

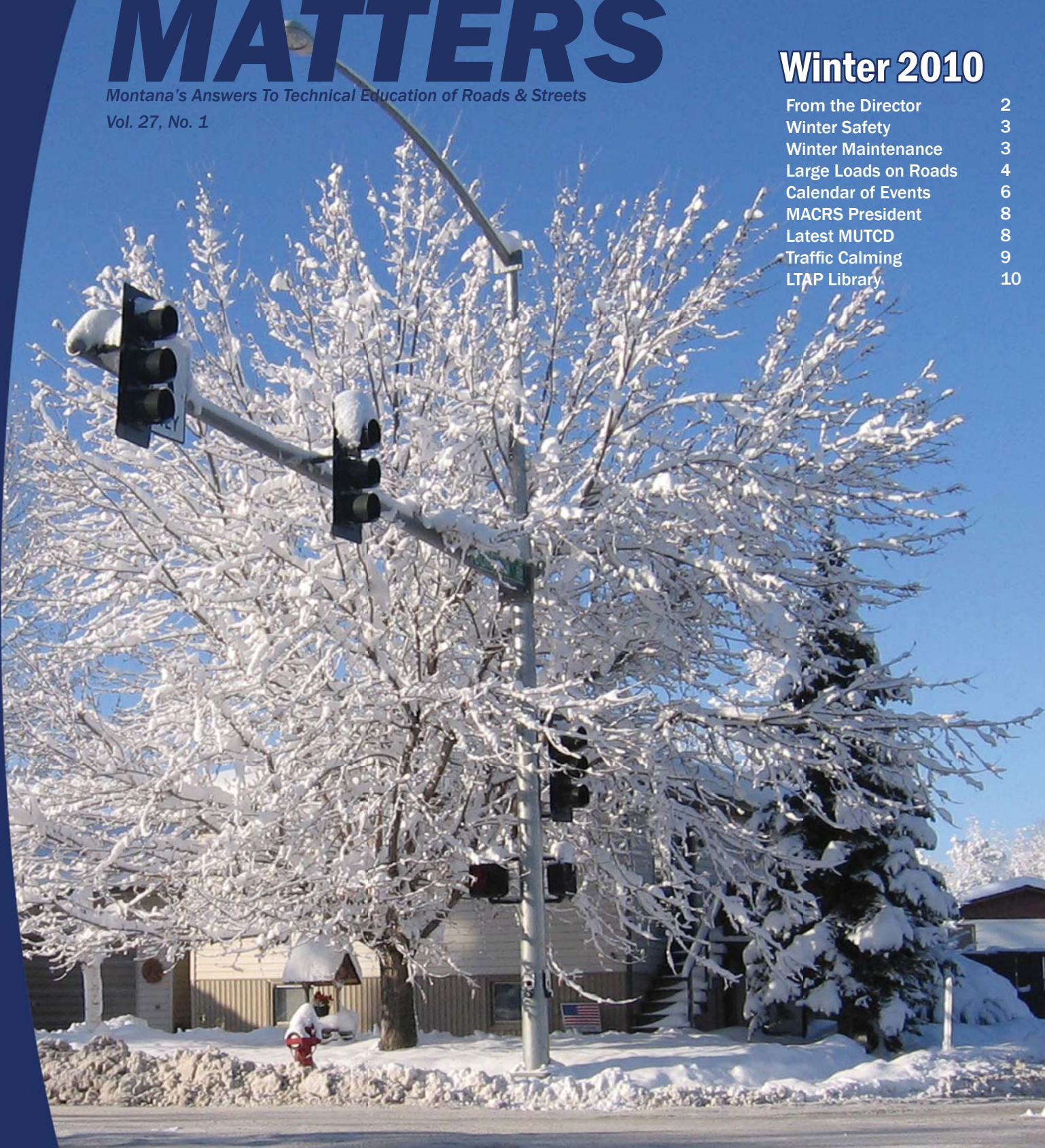
LTAP MATTERS

Montana's Answers To Technical Education of Roads & Streets

Vol. 27, No. 1

Winter 2010

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From the Director

This past fall was packed! Montana LTAP trained over 600 participants. During this training period, I had the opportunity to present to the Montana Research Review Committee on past performances and upcoming goals. The Four Focus areas underlined the majority of my discussion, explaining how Montana LTAP places the various training topics in Safety, Infrastructure Management, Workforce Development, and Organizational Excellence as well as where these topics were and will be taught. There was the opportunity to also present preliminary findings from our Needs Assessment Survey indicating the top requested topics:

- Materials: Soils & Aggregates
- Equipment: Operation
- Design & Pre-Construction: Road Shoulders & Ditches
- Construction: Earthwork
- Maintenance: Unpaved Roads
- Worker Safety: Winter Survival
- Traffic Control: Signing (Permanents)
- Other Areas: Public Relations
- Asphalt: Use of Recycled Asphalt in Hot Mix

Fall training met five of these topics and the remaining will be addressed in the 2010 training schedule. Because this Needs Assessment Survey will continue to be distributed throughout the first of 2010, we are looking forward to more responses to indicate that we are heading in the training direction our constituents are requesting.

Our December 9 webinar was the first step of coordinating a possible Workforce Development Summit as it relates to transportation training organizations. From this webinar, we are now planning a Workforce Development Summit on March 4, 2010, with WTI.

