

# Colorado LTAP

December 2006

Serving local transportation agencies throughout Colorado

Winter Issue

## Say Goodbye to Underbody Plow ACCIDENTS



**T**he Carlton County Highway Department in Minnesota recently installed circuitry on its snowplows to prevent damage to underbody plows when backing up, preventing thousand of dollars in damages by spending a fraction of that amount.

The modification, which takes about eight hours to install, automatically raises the underbody plow whenever the operator shifts the truck into reverse. A pressure switch detects the blade once it is fully raised and shuts off the hydraulic lifting action to prevent over-pressurization.

Highway maintenance superintendent Randy McCuskey said that before the installation, plow operators would back up their rigs without remembering to lift the underbody blade first. That would fold the blade toward the front of the truck and break cylinders, causing up to \$3000 in damages.

Not anymore, said McCuskey. Since former Carlton County mechanic Arnie Lofgren developed the circuitry and fitted the entire plow fleet, there hasn't been a single accident.

"We saved a ton of money," said McCuskey.

To modify each plow, counties should expect to spend about \$150 on materials: two relays, an indicator light, a pressure switch, wires, and hoses. Plows with a mechanical switch to raise the plow require minimal additional modification, Lofgren said.

"Usually it goes pretty good," Lofgren said of the installation. "With the right tools, you could probably get it done in half a day."



*Article courtesy of Minnesota LTAP, Jim Hammerand, Fall 2006.*



**LOOK  
INSIDE**

**Winter  
Equipment  
Innovations**

### PHOTO:

#### CITY SAND / PLOW TRUCK

*City of Prince George, British Columbia*

This truck is one of eight, equipped with an underbody and mid mount plow to increase the effective clearance width. This is especially useful in clearing off road shoulders while the truck wheels ride on the paved surface. The side tilt gravel box eliminates the need for a seasonal changeover to a sand truck. This increases the truck utilization throughout the winter. A mid-mount spinner places sand under the rear wheels improving traction. A front plow is added for deep snow.

## In This Issue

COVER STORY  
Goodbye to Underbody  
Plow Accidents

Program Manager's Corner	2
Ethics	3
Ideas that Work I	4
Ideas that Work II	5
Equip. Innovation	6
New in the Library	7
Calibration Proc.	9
Ten Commandments for Snow Fighters	10
Upcoming Events	11
Free Materials	12

## Routing Slip

After reading this issue of Colorado LTAP, please initial below and pass it along to the rest of you staff.

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The Colorado Local Technical Assistance Program is sponsored by the Federal Highway Administration, the Colorado Department of Transportation, and the University of Colorado at Boulder.

The Colorado LTAP Newsletter is published quarterly. Articles, pictures and comments are welcome.

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Program Manager's Corner

*Thinking warm thoughts...*

Colorado LTAP staff attended the National LTAP conference in St. Petersburg, Florida this year. However, a full conference agenda did not permit for too much fun in the sun. We decided to carry through that theme at the APWA Western Region Snow & Ice conference in Estes Park in September. Hopefully you were able to visit the "LTAP Pool Party" complete with inflatable palm tree and free lemonade. We're desperately trying to channel some of that warmth now!



Check out the proposed spring courses listed on page 11. There are several new ones we've never offered before.

Last New Years it was Japan and I'll be travelling to two countries this holiday season. So I will bring back more photos of foreign traffic signs. Check back in the February issue to see where I went.

**Warm holiday wishes from our family to yours.**

*Renée Koller*



Quotes  
of  
the  
Day

To see what is right and *not* do it, is want of courage.

~ Confucius

A business that makes nothing but money is a poor kind of business.

~Henry Ford

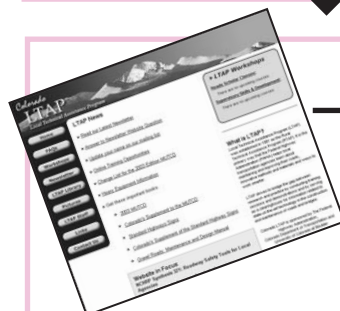
Relativity applies to physics, not ethics.

~ Albert Einstein

To make a mistake is only human; to persist in a mistake is idiotic.

