

# Colorado LTAP

November 2005

Serving local transportation agencies throughout Colorado

Winter Issue

## New Incident Management Requirements are in Effect Have You Been Trained?



Road crews make emergency repairs to this damaged road after hurricane Katrina washed away a rock wall that was built to protect it. Many homes and roads were flooded or damaged and residents are displaced.  
Photo: MARVIN NAUMAN/FEMA

### *Katrina, Rita, NIMS, and ICS*

### New Terms for the Transportation Community

By Gene Putman, City of Thornton


It is in recent months the transportation community has added some new words and terms to our vocabulary. The hurricane season in the Gulf of Mexico has given us the names of Katrina and Rita as this year's two very destructive hurricanes. They have brought new meaning to these names that will last for ever in our minds with images we have seen of whole towns destroyed or flooded. We also have heard and seen of the problems at all levels of government including the federal, state, and local level in responding to these events.

Starting with the events of 9/11, the hurricanes of last year when four hurricanes struck Florida, and this year with Katrina and Rita we have seen that different levels of government and responding professions do not always communicate in the best manner. The federal government set up the new Department of Homeland Security and reorganized several governmental groups

(i.e. Federal Emergency Management Agency - FEMA) into this new Department. With some of the lessons learned from 9/11, the Department of Homeland Security was directed by the President of the United States (Homeland Security Presidential Directive No.5 and 8) to develop a new nationwide program/system to make responding to and managing any and all domestic incident throughout the United States more coordinated at all levels of governments. This new national approach to domestic incident management is called *National Incident Management System, NIMS* for short.

NIMS calls for all levels of government to adopt NIMS officially along with its management system called *Incident Command System (ICS)* by the start of Fiscal Year 2006, starting **October 1, 2005.**

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for 2006 LTAP  
Special Projects  
on Page 4

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## Routing Slip

After reading this issue of Colorado LTAP, please initial below and pass it along to the rest of your 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**

Colorado LTAP is currently finalizing its 2006 Work Plan, and we are very excited about many of the programs we will be providing for local transportation agencies next year. We've proposed 15 *Special Projects*, the major ones are detailed on pages 4-5. Make sure to check out those valuable resources. In addition to our *Road Scholar Core* and *Supervisory Skills* classes, 9 of our 13 *Road Scholar Electives* will be new topics we have never covered before!

Things may get tight if Congress redistributes money from the transportation bill to cover hurricane relief efforts, but we'll be here for you - providing the same great resources you've grown to rely on.

*Renée Koller*



## Quotes of the Day

**Winter Winter Winter**

Every mile is two in winter. ~George Herbert

There is a privacy about it which no other season gives you.... In spring, summer and fall people sort of have an open season on each other; only in the winter, in the country, can you have longer, quiet stretches when you can savor belonging to yourself.

~Ruth Stout

Let us love winter, for it is the spring of genius.

~Pietro Aretino

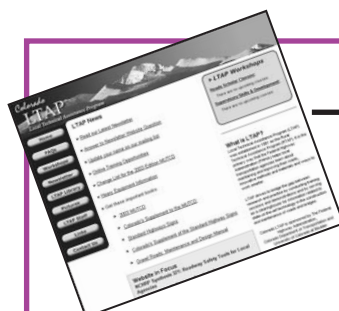
To shorten winter, borrow some money due in spring.

~W.J. Vogel

One kind word can warm three winter months.

~Japanese Proverb

*Courtesy of the Quote Garden at [www.quote garden.com](http://www.quote garden.com)*



<http://ltap.colorado.edu>

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

# National Incident Management System Are You Trained?

*continued from page 1...*

It also requires NIMS and ICS training to be completed by the end of FY 2006 for first responders. The term "first responders" has been expanded to include not only what was originally considered first responders - Police, Fire, Emergency Medical Services - but now includes emergency management, public health, clinical care, **public works, equipment operators**, and other skilled support personnel that provide immediate support services during prevention, response, and recovery operations. In the view of many, it is about time that people in public works, transportation, and utilities are realized to be first responders, for it is all of us who are at the scene many hours cleaning up, repairing, re-constructing government facilities and getting them back to working order for the public.

