

# Colorado LTAP

August 2005

Serving local transportation agencies throughout Colorado

Fall Issue

## Economic Landslide Repair Sawdust as Lightweight Backfill

Submitted by: Bob Barrett, Soil Nail Launcher



Super nails and micropiles cantilever a GRS wall over a slide scarp.



Placing and compacting lightweight sawdust backfill.

Kentucky Transportation Cabinet (KYTC) maintenance personnel fought two adjoining embankment failures on Highway 144 in Breckinridge County near the Ohio River for two years. What had begun as two small embankment slips coalesced into a large and rapidly deteriorating landslide. KYTC maintenance personnel were adding material daily by the time the repair project began. In fact, they excavated more than 6 feet of asphalt and pavement millings in the top of the slide as part of the repair.

Following two wet years, the smaller slide expanded along the shoulder about 100 feet. The scarp was limited to the first few feet of asphalt in this expansion. There was appropriate concern that the slide would continue to grow, both into and along the roadway.

The major slide was in an embankment that was only about 25 feet high. It was about 80 feet across and the back scarp went to the center of the road. The slip plane was at a relatively low angle and flatter than would be expected for the silty,

sandy clay soils in the area. The toe was bulging up in private property about 150 feet out.

Bedrock is quite deep at this slide, thus traditional methods of repair such as piling and caissons would have been both difficult and expensive. The alignment here is a long tangent. Thus, a road relocation, in addition to holding questionable odds for success, would have to be very lengthy and with some compromise in safety. Any repair would be very expensive, and maintaining the roadway surface was becoming prohibitive.

KYTC officials were looking for solutions and invited *Soil Nail Launcher, Inc.* personnel to look at the site. It was decided that the smaller failure could be repaired and the lane restored with Super Nails and a geosynthetically reinforced

soil wall. The major slide could be repaired by removing material from the top of the slide and replacing it with light weight material.

The landowner allowed KYTC

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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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Return to:

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**LOOK  
INSIDE**  
for a list of  
**FREE training  
videos.**

## Colorado LTAP

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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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## Need a little extra ca\$h?



Your knowledge is worth something.

Our center has recently 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. Colorado LTAP is 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, without specifically promoting 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).

## Trust and Respect

In leadership, no word is more important than trust.

-Mike Krzyzewski

## Quotes

of

How do leaders earn respect? By making sound decisions, admitting their mistakes, and putting what's best for their followers and organization ahead of their personal agendas.

-John Maxwell

the

To build trust, a leader must exemplify competence, connection, and character.

-John Maxwell

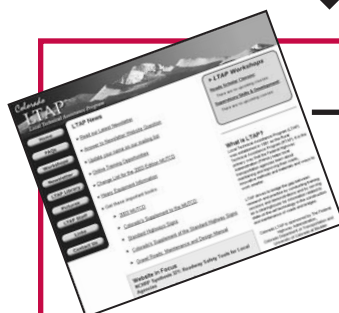
Day

Few things help an individual more than to place responsibility on him, and to let him know that you trust him.

-Booker T. Washington

The man of integrity walks securely, but he who takes crooked paths will be found out.

-Proverbs 10:9, NIV



<http://ltap.colorado.edu>

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

# Goodbye and Good Luck

## Farewell to Fred Limmel



In June 2005, Fred Limmel retired from Commerce City after 33 years with the City. Fred has worn many hats while working for the city. His family surrounded him at his retirement party while Fred was honored by several departments; police, fleet maintenance, streets, and even the recreation center-just to name a few. Here, Program Manager Renée Koller presents Fred with a plaque for his 4 years of service on the Colorado LTAP Advisory Committee.

**Thank you Fred - We'll miss you!**

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## Utilizing Sawdust as a Lightweight Fill to Repair a Difficult Landslide

*continued from page 1...*

maintenance personnel to push the material in the top of the slide down onto the toe area. This added significantly to the overall effectiveness of the correction. The heavy soil and asphalt from the top of the slide then acted to buttress when it was dozed to the toe.

The excavation at the top was then filled with sawdust from two local mills. The sawdust was hauled in trucks and dumped onto the roadway. A loader pushed the sawdust over the edge and a dozer spread, leveled and compacted the sawdust all in one operation. The sawdust was covered with about 24 inches of asphalt millings and then paved. The sides were covered with a foot or more of clay and topsoil to seal the air. The base of the fill was graded to drain. This is the Kentucky Transportation Cabinet's first modern sawdust fill construction.