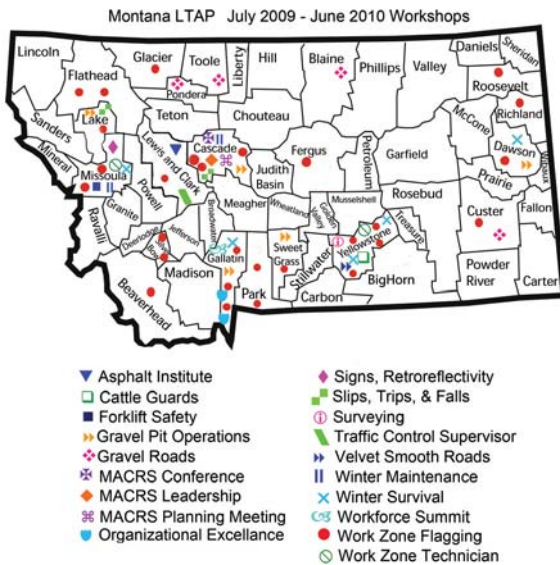
Thanks goes out to Bruce Drewes, Idaho T2 Director, for teaching two of the three winter maintenance sessions this fall. Positive responses were numerous. It is always great working with fellow LTAPer's at workshops.

Dave Johnson, Asphalt Institute, recently partnered with Montana LTAP and we will be coordinating the Asphalt Institute Conference to be held February 10, 2010, in Helena. (On-line registration: <http://www.coe.montana.edu/ltap/pages/training.htm>)

In addition to more Winter Safety training at the beginning of 2010, I will be presenting at MACo's Risk Management and Loss Control Conference. Marcee Allen, the new FHWA Montana rep, will be helping out on Sign Retroreflectivity and Signing Basics. Jack Knorr will be back again to cover county liability issues.

D.J. Vanas will be presenting at this year's MACRS spring conference. His pre-conference leadership presentation, March 29, fulfills the Road Scholar requirement for leadership training. As a friend to the LTAP community over the past years, he provides valuable leadership insight and information.

Travel Safe, Steve Jenkins, Montana LTAP Director



LTAP Matters is published by the Local Technical Assistance Program. LTAP is located with Western Transportation Institute, College of Engineering at 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: www.coe.montana.edu/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.



Winter Safety

Recently having record cold temperatures and winter storms, Montana LTAP Director Steve Jenkins' Winter Safety workshops have been filled to capacity.

"I just finished a week of training in the eastern part of the state. Two of the Winter Safety courses contained over a total of 130 participants," remarked Jenkins. "The Winter Maintenance classes also were at capacity, again showing the need for this type of training."

Jenkins' Winter Safety class provides three modules:

- Winter Safety Overview
- Carbon Monoxide/Hypothermia
- Technical Gear: Pathways to Survival

The Winter Overview briefly describes examples of why you need to tell someone where you are going and when you expect to arrive or return. He outlines why carbon monoxide poisoning occurs and the parameters of hypothermia. In this module, he also introduces a variety of methodologies regarding fire, shelter and signal.

During the second module on carbon monoxide poisoning, he points out that 85 percent of winter stranded automobile fatalities occurred due to carbon monoxide poisoning and 15 percent died of hypothermia. His in-depth review

of hypothermia points out the five stages as well as prevention and treatment of hypothermia. One participant

commented that he had found a person trapped in a snow-bound car when plowing a county road. He remembered from Jenkins' previous Winter Safety class how to treat the person by using the prescribed method of **slowly** warming the person and getting them to a hospital.

A new addition to his Winter Survival is the effects of altitude illness and possible solutions, as well as frostbite causes and treatment.

With new technical gear continually being developed, Jenkins displays the latest in winter clothing as well as what types of survival kits to "build" for particular situations.

"Whether you work on county roads or city streets, the information provided by Steve Jenkins

in this Winter Safety class is crucial to all transportation employees," commented Russ Huotari, Richland County Public Works Director.



Winter Maintenance

In an effort to provide varied training perspectives, Bruce Drewes, Idaho T2 Manager, agreed to teach two Winter Maintenance courses for Montana LTAP in Missoula and Great Falls this fall. With over twenty years of experience on the topics of snow and ice control, Drewes brought valuable information to the table for participants.

Introducing reasons of what happens when the roads are not cleared included: • emergency operations are hampered or cease; • vehicular crashes increase in deaths, injuries and property damage; • loss of revenue due to

businesses closing down and workers suffer lost wages. Results of de-icing provided a reduction of accidents and thereby lowering costs from injury as well as getting traffic moving again. Drewes presentation also contained the variety of chemicals for de-icing, how they work, and costs. He discussed anti-icing versus de-icing as well as abrasives and prewetting. He concluded with various scenarios to determine what avenue to chose for total storm management. Winter Maintenance training is available for your agency by calling Montana LTAP at 1-800-541-6671.

ADVISORY COMMITTEE MEMBERS

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

Debbie Arkell
City of Bozeman

Bob Seliskar
Federal Highway
Administration

Kelly Elser
Town of Ennis

Fred Hansen
MACo

Jim Rearden
City of Great Falls

Russ Albers
Chouteau County

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Lewis and Clark County

Russ Huotari
Richland County

Sue Sillick
Montana Dept of
Transportation

Alec Hansen
Montana League of
Cities & Towns

Lynn Miller
Montana Dept of
Transportation

When Large Loads Travel Local Roads: Tips for Managing Big Projects

Thanks to Steve Pudloski, Wisconsin LTAP, for granting permission to reprint this article from their Spring 2009 *Crossroads*.

