



LTAP MATTERS

Montana's Answer To Technical Education & Roads & Streets

College of Engineering

Montana State University-Bozeman

Bozeman, MT 59717-

1-800-541-6671

Spring 2004

April

May

June

Vol.22, No. 2

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LTAP On The Road in February: Winter Maintenance & Trench Safety

Once again, Montana LTAP's Director Steve Jenkins hit the road in February offering the latest updated Winter Maintenance presentation along with the ever popular Trench Safety to Montana city and town crews in the surrounding areas of Missoula, Helena, Great Falls, and Billings.

Partnering with APWA has proven to be an incredible win-win situation, Jenkins noted. In September, LTAP developed an APWA list-serv to become more effective in communication with cities and towns. After a November polling of various city

and town offices via LTAP's list-serv, these two workshops were the most requested. The turnout was high and valuable information was exchanged.

Ed Fick, Dustbusters, Inc., joined Jenkins during the Winter Maintenance section sharing his knowledge on deicing.

Winter Maintenance

Workshop information included understanding that snow forming near freezing (32°F) is going to be wet and heavy while snow formed at colder temperatures may be dry

(... continued on Page 2)



Billings Workshop - February 2004

**ADVISORY
COMMITTEE
MEMBERS**

Ray Barnicoat
Montana Association of Counties

Bob Burkhardt
Federal Highway
Administration

Kelly Elser
Town of Sheridan

Sam Gianfrancisco
LTAP Field Engineer

Eric Griffin
Lewis and Clark County

Alec Hansen
Montana League of
Cities & Towns

Russ Huotari
Richland County

Jack Knorr
Stillwater County

Bill Michalson
City of Helena

Jim Reardon
City of Great Falls

Donna Sheehy
U.S. Forest Service

Sue Sillick
Montana Dept of
Transportation

Dan Williams
Montana Dept of
Transportation

Magnesium chloride actually becomes more effective (melts) at lower temperatures as it dilutes down to 22% solution from higher concentrations.

Winter Maintenance . . . Continued from Page 1

Deicing/Anti-icing Chemicals

Types Chemical Names	Maximum Freezing Point Depression (Eutectic temperature)
Salt (NaCl)	-6°F
Magnesium Chloride (MgCl)	-28°F
Calcium Chloride (CaCl)	-60°F
ICE BAN TM, Caliber TM	-5°F
Calcium Magnesium Acetate (CMA)	-18°F
Urea [CO(NH ₂) ₂]	11°F
Potassium Chloride (KCl)	13°F
Ethylene Glycol (C ₂ H ₄ O ₂)	-51°F
Potassium Acetate	-76°F
Sodium Acetate (NaAc)	-7°F

and light. Fick explained that an early application of chemicals is helpful to prevent bonding of snow to pavement. It was noted that if a strong bond occurs between snowpack and pavement, plowing alone may not remove it. A medium salt application and plowing would be helpful to prevent formation and sanding helpful if removal is not feasible.

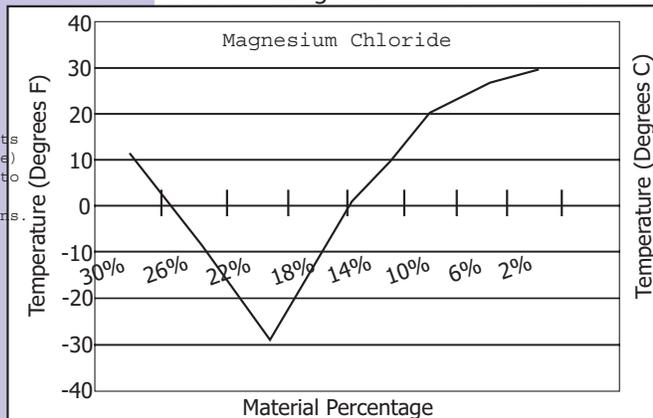


Winter Maintenance

Problems	Solutions
Falling Snow	Plowing
Packed Snow	Sand, Liquid Deicing, Plowing
Slush	Liquid Deicing, Plowing
Surface Frost	Sanding, Liquid Deicing
Black Ice	Sanding, Sand & Salt, Liquid D
Glare Ice	Sanding, Liquid Deicing
Wind-Blown Snow	Sanding, Plowing

Classroom discussion entailed descriptive understandings of effective versus eutectic temperatures. The lowest temperature in which the cost of the application is justified by the results obtained is the effective temperature. Eutectic temperature is the freeze point of a solution based on the percentage of chemical in the solution, and not the volume.

