



# LTAP MATTERS

Montana's Answers To Technical Education of Roads & Streets

Montana Local Technical Assistance Program 1-800-541-6671

College of Engineering

Montana State University

Bozeman, MT 59717-3910

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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 other interested readers in your department:

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## Rulon Gardner's Seven Steps to Success

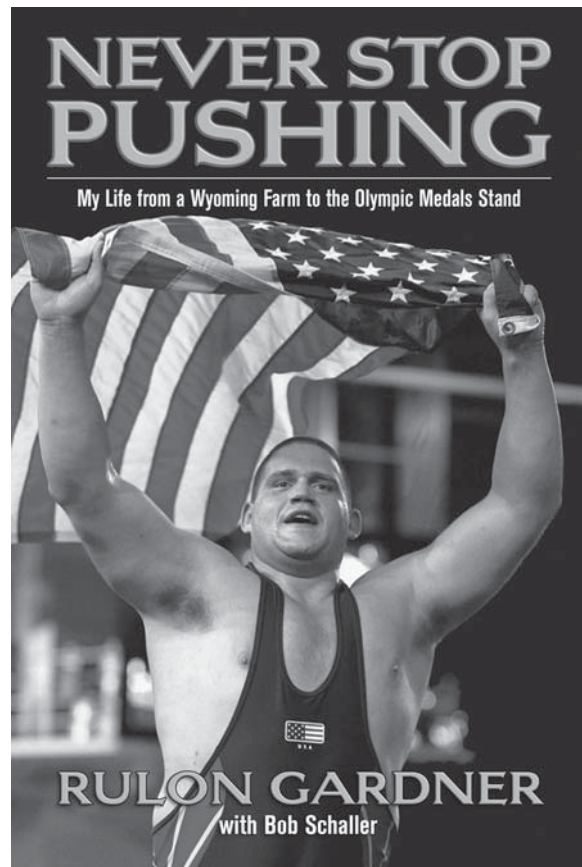
By Michele Beck, Montana LTAP

Rulon Gardner, two-time Olympic Greco-Roman Wrestling medalist (Gold and Bronze) and three-time National Champion, spoke to an enthusiastic crowd at Montana State University Thursday night, January 24, 2007. Gardner, originally from Wyoming, was in Bozeman filming the re-enactment of his snowmobile incident for a winter survival training video for Montana LTAP. Having almost lost his life due to severe hypothermia, he was determined to wrestle once again in the Olympic games.

Gardner explained to the audience his seven-point leadership program on how to keep reaching for personal potential by not having limitations and exceeding the dream:

### 1. Go Back to the Basics

Do your best every day. Gardner had a school teacher who helped him with his reading disabilities and told him he would succeed if he just gave his best every day. His family also gave him the same support.



2. Turn Negative into Positive  
Think about long-term, not short-term. There were some people who told Gardner he couldn't possibly attend college and the train for the Olympics at the same time, but he turned the "couldn't" into "could." He did receive his teaching degree during this time. Gardner also mentioned

that he had the opportunity to go to a Garth Brooks concert or study for a test. He chose to study and later, through his Olympic fame, became a good friend of Garth's.

### 3. Enlist Those Around You

In order to reach his goals, Gardner talked with his coach and they set up a team to help him train. He used wrestling opponents

*Continued on Page 2 . . .*

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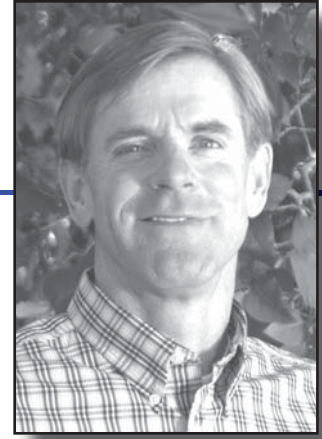
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The Advisory Board meets annually to make recommendations and evaluate the effectiveness of the Montana LTAP program.

## Spring Developments from Montana LTAP Director Steve Jenkins



Montana LTAP Director Steve Jenkins

I wanted to develop a winter survival movie for several years. Living in the west has given me the opportunity to develop my winter survival training skills and teach them to city and county road crews. I felt that a training video about winter survival would supplement my training program.

It all came together this spring after months of hard work and many hours of planning. I wrote a script for the winter survival movie. I also encouraged the right people to join the team and share their knowledge, skills and experience. I contacted Rulon Gardner who agreed to re-enact his snowmobile incident.

As with all new endeavors, I found the help of others invaluable. Rulon, in his leadership presentation, commented on gathering an experienced team around you. This team involved myself; film artist - Jeff Hill; stunt men - Rulon Gardner and J.D. Clark. The movie is well on its way to becoming a reality due to the team I gathered to assist with the movie.

### Work Force Development Training Week

Another new spring training change we have decided to try is offering local road crews a variety of training for one week. Three locations across Montana were selected to host these workforce training "camps." Two goals we have set are:

- Offer a concentration of courses during a specified time period at a given destination to reach more of the work force.
- Cut down on my miles traveled across the state for individual requests.

We will monitor the success of this "one location" in-depth training.

Travel safe, Steve



## Rulon Gardner (Cont'd from Page 1)

as learning tools on how to become better prepared for the duration of Olympic competition.

### 4. Train Hard Every Day

Gardner set new wrestling practices into place for mind, body and soul. For two hours straight, he wrestled four training partners individually. He did not take a break. If he felt he did not do his best, he would run sprints. In 2000, he had become more focused, built his confidence, and made the Olympic team. He went to a wrestling meet in Russia and was defeated, but used their techniques to train to reach his potential.

### 5. Take Care of Business

To reach his potential, he continued to train while in Sidney at the Olympic games. He had to win five matches and felt he won matches due to his conditioning. While some

participants partied, Gardner continued to stay in peak condition each day.

### 6. Aim High When You're Feeling Low

Even though Gardner had lost some of his toes in his snowmobiling incident, he continued to train and became stronger physically. By 2004, his weight lifting training had him benching 450 pounds and 500 pounds doing squats. He won the bronze medal in the Olympic games in 2004 and did his personal best, reaching his goal of representing the United States for two Olympic seasons.

### 7. Don't Rest On Your Laurels

After fulfilling his Olympic commitment, he made the decision to help others by becoming a motivational speaker.

For information regarding Rulon Gardner go to: <http://www.rulongardner.com>



# Innovations from MDT Research

Permission granted to reprint this article from Solutions, Spring/Summer 2006 Newsletter from Montana Department of Transportation Research Programs.

Some of the best innovations come from those people in the “trenches”. They see a problem and they fix it.



The age old surveying problem: How do you efficiently take surveying notes, while operating the total station and data collector, and taking field notes, often in inclement weather?

The solution: The Data Desk. The data desk was invented by Matt Lowe of the Bozeman construction crew. He designed the Data Desk and had White Sulphur Springs High School students build his invention with salvaged materials. Features of the Data desk include:

- Lightweight due to aluminum material construction, but still large enough to hold notebook, data collector, calculator, pencil, and eraser;
- Versatile post mounts to witness post or drive in sign post, with adjustable mounting height to reduce the amount of bending;
- Portable desk top can be set up anywhere total station and data collector are used;

- Allows for hands-free operation of total station and data collector while still taking field notes; and

- Clips prevent fly away papers. The device was tested in 50 mph winds.