Picture a flatbed semi 170 feet long maneuvering along rural roads hauling a 120-foot turbine blade. Imagine a truck loaded with a huge generator and weighing in excess of 170,000 pounds covering the same route—a class B highway where the maximum weight limit without permit is 48,000-pound. Multiply trips like these hundreds of times over consecutive months and you have a large scale construction project that puts stress on the transportation infrastructure and strains local resources.

Dodge County Highway Commissioner Brian Field understands this challenge firsthand. He explains how officials in the southeastern Wisconsin county handled an onslaught of large projects last year requiring permits to move lots of oversized and overweight loads. Two wind farm developments and a major natural gas pipeline construction project, all happening in close succession, prompted them to develop a better way to process requests. With the future potential for other energy-related projects on tracts of open land, local officials throughout the state can learn from the proactive approach Dodge County adopted, after a rocky start, for managing the safe transport of large loads along its roads. Towns affected by the project did their own permitting but generally followed the county's lead.

First Project Overwhelms the System

Once the initial wind farm project began, Field says the county realized the implications of having so many oversized and heavy loads traveling on its roads. Contractors and trucking firms from all over the country inundated East Side

Patrol Superintendent Chuck Bernhard, the county contact for the project, almost daily with individual requests for what amounted to hundreds of permits. The project had 48 tower sites in Dodge County (another 18 in neighboring Fond du Lac County) that needed access permits and authorization for six or seven oversized/overweight loads coming into each site. They also requested multiple utility permits. Demand soon threatened to overwhelm the system.

"It took a while to develop a better way to handle permitting on such a scale without sacrificing normal operations," notes Field. It was "learn as you go," but it prepared local officials to rethink how to handle the projects that followed.

Regroup Around New Approach

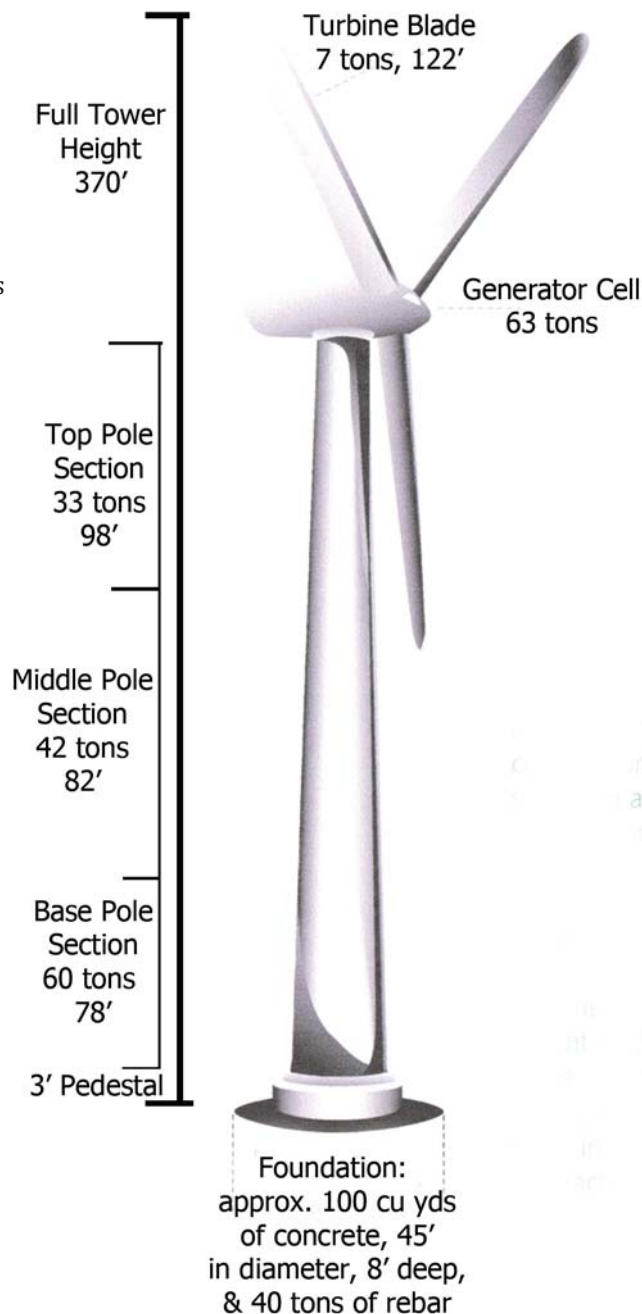
After struggling to manage the chaos of permit requests and inspections on that first big project, Dodge County regrouped. Local officials put together a plan that simplified communication and successfully streamlined the process. Field describes their step-by-step approach as one that primarily protects local interests, but also helps project owners meet their objectives. The steps Dodge County follows now on all large permitting projects are outlined on the next page.

... Continued Page 5

"It took awhile to develop a better way to handle permitting on such a scale without sacrificing normal operations."

Breaking Down the Loads

Each of the wind turbine towers erected for the first Dodge County wind farm project arrived onsite in seven overweight and/or oversized loads. The diagram at left illustrates the dimensions of individual tower elements and the final construction height. The tower additionally stands on a 3-foot-high pedestal bolted to a concrete foundation 8 feet deep and 45 feet in diameter. The foundation contains 80,000 pounds of rebar and approximately 100 cubic yards of concrete. Patrol Supervisor Chuck Bernhard says he recorded some of the worst pavement damage from the regulation weight trucks hauling concrete because they made so many trips over the local roads during construction. Thanks to the county's daily inspections and record-keeping, the contractor covered all costs of repair.