Freezing Point Curve



The bottom-line on basic strategies is anti-icing is proactive and deicing is reactive. Jenkins and Fick defined the winter maintenance problems and covered DOS - dilution of solution. A recent snow and ice study from *Salt & Highway Deicing*, Salt Institute, Winter 2003, was discussed regarding deicing. The conclusions in this Denmark study were similar to what has been used in Montana - the mixture of gravelling and salt, as well as the use of brine or deicing/anti-icing chemicals. Jenkins pointed out that chemicals dissolved in water, lower the freezing point by lowering the vapor pressure of the solution.

Winter Maintenance . . . Continued from Page 2

Jenkins pointed out that chemicals must be in solution before they can melt ice. Since melting also requires heat, it takes as much heat to melt ice as required to warm water from 32° F to 108° F. Participants learned that heat comes from the air and pavement.

A chemical that is hygroscopic draws moisture from the air. The moisture dissolves some of the dry chemical thus forming its own deicing solution. However, salt, a hydrator, needs a source of free water to begin dissolving and then melting ice.

It was important to apply only the amount required for temperature, time and use. Too little will refreeze and too much would be a waste. A normal range would be 100-300 pounds per lane mile. It was advised to spread light (100 pounds) when plowing wet snow at high temperatures (25-32° F). When removing ice or snow pack at low temperatures (20°F), spread heavy (300 pounds) per lane mile. Magnesium chloride could be used dry for deicing at lower temperatures, as well as mixed with salt and corrosion inhibitors. It can be applied in liquid form for prewetting other materials or for anti-icing. Several favorable characteristics is that its eutectic temperature is -28°F and is an effective deicer at 0°F.

For practical application of snow and ice maintenance, TAPER charts were handed out. TAPER stands for Temperature - how cold did it get since my last application;

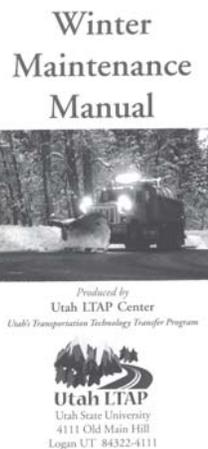
Application - what is my rate of application;
Product - what product am I using; Event -
What kind of storm event, precipitation;
Results - what were the results, why, and
what should be changed.

A few pointers were shared for new drivers such as becoming familiar with designated snow routes and school bus routes. It was

advised to drive these routes in the summer or fall when the roads are clear to become aware of hazards. Keeping the driver consistent with the same route when possible would help also. There s nothing like experience--have a new driver ride with an experienced operator. It goes without saying, a driver needs to get proper rest and nutrition. If the driver is unable to perform safely, he should not get behind the wheel.

Other topics discussed included environmental impacts of deicing chemicals, reducing salt runoff at storage facilities, and suggested policies on snow plowing.

Trenching Workshop *Go to Page 6*



A big **thank you** goes out to Utah LTAP Center for producing the Winter Maintenance Manual that was given to each participant.



LTAP Matters is published by the Local Technical Assistance Program at Montana State University, Bozeman, Montana.