The Data Desk keeps field notes off the ground, dry, clean, organized, and out of snow in winter. It increases surveying efficiency and cost-effectiveness, and decreases frustration.

Perhaps there are other applications that you might see for your area. The desk can be set up anywhere a lot of field data needs to be collected. The post hanger could be modified to fit 4X4 posts, chain link fence, guardrail, etc.

Contact Sue Sillick at 406-444-7693 or [ssillick@mt.gov](mailto:ssillick@mt.gov) for the Data Desk specifications or to discuss your invention.

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

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NACE Has Moved to New Address – Located just a few blocks from their present location. They are co-located with the National Association of Counties. Their new address is 25 Massachusetts Avenue N. W. Suite 580 Washington D. C. 20001. Telephone numbers will remain the same.



# Ten Essentials of a Good Road

*The following information was approved for reprinting from NACE, at [www.naco.org](http://www.naco.org)*

Here are 10 basic tips to help maintain and keep your roads in good condition.

## 1. KEEP WATER AWAY FROM THE ROAD.

Drainage cannot be overemphasized in road construction and maintenance. Water affects the entire serviceability of a road. Too much water in the base material weakens the road. Water allowed to remain on top of a gravel or black topped road weakens the surface and, combined with traffic, causes potholes and cracking. If improperly channeled, water causes soil erosion and a breakdown of pavement edges. Whether it is mud in the spring or frost heaves in the winter, the presence of water in roads is nothing but trouble.

A good surface drainage system is the best way to lessen water damage on a road. Proper surface drainage prevents water from infiltrating the pavement surface and removes water from the driving lanes in a constant thin sheet to the side ditches, which carries the water away from the roadway. A surface drainage system has four main components: road crown, shoulders, ditches, and culverts. The road crown, or superelevation of the road surface, drains water off the road surface.

Shoulders are an extension of the road surface and allow for the continued flow of water to the ditches.

Ditches are used to carry water away from the roadway. They need to be kept clean and protected from erosion. Water left in the ditch can sometimes leak back into the base.

Water collected and carried in the ditch has to be directed away from the roadway at frequent intervals, sometimes using culvert pipe.

Culverts usually channel water from one side of the road to the other, helping to control the flow of water and slowing it down to reduce erosion.

Road managers are guided by the principles that water runs downhill, that water needs outlets at the bottom of all grades, and that puddles mean problems.

## 2. BUILD ON A FIRM FOUNDATION.

A highway wears out from the top, but it falls apart from the bottom. This is another way of saying that the road base determines the service-life of a road. The base supports everything above it, including traffic.

Without adequate support, the road will deteriorate rapidly. A good road requires a suitable foundation composed of stable material. A road material is stable if it has negligible soil settlement with a change in moisture content and does not deform excessively under repeated loads whether the material is wet or dry.

## 3. USE THE BEST SOILS AVAILABLE.

The supply of natural, good quality soils and aggregates is beginning to disappear. Blended or crushed gravel is a more expensive alternative. The quality of soils used by a road manager of-ten depends on local availability and budget. In deciding what is available, consider the long-term consequences of using lower quality material. Using inferior base material may require excessive maintenance during the road's life and, perhaps, expensive rehabilitation. The adage "pay me now or pay me later" applies to road building.

## 4. COMPACT SOILS WELL.

The more dense the material is, the stronger it is. When soil is improperly compacted, future traffic loads or changes in moisture content can cause settling and failure of the roadway.

Compaction is achieved by pressing soil particles together, which expels some of the air from the mass, making the material more dense. Well-graded soils having a fairly even distribution of particle sizes will compact more easily than poorly graded soils that have mostly one particle size. Crushed or angular particles will compact to a more stable condition than rounded particles of similar size. A certain amount of moisture is necessary for good compaction.



## 5. DESIGN FOR WINTER MAINTENANCE.

In areas that receive substantial snowfalls, roads that are designed for winter maintenance should be adequate for the rest of the year. Consider the following: if the traveled way is wide enough to allow a snowplow and a school bus to meet, it should be wide enough for the rest of the year.

If ditches and roadside areas are wide enough to store snow, chances are they will accommodate spring thaws and heavy water flows.

# Ten Essentials (Cont'd from page 4)

Grades should be a minimum of 1% for drainage purposes and should not be greater than 10% if at all possible. If the road is steeper, it is difficult for heavy equipment to maneuver, especially in the wintertime.

Sight distance should be considered in designing a road. For safety's sake, a driver should be able to see 75 to 100 ft. up the road for every 10 miles per hour driving speed.

## 6. BUILD FOR TRAFFIC LOADS AND TRAFFIC VOLUMES.

Thin ice on a pond may support a young skater, but it will crack and break apart under the weight of an automobile. Similarly, a road built to serve residential traffic will break down when it starts carrying a number of large trucks. Road managers know that roads, like bridges, should be designed with the expected traffic type and volume in mind. A rule of thumb is to design a road to accommodate the largest vehicles that will use the road under normal operation. If in doubt, design the road for the largest piece of equipment that maintains it in all kinds of weather.

Road managers can get information and guidance from their State transportation agencies about the type and thickness of pavement mixes to apply to a gravel road. Generally speaking, a low volume road with some truck traffic may provide good services with a "chip seal" or "sand seal." As traffic volumes and weights increase, cold-mix asphalt and hot-mix asphalt pavement may be better alternatives.

## 7. PAVE ONLY ROADS THAT ARE READY.

Some agencies make the mistake of paving over a road that is not properly prepared in their haste to get rid of another dusty gravel road. The result may be a complete waste of money. Paving will not cure the other problems that the gravel road may have. It still must be built of well compacted layers of free draining soil, be able to carry expected traffic loads, and be able to drain well. The cost of rebuilding a mistake is much higher than not making the mistake and doing it right the first time.



## 8. BUILD FROM THE BOTTOM UP.

A road that has a poor base and poor drainage cannot be adequately improved with a top dressing of gravel or new pavement. It may be necessary, in some cases, to dig out the old road, put in new materials, and build up the road in layers. Before doing anything to correct a road surface problem, road managers should take into consideration what is causing the problem underneath. Improper drainage, insufficient depth of base, or poor quality gravel may be the culprit. These should be corrected before spending money on the surface.

## 9. PROTECT YOUR INVESTMENT.

Roads and bridges need regular maintenance to keep them from deteriorating. The increased weight and frequency of traffic on roads, combined with adverse weather conditions, means an increased rate of road and street deterioration. Regular road and bridge maintenance preserves our road investment and prevents costly major rehabilitation later on.

Maintenance activities includes:

Roadway surfaces: blading and shaping, patching, resurfacing; dust control; snow and ice removal.

Drainage: cleaning and repairing culverts and ditches.

Roadside: cutting bushes, trees, and grass; repair and prevention of roadside erosion.

Bridges: clearing channels; repair of rails, decks, and structure; cleaning and painting.