When Large Loads Travel Local Roads (cont'd from Page 4)

Public Interest Meets Innovation

A range of large-scale permitting projects—logging operations, industrial agriculture, traditional power plants regularly place demands on roads and local resources. Now a growing interest in alternative energy sources presents a fresh challenge to local officials. Field says the companies building wind farms in Dodge County work all over the United States on similar projects. He was not surprised to learn that every county they go to manages the permitting/damage assessment process differently.

The companies encouraged Dodge County's effort to take a uniform approach. Finally, Field notes that while the county supports such innovative projects that represent a new approach to producing energy and protecting the environment, he says their commitment to protecting the public interest comes first. Establishing an effective working relationship between local officials and the decision makers on large-load projects was an important step in doing so.

Dodge County's Step-by-Step Approach On Large Permitting Projects

A range of large-scale permitting projects—logging operations, industrial agriculture, traditional power plants—regularly place demands on roads and local resources. Now a growing interest in alternative energy sources presents a fresh challenge to local officials. Field says the companies building wind farms in Dodge County work all over the United States on similar projects. He was not surprised to learn that every county they go to manages the permitting/damage assessment process differently. The companies encouraged Dodge County's effort to take a uniform approach. Finally, Field notes that while the county supports such innovative projects that represent a new approach to producing energy and protecting the environment, he says their commitment to protecting the public interest comes first. Establishing an effective working relationship between local officials and the decision makers on large-load projects was an important step in doing so.

1 – Schedule early planning session

All groups with a stake in the outcome of the second wind farm project and the pipeline project assembled for early planning sessions. Before the trucks started to roll, Field and Bernhard called a meeting of individuals representing the general contractor, the utility coordinator, a trucking coordinator, the Wisconsin Department of Transportation and law enforcement officials. Together, they reviewed all aspects of the project and came up with strategies for minimizing disruptions and damage, and keeping things on schedule.

2 – Identify local concerns

Dodge County officials outlined their own issues of concern at the meeting, like public safety and establishing the

condition of roads before, during and after the project. They explored a workable approach to damage assessments, restoration and cost recovery, and reviewed liability coverage limits and certificates of insurance requirements. The county also distributed its policies covering construction access and utility accommodation.

3 – Establish single point of contact

Insisting the general contractor name a key contact person was the change with the biggest positive impact on the process. Field says that having a single point of contact authorized to manage routes, update schedules and make damage assessments improved communication on the project tenfold. If there were problems, Bernhard knew whom to call to get action.

4 – Designate all staging areas and routes

Representatives on both sides surveyed project needs to designate best transportation routes and staging areas. For example, they reviewed how the contractor planned to prepare the route for huge cranes to cross county or town roads between tower sites. Bernhard says this involved putting down steel plates, a layer of stones and then wooden beams to carry the load and protect the roadbed. The county made a videotape record of the routes to log pre-existing conditions before the project commenced. They inspected every route with the project contact to identify hazards, obstacles or other concerns, and determined who was responsible for addressing each one.

5 – Issue permits for all access points

Part of simplifying the process, the county worked with the project contact to identify permanent and temporary driveway entrances, and issued permits in compliance with access policy.

6 – Issue blanket permit for oversized and overweight loads

Aware of the permitting demands of a project that needs to move hundreds of large loads over many months, the county arranged to issue a blanket oversized and overweight permit to the general contractor and trucking firms. They billed the project monthly for related costs, including inspections, traffic sign removal and replacement, intersection modifications, right-of-way restoration and pavement repairs. They required the project managers to keep a daily log of the oversized/overweight loads, recording the route, the date and time, and the hauler.

7 – Conduct daily inspections

Bernhard, or someone he designated, inspected all routes used for the project every day to assess any new damage and determine responsibility. Gathering this information in a timely manner meant less confusion later over who pays for damages.

8 – Inspect all routes after project completion

The county's orderly approach to managing large-scale projects was in place by completion of the first wind farm. Bernhard retraced the construction truck routes to record the post project condition of pavements, shoulders, ditches and access points. He used a previously shot video log for comparison. The process worked. Field says the contractor met with the county to review findings from this final inspection and paid off minor damages right away. Where it appeared stress from the loads and the volume of truck traffic shortened the expected life cycle of a pavement, the county developed a formula for compensation to offset future costs of resurfacing and billed the contractor.

Contact

Brian Field, Dodge County Highway Commission, 920-2862653, bfield@co.dodge.wi.us

Resources: <http://www.dot.wisconsin.gov/business/carriers/osowpermits.htm>
Link to facts and figures on Wisconsin permitting guidelines.

Calendar of Events • July 2009 - June 2010

July 2009

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
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26	27	28	29	30	31	

3: 4th of July Holiday (Offices Closed)
 24-28: NACo Annual Conference, Nashville, TN - www.naco.org
 27-30: National LTAP Conference: Pittsburgh, PA (LTAP)

August 2009

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30	31					

17-21: MACo - Clerk & Recorders Association Annual Conference, Billings, MT
 19-21: Safe Routes to School Conference: Two Steps Ahead Hilton, Portland, Oregon - www.saferoutesconference.org

Training on Request:
 Forklift
 Sign Safety
 Road Audits

November 2009

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2 & 3: Roadway Management (TLN Broadcast)
 3 & 4: MACRS Planning Meeting, Heritage Inn, Great Falls, MT
 11: Veterans' Day - Offices Closed
 16-19: Nat'l Tribal Transportation Conference, Phoenix, AZ
 26-27: Thansgiving Holiday - Offices Closed
 30: Winter Maintenance, Missoula, MT - Montana LTAP

