



LTAP MATTERS

Montana's Answers To Technical Education of Roads & Streets

College of Engineering Montana State University-Bozeman Bozeman, MT 59717-3910
 Montana LTAP 1-800-541-6671

Winter 2006 January February March

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PASS IT ON

After you have read this newsletter, copy what you need for your files and **pass it on** to the rest of the crew:

Winter Survival Training - A Very Hot Topic

As the snow begins to fly and thoughts of keeping warm come to mind, Montana LTAP Director Steve Jenkins prepares to go out on the road to teach one of his most popular winter workshops - Winter Survival.

Jenkins continually updates this particular three-part module as new materials are being invented for cold weather survival.

The overview module highlights information regarding carbon monoxide poisoning, hypothermia, clothing, and shelter.

The following two modules cover these topics in depth. For example, in the carbon monoxide presentation, participants find out that in winter-stranded automobile fatalities, 85 percent died of CO poisoning and 15 percent died of

hypothermia. When the vehicle is running, the carbon monoxide builds up. The reason for such a high percentage of the fatalities dying from CO poisoning is that the red blood cells usually carry oxygen. The CO replaces the oxygen at the exchange in the lungs. One of Jenkins' recommendations--if stranded--roll down the window occasionally and turn off the ignition.

It's important to realize that the hypothalamus in the brain senses the presence of carbon dioxide in the blood stream. The body's

circulation and respiration rates increase to compensate for lack of oxygen. But when it comes to carbon monoxide, the body does not sense it and the accumulations of CO cause a body to suffocate.

Jenkins hypothermia chapter keeps participants interested with a variety of solutions for preventing this very serious condition.

There are five stages of hypothermia as they relate to the internal temperature: Shivering Stage (95F), Sluggish Thinking (95-90F), Disoriented (90-86F), Muscle Rigidity (86-78F), Death (77F and below). There have

been cases of people who have been submerged for 45 minutes in icy water and recovered even though their core temperature was 70F.

The most important thing to do first is minimize heat loss. Remove wet clothes, wrap in a sleeping bag

or blanket, apply external heat and warm humidified oxygen (if possible), and transport gently in a horizontal position. There is great danger if the body is warmed too rapidly. It causes the victim to have circulatory problems and results in heart failure.

His third module covers protective clothing and survival kits. If interested in this highly recommended workshop, please contact the Montana LTAP office (1-800-541-6671) and schedule this valuable workshop for yourself and your employees. ●



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Montana Dept of Transportation

A Practical Approach to Local Recycling

By Ken Skorseth, SD LTAP Field Services Manager and Arlie Long, LTAP Technical Assistance Provider. Our sincere thanks to Ken Skorseth and South Dakota LTAP for granting us permission to reprint this article. All photos by Arlie Long.

What do you do when you have a small area on an asphalt-surfaced road or street that needs full depth repair? Would it be nice to recycle it or do some type of reclamation that processes the material to make it reusable as subbase or base? Here is another scenario: Would you like to make a clean utility cut in a road or street by milling the material, remove it and then bring it back as base aggregate after the utility work is done? Maybe you just need a machine that will loosen very hard, compacted base or aggregate surfacing in order to remove or reshape it.

There are two problems in the situations just mentioned: Small jobs are hard to contract and the equipment available is often too large or too small. Small milling heads on skid loaders are only suitable for very small jobs in special situations. On the other hand, the large mills and recycling machines are



Machine in action

really only suitable for projects of considerable size.

There is one possible solution. A machine is available that will do all these things. It is a commercially manufactured reclamation and milling attachment that fits on a standard front end loader. The SDLTAP recently contacted one city and one county that have purchased these machines. Both gave good reports on the performance of these machines. Mr. Phil McKaskill, Huron Street Superintendent, commented that their machine paid for itself on one job done three years ago. That job involved water main replacement on 40 blocks. They were able to mill the existing asphalt and base aggregate and haul it to a stockpile. After the utility replacement was done, the recycled material was brought back as base. They have also used the machine for other applications such as trimming an asphalt surface. In that case, Phil cautioned you must use water to cool the cutting bits.

Mr. Ray Roggow, Union Co Hwy Superintendent and Emergency Manager, commented that their machine is paying for itself this year on one road widening job. This is being done prior to crack and seat and asphalt overlay of an old concrete pavement.



*Full depth milling on a
deteriorated asphalt street*

Continued on Page 3....



Close-up view of the machine.

The shoulder aggregate has been in place since the 1930s and is very hard to cut out and shape. They use their reclamation machine to mill up the aggregate to a uniform depth to get ready for widening. Union County did a 9.5 mile job like this previously and found it a slow process to cut and remove very dense shoulder aggregate with motor graders. This machine does it in a fraction of the time.

Union County has also used the machine to process distressed areas in exiting pavement and reshape it prior to paver patching. They have milled pavement up to twelve inches in depth.

We do caution our readers these machines have their limitations. Both managers told us these machines do not replace large rotomills or recycling machines used on large projects. They use them for spot repair, preparing utility cuts, or, as in Union County's case, for a special need on a road widening job. Both of these machines have a cutting width of four feet.

The machines have US manufactured engines for which parts and service are easily obtained. The cutting bits are standard, replaceable, carbide-tipped items which are also commonly used in other recycling equipment or on grader bit systems. They, too, are easy to obtain.

As more and more spot repair and rehabilitation and utility replacement has to be done on aging asphalt pavements, this may be a machine and a process your department can use. There are additional pictures of these machines on the SDLTAP web page at <http://sdltap.sdstate.edu/>.



Finished cutout along pavement edge.



Final shaping of cutout with motor grader

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

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Bozeman Equipment Safety Event

By Michele Beck, Montana LTAP

On October 22, Steve Kurk, City of Bozeman Street Department, was very pleased with the turnout for the first Equipment Safety Event held in Bozeman, Montana. This idea came to

mind after he had attended the 16th Annual Snow Rodeo in Great Falls in September. He wanted to get equipment safety information out to the public. He talked with Marty Basta, Operations Manager, who organized the APWA Operators

Equipment Operators Training and Snow Rodeo in Great Falls. After getting the initial information, Steve then approached the local MDT office and Gallatin County Road office and received favorable responses from both. Because there was a short time span to get this event off the ground, Steve said it was a success due to the volunteers who stepped up to help. Included on the list were his wife, Bunny; numerous City of Bozeman Street personnel, including Joe Dennehy, Bill Taylor, John VanDelinder, Michele Depinski, Larry Ruhd; and a variety of people from the City of Bozeman Sign Shop, Forestry Department, Water & Sewer Department, Gallatin County Road Department, and MDT.