~ Cicero, Roman orator

More at [Adviceonmanagement.com](http://Adviceonmanagement.com)



<http://ltap.colorado.edu>

Visit Colorado LTAP online today for online training, class registration, free lending library, and more.

# ETHICS

## Simple Rules to Keep Your Agency Out of Trouble

By: David Grouchy

Public officials from the White House to city and county offices are often in the news for ethics violations and worse. Now a number of them are protesting their innocence. It's obvious that ethics can make or break a career in public service, so it's important to know what's involved. What are the rules? Who is governed by them? What can happen to someone accused of an ethics violation? Ethics can be confusing and intimidating. Quite often, we hear stories about people getting into ethical problems without realizing it. There are a few simple logical rules to follow in order to stay out of trouble.

### CASH YOUR CHECK.

What you are paid and your other compensations, such as vacation and sick leave, are all you are entitled to for doing the job you signed on to do. Some people feel that they don't get paid enough for what they do. If you feel this way, talk to your boss, apply for a raise or promotion, or look elsewhere. You cannot accept anything of value as a gift just for doing your job. You also cannot accept favors from anyone who has pursued or is pursuing a contract with your agency.

### PAY YOUR OWN WAY.

It is okay to be friendly with contractor or consultant personnel. More work gets done in a cooperative relationship than in an adversarial one. But be careful! If you go to a sporting event or any entertainment or party, pay your own way. It is usually alright to socialize with people who have contracts with your agency, as long as you don't accept gifts or favors from them. For instance, you can play golf or go fishing with someone who has a contract with your agency, but pay your own greens fees and your share of the cost of the fishing trip. There are times when you could be put into an ethical bind because of a job offer for when you retire or for

your relatives.

### DO YOUR OWN JOB.

Competence is another area of concern for public employees. You must do work you are qualified for or supervise the people doing the work. Don't do work outside your area of expertise unless it is a learning process, and you are supervised by someone who is teaching you a trade or area of competence. Possibly the most ethical thing you can do if you are a supervisor is to let the people who should be doing the work do the work. Don't micromanage, second guess or take authority away from your subordinates.

### DON'T HIRE FAMILY.

Most public works agencies restrict family members from working closely with each other. Sometimes this may be difficult if you get a promotion to an area in which you supervise a relative. Check with your Human Resources Section or your State Ethics Board to be sure you can accept the promotion. If you don't ask, it may look like you are trying to hide something. You may wonder why there is a problem with supervising your relatives. If you are in business and hire family, it may be a great idea. If you

are dealing with public funds, the rules are not so liberal.

Unfortunately, people are all too willing to believe that public employees are incompetent, crooked or both. Don't let your name be associated with any unethical behavior. Your reputation is precious and very difficult to recover once it has been damaged.



**Ethics can make or break a career in public service, so it's important to know what's involved.**

### Colorado LTAP Advisory Committee Members



**Marlene Crosby**  
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**Renée Koller**  
Colorado LTAP



# Ideas That Work

## Saving Your Agency Time & Money

### Landfill Hauler, *Phillips County* You Show Us Contest CO State Winner

#### Problem Statement:

In 2004, Phillips County upgraded from burning trash to a new bailing system. An efficient way to haul the bails to the cell was needed.

#### Discussion of Solution:

It was discussed whether or not to use a truck with its own hydraulics or a trailer with a loader. It was decided a trailer would be more efficient for this application. It was designed so the loader hauls the trailer cell, dumps the trailer, unhooks and stacks the bails all in one trip. The operator never has to leave the cab. To make it most efficient, two trailers were built, so that one can be filled while the other is being dumped. This way, the bailer never has to shut down.

**Labor, Equipment, and Materials Used:** Two Landfill employees, normal shop tools, and a welder were used. The two employees stripped down an old burner and used 65% of the metal to build two trailer frames. Two old truck axles were used for the main wheels. The only money spent was for two small wheels and 35% of the metal was purchased.

