reduce the risk of eye injuries?

What is the weakest link?

Eye injuries don't know a worker's age, eyesight condition or facial shape. Every year 33,000 eye injuries take place in American workplaces, according to the national Safety Council's "injury Facts." 2010 edition. The main causes? Not wearing eye protection or workers wearing poor-fitting eye protection.

Companies often discover too late the weak links that lead to eyes being unprotected. Safety professionals witness:

- Workers exposed to flying debris as a result of poor facial fit, which creates gaps around the safety lens perimeter
- Workers who wear prescription glasses or drugstore readers instead of wearing certified safety glasses
- Workers who swap on and off safety glasses for drugstore readers, leaving their eyes exposed
- Workers who wear non-impact-resistant prescription eye wear, leaving them at risk for shattered lenses

The list extends further, as does the continuation and frequency of eye injuries.

Prevention Requires Proper Fit

To start, workers should wear eye protection that meets the ANSI/ISEA Z87.1=2010 American National Standard for Occupational and Educational Personal Face and Eye Protection. Unfortunately, this standard does not regulate a proper fit. Wearing poorly fitted glasses is a major cause of eye injuries. A Bureau of Labor Statistics survey showed that 94 percent of the injuries to workers wearing eye protection resulted from objects or chemicals going around or under the eye protector. Wearing a proper fitting pair of safety glasses is critical to preventing eye injuries from occurring.

A proper fit provides wraparound protection on the sides, a close fit at the brow and cheeks to protect from flying objects and allows for some air circulation between the eye and the lens.

To fit a wide range of face shapes and sizes, start by selecting a frame that has full wraparound protection. This will protect from side entry of debris and should offer wide peripheral visibility. A nicely curved mono lens frame should also protect and minimize gaps at the eyebrow and at the cheek. Selecting a frame to accommodate larger lenses prevents frame obstruction and will provide a wide field of vision.



Higher Level of Fit & Coverage

A growing trend in the market is the use of foam-lined glasses in which the soft foam fills gaps and protects the eyes.

The addition of the foam liner acts as a "gap filler" to fill gaps between the lens and face and keep out debris. Use caution when selecting this option to be sure the foam liner design

does not create "tunnel vision" that will limit vision. This can result from excessive foam depth or poor frame design. It is recommended to test product samples for clear field of vision as well as proper fit. When testing the product, check for anti-fog coating and indirect ventilation slots--this insures the close fitting glasses won't fog. Note that closed cell foam is preferred material for lining these glasses. It will maintain comfort while eliminating absorption of body oil and sweat.

Bifocal Safety Solutions

Bifocal safety glasses are a rapidly growing market, addressing the need for both safety and reading glasses. This innovation was brought to market when bifocal safety glasses were introduced with poly carbonate safety lenses. Today, workers with presbyopia, the reduction of near vision such as reading, are now able to read and do their work in a safe and very cost-effective manner.

In a recent experience, I learned the need for bifocal safety glasses extends well beyond industrial markets. During a dentist office visit, the hygienist was wearing a pair of safety bifocal glasses. She raved how this innovation improved the quality of her work and reduced her eye strain.

More and more companies are making safety bifocals available to their workforce at a fraction of the cost of prescription safety glasses. Models are available in a choice of bifocal powers (diopters): 1.00D, 1.50D, 2.00D, 2.50D and 3.00D. For outdoor workers, these glasses are available in tinted (sunglass) lenses.

Over Specs Safety Glasses

The days of oversized one-size-only over specs are over! New products have hit the market featuring contemporary designs that are more moderate in size. Workers can feel happy to wear these attractive new designs over their prescription classes in clear lenses, or for outdoors in tinted lenses. The new styles continue to maintain a flatter lens curvature to minimize reflection that tends to occur when dual spectacles are worn.

Innovations in safety glasses designs provide a higher level of protection for our diverse workforce. Today we have options that offer multi facial fit, reading ability and contemporary design over specs, all made of poly carbonate lenses to insure protection against impact and UV light exposure. ●

Fred Ravetto is vice president sales for Elvex Corp., www.elvex.com, Bethel, CT, Questions: fravetto@elvex.com

2nd Annual Asphalt Conference

By Michele Beck, Montana LTAP

"Partnerships allowed Montana LTAP to leverage their training resources for the recent Asphalt Conference," said Montana LTAP Director Steve Jenkins. "Working with Dave Johnson, Asphalt Institute, provided his selection of speakers while Montana LTAP coordinated conference and registration responsibilities."