*Bozeman City Employee
Demonstrating Equipment*



Matt Workman, City of Bozeman, Demonstrates New VAC-CON

Even with the short notice, Kurk believed the turnout was great. One of the biggest surprises for attendees was the set-up for the “Blind Spots” behind the snow plow truck and the motor grader. When people



Children Participating in Equipment Safety Event





Two Full-Sized Pickup Trucks Behind Snowplow

got into the snowplow truck, they were amazed that they could not see the two full-sized pickups parked behind the snowplow in the rear view mirrors.

Kurk believed this exposure to the public created a more hands-on understanding of what road crews are up against when driving their plows and graders during winter months and gave the general public a better understanding of the importance of keeping a safe distance back from the plow.

Larry Ruhd explained that the City of Bozeman runs four snowplows now and has a total of seven rigs for plowing and sanding. He pointed out that a driver has to:

- drive the truck
- watch the plow and wing
 - watch traffic
 - run the sander
- keep an eye on the radio

He also was impressed with the number of young children that attended with their parents. “You’re never too young to learn about safety,” Kurk emphasized.

When participants came to claim their drawing prizes at the Bozeman City Shop, Kurk




White car in photo on left is behind motorgrader. Photo above is view from cab of motorgrader - operator cannot see this white car!



MDT's Display & Information Table

said they commented again that the blind spot behind the snowplow and the grader contained much more distance than they realized.

“The time and effort spent on setting up and taking down this equipment safety event was well worth it. If this event can prevent one accident this winter, it more than paid for itself,” Kurk said. 



Gallatin County Road Department Equipment

Transportation Research Board 85th Annual Meeting
January 22-26, 2006
Washington, DC
 Linda Karson
 202-334-2362
 lkarosn@nas.edu
 www.trb.org

ATSSA's 26th Annual Convention and Traffic Expo
Where the Industry Meets
 Convention: March 3-7, 2006
 Traffic Expo: March 5-7, 2006
 Greater Fort Lauderdale Broward County Convention Center
 Fort Lauderdale, Florida
 www.atssa.com

National Work Zone Awareness Week 2006
April 3-9, 2006

National Work Zone Awareness Week is a national campaign that helps increase public awareness of work zone safety. It also brings to the attention of the motoring public and the media the fact that nearly 1,100 men, women and children are killed senselessly in work zones each year (Source: FARS database). ATSSA partnered with the Federal Highway Administration and the American Association of State Highway and Transportation Officials in December 1999 to annually conduct this event. Since then, countless partners such as ARTBA, AGC, OSHA and the majority of DOT's have joined the cause as well as ATSSA Chapters around the country. Local community activities help educate the nation on work-zone related injuries and fatalities and the hazards and dangers that can be encountered and avoided when driving through a roadway construction zone.
 www.atssa.com

APWA North American Snow Conference
 Peoria, Illinois
 April 30-May 3, 2006
 www.apwa.net

Annual Calendar 2006

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Some dates & locations subject to change. Call Lois Evans, LTAP, 1-800-541-6671 or 406-994-6100 to confirm.

Calendar of Winter & Spring Events 2006

MACo's Loss Control Conference **January 18-20, 2006**

• Fairmont, Montana
 Contact MACo's Office at 406-444-4370 or go online at MACo's website: <http://maco.cog.mt.us> for further information

MACo's Mid-Winter Conference **February 13-17, 2006**

• Great Falls, Montana
 Contact MACo's Office at 406-444-4370 or go online at MACo's website: <http://maco.cog.mt.us> for further information

MDT Train the Trainer: & Work Zone Supervisor: **February 7, 2006** **February 8 & 9, 2006**

Jorganson's, Helena, MT
 To register, contact Lois Evans, LTAP Conference Coordinator, 1-800-541-6671 or 406-994-6724, regarding these two workshops.

MDT Work Zone Training **Tentative Dates**

Bozeman, Montana	February 22, 2006
Butte, Montana	February 23, 2006
Wolf Point, Montana	February 28, 2006
Glendive, Montana	March 1, 2006
Miles City, Montana	March 2, 2006
Missoula, Montana	March 6, 2006
Kalispell, Montana	March 7, 2006
To Be Determined	March 8, 2006
Great Falls, Montana	March 9, 2006
Billings, Montana	March 10, 2006

To register, contact Lois Evans, LTAP Conference Coordinator, 1-800-541-6671 or 406-994-6724, regarding these tentative dates.

Full Depth Recycling Seminar, 1 pm - 4 pm

Billings - Hampton Inn, 5110 Southgate Dr	March 1, 2006
Bozeman - Holiday Inn, 5 Baxter Lane	March 2, 2006

To register contact Lois Evans, LTAP Conference Coordinator, 1-800-541-6671 or 406-994-6724, regarding these tentative dates. (Go to www.coe.montana.edu/ltap for brochure information - Training Schedule)

MACRS 26th Annual Conference **April 3 - 6, 2006**

Great Falls, Montana
 Best Western Heritage
 1700 Fox Farm Road
 406-761-1900

Contact Lois Evans, LTAP Conference Coordinator, 1-800-541-6671 or 406-994-6724, regarding registration and information. Brochures will be mailed in January.