All of us need to go through training to know about and understand what the National Incident Management System - NIMS is, and how it and the Incident Command System - ICS will assist us in working together, to be better prepared, and respond quicker to all kinds of incidents be they small or large like hurricane Katrina. The NIMS training is called IS-700 and the ICS training is ICS-100, 200, and 300. Some responders may even need to take the ICS-400 class.



Hazardous material removers are working their way through the debris. Clean up has begun now that the roads are clear, 60 days after hurricane Katrina came through this area. Photo: Robert Kaufmann/FEMA

What Hurricanes Katrina and Rita have shown us is that the need for responders from all levels of government working together with a coordinated response to domestic incidents is what is demanded by the citizens we serve. Be it hurricanes, tornados, earthquakes, fires, floods, winter blizzards or ice storms, we must learn the principles of NIMS and ICS in order to coordinate the most successful response possible.

NIMS calls for all levels of government to adopt NIMS officially and its management system, ICS, by the start of Fiscal Year 2006.

Starting October 1, 2005

Training must be completed by the end of Fiscal Year 2006.



*Additional information online:*  
<http://www.fema.gov/nims>

*FEMA Photograph Library:*  
<http://www.photolibrary.fema.gov/photolibrary/>



Northridge Earthquake, CA, January 17, 1994  
Many roads, including bridges and elevated highways were damaged by the 6.7 magnitude earthquake. Approximately 114,000 residential and commercial structures were damaged and 72 deaths were attributed to the earthquake. Damage costs were estimated at \$25 billion. FEMA News Photo

## Colorado LTAP Advisory Committee Members:

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at Boulder

◆  
**Renée Koller**  
Colorado LTAP

◆

Colorado LTAP will be offering NIMS and ICS training for local governments around Colorado in early 2006. Don't Miss It!

## Did You Know?

The Colorado Department of Transportation (CDOT) has updated their *1999 Standard Specifications for Road and Bridge Construction* manual.

The complete *2005 Standard Specifications for Road and Bridge Construction* book (or by section) is available to access or download online through CDOT's website at:

[www.dot.state.co.us/DesignSupport/Construction/2005SpecsBook/2005index.htm](http://www.dot.state.co.us/DesignSupport/Construction/2005SpecsBook/2005index.htm)

The revisions found herein are applicable to CDOT construction projects controlled by the 2005 Specification Book.

There is also a link in the middle of the page titled: *Significant Changes found in the 2005 Spec Book.*

Use of the 2005 Standard Specification Book is mandatory after October 13, 2005.

# 2006 LTAP Special Projects

## Important Resources

### Coming Your Way

Each year, Colorado LTAP develops a series of *Special Projects* as a part of our annual Work Plan. These *Special Projects* vary from year to year addressing local agency needs as they arise. We are very excited to promote a few of the projects that are being developed for 2006 and strongly encourage local agency participation!

### Southern Agency Outreach Program

To better promote LTAP available resources to outlying agencies, Colorado LTAP has developed the *Agency Outreach Program*. For one week during the summer, the Program Manager travels to outlying agencies in each of the cardinal directions, meeting with street superintendents and road managers providing face-to-face discussion of the LTAP program. Due to the success of the *Eastern Plains Outreach* conducted in 2005, Colorado LTAP will continue with the program visiting agencies along the south half of the state with the *Southern Agency Outreach* in 2006. We are willing to speak at your city/town council or commissioner's meetings along the way. Contact Renée at the LTAP office to put in your request.