Traffic services: sign maintenance; cutting vegetation to maintain visibility.



Special projects: restoration or improvements; emergency work such as removing slides, repairing washouts, and repairing retaining walls.

## 10. KEEP GOOD RECORDS.

Road managers know their roads like the back of their hands. Most of them are walking history books when it comes to the roads they manage every day. This knowledge is of little use, however, when the road manager is ill, moves, or retires.

Good record keeping makes roadwork much easier for everybody. It is easier to formulate budgets and to show the citizens a plan for roadwork. Recording which type of work was done on roads or bridges, when, and what materials were used can help a lot in making decisions later on.

Agencies can start by doing an inventory of all roads and bridges, listing length, width, surface types, culverts, problem areas, and other items. Placing these items on a map helps. Next comes listing and prioritizing needed improvements, putting a price tag on them, and taking care of a few problems each year.



# Cell Phones and Driving



*Permission was granted from the Insurance Information Institute, to reprint from their article "Cell Phones and Driving" February 2007, at [www.iii.org](http://www.iii.org)*

In the United States over 231 million people subscribed to such wireless communication devices as cell phones as of January 2007, compared with approximately 4.3 million in 1990, according to the Cellular Telecommunications & Internet Association.

Increased reliance on cell phones has led to a rise in the number of people who use the devices while driving. There are two dangers associated with driving and cell-phone use. First, drivers must take their eyes off the road while dialing. Second, people can become so absorbed in their conversations that their ability to concentrate on the act of driving is severely impaired, jeopardizing the safety of vehicle occupants and pedestrians. Since the first law was passed in New York in 2001 banning hand-held cell-phone use while driving, there has been debate as to the exact nature and degree of hazard. The latest research shows that while using a cell phone when driving may not be the most dangerous distraction, because it is so prevalent it is by far the most common cause of this type of crash and near crash.

## RECENT DEVELOPMENTS

**Studies:** Studies about cell-phone use while driving have focused on several different aspects of the problem. Some have looked at its prevalence as the leading cause of driver distraction. Others have looked at the different risks associated with hand-held and hands-free devices. Still others have focused on the seriousness of injuries in crashes involving cell-phone users and the demographics of drivers who use cell phones. Below is a summary of some recent research on the issue.

The most recent survey of dangerous driver behavior was released in January 2007 by Nationwide Mutual Insurance Co. The survey of 1,200 drivers found that 73 percent talk on cell phones while driving. Cell phone use was highest among young drivers.

Text messaging, or "texting" by teens, a driving distraction related to cell phone use, was the subject of an August 2006 Teens Today survey conducted by the Liberty Mutual Research Institute for Safety and Students Against Destructive Decisions (SADD). The survey showed that teens considered sending text messages via cell phones to be their biggest distraction. Of the teens surveyed, 37 percent said that text messaging was extremely or very distracting, while 20 percent said that they were distracted by their emotional states and 19 percent said that having friends in the car was distracting. The January 2007 survey by the insurer Nationwide found that 19 percent of motorists say they text message while driving.

A study released in April 2006 found that almost 80 percent of crashes and 65 percent of near-crashes involved some form of driver inattention within three seconds of the event. The study, The 100-Car Naturalistic Driving Study, conducted by the Virginia Tech Transportation Institute and the National Highway Traffic Safety Administration (NHTSA), breaks new ground. (Earlier research

found that driver inattention was responsible for 25 to 30 percent of crashes.) The new study found that the most common distraction is the use of cell phones, followed by drowsiness. However, cell-phone use is far less likely to be the cause of a crash or near-miss than other distractions, according to the study. For example, while reaching for a moving object such as a falling cup increased the risk of a crash or near-crash by 9 times, talking or listening on a hand-held cell phone only increased the risk by 1.3 times. The study tracked the behavior of the 241 drivers of 100 vehicles for more than one year. The drivers were involved in 82 crashes, 761 near crashes and 8,295 critical incidents.

These findings confirm an August 2003 report from the AAA Foundation for Traffic Safety that concluded that drivers are far less distracted by their cell phones than by other common activities, such as reaching for items on the seat or glove compartment or talking to passengers. That study was based on the analysis of videotapes from cameras installed in the vehicles of 70 drivers in North Carolina and Pennsylvania.

In December 2005 the NHTSA and the National Center for Statistics and Analysis released the results of their National Occupant Protection Use Survey (NOPUS), which found that in 2005, 6 percent of drivers used hand-held cell phones, up from 5 percent in 2004. The survey also found that the jump was most noticeable among women (up to 8 percent from 6 percent in 2004) and young drivers ages 16 to 24 (up to 10 percent from 8 percent in 2004). The percentage of men using cell phones rose from 4 to 5 percent over the same period. Finally, the survey found that the number of drivers using headsets rose from 0.4 percent in 2004 to 0.8 percent in 2005. The NOPUS is a probability-based observational survey. Data on driver cell-phone use were collected at random stop signs or stoplights only while vehicles were stopped and only during daylight hours.

Motorists who use cell phones while driving are four times as likely to get into crashes

# Cell Phones

(cont'd from Page 6)

*Permission was granted from the Insurance Information Institute, to reprint from their article "Cell Phones and Driving" February 2007, at [www.iii.org](http://www.iii.org)*

serious enough to injure themselves, according to a study of drivers in Perth, Australia, conducted by the Insurance Institute for Highway Safety. The results, published in July, 2005, suggest that banning hand-held phone use won't necessarily improve safety if drivers simply switch to hand-free phones. The study found that injury crash risk didn't vary with type of phone.

Many studies have shown that using hand-held cell phones while driving can constitute a hazardous distraction. However, the theory that hands-free sets are safer has been challenged by the findings of several studies. A study from researchers at the University of Utah, published in the summer 2006 issue of *Human Factors*, the quarterly journal of the Human Factors and Ergonomics Society, concludes that talking on a cell phone while driving is as dangerous as driving drunk, even if the phone is a hands-free model. An earlier study by researchers at the university found that motorists who talked on hands-free cell phones were 18 percent slower in braking and took 17 percent longer to regain the speed they lost when they braked.

A September 2004 study from the NHTSA found that drivers using hand-free cell phones had to redial calls 40 percent of the time, compared with 18 percent for drivers using hand-held sets, suggesting that hands-free sets may provide drivers with a false sense of ease.

**State and Federal Initiatives:** In January 2007 the Center for Auto Safety filed a petition with the National Highway Traffic Safety Administration asking the agency to restrict the use of systems that allow motorists to have wireless access for telephoning and entertainment purposes as well as access to navigational aids and security features. The petition calls for regulators to draft rules prohibiting the use of built-in systems while the vehicle is moving. The group expressed concerns that allowing motorists to handle personal affairs while driving would lead to more traffic accidents.

In September 2006 California Gov. Schwarzenegger signed a bill (SB 1613) prohibiting people from driving while using a hand-held cell phone. When the law goes into effect in July 2008, California will be the fourth state to have such a ban. The District of Columbia also has such a law in force.