What's Coming Up

**Montana LTAP
 Gravel Roads Training
 April/May Dates
 To Be Determined**

Road Builders' Clinic
 February 28-March 2, 2006
 Coeur D'Alene Hotel
 Coeur D'Alene, Idaho
 Contact: 509-335-3530

World of Asphalt 2006
 Show & Conference
 March 13-16, 2006
 Orlando, Florida
 Megan Tanel
 800-867-6060
mtanel@aem.org
www.worldofasphalt.com

APWA - Rocky Mountain Chapter 39th Annual 2006 Spring Conference
 Boise Centre on the Grove
 Boise, Idaho
 April 4-6, 2006
 Contact: Cathy Schoenfeld, 208-384-3941 or email: cschoenfeld@cityofboise.org

NACE's 50th Anniversary
 NACE 2006
 April 9-13, 2006
 Amway Grand Plaza Hotel
 Grand Rapids, Michigan
www.countyengineers.org

APWA - The Best Show in Public Works
 Kansas Convention Center
 Kansas City, Missouri
 September 10-13, 2006
www.apwa.net

ITS America's 2006 Annual Meeting & Exposition
 Philadelphia Convention Center
 Pennsylvania
 May 7 - May 9, 2006
www.itsa.org

New Web Site Assists with Growth Planning

The Federal Highway Administration has launched a new Web site with information on the use of scenario planning as a tool to help communities plan for growth. Scenario planning provides a framework for developing a shared vision for the future of analyzing various factors that affect growth, such as health, transportation, economic, environmental, and land use. Such planning efforts may be done on a statewide level or for metropolitan regions.

The new site provides a range of resources to encourage the use of scenario planning, including background, noteworthy practices, resources, and contact. It also provides links to reports from scenario planning workshops held in 2004 in New York, Rhode Island, Hawaii, and Florida. The new site is at www.fhwa.dot.gov/planning/scenplan/index.htm

A Guide for Enhancing Rural Emergency Medical Services

TRB's National Cooperative Highway Research Program (NCHRP) Report 500, Vol. 15, Guidance for Implementation of the AASHTO Strategic Highway Safety Plan: A Guide for Enhancing Rural Emergency Medical Services provides strategies that can be employed to enhance rural emergency medical services. http://trb.org/news/blurb_detail.asp?id=5474

Road Supervisors & Training

By Jack Knorr, Road & Bridge Supervisor, Stillwater County

Recently our MACRS membership has been reduced by four members due to involuntary termination. With this in mind, I would like to bring to the attention of our members just how important our relationships are with our county commissioners. We all recognize that, according to state Statute 7-14-2122 MCA, the Road Supervisor/Superintendent works at the *pleasure* of the Board of County Commissioners. The word *pleasure* seems to be one of varied meaning.

We, as county road supervisors, must look at our positions as tenable at best. Every two years the political environment within our counties has the potential for dramatic change. When a new commissioner is installed after winning an election, that new commissioner many times brings a new philosophy with him or her into that very important office. Remember, road supervisors work at the pleasure of the Board of County Commissioners. While many candidates run their campaigns on road issues, very few candidates have a rudimentary working knowledge of their respective county's road/bridge system. Therein lies a portion of the problem. Notice that I say a "portion of the problem."

The rest of the problem is our responsibility. We, as experienced, knowledgeable employees, are worth more to the county than a new employee. We are worth keeping. Many times we, as road supervisors, are not making ourselves "valuable resources" to the county. How do we become so valuable to the county that a new or unhappy commissioner cannot afford to replace us? I think the answer is within our reach.

As leaders, managers, public relations

people, and technicians, we must strive to improve our abilities and increase our knowledge to the point that we make it very difficult for our employers to replace us. Doing things "the old way" or "the way it used to be done," just isn't acceptable in today's climate—a climate of less money and higher expectations.

We must put forth a concentrated effort to become more than a "Road Boss."

Commissioners and the public want us to manage their surface transportation system in a manner that will produce the best possible product for the available money. Not only must we dispatch the crew, we must also:

• provide long-range planning

• find available monies through grants

• manage the financial concerns of the road/bridge department

• manage the human resource concerns of our employees

• answer questions for our customers and taxpayers

• and much more

It is simple and uncomplicated to blame the other person when we are threatened. But, if we take a close look at the situation which caused the threat, we will see that we have contributed to the situation by our actions.

As a group, the Montana Association of County Road Supervisors supports all of our members. We strive to provide training to help our members become "valuable resources." Our most important assistance is to provide the tools to our members that will improve the roads and bridges within our counties. This is how we become too valuable to replace.

Continued on page 9...

As
leaders,
managers, public
relations people, and
technicians, we must
strive to improve our
abilities and increase
our knowledge..."

**MACRS President Russ Albers
Invites You to MACRS
26th Annual Conference
in Great Falls**

President Albers has conveyed to the Montana LTAP office that the MACRS officers met this November to put together another blockbuster conference at the Best Western Heritage Inn, Great Falls, Montana. Mark your calendars for April 3 - 6, 2006.

He wants anyone involved with the management of roads, streets, and bridges to come join in sharing knowledge at this conference. Topics include Funding in the New Highway Bill and Gas Taxes, Dealing with the Public, Gravel Road Materials, Road Law, and Asset Management, to mention a few.

Remember a complementary gift is requested from your county.

The Guests' Program has interesting and fun activities planned, including a day in Fort Benton and a trolley tour of Great Falls

There will be a registration flyer coming out in January. Be sure to get it filled out and sent in as soon as possible.

With vendor space limited, he is reminding all those vendors to get their registrations completed as soon as possible. Vendor packets will be mailed out in January to those previously attending the MACRS conference or upon request.

In the last two years all fifty-six Montana counties registered, indicating that this conference is a valuable tool for road supervisors and employees to come together and exchange information.

For further inquiries, please contact Lois Evans, Conference Coordinator at the Montana LTAP office, 406-994-6724 or 1-800-541-6671. Her e-mail address is levans@coe.montana.edu.

MACo's Loss Control Conference

Mark your calendars for this conference being held at Fairmont, Montana, January 18-20, 2006. On Wednesday, January 18, the conference starts with the Montana Sheriffs & Peace Officers Association Law Enforcement session on various topics covering suicide prevention from 8:00 am to 5:00 pm.

On Thursday, January 19, the morning starts out with a Safety Performance by Kevin Lowmy followed by Meth Lab cleanup program.

At 10:00 am the conference splits into two tracks. Track One includes the following topics "Empowering People for Long-Term Success", "Behavior Based Safety, "Healthy Employees Working in Healthy Environment", "Wellness program", and Tai Chi.

Track Two's focus will be "Community & Personal Preparedness - Do You Have a Plan?" by Montana LTAP Director Steve Jenkins.