### Agency Traffic Counts

In an effort to help local municipalities better evaluate their road systems, to encourage safety improvements, and better coordinate traffic data with State databases, Colorado LTAP will partner with CDOT to offer **FREE** hose traffic counting services for five (5) agencies on a need-based application process. Colorado LTAP will offer traffic volume data collection services for three (3) sites per qualifying agency. Each traffic volume count will collect data for a 48-hr period. We will distribute a request form to local agencies, and also provide

the information on our website when it is finalized.



### Sign Retroreflector Program

At the end of 2006, FHWA will be releasing new regulations regarding minimum sign retroreflectivity standards. For the first time, agencies will be responsible for maintaining their signs to a minimum level of service. Many agencies will not be able to afford or warrant enough need to purchase their own retroreflector to measure their signs. In addition to providing training on FHWA's new regulations, Colorado LTAP will purchase and develop a **Retroreflector Loan Program** - allowing agencies to loan the meter for their sign inventory or inspection procedures. Colorado LTAP staff will deliver the meter to the agency (or deliver at a training event) and fully demonstrate the meter's use. There will be a small \$25 daily use fee. Colorado LTAP has developed a detailed "Retroreflector Loan Program Policies and Procedures" document detailing the borrowing procedures and is available upon request. We will distribute a request form to local agencies, and also provide the information on our website when the loan program is finalized.

### Training Certificates

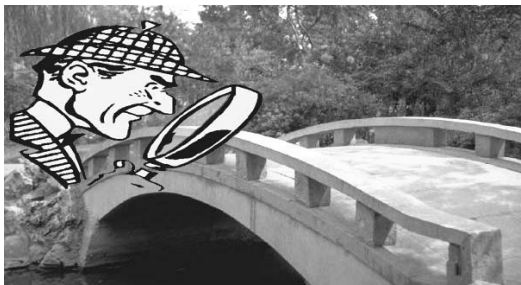
Colorado LTAP will provide free training certificates to local municipalities not currently utilizing LTAP training opportunities. Out of Colorado's 269 cities and 64 counties in Colorado, there are 114 cities/towns and 8 counties that have never attended a Colorado LTAP ...continued on page 5

*continued from page 4...*

training event. Those 122 agencies will each receive a training certificate redeemable for either two *Road Scholar* attendees or one *Supervisory Skills* attendee for 2006 classes.

### Small Bridge Inspection Program

Many small bridge structures may not be regularly inspected or maintained due to lack of time and money. Through the help of our Advisory Committee, Colorado LTAP will be developing a *Small Bridge Inspection for Local Agencies* course curriculum. The course will focus on training and tips for road crews on things to watch out for, safety hazards, routine maintenance, signs of deterioration, and more. Colorado LTAP will work on developing the program in the spring and offer the course around Colorado in September 2006. If you have any suggestions on what should be covered in this course - please feel free to contact Renée at the LTAP office.



### National Incident Management & Incident Command Systems

The Department of Homeland Security recently developed a new nationwide program to make responding to and managing all domestic incidents in the U.S. more coordinated at *all* levels of government. This new national approach to domestic incident management is called "National Incident Management System" (NIMS). NIMS calls for all levels of government to adopt NIMS officially and its management system called "Incident Command System" (ICS) by the start of Fiscal Year 2006 (starting October 1, 2005). It also requires NIMS and ICS training to be completed by the end of FY 2006 for first responders. The term "first responders" has been expanded to include public works and equipment operators. By October 2006, many public works employees will be required to have completed NIMS & ICS training.

Colorado LTAP will offer this training for local agencies in four locations around the state in the spring 2006. There will be a \$40 registration fee for participants attending these courses.