December 2009

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1: Winter Maintenance, Missoula, MT - Montana LTAP
 9: Workforce Summit Webinar - Montana LTAP/WTI
 15: Winter Maintenance-City of Billings
 16: Winter Survival - Miles City
 17: Winter Survival/Leadership - Sidney
 25: Christmas Holiday - Offices Closed

March 2010

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4: Workforce Summit - Bozeman - MT LTAP/WTI
 9: Flagging Certification Course - Helena (MT LTAP)
 10: Flagging Certification Course - Missoula (MT LTAP)
 11: Flagging Certification Course - Kalispell(MT LTAP)
 16: Flagging Certification Course - Miles City (MT LTAP)
 17: Flagging Certification Course - Glendive(MT LTAP)
 18: Flagging Certification Course - Wolf Point (MT LTAP)
 19: Flagging Certification Course - Sidney (MT LTAP)
 15-19: MSU Spring Break
 29,30, 31 and April 1: MACRS 30th Annual Conference
 Heritage Inn, Great Falls, MT (MT LTAP)

April 2010

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1: MACRS 26th Annual Conference
 Heritage Inn, Great Falls, MT (MT LTAP)
 12&13: Gravel Roads - Chester (MT LTAP)
 14&15: Gravel Roads - Kalispell (MT LTAP)
 27&28: Gravel Roads - Big Timber (MT LTAP)
 25-29: NACE 2010, Sheraton Ft. Worth Hotel & Ft. Worth Convention Center, Fort Worth, Texas. Contact NACE at nace@naco.org

Training Opportunities at Montana LTAP Website:
www.coe.montana.edu/ltap

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

Calendar of Events • July 2009 - June 2010

September 2009

S	M	T	W	Th	F	S
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2 & 3: Snow Rodeo - Metra Park, Billings, MT (MT LTAP)

7: Labor Day Holiday - Offices Closed

13-16: 2009 APWA Congress - The Best Show in Public Works

Columbus Convention Center, Columbus, OH

15-17: Int'l Conference on Sustainable Concrete Pavements; Sacramento, CA; Sam Tyson, 202-366-1326, sam.tyson@fhwa.dot.gov

20-24: MACo's 100th Annual Conference, Colonial Inn, Helena, MT

29: MACRS Fall District Meeting - Polson, MT (MT LTAP)

Gravel Pit Operations & Operator Safety

30 & Oct 1 & 2: Governor's Occupational Safety & Health Awards Program

Hilton Garden Inn, Missoula, MT

October 2009

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Oct 1 & 2: Governor's Occupational Safety & Health Awards Program
Hilton Garden Inn, Missoula, MT

MACRS Fall District Meetings: (MT LTAP)

Gravel Pit Operations, Truck & Loader Safety

5: Bozeman 6: Big Timber 8: Great Falls 15: Glendive

7: Walk to School Day - www.walktoschool.org

7, 8, 9: 78th League of Cities & Towns, Heritage Inn, Great Falls, MT

7: Public Works Directors - (MT LTAP)

19-21: 8th Nat'l Conference on Transportation Asset Management,

Portland, OR; Contact Tom Palmerlee, 202-334-2907, tpalmerlee@nas.edu

20 & 21: Region 7 Local Roads Conference, Rapid City, SD

January 2010

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31						

1: New Year's Day - Offices Closed

5, 6, 7: **Winter Safety: Missoula 1/5; Butte 1/6; Bozeman 1/7**

14: **Winter Safety - Public Forum-MSU Ballroom - Bozeman**

18: Martin Luther King Day - Offices Closed

20, 21, 22: **Loss Control Conference (LTAP Safety Congress) MACo-**

Hilton Garden Inn, Missoula, MT - 21: Steve Jenkins Presents

Loss Control Conference:

January 20-22 - Hilton Garden Inn, Missoula

January 21, Thursday - Steve Jenkins Presents

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

February 2010

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28						

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

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

15: President's Day - Offices Closed

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

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

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

Traffic Control Supervisor Two-Day Course

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

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

http://www.coe.montana.edu/ltap/pages/training.htm

May 2010

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23	24	25	26	27	28	29
30	31					

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

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

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

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

26: **MACRS Executive Meeting - Bozeman**

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

31: Labor Day - Offices Closed

June 2010

S	M	T	W	Th	F	S
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20	21	22	23	24	25	26
27	28	29	30			

1&2: LTAP Region 7 Meeting - Bismarck, ND

*Asphalt Institute Conference • February 10 - Wednesday

Helena, Montana - Red Lion Colonial

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

On-line Registration: http://www.coe.montana.edu/ltap/pages/training.htm

For more training opportunities, check out Transportation Learning Network (TLN): <http://www.translearning.org/>
Montana LTAP is partnering with Montana DOT to offer classes from the TLN site to our constituents. Please contact us if you want to sign up or have any questions: 1-800-541-6671

MACRS 30th Annual Conference March 29-April 1, 2010



As President of MACRS, I invite all county road departments and other like-minded agencies and vendors to join us in celebrating 30 years of cohesive partnerships at the Montana Association of County Road Supervisors

spring conference. We are gathering in Great Falls at the Heritage Inn. Throughout my year as President, it has been an honor and privilege to serve this incredible organization. I have served as a District Representative, 2nd Vice President, and 1st Vice President. Being involved in MACRS has given me and my crew transportation education opportunities and I recommend getting involved.

The level of communication is on the increase through e-mail correspondence, conference calls and webinars. It seemed fitting to theme this conference "Effective Communication." Not so long ago it was difficult just to get a phone call through to other county road departments. Now everyone carries cell phones providing immediate answers to questions. As this network continues to expand in productivity, I find that by coming together at this annual conference, even more information will be exchanged. As an organization, we are becoming better equipped to solve road problems with new solutions never thought of before.