Jenkins developed this workshop in response to the recent hurricane disasters. He brings to the table thoughts about transportation preparedness, also. The "Responsibilities and Roles" of national, state, county, and city departments will be discussed. Specific to Montana, topics of cold and hot weather survival, possible disasters such as snow storms, earthquakes, and fires will be covered. The importance of the SPCC plan (Spill Prevention Containment & Countermeasures) is included in the topics. He concludes the day with "72-hour Kits for Families" session.

On Friday, January 20, there is a Claims Management Session from 8-11 am.

For information, contact MACo at 406-444-4370 or go online at MACo's website: <http://maco.cog.mt.us>

Earthquakes Facts

Courtesy of Montana Disaster and Emergency Services Division

Montana is the fourth most seismically active state in the nation, trailing Alaska, California and Hawaii.

Montana Bureau of Mines & Geology in Butte tracks seismic activity throughout Montana. http://mbmgquake.mtech.edu/reviewed_events.html

The western half of Montana is considered the highest risk for damaging quakes. About 3/4 of Montana's population reside here.

Montana had its largest earthquake in 30 years on July 25, 2005. The 5.6 magnitude quake was felt throughout the state, into Canada, Idaho, Wyoming, and even Washington.

By far, earthquakes are the greatest single-event natural hazard Montana faces.

DROP, COVER, & ROLL: Drop to the ground, take cover under sturdy structure like a table or a desk, & hold on to it & be prepared to move with it. Expect Aftershocks!

Road Supervisors & Training (cont'd from Page 8)

The annual MACRS conference is coming up in April 2006 in Great Falls. I highly recommend that we all attend this conference. This is the place where we gain the knowledge and support to perform our jobs to the best of our abilities. We are planning an agenda for this conference that will include technical as well as personnel/leadership sessions. These sessions will improve our abilities to provide the services that our counties expect from road/bridge supervisors.

If any of you have a special interest in a topic that will assist you, please contact one of the officers and let them know. In the interim, make sure that you attend the conference. Send along some of your employees and bring along your knowledge, friendship and stories to share with your fellow road supervisors.

See you in Great Falls,
Jack Knorr, Stillwater County

Tapering a National Highway Safety Perspective

By Lloyd H. Rue, FHWA - Montana

Permission was granted by Lloyd Rue to reprint the following excerpts from his paper "Tapering a National Highway Safety Perspective Toward Fewer Injuries and Deaths on Montana's Roadways." To review the complete paper, please e-mail Montana LTAP at mltap@coe.montana.edu.

Montana's roadway system is vital for the economic prosperity of the State. Our roadway system is the literal lifeline for thousands of rural residents. The system gives life, and unfortunately, takes life.

The Federal Highway Administration has statutory responsibility for the federal-aid highway program. Montana's federal-aid highway program funding in recent years has amounted to \$250-280 million annually. The funding provides for new pavement, new signals, reconstructed highways, safety improvements, rehabilitated and new bridges, and a score of other highway and transportation improvements. We rely upon the Montana Department of Transportation heavily and almost exclusively to deliver the program; their success is our success, their failure is our failure.

This paper provides a national perspective on highway safety, tapering toward safety actions in Montana. A glimpse of forces that drive national safety policy and program changes is a backdrop for actions occurring in Montana.

Global Reach of Traffic Injuries as a Worldwide Health Issue

Traffic injuries and fatalities are a world-wide health issue; they are the 11th leading cause of death worldwide. Traffic injuries are the leading cause of mortality for non-intentional accidental injuries. The World Health Organization treats traffic injuries and fatalities as a major emphasis area, incorporating a traffic safety element in World Health Day 2004.

Over 1 million people are mortally injured each year, 20 to 50 million are injured.

Projecting the current trend out to 2020, traffic injuries will be the 6th leading cause of death, moving ahead of such causes as AIDS/HIV and perinatal conditions.

National View of Traffic and Highway Safety

Annually, this nation experiences six million or more crashes on public roadways. Three million persons are injured.

The societal costs for highway crashes and associated health care are enormous.

Traffic Safety from a Regional Perspective

We know that states with predominately urban travel have distinctly different issues than those with rural travel. The regional context of highway safety provides insight.

The per capita fatality and per 100 million vehicle mile fatality rates of three states neighboring Montana are shown in Figure 3. The wide bar is the series for the per capita rate. A bar is shown for Montana, Wyoming, South Dakota and Idaho. The narrow bar for each state is the fatality rate per 100 million vehicle miles.

Note that Wyoming's per capita rate is highest among the four states shown. That speaks to the low population density in Wyoming. Yet, Wyoming's fatality rate measured by traffic exposure is lowest among the four states shown.

There is reason to believe, from this figure, that we can continue to make positive gains in traffic safety in Montana.

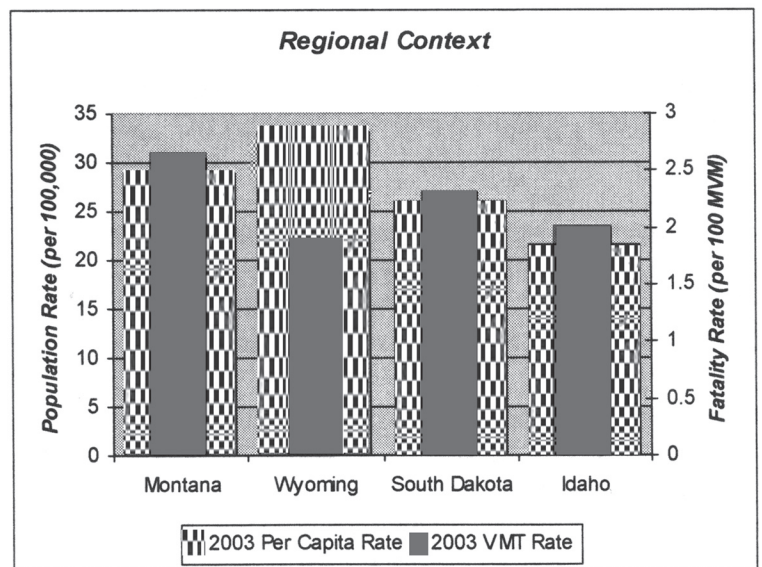


Figure 3

Traffic safety discussions in Montana must encompass the role of alcohol in crashes. If we cut the 110 alcohol-involved fatal crashes by 50 percent, lowering a total of 250 traffic fatalities to fewer than 200, our traffic fatality rate will still be around 2 fatalities per 100 million vehicle miles of travel. A rate of 2 fatalities per 100 million vehicle miles of travel is currently bettered by 40 out of the fifty states.