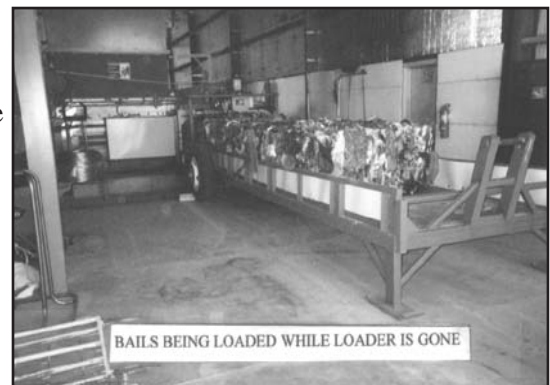
**Cost:** Building the two trailers cost \$2000 in materials, and \$1800 in labor.

#### Savings and Benefits:

The agency estimates that materials, labor and engineering of the two trailers saved \$4000 per trailer. By using the loader and trailers together, the agency is also saving more than 50% in haul time. There is additional savings in down time with the bailer. There is only one piece of equipment to maintain. Fuel cost is cut in half because trips are cut in half. Operation can also be run efficiently with one person when necessary.

#### For more info contact:

Matt Meusborn, Phillips Cnty, 221 S. Interocean, Holyoke, CO 80734, 970-854-2166.



**Congratulations**  
**Matt Meusborn and Phillips County**

# Ideas That Work

## Saving Your Agency Time & Money

### Culvert Transport, Gilpin County You Show Us Contest CO Runner-up

#### Problem Statement:

Having the manpower and equipment needed to load, transport, and unload culvert *safely*.

#### Discussion of Solution:

Gilpin County originally purchased a 25 foot gooseneck trailer to transport a mini excavator and various other small equipment and products, including culvert. Thinking it usually takes two men, a truck with trailer, and a piece of equipment to load culvert, Gilpin County began looking at adding a crane to the trailer.

**Labor, Equipment, and Materials Used:** After considering several types of cranes they purchased a N H Log Loader. The crane is equipped with a continuous rotation 39-inch grapple, that can lift 893 pounds at its maximum reach of almost 14-feet and is powered by a 16 hp electric start hydraulic power pack. David Rich, an equipment operator II with an abundance of skill and talent, was tasked with modifying the trailer. With many suggestions from everyone in the department, Dave began cutting apart the brand new trailer and crane. The deck planks were cut and the crane was lowered and mounted between the main frame beams. The power pack was removed from its original stand and fit under the decking. The outriggers were cut from the crane and fit to the trailer. The original fuel tank was replaced with a more suitable one for the application. Access doors were fabricated for easy access to the power pack and lower crane. Deck plate was added to the section of deck the grapple will operate most times. An operator's station with all hydraulic controls, ignition switch, choke, throttle, adjustable seat w/ belt, and foot rests was all fabricated and mounted to the main upright boom of the crane. This allows a bird's eye view and a safe location for the operator.

**Cost:** The project took about 160 total hours - including design, locating and obtaining parts and materials, and build time. The material costs included: trailer (\$10,850), crane (\$10,700), and steel and miscellaneous parts (\$700); for a total of \$22,250.

#### Savings and Benefits:

One man can now *safely* load, transport to job site, and unload culvert; saving the agency countless man hours. This piece of equipment can also be a one man operation for hauling logs and rip-rap, and ripping/hauling willows from road shoulders. More uses remain to be discovered. When not being used for crane operations it is still used to transport equipment.

**For more info contact:** Earl Robinson or Gordon Thompson, Gilpin County Rd & Br, 303-582-5004.



**Congratulations Gilpin County**

**THINK SAFE  
ACT SAFE  
BE SAFE**

When **WINTER** arrives, the following checklists are good reminders for snowfighters.

**Material Safety**

- o Develop a Materials Safety Data Sheet for chemical information with emergency procedures
- o Remain in truck cab when truck is being loaded (unless you're the loader operator).

**Vehicle/Equipment Safety**

- o Pre-trip inspection of truck - check fluid levels, tire tread & inflation, brakes, windshield wipers and blades, heater, and defroster.
- o Clean windows and mirrors
- o Check all lights
- o Back-up alarm, plow flags, and warning signs on rear of truck
- o Radio communications
- o Full fuel tank
- o Final walk around inspection
- o SAFETY BELT

**Crew Safety**

- o Adequate sleep or rest
- o Multi-layers of warm clothing
- o Hard hat, safety vest, safety shoes/boots, gloves
- o First Aid Kit
- o Thermos/Food
- o Survival Kit: flashlight, extra batteries, ice scraper, snow brush, jumper cables
- o Tool Kit: Flares, reflectors, traffic control flags, shovel, sand, fire extinguisher.