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www.coe.montana.edu/ltap

Future Events

National Work Zone Awareness Week 2004:
April 4-10, 2004

World Health Day: Family Road Safety - Protect the Ones You Love
April 7, 2004

National County Government Week:
April 18-24, 2004

National Public Works Week:
May 16 - May 22, 2004

National Transportation Week:
May 16 - 22, 2004

Driving Safety Week:
June 1 - June 7, 2004

National Safety Month:
July 1 - July 30, 2004

APWA

Click, Listen, & Learn

Workshops @

www.apwa.net/Education/CLL

April 22, 2004

Erosion Control Compliance with NPDES Phase II; 10 am - Noon (CT)

April 27, 2004

Developing an Effective Snow and Ice Control Program

May 19, 2004

Trenchless Technology and Directional Boring

April 25-28, 2004

APWA North American Snow Conference, Lexington, KY
Website: <http://www.apwa.net/Meetings/Snow/2004/>

Annual Calendar 2004

<p>January 2004</p> <table border="1"> <tr><th>S</th><th>M</th><th>T</th><th>W</th><th>Th</th><th>F</th><th>S</th></tr> <tr><td></td><td></td><td></td><td></td><td>1</td><td>2</td><td>3</td></tr> <tr><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td></tr> <tr><td>11</td><td>12</td><td>13</td><td>14</td><td>15</td><td>16</td><td>17</td></tr> <tr><td>18</td><td>19</td><td>20</td><td>21</td><td>22</td><td>23</td><td>24</td></tr> <tr><td>25</td><td>26</td><td>27</td><td>28</td><td>29</td><td>30</td><td>31</td></tr> </table> <p>12, 13, 14: Loss Control Conference, Lewistown, MT</p>	S	M	T	W	Th	F	S					1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	<p>February 2004</p> <table border="1"> <tr><th>S</th><th>M</th><th>T</th><th>W</th><th>Th</th><th>F</th><th>S</th></tr> <tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td></tr> <tr><td>8</td><td>9</td><td>10</td><td>11</td><td>12</td><td>13</td><td>14</td></tr> <tr><td>15</td><td>16</td><td>17</td><td>18</td><td>19</td><td>20</td><td>21</td></tr> <tr><td>22</td><td>23</td><td>24</td><td>25</td><td>26</td><td>27</td><td>28</td></tr> <tr><td>29</td><td></td><td></td><td></td><td></td><td></td><td></td></tr> </table> <p>City Training: Winter Maintenance & Trenching Safety: 10-Missoula; 11-Helena; 12-Great Falls; 13-Billings 18,19: Train the Trainer, Helena Training on Request: Winter Travel-Survival, Winter Maintenance, Leadership</p>	S	M	T	W	Th	F	S	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29							<p>March 2004</p> <table border="1"> <tr><th>S</th><th>M</th><th>T</th><th>W</th><th>Th</th><th>F</th><th>S</th></tr> <tr><td></td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td></tr> <tr><td>7</td><td>8</td><td>9</td><td>10</td><td>11</td><td>12</td><td>13</td></tr> <tr><td>14</td><td>15</td><td>16</td><td>17</td><td>18</td><td>19</td><td>20</td></tr> <tr><td>21</td><td>22</td><td>23</td><td>24</td><td>25</td><td>26</td><td>27</td></tr> <tr><td>28</td><td>29</td><td>30</td><td>31</td><td></td><td></td><td></td></tr> </table> <p>8-11: MDT Work Zone Training 23-26: MDT: Work Zone Training 29-4/2: USFS Work Zone Training 30-4/1: APWA Spring Conf., Cheyenne, WY</p>	S	M	T	W	Th	F	S		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31										
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Some dates & locations subject to change. Call Donnetta Bohrman, LTAP, 1-800-541-6671 or 406-994-6100 to confirm.

Calendar of Spring Events

Forest Service Training

Missoula, Montana

March 29-April 2, 2004

Gravel Roads Workshop

Dillon, Montana

April 6 & 7, 2004

Search & Rescue Bldg, 1000 Hwy 41

Contact **Donnetta Bohrman, LTAP Conference Coordinator, 1-800-541-6671**

MACRS Annual Conference

Bozeman, Montana

April 12-15, 2004

Grantree Inn

Contact **Donnetta Bohrman, LTAP Conference Coordinator, 1-800-541-6671**

So far we've had a great turnout from the counties, hoping for 100%!