Overview of US DOT Emphasis Areas in Highway Safety

There are many challenges in highway safety in this country. How is the Federal Highway Administration addressing these challenges through the federal-aid highway program? FHWA has identified three critical areas to improve highway safety:

1. Pedestrian crashes
2. Lane Departure crashes
3. Intersection crashes

Continued on page 11...

Collectively, these three areas account for about 70% of the fatal crashes in the country (40%, 20%, and 10%, respectively).

FHWA is working with individual states to derive strategies that reduce crashes in each area, as appropriate for each state.

In Montana, the problems associated with our rural system fit within the lane departure emphasis area. 2003 data show that approximately 60% of the fatal crashes can be characterized as land departure crashes. On rural roadway segments, single-vehicle run off, the fatal crashes typically account for 70 to 75 of the fatal crashes.

AASHTO (American Association of State Highway and Transportation Officials) released a strategic plan in 1997 to improve highway and traffic safety. This strategic plan supports the efforts of the state highway and transportation departments across the country. The strategic plan encompasses all areas of traffic safety from motorcycle safety and occupant protection to preventing run off the road crashes.

AASHTO is publishing guidebooks to support development of state-based traffic safety programs and practices. There are now eleven guidebooks published. As examples, there are guidebooks for increasing seat belt use, preventing run off the road crashes, and preventing crashes of unlicensed drivers. The guidebooks present individual strategies or measures that can be incorporated in a state or local jurisdiction's program, policies or practices.

The Federal Highway Administration is partnering with AASHTO to develop the guidebooks and implement applicable counter measures from the guidebooks through the federal-aid program in each state.

The federal-aid highway program was finally re-authorized in 2005 through the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU).

Section 148 is a new program in SAFETEA-LU entitled the Highway Safety Improvement Program (HSIP). The new HSIP becomes a federal-aid "core" program as opposed to the former safety set-aside funding program. The new program became effective on October 1, 2005, the beginning of federal fiscal year 2006.

Apportionments for the Highway Safety Improvement Program have increased from around \$3.97 billion over six years under TEA 21 to nearly \$5.1 billion over four years in SAFETEA-LU. The funding level in the new law almost doubles the amounts available for highway safety each year.

SAFETEA-LU requires states to develop and implement a Strategic Highway Safety Plan (SHSP) that involves a

comprehensive, collaborative and data driven approach to highway safety. States that adopt and implement an SHSP are provided additional flexibility to use HSIP funds for public awareness, education and enforcement activities. Otherwise, these activities would not have been eligible for funding.

Future Directions in Montana

Our challenge in Montana is a direct result of what so many of us love about Big Sky country: wide-open spaces and few people. Three-fourths of our total travel in this state is on rural highways and roadways. We can expect drivers to have lower levels of alertness during long trips on rural roads.

Response times to a scene of a crash and to the hospital will be longer, on average, in a rural state. Our small communities can stabilize victims with serious injuries but often cannot treat them. Our first responders are often from depleted volunteer organizations.

Enforcement is dispersed over large areas with lot of miles of roads to cover. Targeted enforcement does not have the impact in a rural environment when compared to the impact in high-volume inter- or intra-city corridors.

Education programs also must have a statewide reach to cover a significant portion of the population.

Finally, a large rural system is costly to upgrade. Not only is it costly, each proposed upgrade of a rural highway faces enormous challenges to preserve and protect scenic, cultural, historic and natural resources.

The Montana Department of Transportation embarked upon a process to develop a statewide comprehensive safety plan in 2004. Recent meetings in Helena (August and September 2005) have produced a draft comprehensive highway safety plan for Montana. Work will continue with state, tribal and local officials to finalize the plan over the next several months.

MDT Director Jim Lynch (and formerly Director Galt) has been a catalyst during the development process. MDT's Planning, Rail, and Transit Division and the Traffic and Safety Bureau have passionately coordinated and provided insight as the plan has developed. Key officials from Montana's tribal governments, enforcement, health, judicial, and local agencies continue to work cooperatively together on the plan. The plan will adopt overarching goals, objective areas and strategies for improving highway safety in Montana.

Think of the CHSP in a strategic context. It will not be a complete set of 'building plans' but an overall 'blueprint' for crafting programs and directing resources where they matter the most in Montana. Under the current schedule, the plan will be released in the spring of 2006. This plan will set a course for saving MORE lives on Montana's highways.

Annual societal costs of all highway crashes = \$230 billion a year (2002 NHTSA)

Total annual household expenditures on health insurance premiums = \$130 billion (2003 Bureau of Labor Statistics)

Transportation Secretary Mineta Announces Record Safety Belt Usage in the U.S.

On September 30, 2005, U.S. Secretary of Transportation Norman Y. Mineta announced a record 82 percent of Americans wear their safety belts while driving or riding in their vehicles.

At a rate of 82 percent, Mineta said, safety belts are preventing 15,700 fatalities, 350,000 serious injuries, and \$67 billion in economic costs associated with traffic injuries and deaths every year. The increase in belt use over the past year alone has prevented 540 fatalities, 8,000 serious injuries, and \$1.8 billion in economic costs, he added.

According to the NHTSA survey, primary law states averaged 85 percent belt use in 2005, compared to 75 percent in states with secondary laws.

Significant increases in belt use were documented in two categories targeted by NHTSA's "Click It or Ticket" campaign - pickup truck occupants and rural communities. Both increased an average of three percentage points from 2004.