More Snowfighting info available from Salt Institute, [www.saltinstitute.org](http://www.saltinstitute.org)

## Equipment Innovation

### Windshield Wiper Deicer

#### OPERA Project

##### Problem Statement

During snow removal operations, snow and ice often accumulate near the bottom of snowplow windshields and on wiper blades, reducing wiper effectiveness. From time to time, drivers have to stop to manually remove the snow and ice. The vehicle body is often slippery, making the climb up to the windshield not only inconvenient but hazardous.

##### Solution

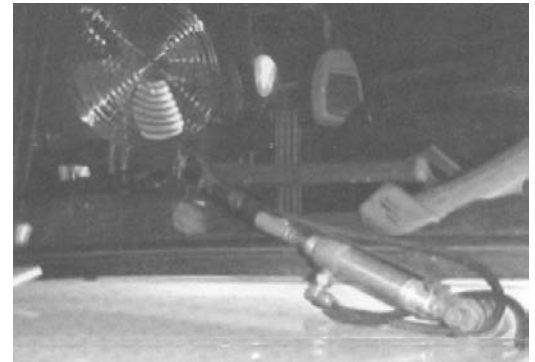
Mount air cylinders on the wiper arms using the vehicle air system. Install a button control in the cab. By pushing the button, the air cylinders retract the wiper arms about 6 inches from the windshield. When the button is released, the wiper arm quickly slaps back to the windshield, driven by both the wiper arm spring and the cylinder return spring. This quick slap often removes the accumulated snow and ice.

##### Procedure

Based on the design of the wiper arms, on individual vehicles, mount an appropriately-sized air cylinder on each wiper arm. Install controls in the cab in a convenient, yet out-of-the-way, location. In cases where vehicles do not have an on-board air system, mount an air tank on the vehicle. Charging the air tank prior to plowing provides enough air for a typical plowing event.

##### Results

For vehicles with bolted-down wiper arms, the system works very well, with little maintenance. It is necessary to add air-tool oil to the cylinders a couple times per year. For vehicles with quick-release wiper arms, there have been some problems: Under heavy snow conditions, operating the device can strain the wiper motor, drive arm, locking device, and wiper arm splines. After the first use of these devices, vehicle operators requested them, and devices were installed on additional vehicles with success. Hutchinson's fleet of snow equipment is



largely outfitted with these devices, and operators now take them for granted as part of their equipment.

##### Approximate Cost

\$350-\$450 per truck (\$1,800 approved for project.)

##### Implementation

The technology has since been adopted by several other cities and local agencies.

##### Project Leader

Brad Thielsen, plant equipment mechanic, City of Hutchinson, Minnesota.



Courtesy of Minnesota LTAP *Technology Exchange* Fall 2006, used with permission.

This was a project completed under Minnesota's Local Road Research Board's Local Operational Research Assistance Program (OPERA). Local OPERA helps to develop innovations in the construction and maintenance operations of local government transportation organizations. Learn more about the OPERA program at: [www.mnltap.umn.edu/opera](http://www.mnltap.umn.edu/opera).



## What's New in the LIBRARY?

All videos, publications and CDs in the LTAP lending library are available for checkout for a two-week period, free of charge. To check out materials or request a library catalogue, contact the Colorado LTAP office at 1-888-848-5827.

Below is a list of most recent materials added to the library. Our library materials can also be ordered online at: <http://ltap.colorado.edu>

### New DVDs

#### Location

#### Title

DVD5 CCD

*Construction Career Days: A Step into Your Future*

The purpose of the event is to introduce high school student to the vast career opportunities and unlimited potential for advancement within the construction industry from building trades to heavy construction. Activities included professional demonstrations, hands on participation and operation of heavy equipment. This 11 minute DVD was filmed in Salt Lake City, UT during their September 2005 CCD event.

DVD40 FRE

*Forest Roads and the Environment DVD*

This 18 minute DVD covers how roads interact with the environment and how to maintain them to safeguard the environment.