Cost for this solution was half or less compared to more traditional solutions. The entire project took only a few days to complete. The highway was open to one-way traffic during the work, with limited stops for trucks dumping and turning.

Lightweight fill replacement, often under-utilized, can be an inexpensive solution for landslides. There are currently several slides that could be repaired for relatively low cost with light weight fills - sawdust, expanded shale, and Expanded Polystyrene (EPS) geofoam.



*Bob Barrett* built sawdust fills while working for the Colorado Department of Transportation and is now the President of *Soil Nail Launcher, Inc.*

**For more information contact:**  
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[bob@soilnaillauncher.com](mailto:bob@soilnaillauncher.com)



### Colorado LTAP Advisory Committee Members:

◆  
**Marlene Crosby**  
 Gunnison County

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**John Baker**  
 Town of Snowmass

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**Adam Lancaster**  
 City of Cañon City

◆  
**Dick McKee**  
 Archuleta County

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**Tammie Crawford**  
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**Doyle Villers**  
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 CDOT

◆  
**Craig Larson**  
 FHWA

◆  
**Yunping Xi**  
 University of Colorado  
 at Boulder

◆  
**Renée Koller**  
 Colorado LTAP

◆



### GUIDE TO SURFING THE INTERNET SUCCESSFULLY

Wouldn't it be wonderful to type a few words into your search engine's query box and get just the site you wanted? It's not always possible to find the perfect site and who has the time to search through 5,000 sites looking for it! There's a better way to find what you need on the Internet, and listed below are three Websites that can help.

For good internet tips:

1. The State University of New York at Albany's site: <http://library.albany.edu/internet>

2. "Best Search Tools Chart" is at: <http://www.infopeople.org/search/chart.html>

3. The Educational Technology Department of San Diego State Univ. lists the "Four NETS for Better Searching". They are:

- >Start Narrow
- >Use Exact phrases
- >Trim the URL
- >Seek similar pages

Visit their site for details that may help you search the net successfully!  
<http://webquest.sdsu.edu/searching/fournets.htm>

# Ideas That Work

## Saving Your Agency Time & Money

### Guardrail Sign Mount

Tony Roberts, Larry Batterton, Bob Taylor, Jeff Vitamanti, WSDOT

#### The Problem:

Placement and replacement of Carsonite Delineator post used to mark the edges of the paved roadway. Tools available on the market consisted of slide hammer (fence post driver) style installation devices. Each delineator must be driven into the ground approximately 18 inches. In many locations there was asphalt and other barriers making installation extremely difficult. On many occasions requiring the use of a jackhammer to make a pilot hole before installing a delineator. Using this methodology a two-man crew could only install 10 – 20 posts per day.

#### The Solution:

Develop a tool that would quickly and effortlessly make a pilot hole and to speed up installation operations. The concept was to make a tool that would attach to the stinger of an equipment mounted jackhammer. After receiving permission to test the concept, the WSDOT Colfax shop fellows quickly built the tool and rented the equipment needed. The first tests quickly proved their theories to be correct, and the crew was soon able to dramatically increase production. By using this equipment and changing to a three or four man crew, they are now able to install between 5 and 7 miles of delineator posts per day and average less than 2 minutes per installation. Scrap materials and shop resources were used to build the prototype unit; estimated cost to purchase materials is less than \$200.

Materials used were a jackhammer spade, Selby tubing, chain and some half-inch plate. It took about two days of testing and modification to develop a working prototype.

Larry Batterton, Maintenance Supervisor, supported the men in their inventing and testing.

#### For more information contact:

Bob Taylor, Maintenance Lead Tech., WSDOT Eastern Region, Colfax Shop, 509-324-6581

**This is technology transfer: taking good ideas and documenting them so that they can be shared amongst the communities they impact.**