Over eighty participants attended the February Asphalt Conference representing city, county, state, tribal, and private agencies. Four vendors displayed their latest products in the asphalt industry. Topics included:

- Pro's and con's of warm mix asphalt technology
- Procedures for scrub seal techniques
- Review of cape sealing at Glacier National Park
- Variety of solutions for pot hole technology
- Rubblization of concrete as a pavement restoration
- RAP (Recycled/Reclaimed Asphalt Pavement) specifications
- FHWA Pavement Preservation products, and resources
- Pavement Preservation as it relates to local agencies

WARM MIX TECHNOLOGIES

Warm Mix Asphalt presentation highlighted how WMA is part of the FHWA Every Day Counts Initiative in deploying a new innovation that is aimed at shortening project deliver, enhancing the safety of our roadways, and protecting the environment. Matthew Corrigan, FHWA Asphalt Pavement Engineer, noted that with the introduction of WMA, trials and demonstrations that started in a few states in 2007 have now grown to reach almost every state by 2010. These well documented WMA projects used the Mobile Asphalt Testing laboratory (MATL) in processing tests at the sites. Corrigan noted this website to follow his NCHRP 9-43 project as well as containing other information about WMA technologies and his contact information:
<http://www.fhwa.dot.gov/pavement/asphalt/wma.cfm>

CHIP SEALS & SCRUB SEALS

Bob McCrea, Western Emulsions, covered terminology, equipment used, the process, application rates, and provided numerous examples of how chip seals and scrub seals were used in North Dakota, Nevada, and California. He emphasized when the emulsion was applied an emulsion scrub broom was used for scrub seal but not for chip seal.

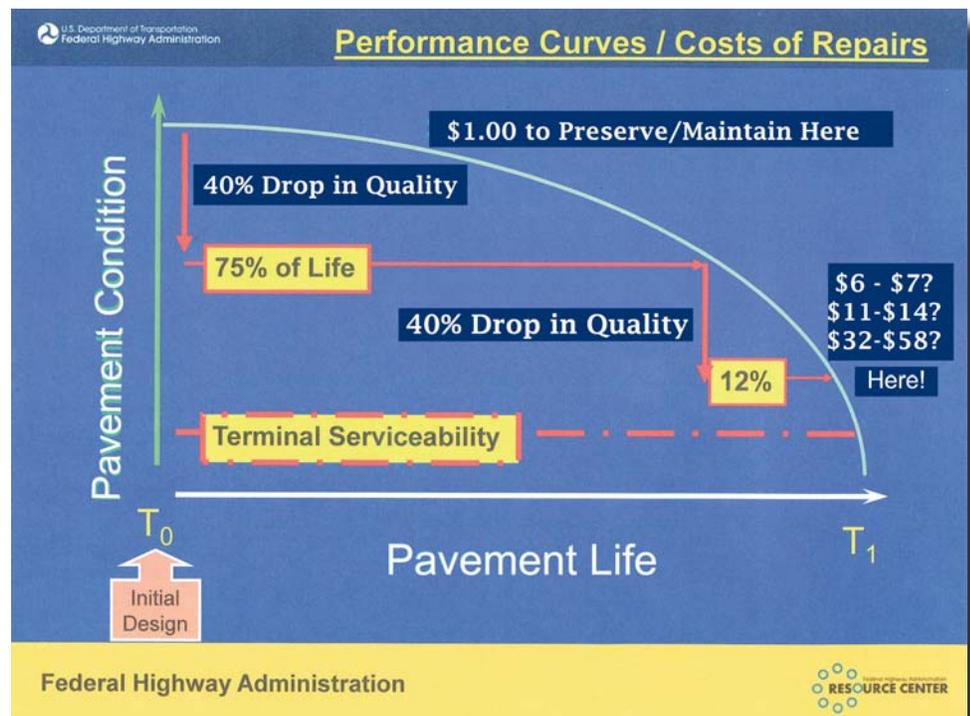
CAPE SEALS

"Cape Seal uses the advantages of two sealing and rehabilitation methods combined. It is the application of a chip seal followed by a slurry or micro seal," said Robert Marsh, Hardrives Construction, Inc.

Marsh noted that a cape seal is applied when the pavement deterioration is greater than what a slurry seal is designed to correct, yet has not deteriorated to the point of requiring an expensive asphalt overlay. He pointed out that a cape seal prevents water penetration reducing subsequent damage to the road bed, along with providing wearing surface.

RUBBLIZATION OF CONCRETE

"Rather than removing and replacing PCC (Portland Cement Concrete) pavement, rubblization is an alternative," reported Dave Johnson, Asphalt Institute. He further noted that fracturing techniques eliminate slab action; eliminates existing distresses; and destroys the bond between concrete and rebar or wire mesh. Johnson pointed out this process is intended to produce pieces of uniform gradation throughout the fractured concrete. He said the resulting base responds to load in the same way as an aggregate base course. As part of his presentation, he cited the FAA Engineering Brief No. 66 (http://www.faa.gov/airports/engineering/engineering_briefs/media/EB_66.pdf) for advantages of rubblization expanded to airfield applications recently. Johnson's examples illustrated use on roadways and runways; outlined need for edge drains; discussed resonant pavement breakers, multiple head breakers, and roller processing rubblized surfaces.