DVD50 TSR

*Traffic Safety Review: Mendocino Version*

Mendocino County has created a cost-effective program that has achieved a 42% reduction in traffic fatalities over 10 years! This DVD is a review of their *Road System Traffic Safety Review* program, designed to improve signs and markings on arterial and collector roads within the county.

### New CDs

#### Location

#### Title

CD GTTC

*Guidelines for Temporary Traffic Control (3 CDs)*

These CDs contain the handbook summarizing guidelines listed in the 2003 MUTCD. It is directed to any entity working on a roadway open to public travel. This handbook contains the basic principles of Temporary Traffic Control (TTC), description of standard TTC devices, and typical application diagrams. Information concerning proper flagging along with the installation and maintenance of TTC devices is also presented.

CD MDM05

*Model Drainage Manual 2005*

The manual has been developed to provide the designer with a basic working knowledge of hydrology and hydraulics complete with example problems. All basic design elements are included such that the designer can design highway drainage with minimal assistance.

CD RR

*Roadside Reminders*

This CD contains a movie of a presentation prepared by FHWA. The presentation provides a strong message on the number of motorists that lose their lives on our highways and emphasizes key areas that safety agencies can focus on to save lives. It makes it clear that just one agency alone cannot accomplish our goal of reducing our nation's fatality rate; it must be a combined effort by many safety agencies that incorporates education, engineering, enforcement, and emergency response.

## New Publications

### Location Title

31 CQHM *Construyendo Pavimentos de Calidad de Mezcla Asfáltica en Caliente*  
*Spanish version of Constructing Quality Hot Mix Asphalt Pavements - Troubleshooting Guide/Construction Reference.*  
 A must-have resource for HMA Paving Operators and Superintendents. Often, when constructing Hot Mix Asphalt pavements, a problem arises for which the solution is not readily available and which is thus overlooked at the expense of quality. No longer. This handy guide fits into your coat pocket or glove compartment and will help you in identifying possible solutions to a number of potential problems that may occur during paving operations. Easy-to-read format makes problem solving simple and quick.

40 DPR *Deep Patch Road Embankment Repair Application Guide*  
 Provides an application guide that describes the background, performance, design, and construction details of the deep patch road embankment repair technique. Also details a method for designing deep patches.

40 VCT *Vehicle Cleaning Technology for Controlling the Spread of Noxious Weeds & Invasive Species*  
 This publication summarizes the concepts for removing seeds from vehicles and equipment to control the spread of noxious weeds, invasive species, and disease. Many silvicultural and land management activities on national forest land involve moving vehicles and equipment at off-road locations. As a result, seeds and spores can be picked up, transported, and transplanted over great distances.

85 HIC *How to Improve Conditions for Pedestrians: A Handbook for Colorado Transportation Management Associations*

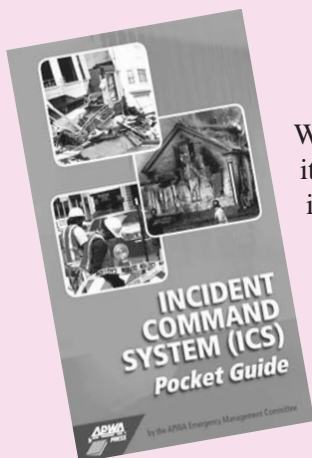
This handbook is designed to assist Transportation Management Associations (TMAs) in addressing pedestrian issues within their service area. With many areas suffering from traffic congestion, walking increasingly becomes a viable substitute for a commute vehicle trip for those who live near work or school or for short vehicle trips.

## New Videos

### Location Title

V50 LOTO *Lock-Out/Tag-Out Safety Training for Employees*  
 This program can help you easily train your employees on proper lockout/tagout procedures, as required by OSHA under 29 CFR Section 1910.147. Focuses on procedures from shutdown to start-up making it easy to combine with your existing training program, or use for retraining as mandated by OSHA.

V50 TSS *Trenching & Shoring Safety*  
 Help your employees avoid accidents by teaching them safe excavation-site procedures. This in-depth video focuses on OSHA-regulated safety measures such as protection from hazards with water accumulation, hazardous atmospheres, and design of support, shield underground installations, access and egress exposure to falling loads, stability of adjacent structures, protection from loose rock or soil, inspections design of sloping, and benching systems.