*For additional information regarding any of these Special Projects, please contact Renée at the Colorado LTAP office or visit us online as further details become available.*

[www.ltap.colorado.edu](http://www.ltap.colorado.edu)



FINAL RULE on  
**WORK ZONE**  
Safety and Mobility

### UPDATED WORK ZONE RULE AVAILABLE

FHWA has published a brochure and four fact sheets related to the recently updated work zone safety and mobility rule (23 CFR 630 Subpart J). These materials were developed by the FHWA Work Zone Team to raise awareness of the rule and support DOTs, transportation agencies, and their partners in their efforts to implement the rule. The brochure provides an overview of the rule and includes a flow diagram illustrating how the rule can be applied to the typical DOT program delivery process for road projects. The fact sheets cover the following topics:

- ~ Rule Overview
- ~ Work Zone Impacts Assessment
- ~ Transportation Management Plans (TMPs) for Work Zones
- ~ Public Information and Outreach Strategies for Work Zones

The brochure and fact sheets are available at [www.ops.fhwa.dot.gov/wz/resources/final\\_rule.htm](http://www.ops.fhwa.dot.gov/wz/resources/final_rule.htm)

All local governments that receive federal aid funding are required to comply with the provisions of the rule no later than October 12, 2007.

## Need a little extra ca\$h?

Your knowledge is worth something.



Our center has initiated a 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** 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 particle product. *Photos are encouraged.* For more information, or to submit articles/photos, include author name and contact info, and mail to the Colorado LTAP office at the address listed on page 2, or email to [cltap@colorado.edu](mailto:cltap@colorado.edu).

## WINTER MAINTENANCE AND OPERATIONS RESOURCES

### IN LTAPs FREE LIBRARY

#### *Anti-icing/RWIS Training*

A self-paced, interactive multimedia winter maintenance computer based training program. This CD was developed to assist the transportation community to understand and use the information that is provided from a Road Weather Info System, RWIS. It provides information to determine which of the tools (anti-icing, de-icing, plowing) to use to provide the best approach to winter maintenance. This program contains seven modules with the final module being a scenario room where the student can take the information that has been learned to solve true winter problems.

### ON THE INTERNET

#### *Snow & Ice Control: Guidelines for Materials & Methods*

NCHRP Report 526, 2004  
[http://gulliver.trb.org/publications/nchrp/nchrp\\_rpt\\_526.pdf](http://gulliver.trb.org/publications/nchrp/nchrp_rpt_526.pdf)  
Guidance for selecting roadway snow and ice control strategies, and tactics for a wide range of winter maintenance operating conditions. This guidance applies to highways, roads, and other paved surfaces that carry motor vehicles - under state or local jurisdictions.

#### *Winter Highway Operations*

NCHRP Synthesis 344, 2005  
[http://trb.org/publications/nchrp/nchrp\\_syn\\_344.pdf](http://trb.org/publications/nchrp/nchrp_syn_344.pdf)  
Examines changes that occurred between 1994-2004 to practices and strategies used to control the impacts of winter weather on the safe and efficient movement of traffic.

#### *6th International Symp. on Snow Removal and Ice Control Technology*

TRB Electronic Circular  
<http://trb.org/publications/circulars/ec063.pdf>  
Addresses winter weather, maintenance, customers' perspective on operations, vehicle enhancements, pavement temps and road conditions, material distribution, and snow control.

# Snowmelt Heating of Public Roadways

By John Baker, Town of Snowmass Village

Over the years the snow melting of roadways and driveways has become more popular in mountain resort towns of Colorado because of increased gradient roadways, pedestrian access, snow storage and safety. With an elevation of 8,400 to 9,000 feet and roadway gradients of 10 to 16%, the Town of Snowmass Village has had a heated concrete snow melted roadway in its main village core since 1967. In 1997 half of the town's snowmelt roadway was upgraded and replaced. In 2002, the remaining portion of the snow-melted roadway was replaced and upgraded with heated sidewalks, curb, gutter and heated parking lot and street aprons. The original concreted snow melted roadway has sustained 30 years of use prior to its replacement.

Improvements such as thicker, stronger concrete (5000 PSI), insulation board under slab (improved efficiency), the use of plastic piping and epoxy coated rebar (improved cathartic protection) has made the town confident that the improvements will increase the longevity of the snowmelt system.