In October 2005 a Connecticut law banning the use of hand-held cell phones while driving went into effect. The measure goes further than some similar laws in other states and municipalities. Drivers in Connecticut can be fined \$100 not only for using a cell phone, but those pulled over for speeding or other moving violations can be fined for other driving distractions such as putting on makeup or turning to discipline children in the back seat. In January 2004 New Jersey passed a bill prohibiting the use of cell phones while driving and in April of that year the District of Columbia (DC) followed suit. In New Jersey fines range between \$100 and \$250; in DC fines are \$100. New York was the first state to enact such legislation in 2001. Drivers there face fines of \$100 for the first violation, \$200 for the second and \$500 thereafter.

The number of state legislatures debating measures that address the problem of cell-phone use while driving and other driver distractions continues to rise. According to the National Conference of State Legislatures, as of November 2006 14 states had passed laws banning or restricting young drivers from using cell phones.

In June 2003 federal and state highway safety agencies issued new guidelines for reporting crashes caused by distracted drivers. The authorities are asking police across the nation to note whether a driver was distracted and the source of the distraction, such as cell phone, radio, passenger, or another vehicle.

**Businesses:** Businesses are increasingly prohibiting workers from using cell phones while driving to conduct business. In July 2004, the California Association of Employers recommended that employers develop a cell phone policy that requires employees to pull off the road before conducting business by cell phone.

**Court Decisions:** In December 2004 a civil case involving a car crash caused by a driver using a cell phone for business reasons was dismissed when the driver's employer, Beers Skanska Inc., agreed to pay the plaintiff \$5 million. The plaintiff in the case being heard in Georgia's Fulton County Superior Court was severely injured in the crash. The suit is among the most recent of several cases where an employer has been held liable for an accident caused by a driver using a cell phone. See background section on Employer and Manufacturer Liability.

In mid-October 2004 in the case of *Yoon v. Wagner* a Virginia jury awarded \$2 million in damages to the family of a young girl who was killed by a driver using a cell phone at the time of the accident. The plaintiff also filed a suit against the driver's employer after it became clear through an examination of phone records that the driver had been talking to a client when she hit the girl.

## BACKGROUND

Cell phones play an integral role in our society. However, the convenience they offer must be judged against the hazards they pose. Inattentive driving accounted for 6.4 percent of crash fatalities in 2003 — the latest data available — according to the U.S. Department of Transportation. Inattentive driving includes talking, eating, putting on make up and attending to children. Using cell phones and other wireless or electronic units are also considered distractions.

As many as 40 countries may restrict or prohibit the use of cell phones while driving. Countries reported to have laws related to cell phone use include Australia, Austria, Belgium, Brazil, Botswana, Chile, the Czech Republic, Denmark, Egypt, Finland, France, Germany, Greece, Hungary, India, Ireland, Israel, Italy, Japan, Jordan, Kenya, Malaysia, the Netherlands, Norway, the Philippines, Poland, Portugal, Romania, Russia, Singapore, the Slovak Republic, Slovenia, South Africa, South Korea, Spain, Sweden, Switzerland, Taiwan, Turkey, Turkmenistan, the United Kingdom and Zimbabwe. Most countries prohibit the use of hand-held phones while driving. Drivers in the Czech Republic, France, the Netherlands and

.....Continued on Page 9

**The Show for Snow!**  
 2007 APWA North American Snow  
 Conference  
 April 22-25, 2007  
 RiverCentre  
 Saint Paul, Minnesota  
 For more info: [www.apwa.net/snow](http://www.apwa.net/snow)

# Annual Calendar 2007

**Michigan Transportation  
 Asset Management Conference:**  
 April 11, 2007  
 Kellogg Center  
 East Lansing, Michigan  
 1-800-875-5090

May 2, 2007  
 Upfront & Company  
 Marquette, Michigan  
 1-906-228-5200

**Sheridan County Surplus Auction**  
 May 2, 2007  
 Wednesday  
 11:00 AM  
 Location:  
 County Shop on Hwy 5 East in  
 Plentywood, Montana  
 Details on Equipment:  
 406-765-1221 or 406-765-8258

**National Work Zone Awareness Week:**  
 April 2 - 6, 2007

**National County Government Week:**  
 April 22-28, 2007  
 For more info: [www.naco.org](http://www.naco.org)

**National Public Works Week:**  
 May 20-26, 2007  
 For more info: [www.apwa.net/npww](http://www.apwa.net/npww)

January 2007	February 2007	March 2007																																																																																																																																					
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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 Events Spring 2007

## MACRS Workforce Spring Training Week

- **Glendive** **April 9-13, 2007**
- **Butte** **April 30 - May 4, 2007**
- **Kalispell** **May 7 - 11, 2007**

### Training Week:

Monday:	8am - 4 pm	Gravel Road Training
Tuesday:	8am- Noon	Gravel Road Training
	1pm - 4 pm	Loader & Forklift Training
Wednesday:	8am - 4 pm	Safety Engineering
Thursday:	8 am - Noon	Leadership
	1 pm - 4 pm	Summer Survival
Friday:	8am - 4 pm	Rural Safety Audits

Contact Lois Evans, LTAP Conference Coordinator, 1-800-541-6671 regarding registrations or inquiries. Brochures were mailed in February.

## Montana LTAP -Work Zone Flagging

- May 21, 2007** **Bozeman, Montana**  
Comfort Inn - 1370 N 7th Ave
- May 22, 2007** **Helena, Montana**  
Montana Contractors Association  
1717 11th Avenue
- May 23, 2007** **Great Falls, Montana**  
LaQuinta - 600 River Drive South
- May 24, 2007** **Billings, Montana**  
LaQuinta - 3040 King Ave W

You must register with Lois Evans, LTAP Conference Coordinator, 1-800-541-6671

## Cell Phones (cont'd from Page 6)

Permission was granted from the Insurance Information Institute, to reprint their article "Cell Phones and Driving" February 2007, at [www.iii.org](http://www.iii.org)



the United Kingdom may use cell phones but can be fined if they are involved in crashes while using the phone. Drivers in the United Kingdom and Germany also can lose insurance coverage if they are involved in a crash while talking on the phone.

Supporters of restrictions on driving while using a cell phone say that the distractions associated with cell phone use while driving are far greater than other distractions. Conversations using a cell phone demand greater continuous concentration, which diverts the driver's eyes from the road and his mind from driving. Opponents of cell phone restrictions say drivers should be educated about the effects of all driver distractions. They also say that existing laws that regulate driving should be more strictly enforced.

**Employer and Manufacturer Liability:** Although only a handful of high-profile cases have gone to court, employers are still concerned that they might be held liable for accidents caused by their employees while driving and conducting work-related conversations on cell phones. Under the doctrine of vicarious responsibility, employers may be held legally accountable for the negligent acts of employees committed in the course of employment.

Employers may also be found negligent if they fail to put in place a policy for the safe use of cell phones. In response, many companies have established cell phone usage policies. Some allow employees to conduct business over the phone as long as they pull over to the side of the road or into a parking lot. Others have completely banned the use of all wireless devices.