### FREE: Incident Command System (ICS) Pocket Guide

When disaster strikes your community, your command structure shouldn't be a disaster in itself! Regardless of the size of the incident or the number of agencies responding, all incidents require a coordinated effort to ensure an effective response and efficient, safe use of resources. ICS was invented to achieve this coordination, and this Pocket Guide will help you understand and implement the vital components of ICS. No agency should be without multiple copies. Colorado LTAP has a limited supply of free copies. Additional copies can be purchased from the APWA bookstore at:

<http://www.apwa.net/bookstore/detail.asp?PC=PB.A629>



# Snowfighters Training Program

## SPREADER CALIBRATION PROCEDURES

### Calibration

Different dry and liquid materials will spread at different rates at the same setting, so spreaders must be calibrated with the material that will be used. The Salt Institute has designed a Calibration Chart for easy record-keeping. The chart is available for download as a MS Excel spreadsheet file which does all the calculations automatically (Note: if you are not using Microsoft Internet Explorer, you may not be able to view the file online, but can download to disk and open it with a spreadsheet program that can read MS Excel). The spreadsheet can be accessed at: <http://www.saltinstitute.org/images/calibrationchart-us.xls>

### Spreader Calibration Procedure

Calibration of spreaders is simply calculating the pounds per mile discharged at various spreader control settings and truck speeds by first counting the number of auger or conveyor shaft revolutions per minute, measuring the material discharged in one revolution, then multiplying the two and finally multiplying the discharge rate by the minutes it takes to travel one mile.

With hopper-type spreaders, specific gate openings must be calibrated. Measure from floor of conveyor to bottom edge of gate.

Each spreader must be calibrated individually; even the same models can vary widely at the same setting.

### Equipment Needed

1. Scale for weighing.
2. Canvas or bucket/collection device.
3. Chalk, crayon or other marker.
4. Watch with second hand.

### Calibration steps

1. Warm truck's hydraulic oil to normal operating temperature with spreader system running.
2. Put partial load of salt on truck.
3. Mark shaft end of auger or conveyor.
4. Dump salt on auger or conveyor.
5. Rev truck engine to operating RPM (at least 2000 RPM).
6. Count number of shaft revolutions



per minute at each spreader control setting, and record.

7. Collect salt for one revolution & weigh, deducting weight of container. (For greater accuracy, collect salt for several revolutions and divide by this number of turns to get the weight for one revolution.) This can be accomplished at idle or very low engine RPM.

8. Multiply shaft RPM (Column A) by discharge per revolution (Col. B) to get discharge rate in pounds per minute (Col. C), then multiply discharge rate by minutes to travel one mile at various truck speeds to get pounds discharged per mile.\* (\*For example, at 20 MPH with 30 Shaft RPM and 7 lbs. discharge-  $30 \times 7 = 210 \times 3.00 = 630$  lbs. per mile.)

### Calibrating Automatic Controls

Automatic controls come with factory calibration cards that indicate the proper rate of spread for each setting. However, when there is a need to calibrate, use the following steps:

1. Remove or turn off spinner.
2. Set auger on given number, such as No. 2.
3. Tie sack or heavy canvas under discharge chute.
4. Mark specific distance, such as 100 or 1,000 feet.
5. Drive that distance with spreader operating.
6. Weigh salt collected in sack.
7. Multiply weight of salt by 5.2 (in case of 1,000 feet) or 52.8 (for 100 feet). This will be the amount of salt discharged per mile, which remains constant regardless of speed, but calibration must be done for each control setting.

Courtesy of the Salt Institute, [www.saltinstitute.org](http://www.saltinstitute.org).

### WHY BRIDGES FREEZE FIRST

You've probably heard ice freezes on bridges and overpasses first.