RAP - RECYCLED ASPHALT PAVEMENT

Idaho Transportation Department Assistant Materials Engineer, Mike Santi, discussed various aspects of using RAP in an asphalt mixture. He outlined how the contractor would determine percentage of RAP used given binder percentages and binder grade selections.

Continued on Page 11 . . .

Montana LTAP Library

Welcome to the LTAP Lending Library where publications, videos, DVD's, and software may be borrowed for a two-week period. We have a limit of three videotapes or DVD's for the rent-free two-week period. Some publications are free or for a nominal charge upon request.

For information or checkout procedures, please call Genevieve Albert or Michele Beck, LTAP, 1-800-541-6671. If you have computer access, please e-mail us: [mtltap\(at\)coe.montana.edu](mailto:mtltap(at)coe.montana.edu).

New Publications

p-26 - Design Example of Simple Span T-Beam Strengthening with Fiber-Reinforced Polymer Composites (FHWA Revised January 2011) This design example is based on an established procedure followed by the author to achieve a strengthened structure through the use of fiber-reinforced polymer (FRP) composite wraps. (22 pages)

New CD's

SW370 - Every Day Counts Resources: WMA, Safety Edge, Roadway Departures (FHWA 2010) (CD-with documents, presentations, powerpoints, videos) Warm Mix Asphalt – Summit Presentations; Safety Edge: publications, brochure, FAQs, Report, TRB Paper; presentations, videos; Roadway Departure Resources: Friction, horizontal curves, MASH, NCHRP 500, Studies and Data, Rumble Strips.

We have new lists for the library publications, software, DVD's, and videos at our new web site:

<http://www.westerntransportationinstitute.org/centers/ltap/Resources>

At this web site, you can also keep track of upcoming workshops, past and present newsletters, and announcements about upcoming workshops. Our 2011 Needs Assessment Survey is available at this web site. Thank you in advance for taking time to complete it.

New DVD's

DVD 315 - The Safety Edge: Your Angle for Reducing Roadway Departure Crashes (FHWA 2010) This informational DVD on Safety Edge Roadway Departure is intended to introduce you to a cost-effective treatment that has been proven to provide results by saving lives. (8 minutes)



Asphalt Conference (cont'd from page 10)

Santi stressed the importance of keeping an inventory for Category 1 RAP stockpiles, that may consist of asphalt material from interstates, primary or secondary routes, and airfields. He said stockpiles of Category 2 RAP would generally not come from agency projects or not traceable to an agency project. His presentation described procedures for processing RAP and testing before and after stockpiling.

PAVEMENT PRESERVATION

According to FHWA Steve Mueller, Pavement and Materials Engineer, we have come a long way in the last hundred years with pavement preservation. His statistics noted that there are over 4 million miles of roads in the United States and 600,000 bridges. Three percent of the roads are federal, states have twenty percent and local roads have seventy-seven percent. Because there is over \$2 trillion invested in transportation infrastructure, with many owners, he stated it was important to share expertise. He outlined that the federal role was to promote uniformity, quality, and safety aspects of highway construction and maintenance. In his position, his focus was on developing, promoting and providing new technologies and training.

Several resources Mueller listed:

www.fhwa.dot.gov/pavement;

www.fhwa.dot.gov/preservation;

www.pavementpreservation.org;

free NHI preservation training - web-based: 131110 -

Pavement Preservation Treatment construction (<http://www.nhi.fhwa.dot.gov/default.aspx> and enter "131110" in "Search for a course");

<http://www.tsp2.org/>.

GETTING AHEAD OF THE CURVE FOR LOCAL AGENCIES

Doyt Bolling, National Center for Pavement Preservation, Michigan State University, provided insight for local agencies and how to approach pavement management assessment. With his years of experience, Bolling reviewed the many aspects of pavement preservation through inventory, visual condition surveys, governing distress and types, and showing examples of remaining service life of a road. His clear examples assisted participants to understand the importance of inventories on both paved and unpaved roads. He believed pavement preservation is proactive, systematic, and an asset management tool that can be effective if management team understands their goals, funding is committed and continuous, and trained staff are available. ●

Montana LTAP has placed all Presentations on the LTAP website at: <http://www.westerntransportationinstitute.org/centers/ltap/Training/Event/14>



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Editorial Contributions Welcome

LTAP welcomes contributions to **LTAP MATTERS**. Those wishing to submit relevant material to be published in the next newsletter can submit their ideas and articles to:

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Present and past issues are available at <http://www.westerntransportationinstitute.org/centers/ltap/Newsletter> or by calling 1-800-541-6671.

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Please send us any comments or concerns you may have regarding this newsletter with your name and address in order that we may respond in a timely manner.