From: <http://www.nhtsa.dot.gov>

Technology Keeps the Gang Tight

Reprinted with permission from the University of Minnesota's Center for Transportation Studies' CTS Research E-News, October 2005, which is available online at <http://www.cts.umn.edu/news/renews/2005/10/index.html>

Gangs roam the snowy highways each winter--plow gangs, that is. In order to clear snow from wide roads, groups of two, three, or more plows often operate in close formation, forming a "plow gang." The operators try to keep their vehicles close together so that each plow throws snow directly into the path of the next, and the final plow throws all the snow off the road. This difficult technique could get easier and safer thanks to a new driver-assistive system developed by researchers at the University of Minnesota's Intelligent Vehicles Laboratory.

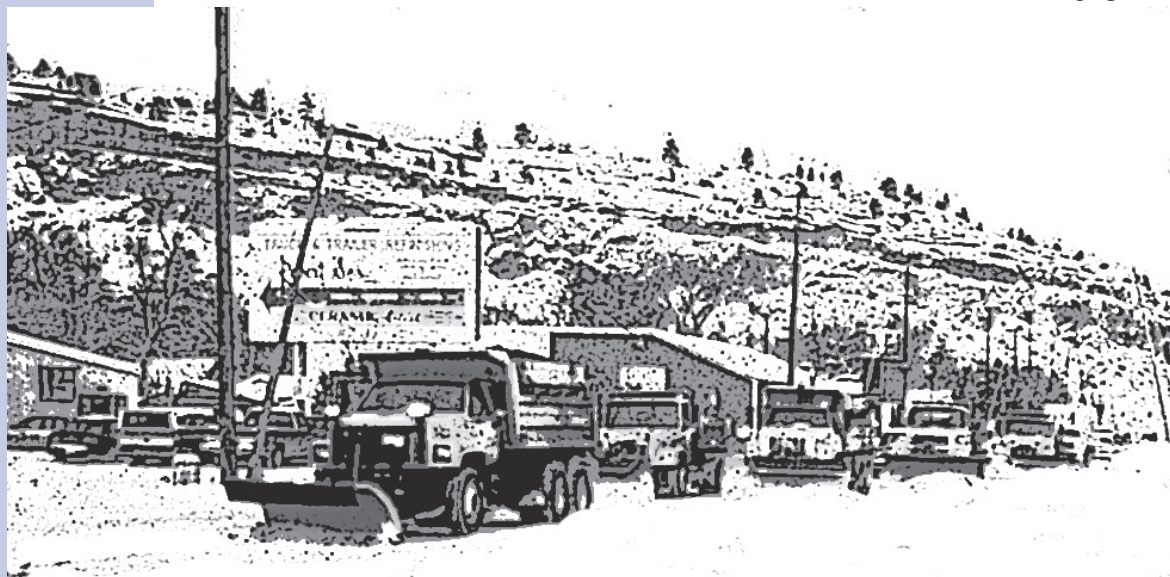
Mechanical engineering research fellows Lee Alexander and Alec Gorjestani, and IV Lab director Craig Shankwitz, created the gang-plowing assistance system as an extension of the technologies developed for the SAFEFLOW technology-enhanced snowplow. The SAFEFLOW pioneered the use of high-accuracy GPS, vehicle-mounted radar, and other advanced navigation technologies for emergency vehicles operating in low-visibility conditions.

The gang-plowing system helps plow drivers following a lead plow maintain a steady longitudinal distance and lateral offset from the vehicle ahead of them. Each vehicle in the gang is equipped with a high accu-

racy GPS unit capable of determining the plow's location within a few centimeters. This location information is shared between vehicles using wireless networking. Once a driver has set the desired spacing for his or her plow relative to the plow ahead, the plow's onboard computer system monitors its position relative to vehicles ahead of it in the formation, and adjusts the throttle, steering, and rakes as necessary. The plow still responds to driver controls, and is equipped with a manual "kill switch" enabling the driver to shut off the system at any time.

Another important part of the gang-plowing system is a lateral sensor that detects vehicles moving alongside a plow--a component suggested by plow operators. Despite the obvious risk, some drivers insist on trying to break through groups of snowplows at work; the large volume of snow thrown up by the plow blades makes it difficult for plow operators to see these "rogue" vehicles. To address this problem, the IV Lab team adapted the "virtual Mirror" technology originally developed to help bus drivers operate on narrow road shoulders. The virtual mirror uses a lidar (laser-based) side-scanning unit to detect vehicles, which are then tracked by the onboard computer and displayed as icons on a small electronic panel display.

Continued on page 13...



How to Make New Year's Resolutions Stick

Reprinted with permission from Dr. Donald E. Wetmore

At the beginning of each year so many of us commit to changes and worthy goals to be accomplished in the next twelve months only to be disappointed come next December 31 when we discover we are no closer to achieving those resolutions than we were on January 1. The noble resolutions we made early-on became unstuck. So I looked at this dilemma and created four useful suggestions to increase the probability that your New Year's resolutions will stick this year.

1. Quantify it. Sometimes we are just too vague about what we want. Therefore, a resolution such as, "I want to lose weight this year" will probably fail. It is too vague. How much weight? Be specific. What would your ideal weight be, less what do you weigh now, is what you are going after. It is not enough to resolve that: "I want enough money in the bank this year". Quantify. What specific amount would soothe your soul.

2. Set a deadline. Resolutions that are to be achieved "as soon as possible" wind up in the heap of "Some day I'll". Deadlines are commitments. Without a deadline as a self-imposed pressure point, getting started is easily postponed. You see, deadlines put us on the line and define when failure occurs. Deadlines also help us to break the resolution down into little bite-sized pieces. For example, if your goal is to lose 25 pounds by June 30, that translates into approximately 4 pounds per month, one pound

per week, or a daily reduction of caloric intake (or an increase in daily caloric burn) of just 500 calories per day. Now that's manageable. 500 calories a day is easy to achieve. 25 pounds seems like a leap across the Grand Canyon. Until we quantify our goal, set a deadline, then break it down to its daily requirements, the resolution will forever seem unattainable.

3. Change one or two things at a time. We generally do not like change in the first place. We seek the familiar and avoid the strange. The more change you put yourself through, the higher the probability your campaign will collapse. Focus in on one or two of the more important resolutions you seek to accomplish this year. When you achieve one or the other, start on the next one. Don't overwhelm yourself with too much change all at once.