#### Why is this?

Ice will freeze first on surfaces that drop to freezing or below. Bridges and overpasses are cooled on TWO sides by air passing on both sides of it. A bridge loses heat very quickly to the air as the air cools. Road surfaces connected to the ground are only cooled on ONE side. When temperatures drop below freezing, there is a lag time in the soil dropping to freezing. A road connected to the ground will stay above freezing even after the air temperature drops to freezing - especially if temperatures had been above freezing the previous few days. It could even take several hours for the soil to cool below freezing once the air temperature drops because of all the heat the earth's surface has stored during the warm period. If precipitation is present or there is standing water on the bridge, it will freeze even quicker once the air temperature drops below freezing.

By Jeff Haby.



Photo: Norwich University's Bridge Snow Sculpture

## SAFE DRIVING HABITS FOR PLOW TRUCK DRIVERS

- o Always inspect your vehicle before leaving the shop
- o Don't tailgate
- o Watch your speed
- o Be rested and alert
- o No drugs or alcohol should be used prior to driving
- o Watch out for the other motorists
- o Always stay in control of your vehicle; watch for spots that could cause blade to "hang up"
- o Be alert during white-out conditions
- o Check your equipment frequently
- o Be courteous; don't throw snow on cars or pedestrians!

## Ten Commandments for Snow Fighters



### FREE POSTERS AVAILABLE

**1** Thou shalt present thyself to thy job physically and mentally fit and properly clothed for any emergency in order to withstand the rigors of thy task.

**2** Thou shalt never enter thy cab without inspecting thy lights, windshield wipers, defrosters, flares and other safety equipment.

**3** Thou shalt know thy spreading and plowing routes, as well as the performance of thy spinner and the life of thy plow blade.

**4** Thou shalt faithfully remain alert in order to avoid guardrails, headers, stalled cars, manhole covers, railroad tracks and mailboxes. Otherwise thee may smite thy windshield with thy head.

**5** Thou shalt contain thy temper even though cars and trucks pass thee on both sides and tailgate thee too close for comfort. Anger only multiplies thy prospects of coming to grief by accident.

**6** Thou shalt use thy radio as briefly as possible. Remember thy fellow workers may need to communicate in an emergency.

**7** Thou shalt interrupt the flow of power to thy spreader before attempting to free any foreign objects or blockages if thee treasure thy fingers.

**8** Thou shalt render thy truck and spreader out of gear and stoutly set thy brakes before dismounting from thy cab.

**9** Thou shalt govern thy speed according to conditions, else thee may wind up with thy truck upside down.

**10** Thou shalt mind thy manners on the roadway, clearly signal thy intentions, and remember that it is more blessed to give than to receive.

Contact Colorado LTAP for a FREE Snow Fighter's Commandments Poster.

## Did You Know?

**More than 7,000 deaths and 800,000 injuries on U.S. roads every year are weather-related. A recent study found that winter storms increase the crash rate by 1300% !**



Colorado LTAP Program Manager Renée Koller presents Matt Meusborn of Phillips County his plaque as the Colorado state winner of the *You Show Us* contest at the Local Road Coordinators' conference in Rapid City, SD in October.

## Upcoming Events

### Upcoming Training

#### UPCOMING COURSES

NOTE: Please contact the Colorado LTAP office for an updated schedule, or check online at <http://ltap.colorado.edu>.

#### Road Scholar Core Classes

##### Signing, Pavement Markings, MUTCD

January 16 - Loveland  
January 23 - Colorado Springs  
January 30 - Alamosa  
February 6 - Glenwood Springs

##### Roadway Safety & Work Zone TC

March 2007 - Castle Rock, La Junta, Grand Junction, Durango

#### Road Scholar Electives

##### Small Bridge Inspection

January, 2007 - 2 Locations

##### Common Sense Solutions to Intersection Safety Problems

February 5 - Pueblo  
February 6 - Denver  
February 8 - Grand Junction

##### Sign Inventory Management

March 2007 - Thornton, Pueblo, Glenwood Springs

##### Low Cost Safety Improvements

March 27 - Longmont  
March 28 - Colorado Springs  
March 30 - Grand Junction

##### Construction Grade Stake & Blueprint

April 23 - Ft. Morgan  
April 24 - Colorado Springs  
April 26 - Montrose

##### Roadside Vegetation Maintenance

Spring 2007 - 3 Locations

##### Heavy Equipment Training

May 2007, Arapahoe County, Byers, CO

##### Traffic Control Supervisor Certification (TCS)

May 2007

Remember!