Snow melted roadways are very complex and can be costly to build, operate, and maintain. The Town of Snowmass Village has a total of 131,435 sq. ft. of heated roadway and sidewalks. Due to the elevation and square footage of these heated roadways and sidewalks the use of approximately 180 BTU's per square foot is required. In 2004, it was estimated that the town spent \$1.90 per square foot in natural gas and electric costs to heat the roadway. The town's snowmelt system requires approximately 250 maintenance man-hours of in-house staff and of professional services



(approximately \$20,000 in contract service per year.)

Although costly, as resort communities increase their roadway gradients to over 10% it becomes beneficial, even necessary, to snowmelt these roadways for public safety. There are many benefits and savings of snow melted roadways such as: lesser need for snow storage, less plowing and sanding, a reduction in the silting of storm water and streams from sanding and deicer materials, extended life of roadways from reduction of freeze thaw cycling and an improved safer public roadway system. The most common issues leading towns to consider snow-melted roadways include roadway gradients that exceed 10% with a high traffic volume, snow and ice loads on the roadways, and public safety concerns.

Some drawbacks of snow melting of roadways include the costs of building, operating and maintaining the roadway, as well as, the ethical use of our natural resources. However, with the onslaught of technological advances in geothermic energy and hydroelectric power from steam and water mains, communities can only hope to improve their snowmelt systems with these advances and provide a more efficient and safe roadway system in the future.





# 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 |
|----------|-------|
|----------|-------|

|            |  |
|------------|--|
| DVD40 PMSS | <i>Preventive Maintenance - Pavement Performance Champions</i> |
|------------|--|

The package explains the advantages, benefits, and economics of Pavement Preservation and Slurry System preventive maintenance treatments for existing asphalt roadways. The brochure and videos explain in lay terms, compelling graphs and graphics, the reasons for acceptance and use of these types of surface treatments.

|           |   |
|-----------|---|
| DVD YDHRY | <i>The Young Drivers: The High-Risk Years</i> |
|-----------|---|

Crash rates for young beginning drivers are much higher than for older drivers. Parents of teenagers who died in crashes tell how the tragedies happened and how their families have been affected. 16 year-olds also tell why they want their driver's licenses and what driving means to them. The focus is on ways to reduce the crashes by limiting higher risk driving by beginning 16 year-olds. Also available on VIDEO, DVD contains state licensing law summaries.

## New CDs

| Location | Title |
|----------|-------|
|----------|-------|

|       |                                |
|-------|--------------------------------|
| CD AC | <i>Alternative Contracting</i> |
|-------|--------------------------------|

This is the participant workbook to the NHI Alternative Contracting course number 134058. It is in Microsoft Word format and covers such topics as Contract Management Methods, Procurement Methods, and Project Delivery Systems. The instructor guide is available under CD ACIG.

|         |   |
|---------|---|
| CD ACIG | <i>Alternative Contracting Instructor Guide</i> |
|---------|---|

This CD contains the Instructor Guide and Visual Aids from the Alternative Contracting NHI course number 134058. The participant workbook is available under CD AC.

|          |   |
|----------|---|
| CD DIESC | <i>Design &amp; Implementation of Erosion &amp; Sediment Control Handbook</i> |
|----------|---|

This CD contains the participant handbook for NHI's Design & Implementation of Erosion & Sediment Control class. This course reflects the agencies' commitment to providing education and training on planning, design, implementation, enforcement, inspection and maintenance strategies to control erosion and sediment on highway construction projects, as well as to ensure that regulatory issues are addressed accurately and uniformly.

## New Publications

| Location | Title |
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|          |  |
|----------|--|
| 20 GAUHR | <i>A Guide for Accommodating Utilities Within Highway Right-of-Way</i> |
|----------|--|

These guidelines are provided for consideration and use by transportation agencies in regulating the use and occupancy of highway right-of-way utilities. They are limited to matters, which are the responsibility of transportation agencies

for preserving the safe operation, maintenance, construction, and integrity of the highway.