4. Be realistic. There's just something about the start of a new year that gets us all wound up for changes in our lives, sometimes extraordinary and unrealistic changes. We become much like the child in the candy store whose eyes are bigger than his stomach. Be realistic. You can only accomplish a certain amount within a period of time. Don't saddle yourself with unrealistic resolutions that will only spell failure later on.

Technology Keeps the Gang Tight (cont'd from Page 12)

The research team evaluated the prototype gang-plowing system using both dynamic simulation models created during earlier SAFEFLOW research and on Minnesota Trunk Highway 101 outside the Twin cities. Unfortunately, says Shankwitz, unusually warm and dry weather during two consecutive winters has limited the teams's ability to do extensive real-world testing under low-visibility conditions. Nonetheless, the system has demonstrated readiness to take on actual gang-plowing operations. The re-

searchers report that further development to support larger gangs is feasible, given robust high-bandwidth communications equipment now coming to market.

DGPS-based Gang Plowing (Mn/DOT 2005-18) is available from the Minnesota Department of Transportation Web site at www.research.dot.state.mn.us/detail.cfm?productID=1983.

Safe Routes to School

The Federal Highway Administration's (FHWA) Office of Safety new web site is dedicated to the new Safe Routes to School Program (SR2S). They are in the process of implementing this new and exciting federally-funded program. Their new web site provides preliminary information about the program as recently passed by Congress.

Safe routes to School is an international movement designed to reach communities. The goal, simply stated, is to increase the number of children safely walking and biking to school. The movement began in Europe and has spread to the U.S. as a means to encourage and enable children to walk and bicycle to school safely.

For more information, go to <http://safety.fhwa.dot.gov/saferoutes/>

NHTSA Proposes New Child Booster Seat Rules

The National Highway Traffic Safety Administration proposed new requirements in August 2005 for child safety seat manufacturers that choose to make booster seats for older and heavier children. The new proposal requires these manufacturers to build seats capable of protecting children up to 10 years old and weighing up to 80 pounds from death or serious injury in 30 mile-per-hour crashes.

"The new proposal is part of the agency's continuing efforts to improve child occupant safety. It also responds to Anton's law, which required NHTSA to expand the scope of federal standards governing child safety seats, including booster seats. The law was named after Anton Skeen, a four-year old boy who was ejected and killed in a car crash in Washington state in 1996. The full notice can be seen at www.nhtsa.gov, click on the Laws/Regulations tab, then click on child Passenger Safety.

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You will find the total library publications, software, and videos list. At this web site you can also keep track of upcoming workshops, our newsletter, and “What’s New” items that change periodically.

“The fact that we live at the bottom of a deep gravity well, on the surface of a gas covered planet going around a nuclear fireball 90 million miles away and think this is normal is obviously some indication of how skewed our perspectives tend to be.”

...Douglas Adams

Montana LTAP Lending Library

Publications

p-303 **Distress Identification Guide: From the Long-Term Pavement Performance Program:** Derived from Long Term Pavement Performance (LTPP) program’s Distress Identification Manual, 4th Revised Edition, published in June 2003. Covers cracking, patching and potholes, surface deformation, surface defects, misc. distresses. (Extra copies available from LTAP Clearing house; PDF files for printing are also available for printing) (LTAP Clearinghouse 8/2005) 7”x4” guide, 46 pages

p-388: **Quantification of Smoothness Index Differences Related to Long-Term Pavement Performance Equipment Type:** The main objective of this project is to quantify and resolve the differences in the longitudinal profile and roughness indices that are attributable to the different profiling equipment that have been used in the LTPP program. (FHWA 9/2005) 144 pages

p-429: **Design of Continuously Reinforced Concrete Pavements Using Glass Fiber Reinforced Polymer Rebars:** This report investigates the effects on stress development in pavement and on critical design factors from substituting glass fiber reinforced polymer (GFRP) reinforcement for conventional steel reinforcement in continuously reinforced concrete pavements (CRCPs) in order to determine the performance characteristics of the GFRP-reinforced concrete pavements. (FHWA 10/2005) 70 pages

p-439: **Achieving a High Level of Smoothness in Concrete Pavements Without Sacrificing Long-Term Performance:** This report contains guidance on how highway agencies and contractors can achieve smooth, long-lasting Portland cement concrete (PCC) pavements. This report should be of interest to those involved in the design and construction of concrete pavements. (FHWA 10/2005) 199 pages

p-440: **Long-Term Plan for Concrete Pavement Research and Technology—The Concrete Pavement Road Map: Volume I, Background and Summary:** This volume, one of two volumes, provides the background and summary information on the effort that led to the CP (Concrete Pavement) Road Map. (FHWA 9/2005) 111 pages

p-441: **Long-Term Plan for Concrete Pavement Research and technology—The Concrete Pavement Road Map: Volume II, Tracks:** This is volume two of two volumes that contains the research statements to be addressed under the CP (Concrete Pavement) Road Map. (FHWA 9/2005) 417 pages

p-629: **Community-Based Watershed Management: Lessons from the National Estuary Program:** This handbook describes the highly successful approaches to watershed management implemented by 28 National Estuary Programs (NEPs). The principles and lessons

learned contained in this document are relevant not only to NEPs, but to other watershed organizations who are working to implement watershed protection and restoration efforts. (EPA 2/2005) 98 pages

p-1045: **Roadway Safety Hardware Asset Management Systems Case Studies:** This report addresses asset management of roadway safety hardware in the United States. This study provides information to State DOT’s on roadway safety hardware management systems that would help increase their use of state-of-the-practice techniques. (FHWA 10/2005) 84 pages

p-2010: **Evaluation of LS-DYNA Wood Material Model 143:** This report documents the evaluation of a wood material model that has been implemented in the dynamic finite element code LS-DYNA, beginning with version 970. This material model was developed specifically to predict the dynamic performance of wood components used in roadside safety structures when undergoing a collision by a motor vehicle. (FHWA 8/2005) 141 pages



p-2373: **Transportation Asset Management in Australia, Canada, England, and New Zealand:** In this study, the US team observed that asset management as an organizational culture and decision-making process is critical to transportation programs facing significant capital renewal and preservation needs and that successful programs require top-level commitment. (This report is also available at international@fhwa.dot.gov or www.international.fhwa.dot.gov) (FHWA 11/2005) 144 pages

p-2655: **America’s Highways 1776/1976:** This book has been written to record for posterity the story of highway development in the United States, beginning in the early years of the new Nation and expanding with the growing country as it moved into undeveloped areas west of the original colonial States, and ultimately evolving into the Federal-aid highway program in which the State and Federal Governments have worked cooperatively and successfully for the past 60 years. (FHWA 1976) 553 pages

Videos

EO165: **Dump Truck Safety – Vista 2001:** Safe operation practices for semi-trailer and single body trucks are covered by this video. Department of Labor accidents are used to provide examples of the dangers of backing, uneven terrain and tip-overs. A paper mill hauling operation is the backdrop for a complete view of the dangers of anyone operating a large dump truck. Includes: pre-operation inspection, causes of accidents, loading and unloading, load distribution and surging.