Gravel Roads Workshop

Libby, Montana

May 4 & 5, 2004

Lewistown, Montana

May 18 & 19, 2004

Columbus, Montana

May 19 & 20, 2004

Contact **Donnetta Bohrman, LTAP Conference Coordinator, 1-800-541-6671**

Gravel Roads Workshops This Spring!

From the southwest corner up to the northwest corner of Montana, LTAP Director Steve Jenkins and LTAP Field Engineer Sam Gianfrancisco will be teaching Gravel Roads. This day and a half workshop starts off with the first day in the classroom covering the basics of designing a road and maintenance, delving into drainage topics, followed by equipment operations and dust control & stabilization. They wrap up with maintenance of unpaved roads near wetlands and new innovations in the field of gravel roads. The second day is spent in the field applying the information covered in class and hands on training.

The LTAP office sent out a bright spring green brochure outlining this workshop along with registration information early March. If you have not received it, please give us a call, 1-800-541-6100, and we will get it out to you pronto!



Summer/Fall Events 2004

• June & July, 2004

Training on Request:

- Work Zone Training
- Forklift Training
- Mower Training
- Gravel Roads

• July 31-August 4, 2004

Nat'l LTAP Conference
New Mexico

• September 8-9, 2004

15th Annual Equipment
Training & Snow Rodeo,
Great Falls, MT

LTAP Needs Your Help!

We are once again working our mailing list. If you're throwing away this newsletter, you are wasting \$\$\$\$! Please call us and we'll be happy to take you off the mailing list.

Or if this is going to the wrong address, please call and let us know the correct address:

1-800-541-6671 (Toll Free)
or email us:
mtltap@coe.montana.edu

Thanks for your help.

Reminders:

•No one can predict accurately if an excavation is safe to enter without a proper support structure being provided.

•A worker does not have to be completely buried in soil to be seriously injured or killed. Workers who have been only buried up to their waist have died as a result of the pressures exerted by the soil on their bodies.

•Excavations in or near backfilled or previously excavated ground are especially dangerous since the soil is loose and does not support itself well.

•Water increases the possibility of a cave in. The increased water pressure exerted on the soil can be the final factor in causing the walls to collapse.

If you think education is expensive, try ignorance.

-Derek Bok

February participants at LTAP's Winter Maintenance and Trench Safety covered a variety of topics to better understand the importance of trenching and shoring safety.



Steve Jenkins demonstrating soil classifications

Know Your Soils

LTAP Director Steve Jenkins noted how soil influences the stability of a trench. If the soil has not been disturbed and kept in place by horizontal and vertical supports, it will naturally move downward and inward.

Because soil can weigh almost 150 pounds/cubic foot, it would take 750 pounds of force to remove a worker's buried foot! Consequently, OSHA does require that soil classification be handled by a competent person and installation of adequate protection BEFORE entering a trench.

The four soil types Jenkins explained to the class included:

Soil Type A - Most stable: clay, silt clay, and hardpan (resists penetration)

Soil Type B - Medium stability: silt, sandy loam, medium clay and unstable dry rock

Soil Type C - Least stable: gravel, loamy sand soft clay, submerged soil or dense heavy, unstable rock

Stable Rock - Excavating makes this soil unstable. (In practice, this kind of rock is never worked on.)

In addition to classifying soils, certain qualities are also used to determine types such as grain size, saturation, cohesiveness and unconfined compressive strength.

The different ways of testing soils included:

- visual test
- manual test
- sedimentation test
- wet shaking test
- thread test
- ribbon test

After the soil has been classified, the right protective system will be chosen based on both soil classification and site restrictions. Jenkins explained two main types of systems included:

- sloping or benching
- shoring or shielding

Because of the number of variables while trenching, such as weather, traffic vibrations and pressure, Jenkins pointed out that excavations need to be reinspected for signs of distress after any disturbance. Look for cracking in the excavation walls, bulging of material from trench sides and separation of small clumps from trench sides.



Trenching Workshop

...Continued from Page 6

Several safety precautions were outlined during the classroom lecture:

√ No one is allowed in the trench box while it is being raised or lowered into place.