In an article published in the June 2003 edition of the North Dakota Law Review, attorney Jordan Michael proposed a theory of cell phone manufacturer liability for auto accidents if they fail to warn users of the dangers of driving and talking on the phone at the same time. The theory holds that maker liability would be similar to the liability of employers who encourage or demand cell phone use on the road. Holding manufacturers liable would cover all persons who drive and use cell phones for personal calls. Michael notes that some car rental agencies have already placed warnings on embedded cell phones in their cars.

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From NTOC (National Transportation Operations Coalition) Talks Newsletter: March 28, 2007 at: <http://www.ntoctalks.com/>

NADO Launches New Rural Transportation.org Web Site: The National Association of Development Organizations (NADO) and NADO Research Foundation have released the new Rural Transportation.org Web site as part of the association's efforts to promote effective transportation planning and its connection to economic development in rural and small metropolitan regions.

The Web site, <http://www.ruraltransportation.org/>, which is funded in part under a cooperative agreement with the Federal Highway Administration, provides resources on a variety of issues affecting transportation systems, including planning resources, economic impact, highways, public transportation, rural intelligent transportation systems (ITS), safety and more. It also features successful practices, models and work samples of rural planning organizations (RPOs), a directory of regional rural transportation planners and access to the new Rural Transportation.org Newsletter.

Also from NTOC (National Transportation Operations Coalition) Talks Newsletter: March 28, 2007 at: <http://www.ntoctalks.com/Recording and Presentations from the Work Zone Rule Implementation Webinar Now Available> [http://www.ops.fhwa.dot.gov/wz/resources/final\\_rule/presentations.htm](http://www.ops.fhwa.dot.gov/wz/resources/final_rule/presentations.htm)

On March 19, 2007, NTOC hosted a Webinar on Work Zone Rule Implementation as part of the Talking Operations seminar series. The presentations, transcript of the chat discussion and recording of the Webinar are now available online. This Webinar focused on sharing examples from states that are in the advanced stages of their efforts to implement the rule. Representatives from Washington State, Maryland and Virginia discussed their overall rule implementation process and their work on specific aspects of the rule.

# Stress Management

*Information provided by Counseling and Psychological Services, Montana State University*

## Why Do We "Stress Out"?

Essentially, we stress out for two main reasons....

1. We *perceive* a situation as dangerous, difficult, or painful.
2. We don't believe we have the *resources* to cope.

The source of stress can come from negative events (accidents, financial strain) AND positive events (visits from family friends, promotion, having a child). The stress response is the same regardless of the particular event. So whether it's a car accident or a confrontation with a supervisor, it's the same set of reactions. The following are three areas of our functioning that can be impacted by stress.

**1. Physical** - comes out of our "flight or fight" response. When confronted with stress, the body instinctively prepares for quick, intense action. You might notice disturbed sleep, a lump in your throat, headache/stomach ache. Muscular tension is also a common physical manifestation of stress.

**2. Mental** - the thoughts, beliefs, and assumptions about the stressor. We may have internal messages playing in our heads without even noticing them.

Some examples are:

- Overgeneralization:** "I screwed up...I always screw up." This is a tendency to attribute one event to ALL events. It's not an accurate description of what happened.
- Polarization:** "I have to do everything before I leave or I'm a total failure." This tends to occur when we see things as all or nothing. Of course there is a middle ground to most situations, but when we tend to ignore and focus on the extremes, we can actually increase our stress.

•**Labeling:** "I'm stupid" instead of "I didn't complete the whole project." Labeling tends to be a shorthand way to judge a situation, but again doesn't accurately describe what actually happened.

•**Assumptions:** "I have to be perfect!" We all have assumptions and beliefs that impact how we see ourselves in a particular situation. The key is to begin to increase our awareness of them and start to counteract them.



**3. Emotional** - there are many individual emotional reactions to stress. Some common ones are:

- Anxiety**
- Fear**
- Irritability**
- Frustration**

When we're stressed, a small event which typically does not cause a strong emotional reaction may now trigger a much stronger reaction. This increased emotional sensitivity is a sign that you might be experiencing significant stress.

We tend to pay a lot of attention to things in the outer world that are related to stress such as financial difficulties, conflicts in relationships, and overwhelming responsibilities.

# Stress Management (Cont'd from Page 10)

We tend NOT to pay enough attention to our inner worlds, the signals that stress is starting to take its toll on us. Interestingly, we are often quite good at ignoring those internal signals and pushing ourselves even harder.

How to interrupt the cycle?

•**Relax** - engage in activities that allow physical and psychological renewal, meditation, imagery, and deep breathing.

•**Nutrition and Wellness** - meet those basic needs which will help you cope with stress more effectively. Eat healthy foods, exercise regularly, and get enough sleep.

•**Corrective Thinking** - the idea that life events don't cause our stress, it's our reaction to the events. Focus on catching negative self-talk and come up with a more accurate description of yourself and the situation.

•**Community** - utilize the supports you have! We know that when people isolate or keep things in when stressed, it actually makes things worse and we can start to catastrophize or even feel depressed.

## Mindfulness

One way to deal with stress, other than the things listed above is through mindfulness. One major cause of stress in our lives is not being present with our current experience. Think of a time you sat down to do a task, and before you know it you're worried about something that happened yesterday, or thinking about all the things you have to do later in the day. Western culture has taught us to be great multi-taskers! However, we often have a harder time doing one thing fully in the present moment. This is the idea of mindfulness. The following is a brief mindfulness practice that you can do on your own.

•*First, get comfortable in a seated position, just noticing your body. Notice how your feet feel on the ground, how you feel sitting in a chair, your hands. Just tune into your body and your breath for a few minutes.*

*Next, turn your attention to someone you appreciate in your life. Just be present with the thoughts and feelings that come up, not trying to change them in anyway, just noticing them as they are. Keep your attention on appreciation for a few minutes.*

*Finally, think of the people that appreciate you. Don't try to change your reactions to that, but notice how you feel with the idea that others appreciate you.*

*One major cause of stress in our lives is not being present with our current experience.*



Mindfulness is something you can practice at any time, just by stepping back within yourself and noticing your reactions. When you're stressed, you can always go to a calm, mindful state of mind to help you gain some perspective and get a break from the stress. Taking care of yourself through the coping skills and techniques described above can help you deal with the stress we all experience.

From NTOC (National Transportation Operations Coalition) Talks Newsletter: March 28, 2007 at: <http://www.ntoxtalks.com/>

New Publication: Best Practices in Emergency Transportation Operations Preparedness and Response: The Results of the FHWA Workshop Series  
[http://www.ops.fhwa.dot.gov/publications/etopr/best\\_practices/etopr\\_workshop.htm](http://www.ops.fhwa.dot.gov/publications/etopr/best_practices/etopr_workshop.htm)

From 2002 to 2005, FHWA sponsored a series of workshops in 30 regions around the country. These events brought together transportation professionals, emergency managers and first responders to identify issues and best practices in the area of emergency transportation operations; to clarify roles in emergency preparedness and response; and to foster better working relationships among these vital partners. As a result of these workshops, FHWA developed a report titled Best Practices in Emergency Transportation Operations Preparedness and Response: The Results of the FHWA Workshop Series.