You can register *online* at:  
<http://ltap.colorado.edu>

#### Supervisory Skills Classes

##### Who's Coming Thru the Door Today?

February 21 - Grand Junction

##### Verbal Communications

February 22 - Grand Junction

##### Developing the Leader Within

March 16 - Denver

##### Ethics

April 16 - Castle Rock

##### Written Communications

April 17 - Castle Rock

### Workshops

#### Flagger Certification

May 7 - Sterling  
May 8 - Greeley  
May 10 - Frisco  
May 11 - Grand Junction

### Conferences

#### APWA Construction Inspector's Conf

February 1-2, 2007  
Westin Hotel, Westminster  
Contact Barbara Kenyon at  
[kenyonb@boulder.colorado.gov](mailto:kenyonb@boulder.colorado.gov) for more details.

#### Rocky Mountain Asphalt Conference

February 28 - March 2, 2007  
Holiday Inn, DIA  
Visit <http://www.cm.cahs.colostate.edu/RMACES/RMACES.stm> for more details.

#### ACPA Concrete Conference

March 21-22, 2007  
Greeley, CO  
Visit <http://www.paveconcrete.org/> for more details.

#### APWA Street Conference

April 18-20, 2007  
Grand Junction, CO  
Contact Colorado LTAP for more details.

Need a little  
Extra cash?  
Your  
knowledge is  
worth  
something.



Our center is continuing its program to encourage local participation in the publishing of Colorado LTAP's quarterly newsletter. We would like the recipients of our newsletter to benefit from all the knowledge local agencies have in the areas of roadway maintenance, design, and construction. We are offering **\$50.00** to city, town, or county employees that submit an article that is chosen to be published in our newsletter. Articles can address current methods and procedures, best practices, innovative techniques, or projects in the transportation industry. Content should contain as much detail as possible, but we can provide assistance in editing and writing the final version. We request articles not promote any particular product. *Photos are encouraged.* To submit articles and/or photos, include author name and contact info, and mail or email to

[cltap@colorado.edu](mailto:cltap@colorado.edu)

# FREE MATERIALS

The following is a list of **FREE publications** available to Colorado local government agencies in the transportation field. Quantities are limited and available on a first-come, first-serve basis.

Contact the Colorado LTAP office to put in a request for these free publications.

\*\*Check out our website for **additional free materials** not listed here.

<http://ltap.colorado.edu>



## **FV50 NL**      **Night Lights: How Retroreflectivity Makes Our Roads Safer**

This video clearly explains the benefits of "retroreflectivity" and how roadway signs and other lifesaving materials along our nation's roadways function in both daytime and nighttime conditions. A range of driving scenarios are presented to help illustrate the necessity of this important roadway feature. It also explains technology involved in the retroreflective process in easy-to-understand non-technical terms. A great video to use for public awareness.

## **FV50 DS**      **Danger Signs**

This video dramatically drives home the devastating results of sign vandalism on victims, their families, and those that commit the crime. Excellent tool for public awareness education, law enforcement and safety officials to curb this growing menace. This new version includes a link to Teen Court TV that updates the status of a Florida sign vandalism case featured in the video.

## **F40 PPCS2**      **Chip Seal Application Checklist**

This flipbook is #2 in the Pavement Preservation Checklist Series. It guides state and local highway maintenance staff in the use of innovative pavement preventive maintenance processes. Covers: preliminary responsibilities, pre application inspection responsibilities, project inspection responsibilities, opening the chip seal to traffic, cleanup responsibilities, and common problems and solutions.

## **F40 IJ**      **Inspector's Job Guide and Highway Maintenance Tables**

Need a reminder on what to look for when inspecting curbs, gutters, walks, driveways, plant mix bituminous paving, concrete paving, base courses, culvert pipe or storm sewer installations, grading, seeding or finishing, structures or geotextiles? Need to estimate how many gallons of asphalt will be required per mile of road, how much roadway a 1000-gallon tank will cover, or how many pounds of sand, gravel or crushed stone you have in a stockpile? Answers to these questions and many others (in English unit) are at your fingertips with Inspector's Job Guide and Highway Maintenance Tables in hand.

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