20 PAUFR *A Policy on the Accommodation of Utilities Within Freeway Right-of-Way*

A uniform policy is needed to establish the conditions under which public and private utilities may be accommodated on the freeway right-of-way. It is the intent of this policy to establish procedures whereby the individual state transportation agencies may uniformly administer the accommodation of utilities on freeways. While the policy has as its primary purpose improving and maintaining highway safety and operation, and insuring uniformity of utility treatment among the states, it recognizes the public interest in avoiding unnecessary and costly operation and relocation of public utilities. It is not the intent of this policy to impose restrictions on the future installation of utility crossings that would obstruct the development of expanding areas adjacent to the freeways.

40 SMDC *Storm Water Management During Construction*

This course is the certification course for the Colorado Department of Transportation (CDOT) Erosion Control Supervisor (ECS). This program has been developed for the Erosion Control Supervisor responsible for the proper installation, maintenance and inspection of Best Management Practices (BMP's) for the control of erosion and sedimentation at construction sites.

50 WZSG *Work Zone Safety Guidelines for Municipalities, Utilities & Contractors*

The purpose of this handbook is to present basic guidelines for work zone traffic control. This handbook describes the requirements of Part VI of the Manual on Uniform Traffic Control Devices (MUTCD) and the Colorado DOT standard plans for Traffic Control. Particular emphasis is given to short term work sites on roads and streets in rural and small urban areas. This handbook presents information and gives examples of typical traffic control applications for two-lane and multi-lane work zones.

85 PDOPF *Planning, Design, and Operation of Pedestrian Facilities*

The purpose of this guide is to provide guidance on the planning, design, and operation of pedestrian facilities along streets and highways. Specifically, the guide focuses on identifying effective measures for accommodating pedestrians on public rights-of-way. Appropriate methods for accommodating pedestrians, which vary among roadway and facility types, are described in this guide. The primary audiences for this manual are planners, roadway designers, and transportation engineers, whether at the state or local level, the majority of whom make decisions on a daily basis that affect pedestrians. This guide also recognizes the profound effect that land use planning and site design have on pedestrian mobility and addresses these topics as well.

## New Videos

| Location | Title |
|----------|-------|
|----------|-------|

|          |   |
|----------|---|
| V50 LOTO | <i>Lock-Out/Tag-Out Safety Training for Employees</i> |
|----------|---|

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 YD | <i>Young Drivers: The High-Risk Years</i> |
|--------|---|

Crash rates for young beginning drivers are much higher than for older drivers. Parents of teenagers who died in crashes tell how the tragedies happened and how their families have been affected. 16 year-olds also tell why they want their driver's licenses and what driving means to them. The focus is on ways to reduce the crashes by limiting higher risk driving by beginning 16 year-olds. Graduated licensing laws on the books in most states are helping to do this, but parents should introduce their own restrictions -- limit the hours teenagers are allowed to drive unsupervised and limit passengers (especially other teens) in the car with a teenage driver. Parents also have to make sure the beginning drivers in their families get plenty of supervision behind the wheel. These measures can save lives while teenagers learn to drive and become more mature. Also available on DVD (code: DVD YDHRY). The DVD/video contains state licensing law summaries.



# Town of Fraser

## Icebox of the Nation

P.O. Box 120 / 153 Fraser Avenue  
 Fraser, Colorado 80442  
 (970)726-5491  
 FAX: (970) 726-5518  
 fraser@town.fraser.co.us



### SNOW MANAGEMENT SURVEY

The Town of Fraser, Colorado is in the process of evaluating their snow management operational procedures and would like your help! They would greatly appreciate it if you could take the time to provide the following information about your community to help their process. We would appreciate your assistance in completing the following survey, and would be happy to share the results with your organization. Please mail or FAX your results to Allen Nordin, Town of Fraser, at the address listed above.