This conference will provide an outstanding leadership keynote speaker, D.J. Vanas, on Tuesday, March 30, during

the general conference. He was at our 2008 conference as keynote speaker as well as speaking at the pre-conference on Monday. Comments I heard in the hall after D.J.'s keynote message included, "Wished I would have been here for the

pre-conference. He's got some great ideas about how to provide leadership." This year be sure to attend his four-hour pre-conference Monday, March 29, in the afternoon. If you get in early on Monday, take in the morning pre-conference session of Repair, Rebuild, and Replace also.

Other topics addressed at this conference include Road Standards and Specification, Human Resource issues, DNRC/State Lands, Public Relations; Road Law; Roadway Management; and County Gravel Road Stabilization Projects Panel.

After attending the national NACE conference last year where we were treated like rock stars, I want you all to know that it gives me great pride to say our MACRS conference holds its own in providing an outstanding program. A big thanks to those fellow MACRS members who established and built a solid foundation. I know this organization will continue to grow and provide Montana's county road departments with the most up-to-date instruction and solutions to meet the challenges of the 21st century. Thank you to all who continue to support this dynamic organization.

I look forward to meeting everyone at the conference,
Shawn Norick, Liberty County Road Foreman

MACRS Conference Theme:

**Preserving Montana's
County Roads
Through
Effective Communication**



Just Released: The Latest MUTCD - Available On-line

For those of you who have been waiting for the updated MUTCD (Manual on Uniform Traffic Control Devices), the dated December 2009 version is available in both PDF and HTML:
http://mutcd.fhwa.dot.gov/kno_2009.htm

You can place your order now for a hard copy. The coil bound are \$125 (member) or for the perfect bound \$100 (member). They will be shipping in March 2010:

AASHTO: https://bookstore.transportation.org/item_details.aspx?ID=1550

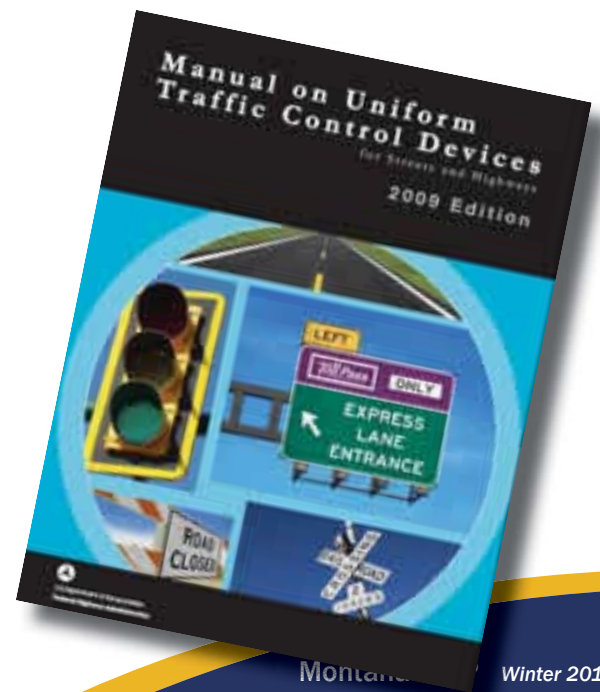
ATSSA: http://www.atssa.com/galleries/default-file/MUTCD_web-Order_Form12-16-09.pdf

PowerPoint presentations on the major changes are available on this website: <http://mutcd.fhwa.dot.gov/ser-Training.htm>.

FHWA provides a document showing the changes in the MUTCD text from the 2003 Edition to the 2009 Edition, using strikeouts and underlining, that is available upon request.:

Federal Highway Administration
1200 New Jersey Ave., SE
Washington, DC 20590

There is also a document listing the changes in the MUTCD figures and tables from the 2003 Edition to the 2009 Edition that is available upon request.



Traffic Calming on Main Roads Through Rural Communities

The following information was reprinted from FHWA Tech Brief *Traffic Calming on Main Roads Through Rural Communities*, Publication No. FHWA-HRT-08-067. For the entire 14-page study, go to: <http://www.tfhr.gov/safety/pubs/08067/index.htm>.

There were 18 rural communities selected for this study that had populations less than 5,000. After initial speed studies were conducted in the 18 communities, five were selected as pilot-study locations. These five locations were found to have the most significant speeding problems, as determined by the difference between the posted speed and prevailing travel speed.

The most effective treatments were the speed feedback signs, speed table, median island using tubular markers, and speed limit markings with red background. The converging chevrons and transverse pavement markings were somewhat effective with speed reductions generally less than 3 mi/h. Lane narrowing using pavement markings to create a center island, lane narrowing using shoulder markings in combination with on-pavement speed limit markings, and on-pavement "SLOW" markings were either not effective or were only marginally effective.

Following are several of the lessons learned during the course of this study and may be helpful to small communities considering traffic calming on main rural roads:

- Design vehicles should be considered (farm vehicles and heavy truck traffic) when determining the type of traffic-calming treatment to implement.
- Maintenance can be an issue with many traffic-calming treatments.
- Cost effectiveness is always a factor in selecting traffic-calming treatments.
- Durable pavement marking materials should be considered when the markings extend within wheel paths.
- Community buy-in is important.
- Lane narrowing using just pavement markings to create a center island or shoulder was not effective.
- Small communities may not be familiar with traffic calming and may need additional education.
- STOP signs should not be used for traffic calming.