This document identifies best practices that were highlighted during the workshops and is available at [http://www.ops.fhwa.dot.gov/publications/etopr/best\\_practices/etopr\\_workshop.htm](http://www.ops.fhwa.dot.gov/publications/etopr/best_practices/etopr_workshop.htm).

A companion report, released on March 12, 2007 and titled Common Issues in Emergency Transportation Operations Preparedness and Response: The Results of the FHWA Workshop Series, consolidates common issues identified at the workshops in the areas of interagency coordination and communication; emergency operations; equipment; intelligent transportation systems; mutual aid; threat notification, awareness and information sharing; and policy. (Publication Number: FHWA-HOP-07-076) It is available at [http://www.ops.fhwa.dot.gov/publications/etopr/common\\_issues/etopr\\_compliance.htm](http://www.ops.fhwa.dot.gov/publications/etopr/common_issues/etopr_compliance.htm).

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

For information or checkout procedures, call Lois Evans or Michele Beck, LTAP  
1-800-541-6671

If you have computer access, please e-mail us at:  
mltap@coe.montana.edu

You will find the total library publications, videos, DVDs, and software lists at this web site: [www.coe.montana.edu/ltap](http://www.coe.montana.edu/ltap). You can also keep track of upcoming workshops, our newsletter, and "What's New" items that change periodically.

From NACE County News at:  
[www.naco.org](http://www.naco.org)

In Maryland, Montgomery County has become the first jurisdiction in the state to use cameras to catch speeding motorists in residential neighborhoods and near schools. The Safe Speed program will install cameras in mobile vans at sites around the county where the speed limit is 35 miles per hour or less, according to The Washington Post. During the program's 30-day trial run, motorists caught on camera will receive a warning as well as a photo of their vehicle and license tag. After the trial, police will begin issuing \$40 tickets and civil citations. The Post reports that county officials hope the program will pay for itself.

# Montana LTAP Lending Library

## Publications

**p-28 Structural Behavior of Ultra-High Performance Concrete Prestressed I-Girders (FHWA August 2006)** This report discusses a series of tests that were completed on prestressed

concrete I-girders composed of ultra-high performance concrete (UHPC). Although not structurally optimized to take advantage of the high compressive strength of UHPC, these girders did make use of UHPC's significant tensile capacity through the elimination of all mild steel reinforcement. These results should aid bridge owners in their initial foray into the use of UHPC within the bridge inventory. (104 pages)

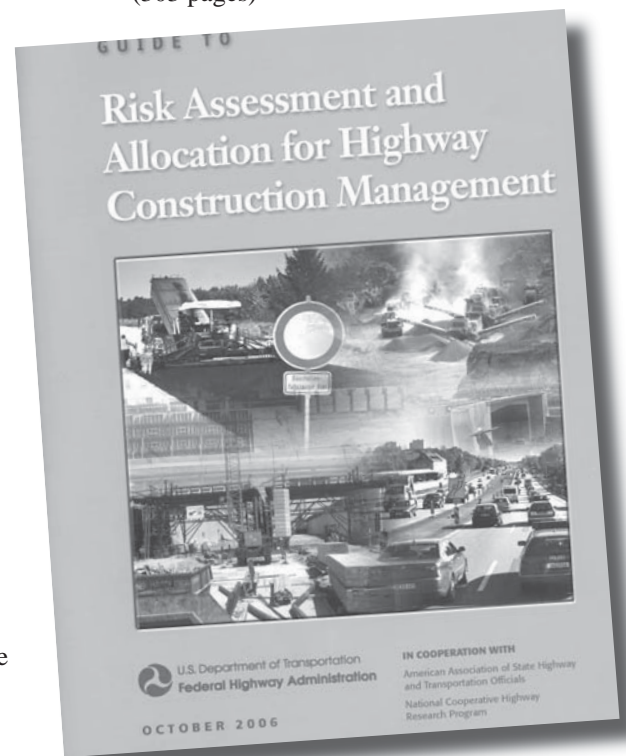
**p-29 Material Property Characterization of Ultra-High Performance Concrete (FHWA August 2006)** This report characterizes the material behaviors of one UHPC in terms of accepted concrete testing methodologies. This study focused on strength-based behaviors (e.g., compressive and tensile strength), long-term stability behaviors (3.g., creep and shrinkage), and durability behaviors (e.g., chloride ion penetrations and freeze-thaw). (186 pages)

**p-30 Optimized Sections for High-Strength Concrete Bridge Girders—Effect of Deck concrete Strength (FHWA October 2006)** This report contains an evaluation of the effect of high-performance concrete on the cost and structural performance of bridges constructed with high-performance concrete bridge decks and high-strength concrete girders. Bridge designers and owners are the main audience. (93 pages)

**p-31 Compilation and Evaluation of Results from High-Performance Concrete Bridge Projects, Volume I: Final Report (FHWA October 2006)** In 1993, FHWA initiated a national program to implement the use of high-performance concrete (HPC) in bridges. The program included the construction of demonstration bridges through-

out the United States. In addition, other States have implemented the use of HPC in various bridge elements. The construction of these bridges has provided a large amount of data on the use of HPC. This report is divided into four parts. (178 pages)

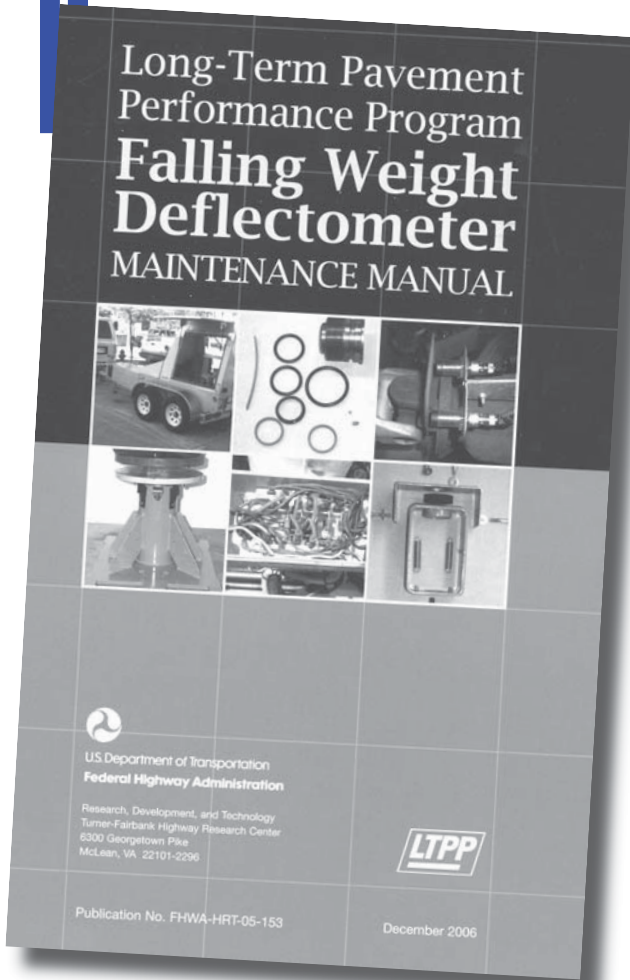
**p-32 Compilation and Evaluation of Results from High-Performance Concrete Bridge Projects, Volume II: Appendixes (FHWA October 2006)** This Appendixes is associated with the final report (p-31). This report should also assist designers and owners in recognizing that the use of high-performance concrete in bridges has advantages beyond those of improving durability. (303 pages)