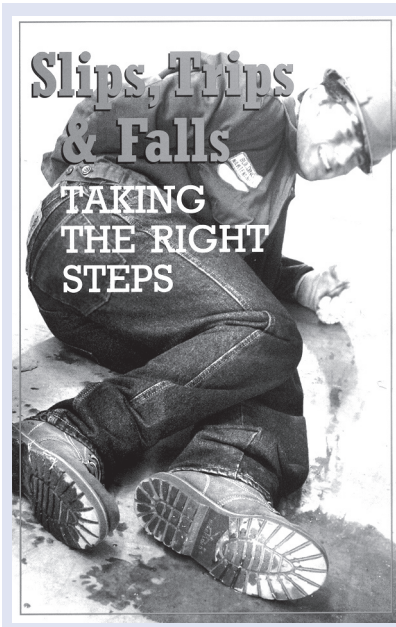
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Videos cont'd:

EO166: Thinking Ahead: Driver's Safety – Vista/AGC of America 1996: Safe driving practices are a requirement for all construction workers who operate trucks on the job. Includes pre-start inspection, proper loading, focus on driving, safe driving and backing.

SG201:

Slips, Trips, & Falls – Taking the Right Steps (Coastal 2005): This is a new video from Coastal similar to SG165, Step by Step—Avoiding Slips, Trips and Falls, 1990, that covers the importance of these types of injuries that happen anywhere—in the plant, on the shop floor, out in the field, in the office or on your front stairs at home. Preventing slips, trips and falls is not difficult. It takes a combination of being aware of your surroundings, practicing good housekeeping and using equipment properly.



Software

SW143: School Zone Safety – Montana: The MT Office of Public Instruction graciously transferred our video SG143 into this DVD format for our library. (LTAP/MDT 1995)

SW316: Pavement Preservation Strategy: The package explains the advantages, benefits, and economics of Pavement Preservation and Slurry System preventive maintenance treatments for existing asphalt roadways. This DVD is produced by the International Slurry Surfacing Association and contains two videos: Preventive Maintenance—It's a Decision and Surfacing systems: Pavement Performance Champions. The brochure and videos explain in lay terms, compelling graphs and graphics, the reasons for acceptance and use of these types of surface treatments. (ISSA Fall 2005)

SW317: Pavement Preservation Toolbox: Strategies for Preventive Maintenance Programs: This CD represents over \$150 of industry and agency references on various pavement preservation techniques and practices. It includes GASB34 primer and other info, the entire Gravel Roads manual, asset management information, along with a multitude of contacts. (June 2005 FHWA)

SW909: Flagging in the Work Zone: Safety in Your Hands: This 10-minute DVD/video covers proper flagging practices and technique that help make work zones safer for flaggers, workers and roadway users. Produced by the Oregon Dept of Transportation's Tech Transfer Center and Photo/Video Services Section. (FHWA 11/2005)

SW2352: National LTAP 2005-Dubuque, Iowa: This cd contains all the presentations at the 2005 Nat'l LTAP convention held in Iowa. (National LTAP 2005)

Minnesota LTAP's new Handbook, *Minnesota Snow and Ice Control Field Handbook for Snowplow Operators*, is "aimed at helping operators clear the roads while minimizing harm to the environment." (Technology Exchange, Minnesota LTAP Newsletter) This is a 49-page manual that has interesting information as well as a variety of charts and forms. To download a copy, visit the Minnesota LTAP Web site at www.mnltap.umn.edu/publications.

Happy Holidays from all of us at Montana LTAP:

Steve
Lois
Tiffany
Michele

Have a Safe New Year!

Hot Off the Press From FHWA: The Use of Breakaway or Yielding Supports in the Clear Zone

All state and local highway agencies dealing with retroreflectivity improvement programs need to consider upgrading non-breakaway sign supports at the same time.

Referenced is the following section in the MUTCD: Section 2A.19 Lateral Offset - crashworthiness of sign supports for roads with posted speed limit of 50 mph or higher - January 17, 2013

On roads posted less than 50mph there is no target date, but a program to replace non-breakaway supports within the clear zone needs to be in the highway agency's long term plans for complying with MUTCD changes. Highway agencies ought to consider installing breakaway supports at the same time that the sign faces are replaced to comply with retroreflectivity requirements.

Cities and counties need to be aware of this situation so they don't have to go back and take down all their upgrade efforts to eventually comply with the breakaway support ruling. In order for the breakaway or yielding supports to be acceptable for use they must conform to the breakaway requirements of NCHRP Report 350 or the AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals (1985 or 2001 editions.)

You can also go to http://safety.fhwa.dot.gov/roadway_dept/road_hardware/breakaway.htm and to AASHTO Bookstore for "A Guide to Small Sign Support Hardware-1998 edition at https://bookstore.transportation.org/item_details.aspx?ID=164

"Breakaway" refers to a sign support that, when struck by a vehicle, separates from its base and is knocked ahead of or up and over the errant vehicle. "Yielding" refers to a sign support that bends, allowing a vehicle to run over it. Many sign supports are yielding at low speeds and breakaway at high speeds.

Lloyd H. Rue, Design/Traffic/Safety Engineer, FHWA Montana Division, was kind enough to pass this information on from the Washington, DC FHWA Office 12/21/2005



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The Local Technical Assistance Program Newsletter, **LTAP MATTERS**, 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.

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