Table 10. Summary of impacts and costs of rural traffic calming treatments.

Treatment	Change in 85 th percentile speed (mi/h)	Cost	Maintenance	Application
Transverse pavement markings	-2 to 0	\$	Regular painting	community entrance
Transverse pavement markings with speed feedback signs	-7 to -3	\$\$\$	Regular painting	community entrance
Lane narrowing using painted center island and edge marking	-3 to +4	\$	Regular painting	entrance or within community
Converging chevrons and "25 MPH" pavement markings	-4 to 0	\$	Regular painting	community entrance
Lane narrowing using shoulder markings and "25 MPH" pavement legend	-2 to 4	\$	Regular painting	entrance or within community
Speed table	-5 to -4	\$\$	Regular painting	within community
Lane narrowing with center island using tubular markers	-3 to 0	\$\$\$	Tubes often struck needing replacement	within community
Speed feedback sign (3-months after only)	-7	\$\$\$	Troubleshooting electronics	entrance or within community
"SLOW" pavement legend	-2 to 3	\$	Regular painting	entrance or within community
"35 MPH" pavement legend with red background	-9 to 0	\$	Background faded quickly; accelerated repainting cycle	entrance or within community
\$ under \$2,500 \$\$ \$2,500 to \$5,000 \$\$\$ \$5,000 to \$12,000				

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@coe.montana.edu.

We recently reorganized the library and have the new lists for the library publications, software, DVD's, and videos at our web site: www.coe.montana.edu/ltap.

At this web site, you can also keep track of upcoming workshops, past and present newsletters, and "What's New" items that change periodically. Our 2009-2010 Needs Assessment form is presently available at this web site. Thank you for taking time to complete it.

New Publications

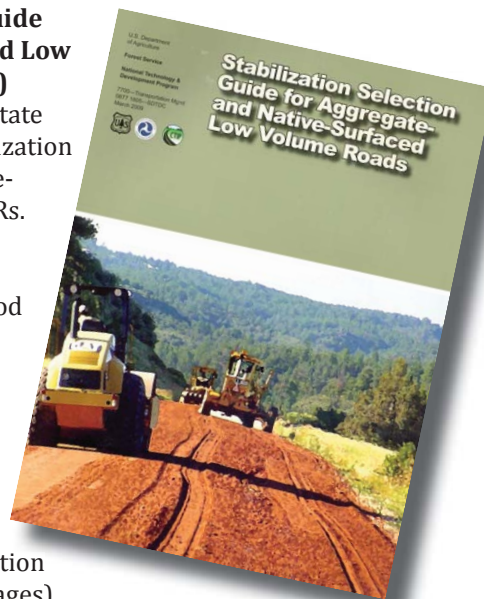
p-433 Design and Evaluation of Jointed Plain Concrete Pavement with Fiber Reinforced Polymer Dowels (FHWA Sept 2009) This study evaluates fiber reinforced polymer (FRP) dowel bars as load transferring devices in jointed plain concrete pavement under HS25 static and fatigue loads and compares their response with JPCP consisting of steel dowels. (160 pages)

p-634 Maintenance of Drainage Features for Safety, A Guide for Local Street and Highway Maintenance Personnel (FHWA July 2009) This guide identifies typical drainage problems and suggests corrective measures to improve safety. (38 pages)

p-721 Best Practices for Dust Control on Aggregate Roads (LRRB Jan 2009) This study evaluated the performance and cost of commonly used dust palliatives using a mobile air sampling technique. Treatments of calcium chloride, magnesium chloride, and organic polymer-plus-binder were evaluated at standard applications rates during the first year and at variable rates during the second year. The treatments were applied to a variety of subject roads that were located throughout Minnesota. Average daily traffic levels varied from 25 to 700 vehicles per day. (30 pages)

p-722 Stabilization Selection Guide for Aggregate-and Native-Surfaced Low Volume Roads (USFS March 2009)

The purpose of this guide is to facilitate the selection of modification/stabilization agents and techniques for aggregate-surfaced and native/unsurfaced LVRs. The objective is to provide low-cost alternatives that reduce aggregate wear and loss, reduce the time period between major rehabilitation (i.e., between adding new aggregate or the total reconditioning of the road pavement). Also included is information on available stabilizing agents, appropriate conditions for use, selection procedures, quantity determination, and contact information for manufacturers/suppliers. (40 pages)



p-958 Low Cost Local Road Safety Solutions (ATSSA March 2006) Seventeen low cost safety solutions are covered in this manual for local roadway safety problems. (40 pages)

p-985 Pilot Car Escort Guidelines - 3 Books (FHWA Oct 2004) The guidelines summarize the results of extensive research and analysis of existing formalized pilot car escort training materials. The analysis culminated in the identification of the noted "Best Practices" for pilot car escort assisted movement of permitted oversize/overweight loads. All three manuals and power point provide a comprehensive Pilot Car Escort Training Program.

- Training Manual (FHWA Oct 2004) FHWA-HOP-04-028 (120 pages)
- Best Practices w/Power Point CD (FHWA Oct 2004) FHWA-HOP-04-026 (16 pages)
- Law Enforcement (FHWA Oct 2004) FHWA-HOP-04-027 (12 pages)



p-2227 APWA Red Book on Qualifications-Based Selection: Guidelines for Public Agencies (APWA August 2006) While this book is oriented to specific needs of public agency officials, it also provides insight regarding how consultants approach selection and used by public agency clients. The emphasis is on local agencies, but much is also applicable to other types of public agencies. (37 pages)

Publications continued on Page 11 . . .