√ Using steel sheeting to extend the height of a trench box is unsafe because it over-stresses the box.

√ Shielding or shoring used with a sloped trench must extend at least 18' above the bottom of the sloped part of the excavation.

√ The individual shores are installed and released slowly to prevent failure of the remaining protection.

√ Tabulated data on shores and shields must be followed if provided by the manufacturer or professional engineer regardless of soil classification.

√ Excavations must be back-filled immediately after support systems are removed.



Jenkins explained that if a trench wall fails, workers can be trapped immediately. In the U.S. about 400 workers die every year and 6,400 are seriously injured while trenching.

He emphasized to be alert of potential hazards when working such as poisonous gases, falling objects and dangerous equipment. Put hard hats on and when appropriate wear vests while working in a street area. Any excavating under the base or footing of a foundation or wall requires a support system designed by a registered professional engineer.

The workshop concluded with general safety in excavations.

Reminders:

•It is not safe to assume that because the walls of an excavation are frozen that it is safe to enter. Frozen ground is not an alternative to proper shoring.

•An excavation should be considered a confined space and appropriate evaluation and controls undertaken to ensure workers are not exposed to contaminated atmospheres.

•Shoring must be adequate to overcome additional pressures from piles of excavated material, adjoining structures, vehicular traffic, and nearby equipment.

•Clay can be extremely treacherous if dried by the sun. Large chunks of material can break off a trench wall after having been stable and solid for a long period of time.

Eighty percent of success is showing up.

-Woody Allen

Work Zone Safety Montana Department of Transportation

Our thanks to the Montana Department of Transportation, Safety Management Section, for permitting LTAP to reprint the following February 2004 MDT article. Remember National Work Zone Awareness Week April 4-10, 2004! Wear an orange ribbon!

Work Zone Safety

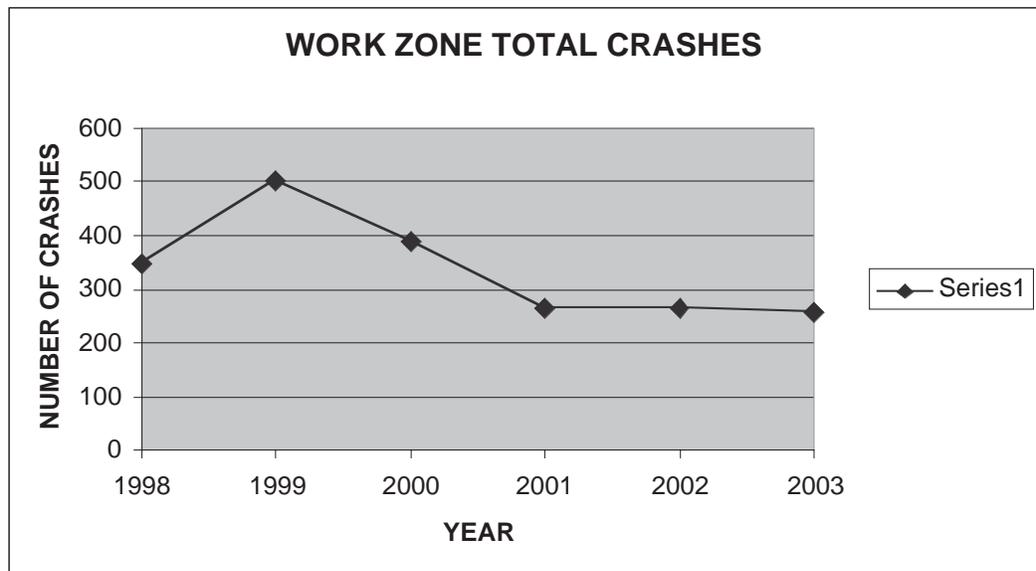
Michael Johnson, FE, and Pierre Jomini, P.E.

Work zones are a necessary inconvenience to the traveling public, as drivers must obey reduced speed limits, occasionally follow a detour and sometimes stop and wait at a flagger station or temporary traffic signal. Temporary traffic controls warn, regulate, and guide traffic through work zones. Construction activities, maintenance operations, utility work and incident management zones call for temporary traffic controls: there are potential dangers and distractions through work zones, and road users may encounter unexpected or unusual situations.