**p-269 Guide to Risk Assessment and Allocation for Highway Construction Management (FHWA October 2006)** The purpose of this International Technology Scanning Program study was to identify practices that might be evaluated and applied in the United States to improve construction management. (72 pages)

# Montana LTAP Lending Library

## Publications (Cont'd)

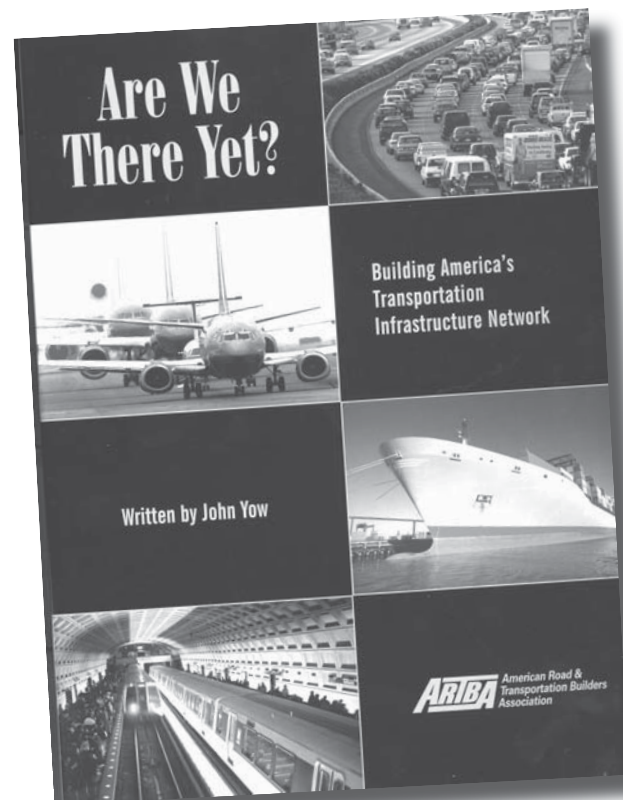


**p-305 Long-Term Pavement Performance Program – Falling Weight Deflectometer Maintenance Manual (FHWA December 2006)** This document provides FWD owners, operators, and technicians information as a supplement to the Dynatest 8000 owner's manual. Maintenance guidelines are based on continuous operation of FWDs. (88 pages)

**p-306 Long-Term Pavement Performance Program – Falling Weight Deflectometer Measurements, Version 4.1 (FHWA December 2006)** This document provides background information and field operations guidelines for the collection of Falling Weight Deflectometer (FWD) data on Long Term Pavement Performance (LTPP) test sections. It includes equipment setup, equipment calibration, test locations, and test procedures. (79 pages)

**p-341 Advanced Quality systems: Guidelines for Establishing and Maintaining construction Quality Databases (FHWA November 2006)** The main objective of this study was to develop and present guidelines for State highway agencies (SHAs) in establishing and maintaining data base systems geared towards construction quality issues for asphalt and concrete paving projects. (106 pages)

**p-394 Long-Term Pavement Performance (LTPP) Data Analysis Support: National Pooled fund Study TPF-5(013) (FHWA Nov 2006)** This report documents a study conducted to evaluate pavement adaptations currently in use to mitigate frost-related damage along with the cost differences associated with constructing and maintaining pavements in the various climates. (262 pages)



**p-2656 Are We There Yet? Building America's Transportation Infrastructure Network (By John Yow, ARTBA 2002)** As it celebrates its 100th anniversary, the American Road and Transportation Builders Association (ARTBA) is uniquely qualified to present this remarkable history of the transportation revolution that powered the progress of 20th century America. (176 pages)

**p-3121 National Highway Institute 2007 Training Catalog: Transportation Training Catalog (FHWA)** Lists all of NHI courses, length, costs, class size, and instructor for 2007. (239 pages)

BASE MAP INPUTS FOR FLOOD-  
PLAIN MAPPING

[http://gulliver.trb.org/news/blurp\\_detail.asp?id=7325](http://gulliver.trb.org/news/blurp_detail.asp?id=7325)

The Board on Earth Sciences and Resources, part of the National Academies' Division on Earth and Life Studies, has released a report that recommends that new, high-accuracy digital elevation data be collected nationwide using laser measurements from aircraft (lidar technology). The new data should be input into the National Elevation Dataset that the U.S. Geological Survey maintains for use in support of flood map modernization and other applications.

## Montana LTAP Lending Library

### DVD's

#### DVD610 Stormwater Runoff – I Can Make a Difference (Coastal 2005)

Oil, grease, harmful bacteria, pesticides and fertilizers are just a few of the contaminants found in stormwater runoff.

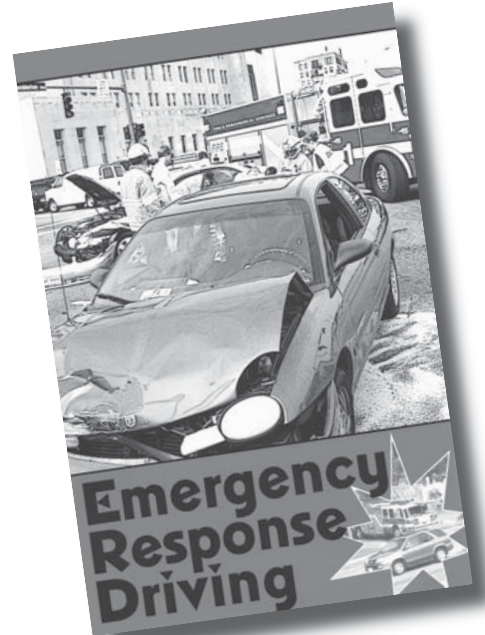
This video describes these and other devastating effects of stormwater runoff, and shows how the government and private industry can work together to clean it up – before the problems set in. (15 minutes)

#### DVD850 Electrical Safety for the Qualified Worker (Coastal 2004)

This cutting-edge program will teach employees the proper methods and precautions to avoid electrical shock, serious burns and arc flash accidents. (15 minutes)