Montana LTAP Library

New DVD's

DVD 163 Forklift Rigging Attachments (SC&RA 2004) This video and workbook provide supplemental training concerning the use of a fork lift in rigging applications and the most common rigging attachments used to increase the versatility of the basic lift truck. This training is for an experienced lift truck operator who has basic knowledge of the fundamentals of lift truck operator skill. (15 minutes)

DVD 310 Lifecycle of a Highway over 50 Years (Missouri DOT 2009) This is an animated video clip showing how pavement breaks down over the years and how repaving does not repair the deep cracks that have allowed water to seep into the underlayers of the road construction, weakening the asphalt above. As the years go by there is a figure in the lower right hand corner showing what it would cost to repair/replace the roadway. (3 minutes)



DVD 719 A Snowplow Operators' Guide to Snow and Ice Equipment (Idaho T2 2009)

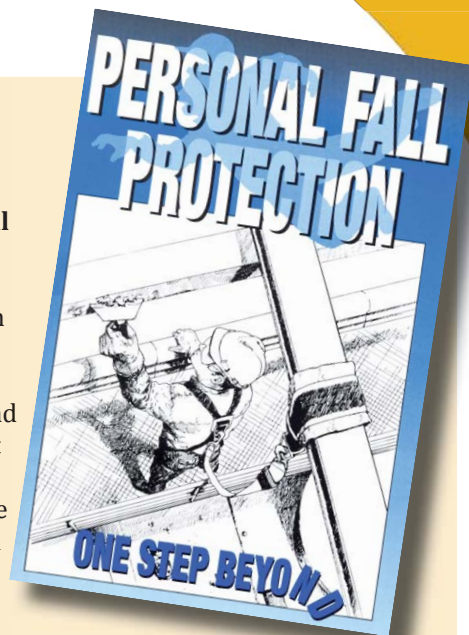
This is an interactive computer course covering all aspects of snowplowing. The initial window offers these topics: 1) Types of Equipment, 2) Mounting of Equipment, 3)

Inspection, 4) Anti-icing/deicing, 5)

Plowing Techniques, and 6) Final Test (which is also interactive). Each division has specific video clips that cover that topic listed, as well as more subheadings under each heading. This DVD offers a wealth of knowledge for the experienced operator and newcomer. (Time varies with each module.)

DVD 817 Strains and Sprains, A Public Concern (Coastal 2009) Sprains and strains may not be considered serious workplace injuries, but they absolutely cause lost time, reduce wages and disrupt employee health and productivity. Reduce MSDs and ease their harmful effects with this program, which shows workers how strains and sprains occur, how their warning signs can be recognized, and how they can be minimized or prevented through proper posture, exercise and other simple adjustments. (16 minutes)

DVD 818 Personal Fall Protection: One Step Beyond (Coastal 2008) This helpful program, based on OSHA's Fall Protection Standard Subpart M, reviews personal fall protection systems and anchorage equipment to protect workers from fatal falls. Rescue procedures after a fall are also covered. (13 minutes)



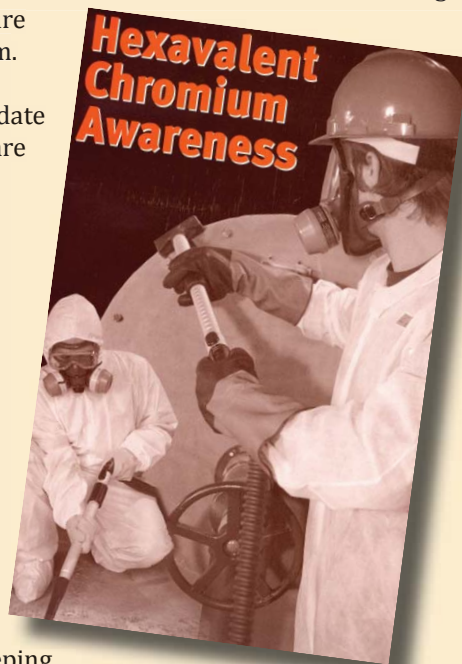
DVD 837 Winter Safety (Coastal 2007) Either on the job or during recreational time, winter poses special dangers. Heat up some safety measures now against winter-related accidents. (13 Minutes)

- Signs and treatment of hypothermia and frostbite
- Prevention of hypothermia and frostbite
- Off-the-job winter safety

DVD 883 Hexavalent Chromium Awareness Work (Coastal 2007)

OSHA has revised its standard concerning permissible exposure limits for HexChrom. Make sure your workplace is up to date and your workers are aware of the risks of exposure to and the health hazards associated with HexChrom. Protect your workers from lung cancer, permanent eye damage and skin ulcerations.

- New regulations
- Exposure Monitoring
- Respirator use
- PPE
- Importance of proper housekeeping
- Recordkeeping (17 minutes)



Clean Air Nonroad Diesel - Tier 4 Final Rule

EPA adopted a comprehensive national program to reduce emissions from future nonroad diesel engines by integrating engine and fuel controls as a system to gain the greatest emission reductions. The very largest diesel engines need to meet both NOx and PM standards in 2014.

Some of the largest engines, 750+ horsepower, will have one additional year to meet the emissions standards.

For more information:

<http://www.epa.gov/nonroad-diesel/2004fr.htm>

From US Environmental Protection Agency website on Nonroad Diesel Equipment, Clean Air Nonroad Diesel - Tier 4 Final Rule



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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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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.

Present and past issues are available at www.coe.montana.edu/ltap 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.