Name of community:

Name and title of person completing the survey:

Total number of street miles within your community:

Total number of street miles you maintain:

Number of *year round* residents

Number of public works staff by position (list):

**Quantity and type of snow management equipment that your community uses:**

- |  |  |
|--|--|
| _____ Grader(s)  | _____ Pickup truck/SUV w/plow attached     |
| _____ Grader(s) with wing/front blade                  | _____ Pickup mounted sander(s)             |
| _____ Loader(s)  | _____ Skid steer/bobcat(s)                 |
| _____ Quick couple straight blade attachment(s)        | _____ Snow blower(s), walk behind          |
| _____ Quick couple snow box attachment(s)              | _____ Snow blower attach. for skid steer   |
| _____ Dump trucks w/plow & sander, single/tandem       | _____ Snow blower attach. for loader/truck |
| _____ Dump trucks w/plow, wing & sander, single/tandem | _____ Additional equipment & attachments   |

# Ideas That Work

## Saving Your Agency Time & Money

LTAP Region 8 "You Show Us" Contest Winner  
~ Gravel Saver ~

*Jeff Hargens, Hand County, SD*

### Problem Statement:

It is so easy to lose material around the toe (or leading edge) of the moldboard when doing blade maintenance on gravel roads. This is a greater problem in dry conditions or when the gravel does not have sufficient fines to bind the stone and sand particles together. Photo 3 shows how this happens. This is an exaggerated example which illustrates what normally happens over time. This loss of material eventually results in less gravel on the roadway surface where it belongs and begins to build a high shoulder which obstructs drainage.



(1) The Gravel Saver disk in place on moldboard.



(2) Closeup view of the disk blade moving gravel.

### Solution:

I became aware of a device that was being developed commercially to prevent this. It was a disk blade mounted on a bracket that attached to the end of the moldboard and extended out to recover material. We tried it and it did not work well. However, the principle seemed logical and I began to experiment with a device of my own. I salvaged the bearing and housing bracket from a rolling coulter on an old farm plow and fabricated a device in our shop. After some experiments with different blades and different methods of mounting, the best solution was to mount a single disk blade on the coulter housing bracket and mount it directly to the grader's moldboard. This requires slight modification of the moldboard, but does not affect the original strength of the grader's moldboard at all. The single disk blade turns as the grader moves forward and recovers and moves gravel back in front of the moldboard instead of letting it flow around the toe and spill to the shoulder. I have been using this device now for two years and it has performed with no problems. As with any change in a machine, you have to learn to operate with slightly different techniques. This device requires a slight change in the pitch and angle of the moldboard to work well, but I have found it easy to use. Photos 1, 2 & 4 illustrate the mounting and field performance of the device.

### Cost of Labor and Material:

I estimate the cost of my time in the shop at \$175.20, and the cost of two bolts, the salvage coulter and a very small amount of steel to fabricate the bracket at \$200.00. **Total Cost: \$375.20**

### Savings and Benefit:

The primary savings is preventing gravel loss to the shoulder. This is a greater problem in extreme dry conditions which we have experienced in the last two years. The SDLTAP helped calculate gravel loss from the grader moldboard over a dry season at 2.75 lb per linear ft on both sides of the road. This number comes from some of their work in studying problems on gravel roads. This converts to 14.5 tons, or just over one tandem truck load of gravel, per mile each year. My current blade route is approximately 80 miles in length. Consequently, the savings in gravel loss alone is \$10,440 per year. This gravel can be recovered in aggressive shouldering operations on a gravel road in the spring, but this also costs extra money. The *Gravel Saver* disk really reduces the need for this. Another great benefit is eliminating a high shoulder which obstructs drainage and creates a safety problem when it gets severe.



(3) The shoulder problem that develops over time.



(4) Rear view showing clean recovery of gravel at shoulder.