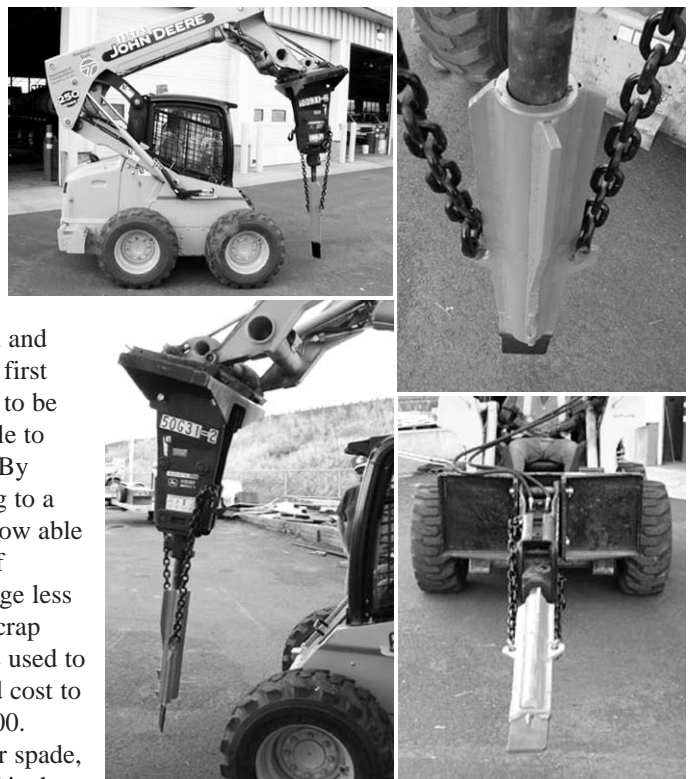
**A simple formula: Good Ideas = Savings, and Savings = Good Governance**

WA LTAP's "Build a Better Mousetrap" program was started in 2000, with the purpose to:

> Recognize the initiative and innovative thinking of public agency transportation staff in the development of tools, equipment modifications, and processes that increase safety, reduce cost, improve efficiency, and improve the quality of transportation.

> Identify and help distribute ideas created in the field so others can duplicate them and implement them.

> Promote continued improvement.



# Where to Find a Mentor

## How to Be a Mentor

Submitted by: David Grouchy

The outlook for the future may look dire. Every city, county and state is being asked to do more with less. The transportation systems cannot handle the volume or the load of the traffic. Salaries of public works employees are much lower than the national average. The driving public is frustrated and openly hostile. Morale is at an all time low. Many good people are leaving the public sector and taking their experience and enthusiasm with them.

What is a supervisor to do?

Obviously, the answer is complicated and different for every city, county and state government. There are some basic remedies that can help in all cases, though. One of these is to find a mentor, someone who has the knowledge and experience to help you handle the problems you now face.

Most mentoring is of an informal nature, involving a new supervisor and a more experienced supervisor or administrator. The relationship can develop a number of ways, including outside interests, work interaction and one party seeking out the other. Obviously, while this method may be very effective in specific cases, it is unreliable as a policy.

Some agencies have structured mentoring as part of their workforce development program. This may be known as formal mentoring or planned mentoring. It primarily focuses on the goals of the organization.

Organizational goals increase productivity, eliminate turnover and reduce absenteeism. Planned mentoring concentrates on the needs of the organization. This usually results in benefits to both the organization and the

new supervisor. This type of mentoring promotes a formal approach to the relationship so there is little or no social interaction. The mentor and new supervisor rarely see each other outside the office. The mentor and new supervisor are not concerned with developing a friendship as much as they are interested in meeting the organization's needs. After all, the basis for the relationship is organizational commitment. This type of mentoring takes a systematic approach that usually involves matching participants based on career paths. The

organization trains the participants to understand their roles as mentor and new supervisor. At some point progress is evaluated to determine the results, such as advantages, cost effectiveness, and difficulties.

If none of these options are available to the new supervisor, self mentoring may be the only option.

Self-mentoring can be considered a type of mentoring. It differs significantly from the other two mentoring types because it is more a strategy than a program. There is no mentor who promotes the development of a new supervisor. Rather, the individual cultivates his or her own professional growth through self-tutoring activities and resource-finding techniques. Self-mentoring requires the individual to be highly motivated and self-disciplined. The individual prefers to increase job effectiveness and augment professional talents by building a body of knowledge and skills without the aid of other people.

There are several self-mentoring strategies that successful individuals have used. Here are five strategies that

With increased responsibilities and traffic volumes, less pay, lower morale, and fewer employees, What is a supervisor to do?

### TOP TEN TIPS To Attract, Retain, and Motivate

1. Pay employees fairly & well, then get them to forget about money.
2. Treat each and every employee with respect. Show them that you care about them as a person, not just as a worker.
3. Praise accomplishments and attempts: both large & small, at least four times more than you criticize, publicly and in private, verbally & in writing, promptly as observed and sincerely.
4. Clearly communicate goals, responsibilities, and expectations.
5. Recognize performance appropriately and consistently: reward outstanding performance, and do not tolerate sustained poor performance; coach and train, or remove!
6. Involve employees in plans and decisions. Solicit their ideas and opinions.
7. Create opportunities for employees to grow.
8. Actively listen to employees' concerns - both worked related, and personal.
9. Share information - promptly, openly, clearly.
10. Celebrate successes and milestones reached.