#### DVD861 Defensive Driving – A Crash Course (Coastal 2004)

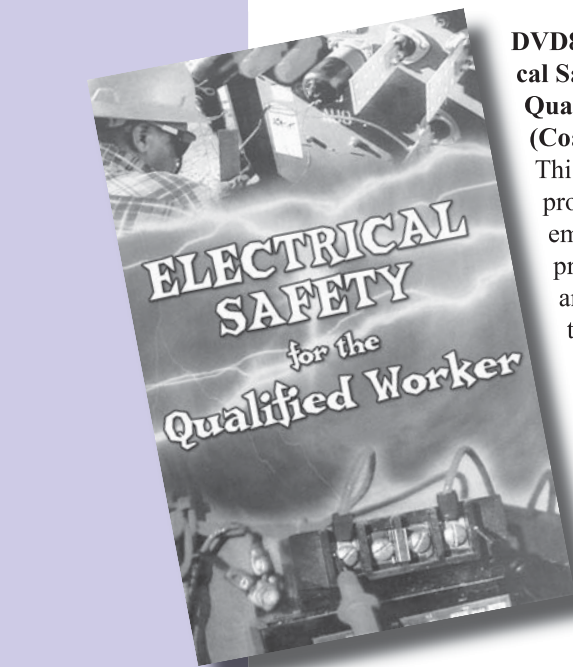
Teach your employees how practical driving procedures and exhibiting a defensive attitude make getting behind the wheel safer, both on and off the job. This program reviews basic defensive driving techniques from planning and preparing before pulling out to practical driving procedures in the city, on the freeway and in rural areas. (16 minutes)



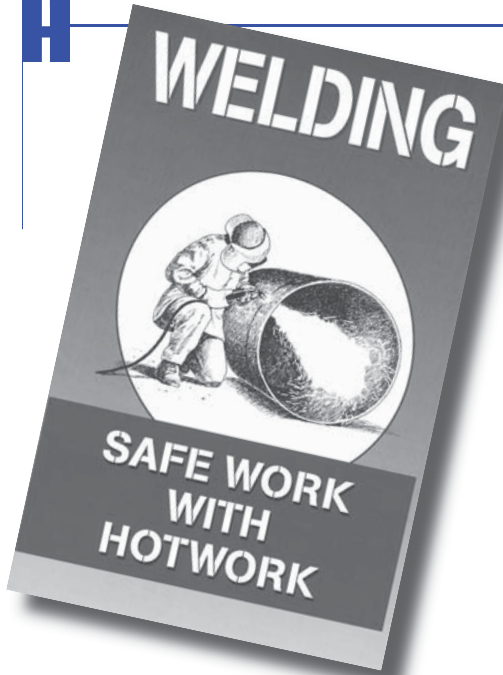
#### DVD862 Emergency Response Driving (Coastal 2004)

There are risks involved anytime you get behind the wheel of a vehicle, but when you're driving an emergency vehicle -- with lights and sirens blaring -- those risks are multiplied. This new program covers what it means to drive in emergency response situations and includes driving tips to make sure your trip is a safe one. It covers:

- Driving basics -- stop signs, red lights and school zones; speed limits, traffic flow and turn lanes; and stopping, parking and standing
- Passing other vehicles
- Highway driving
- Police chases
- Accidents
- Planning ahead
- Communication
- Maintenance (20 minutes)



# Montana LTAP Lending Library



**DVD870 Welding: Safe Work With Hotwork (Coastal 2004)** Hotwork operations play a big part in many operations. This important dvd program details various types of welding and discusses vital safety precautions. It covers:

- Personal hazards
- Hazardous fumes and substances
- Equipment safety

(18 minutes)

**DVD950 Road System Traffic Safety Review (FHWA January 2007)** This training course on Road System Traffic Safety Reviews was developed through the cooperative efforts of the Federal Highway Administration (FHWA); Collier County, Florida; Mendocino County, California; and the Idaho Local Technology Transfer Center. This training builds on the Product Demonstration Showcase held in Ukiah California in September, 2004.

The course describes a method of systematically reviewing roads throughout a local jurisdiction to make annual road safety improvements, primarily related to consistent application of signs and markings. This method is particularly attractive to rural local governments, and compliments other recommended practices and courses,

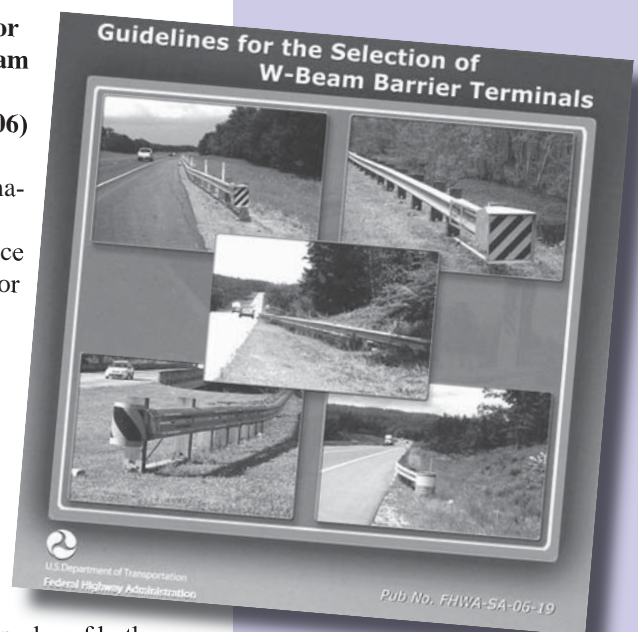
including Road Safety Audits (RSA), low cost safety improvements (LCSI), Strategic Highway Safety Plans, and the use of sound engineering judgment.

Case studies include a long tangent, sharp turns and curves, a short tangent, curves, turns, curve, curve left, curve right, high speed curve, winding road, narrow bridge, object marker, stop signs, and a local challenge. Instructors ONLY

**DVD2510 The Second International Symposium on Transportation Technology Transfer (FHWA August 2006)** The Symposium objective was to bring together technology transfer officials and managers to share best practices for exchanging transportation technology. The event included five plenary and over 60 breakout sessions which drew nearly 400 participants from 18 countries. Disc 1: 4 hours; Disc 2: 4 ½ hours

## Software

**SW2010 Guidelines for the Selection of W-Beam Barrier Terminals (FHWA December 2006)** This CD has been prepared to provide information to designers and to construction/maintenance personnel responsible for selecting and properly installing the most appropriate terminal design at any site. In addition to showing the actual crash performance of each terminal type, this CD provides guidance on proper site grading and presents real-world examples of both appropriate and inappropriate installations.



**Work Zone Impacts Assessment Guide Available On Line:** FHWA has published a Guide to serve as a resource for work zone impacts assessment. "Work Zone Impacts Assessment: An Approach to Assess and Manage Work Zone Safety and Mobility Impacts of Road Projects" is available online at [http://www.ops.fhwa.dot.gov/wz/resources/final\\_rule/wzi\\_guide/index.htm](http://www.ops.fhwa.dot.gov/wz/resources/final_rule/wzi_guide/index.htm). Work zone impacts assessment is the process of understanding and managing the safety and mobility impacts of a road construction, maintenance, or rehabilitation project. Assessing WZ impacts is important for developing effective Transportation Management Plans (TMPs) that provide for safety, mobility, and quality while maintaining, rehabilitating, and rebuilding our highways.

The Guide presents a general approach for WZ impacts assessment, mirroring the typical program delivery process of transportation agencies. It also provides examples of how agencies are currently assessing and managing WZ impacts, as well as an overview of different traffic analysis tools that can be used for analysis of WZ impacts. Section 1.5 provides some key points on "How To Use this Guide."



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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.

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](http://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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