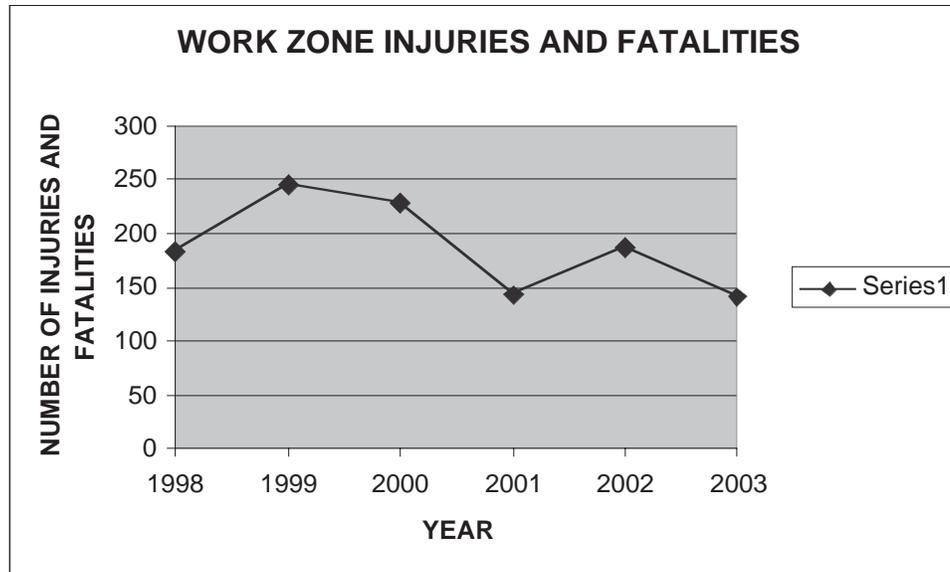
Graph 1 shows the number of crashes in Montana coded in construction zones for the years 1998 through 2003. According to Montana Highway Patrol records, the number of work zone crashes reached 500 in 1999. During the years 2001 to 2003 the number of crashes varied little, ranging from 255 to 264.

Graph 2 illustrates the number of persons killed and injured in Montana construction zones for the years 1998 through 2003. According to Montana Highway Patrol records, during this six-year period, the highest number of injuries and fatalities was 245 in 1999; during 2003, it dropped to 149. The most common reasons for work zone crashes are:

- ⇒ Inattentive/ careless driving
- ⇒ Speed too fast for conditions
- ⇒ Failure to yield
- ⇒ Following too close



Graph 1. Construction Zone Crashes



Graph 2. Work Zone Injuries and Fatalities

The highest numbers of work zone crashes occur between April and October, coinciding with the peak road construction season. Most work zone accidents occur during daytime on dry roads in good weather. Motorcyclists should pay close attention in work zones, as pavement conditions may be rougher.

While the Montana work zone safety group would like to see zero crashes in work zones, it has set two goals for reducing the number of accidents in Montana work zones:

1. Reduce work zone crashes in 2005 by 20% compared to the 2002 work zone crashes.
2. Reduce work zone fatalities and injuries by 30% compared to the 2002 data.

These goals are achievable and will take a concerted effort by everyone: drivers, contractors, road workers, flag persons, enforcement personnel, politicians, media and engineers.

In recent years, steps have been taken to make work zones safer. For example, the Montana Legislature has approved doubling fines in work zones and clarified state laws in regard to construction activities. Media campaigns have been used to alert drivers to slow down through work zones. Working with the Local Technical Assistance Program at Montana State University, Montana has developed a flagger certification program.

Construction workers need to keep in mind that, while they have an important job to complete, they must ensure the safety of the public, the safety of their co-workers and their own safety. Drivers should follow these safety tips when entering a work zone:

- ⇒ Stay Alert: dedicate your full attention to the roadway.
- ⇒ Follow and obey traffic control devices.
- ⇒ Keep a safe distance from the car ahead.
- ⇒ Avoid distractions in the vehicle.