## Upcoming Events

### Upcoming Training

#### PROPOSED 2006 COURSES

NOTE: The following is a list of courses proposed in the 2006 Work Plan. Please contact the Colorado LTAP office for exact dates or an updated schedule. The 2006 schedule will be posted online when it is finalized, check it out online at [ltap.colorado.edu](http://ltap.colorado.edu).

#### Road Scholar Core Classes

**Signing, Pave. Markings & MUTCD**  
January, 2006

Roadway Safety & Work Zone  
Traffic Control  
Spring, 2006

**Drainage**  
October, 2006

Safety on the Job  
Fall, 2006

#### Supervisory Skills Classes

**So You Are a Supervisor Now**  
January, 2006- West Slope

Dos & Donts of Local Government  
January, 2006- Front Range

**Verbal Communications**  
February, 2006- Front Range

Ethics for New Supervisors  
February, 2006 - West Slope

**Written Communications**  
April, 2006 - West Slope

### Conferences

Transportation Research Board  
January 22-26 - Washington D.C.

**ACPA Concrete Paving Workshop**  
February 1-2 - Greeley, CO

Rocky Mountain Asphalt Conference  
February 22-24 - Denver, CO

#### Road Scholar Electives

**Work Zone Safety Inspection**  
Spring, 2006

Positive Co-Worker Relationships  
Spring, 2006

**Incident Command Systems (ICS) & Incident Management Sys (NIMS)**  
Spring, 2006

Maintaining Gravel Roads  
Spring, 2006

**Easy Methods for Estimating Materials for Roadway Projects**  
Spring, 2006

All About Asphalt Pavements  
Spring, 2006

**Topics on Concrete Pavements**  
Spring, 2006

Heavy Equipment Training  
Southeast, CO (3-days, \$120)  
April, 2006

Heavy Equipment Training  
Northwest, CO (3-days, \$120)  
September, 2006

**Small Bridge Inspection**  
September, 2006

Common Sense Solutions to Intersection Safety Problems  
Fall, 2006

**Basic Math for Road & Bridge Employees**  
Fall, 2006

Roadway Safety Fundamentals  
Fall, 2006

**Chip Seal Applications**  
Fall, 2006

### Workshops

**Flagger Certification**  
(4-hrs, FREE)  
April, 2006 - South half of Colorado

## MANAGER

A *MANAGER* IS DEFINED AS:

1. A member of the management team in charge of persons directly carrying out work.
2. A person responsible for getting work done through others.
3. A person who plans, organizes, directs and evaluates work.
4. A person who applies problem solving and communication skills to jobs, tasks, activities and management and employee relations.
5. A representative of the organization who introduces and facilitates change in the working environment.

*By Bill Sterling, City of Greeley, retired.*

## NEW FREE PUBLICATIONS

### **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.

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

This video clearly explains the benefits of "retroreflectivity" - the quality of roadway signs and other lifesaving materials as products along our nation's roadways to function in both daytime and nighttime conditions. A range of driving scenarios are presented to help illustrate the necessity of this important roadway feature.

### **F20 CS    *Standard Specs for Road and Bridge Const***

The Colorado DOT's 2005 Standard Specifications for Road and Bridge Construction and revisions thereto. The revisions found herein are applicable to CDOT construction projects controlled by the 2005 Specification Book. Use of the 2005 Standard Specification Book is mandatory after October 13, 2005.

### **F20 DCPS    *Design and Construction Project Support***

The design and construction project support section contains information about standards and specifications used during the design and construction of CDOT projects. There are also design aids, construction bulletins, special provisions, and support software.

### **F50 RSF    *Road Safety Fundamentals***

These course materials are designed to help local road professionals understand the critical relationships between roads, roadside, road user behavior, and safety. Because many of these agencies have no licensed professional engineers on staff, this publication reviews the proper use of common traffic control devices such as signs, lane markings, and lightning. It also addresses the use of and effectiveness of roadside barrier systems, and guardrail systems.

*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>*

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