By Don Grimme, Training Authority. [www.employee-retention-hq.com](http://www.employee-retention-hq.com)

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### FREE Videos\*

FV31 BSR - Bituminous Surface Replacement

FV40BPM - Bulldozer Preventive Maintenance

FV40 CRAP - Crack Repair in Asphalt Pavement

FV24 ETPP - Effect of Tire Pressure on Pavements

FV50 FPO - Flagging Procedures & Operations

FV50 FCPS - Florida Child Passenger Safety Prog.

FV31 LL - Lane Leveling: Bituminous Surface

FV31 L - Lime: The Versatile Stabilizer in Construction

FV50 LO - Loader Oper.

FV40 MD - Maintaining Drainage

FV40 MNHS - Maintaining Non-Hard Surfaces

FV40 ODM - ODM Rollers

FV40 PSRC - Crack Sealing

FV40 PSRP -Pothole Patch.

FV24 RDRC - Repair of Depressions, Rutting, & Corrugations

FV31 RP - Restoration of Profile in Asphalt Hwys.

FV40 SC - Sealing Cracks

FV24 SMST - Single/Multi Surface Treatments

FV40 TBT -Tilt Bed Trailers

FV31 AR - Asphalt Rubber

\*These are VHS tapes that were produced prior to 1995.

# Public Relations

## Dealing with the Media & Public

### AN UPCOMING LTAP TRAINING EVENT

“Effective spokespeople are made, not born.”<sup>1</sup> Colorado LTAP can help! In October, we will offer two classes on “Public Relations: Dealing with the Media and Public.” The class will offer advice for how to handle interviews confidently and professionally; will contain information on how to be proactive in media and public relations; and offer suggestions on how to build relationships with the media and public so they don’t surprise you with a phone call when you are up to your eyeballs in other work. You may not be able to fend off phone calls when a crisis occurs, but you certainly can learn how to communicate calmly and effectively in those situations.

1. The Kansas LTAP center has developed a *Media Relations Guide*. The seven-page booklet aims to enhance the credibility of road and bridge representatives who speak with the media. A copy of the *Media Relations Guide* can be obtained by contacting the Colorado LTAP center, or accessed online at:

<http://www.kuttc.ku.edu/pdf/files/KUTCmediaguide.pdf>

Public Relations Training  
October 11, 2005 - Denver  
October 13, 2005 - Glenwood

## Where to Find a Mentor

### How to Be a Mentor

*continued from page 5...*

individuals have used to help advance their professional growth:

#### a. Ask and Listen.

Ask questions & listen carefully to the experts in your field of interest. This includes finding out who is the authority on a subject and asking detailed questions. Talk to people who are in positions to which you aspire.

#### b. Read and Research.

Read and research materials in the field. Learn new information from trade magazines, books, and periodicals.

#### c. Observe.

Observe people in leadership positions. Individuals can learn a lot about the inner workings of the city or county and

different leadership styles simply by watching those in authority.


#### d. Attend educational programs.

Educational programs may include conferences, seminars, night classes or city or county training courses.

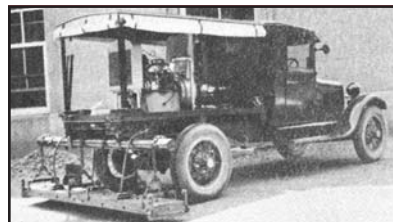
#### e. Seek new opportunities.

Volunteer for projects or join professional organizations. You may want to alert your new supervisor to these strategies. A new supervisor should be encouraged to look for opportunities to develop

independently, outside of the traditional mentoring arena.

*David Grouchy* is the former Director of the Louisiana LTAP center. 

Five Strategies  
for Individuals  
to Help Advance  
Their  
Professional  
Growth



### Website Question

Year 1928. What is this piece of equipment called and what is it used for? Visit the Colorado LTAP website for the answer at:

<http://ltap.colorado.edu>

## Upcoming Events

### Upcoming Training

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#### Fall 2005

NOTE: Dates and locations are subject to change. Please contact the Colorado LTAP office for an updated schedule, or check it out online at [ltap.colorado.edu](http://ltap.colorado.edu).