Above all, drive defensively at all times. With everyone's support we can make work zones a safer place to work and drive.

Welcome to the LTAP Lending Library where publications, videos, and software may be borrowed for two weeks and then returned to the Library. Up to three videotapes may be borrowed from the LTAP Lending Library rent-free for two weeks. Some publications are free or for a nominal charge upon request.

Call Donnetta Bohrman or Michele Beck, LTAP
1-800-541-6671

for information or checkout procedures.

Note that our website at www.coe.montana.edu/ltap has been updated and includes the total library publications, software, and videos. At this website you can also keep track of upcoming workshops, our newsletter, and "News Flash" items that change every month.

FHWA Safety Website:
<http://safety.fhwa.dot.gov>

Great website for accessing info on *Maintaining Traffic Sign Retroreflectivity*, *Geometric Design*, and a variety of other planned activities, technical assistance, as well as links to software, references, reports/documents, workshops and training opportunities.

LTAP Lending Library

Publications

p-16: *Bridge Scour in Nonuniform Sediment Mixtures and in Cohesive Materials: Synthesis* (January 2002): This report is a summary of a six-volume series describing detailed laboratory experiments conducted at Colorado State University for the Federal Highway Administration as part of a study entitled "Effects of Sediment Gradation and Cohesion on Bridge Scour." This report will be of interest to hydraulic engineers and bridge engineers involved in bridge scour evaluations. It will be of special interest to other researchers conducting studies of the very complex problem of estimating scour in cohesive bed materials and to those involved in preparing guidelines for bridge scour evaluations.

p-369: *Pavement Preservation Checklists Series (2002):* These six 12-15 page notebooks are checklists to guide state and local highway maintenance and inspection staff in the use of innovative pavement preventive maintenance processes. The checklists take users through such steps as project review, material checks, surface preparation, equipment inspections, weather requirements, and common problems and solutions. 1) Crack Seal 2) Chip Seal 3) Thin Hot-Mix Asphalt Overlay 4) Fog Seal 5) Microsurfacing 6) Joint Sealing Portland Cement Concrete Pavements

p-417: *Guidelines for the Use of Lithium to Mitigate or Prevent Alkali-Silica Reaction (ASR)* (July 2002): This report is intended to provide practitioners with the necessary information and guidance to test, specify, and use lithium compounds in new concrete construction as well as repair and extend the service life of existing concrete structures. This report will be of interest to engineers, contractors and others involved in designing and specifying new concrete, as well as those involved in mitigating the damaging effects of alkali-silica reaction in existing concrete structures.

p-812: *Accessible Sidewalks and Street Crossings - an informational guide* (2002): The intent of this guide is to focus on some of the emerging accessibility issues and the design parameters that affect sidewalk and street crossing design and operation. A large poster-size handout is included with this 38-page book.

p-940: *Full Road Closure for Work Zone Operations: A Cross-Cutting Study* The report provides a summary of how departments of transportation in Oregon, Kentucky, Michigan, Ohio, Washington State, and Delaware each used a full closure approach to conduct a road rehabilitation/reconstruction project. For each project, information provided includes a project description, why the state decided to use full closure, the benefits experienced, and lessons learned. The report also contains a brief discussion of alternative strategies.

p-2554: *On One Hand, Poetry of the Plains, Larry Ross:* Variety of cowboy poetry from one of Montana's own!

LTAP Lending Library

Software

SW-401: *High Performance Concrete Net Conference (2003) FHWA:* This CD contains powerpoint presentations and summaries of discussion points from this conference hosted by FHWA Resource Center's Structures Technical Service Team for the purpose of discussing high-performance concrete (HPC) implementation efforts underway in the mid-atlantic and northeastern States and by the Federal Lands Bridge Office (FLBO). This new structure for transferring technology--using a net conference--was considered an overwhelming success.

SW-852: *Bicycle Safer Journey (FHWA)* Interactive CD-ROM provides a virtual journey designed to increase awareness of bicycle safety. Intended for the general public, road user, and safety advocates. Shows a bicycle ride with John, a 14-year old, and how to handle tricky bicycle safety situations.