#### Road Scholar Core Classes

##### Drainage

- November 1 - Alamosa
- November 3 - Montrose
- November 9 - Frisco
- November 15 - Greeley
- November 17 - Colorado Springs

##### Roadway Safety & WZTC

- December 5 - Ft. Morgan
- December 7 - Castle Rock
- December 8 - La Junta
- December 13 - Glenwood Springs
- December 15 - Durango

#### Road Scholar Elective Classes

##### Heavy Equipment Training

- Ouray, CO (3-days, \$120)
- September 12 - Classroom
- September 13-14 - In-field, Group 1
- September 15-16 - In-field, Group 2

##### Defensive Driving

- September - Denver

##### Erosion Control

- October 5 - Denver
- October 7 - Grand Junction

##### Public Relations: Dealing with the Media and Public

- October 11 - Denver
- October 13 - Glenwood Springs

##### Roadway Surveying

- October 17 - Denver
- October 18 - Pueblo
- October 20 - Durango
- October 21 - Grand Junction

##### Introduction to Roundabouts

- October 25 - Denver
- October 27 - Grand Junction

##### Culvert Installation & Maintenance

- November 7 - Denver
- November 8 - Pueblo
- November 10 - Grand Junction

##### Designing Pedestrian Facilities

- November 21 - Grand Junction

##### Winter Maintenance

- December - Denver, Glenwood Springs, Pueblo, Durango

#### Supervisory Skills Classes

##### Are You Understood?

- Verbal Communication
- September 14, 2005 - Grand Junction

##### Successful Employees Make

- Successful Supervisors
- September 19, 2005 - Rifle

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

- Dealing with People
- October 3, 2005 - Castle Rock

##### Developing the Leader Within

- November 21, 2005 - Commerce City

##### A Whole New World

- Nuts & Bolts of Local Government
- December 5, 2005 - Grand Junction

### Workshops

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#### CDOT Research Expo

- December 12 - Denver

### Conferences

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#### APWA West Slope Snow & Ice

- September 7-9 - Gunnison, CO

#### APWA Western Snow & Ice

- September 27-30 - Estes Park, CO

#### County Road Advisor's Conference

- October 12-13 - Rapid City, SD

#### CCI Winter Conference

- November 28-30 - Colorado Springs, CO



### BUILDING SAFER WORK ZONES

In the summer edition newsletter, there was an article congratulating those who received a score of 100% on the Flagger Certification exam. Due to a printing error, one name was edged off the page by mistake - our apologies.

#### Congratulations

**John Combs**  
**City of Central City**



Each year 42,000 Americans are killed on our Nation's Roadways. Imagine... a day with ZERO traffic fatalities. You can become involved to promote the reduction of fatalities by utilizing resources and information available on the "Put the Brakes on Fatalities" website at: <http://brakesonfatalities.org> Mark October 10, 2005 on your calendars as "Put the Brakes on Fatalities Day". Tell your family coworkers, and friends, AND...

Drive as if Your  
Life Depends on It

# FREE PUBLICATIONS\*

## CDs

- FCD PP2 Pavement Preservation 2: State of the Practice*  
*FCD DEWZAP Driver Education Work Zone Awareness Program*  
*FCD FPT RC Flagman Priority Technology*  
*FCDNITSA National ITS Architecture*  
*FCD WZO Work Zone Operations: Improving Mobility & Safety on Both Sides of the Barrel-Best Practices Guidebook*

## VIDEOS

- FV50 NL Night Lights: How Retroreflectivity Makes Roads Safer*  
*FV50 DS Danger Signs*

## SPANISH

- F50 FHS Manual del Abanderado*  
*F50 CWZBPS Guia de Mejores Prácticas de Seguridad en las Zonas de Trabajo en Colorado*

## SAFETY GUIDES

- F50 CWZBP Colorado Work Zone Best Practices Safety Guide*  
*F50 SIG Sign Installation Guide*  
*F50 WZS Work Zone Safety: Guidelines for Municipalities*  
*F50 BSHWZ Building Safer Highway Work Zones: Measures to Prevent Worker Injuries from Vehicles and Equipment*

## FLIPBOOKS

- F50 FHE Flagging Handbook: English*  
*F50 PSIP Pedestrian Safety Information Packet*  
*F50 FGURR Field Guide for Unpaved Rural Roads*  
*F50 PCMS Portable Changeable Message Sign Handbook*  
*F40 MTRR Management and Techniques for Riparian Restoration*  
*F40 TCH Traffic Control Handbook for Mobile Night Operations*

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>

## Colorado LTAP

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