SW-853: *Safer Journey (FHWA)* Interactive CD-ROM that takes the users through various pedestrian safety scenarios encountered every day across America. Developed to improve the level of pedestrian knowledge for all road users (including schools, driver education groups, enforcement, etc.,) and safety practitioners.

SW-910: *Roadside Safety Analysis Program 2003, NCHRP Report 492:* This CD contains the Roadside Safety Analysis Program (RSAP), its User's Manual, and its accompanying Engineer's Manual. The Roadside Safety Analysis Program (RSAP) software was developed under NCHRP Project 22-9 and represents one approach to using the Roadside Design guide. (Computer requirements: Pentium III or faster, 128 MB memory, 8.5MB free hard disk, additional 1 MB disk space for storage of project input and output files; WINDOWS 98, NT, Me, 2000, or XP)

Videos

E0146: *Right of Way Mowing Safety (25 mins)*

M135: *Managing Employee Stress in times of Emergency (31 mins)*

PAG110: *Effective Disaster Recovery Techniques (4 tapes) APWA*

RM520: *Getting Across: Introduction (6 mins)*

RM521: *Getting Across: General Overview (16 mins)*

RM724: *Snow Removal in Safety - APWA (30 mins)*

RM725: *Snow Equipment Operation (#3-Iowa DOT) (10 mins)*

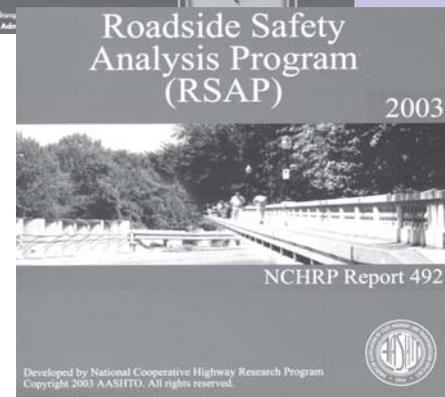
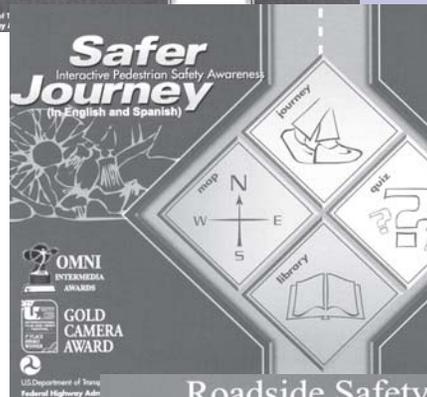
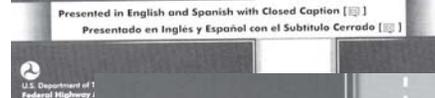
RM726: *Plowing Techniques (#4-Iowa DOT) (29 mins)*

Pavement Preservation Online Resources

FHWA: www.fhwa.dot.gov/preservation

Foundation for Pavement Preservation: www.fp2.org

National Center for Pavement Preservation: www.pavementpreservation.org





Local Technical Assistance Program
 407 Cobleigh Hall
 PO Box 173910
 Montana State University-Bozeman
 Bozeman, MT 59717-3910



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MDT attempts to provide accommodations for any known disability that may interfere with a person participating in any service, program or activity of the Department. Alternative accessible formats of this document will be provided upon request.

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.

The Local Technical Assistance Program Newsletter is published quarterly. Funding for this program is provided by the Federal Highway Administration through the Montana Department of Transportation, Montana State University and a portion of Montana's gas tax revenues.

This newsletter is designed to keep you informed about new publications, techniques and new training opportunities that may be helpful to you and your community.

Individuals wishing to receive future copies of the newsletter at no cost may send their request to LTAP, 407 Cobleigh Hall, PO Box 173910, Montana State University-Bozeman, Bozeman, MT 59717-3910, or call 1-800-541-6671.

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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 Local Technical Assistance Program
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