

FREE Publications

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.

Requests can also be made through the library page of our website, <http://ltap.colorado.edu>.

The center has received copies of Pavement Preservation Checklist Series pamphlets published by the Federal Highway Administration. There are six handbooks in the series. Get them FREE while supplies last!

- 1. Crack Seal Application**
- 2. Chip Seal Application**
- 3. Thin Hot-Mix Asphalt Overlay**
- 4. Fog Seal Application**
- 5. Microsurfacing Application**
- 6. Joint Sealing Portland Cement Concrete Pavements**

More FREE Publications
Traffic Control Handbook for Mobile Operations at Night, 53 pgs.

Excavations, OSHA Publication 2226, A detailed document explaining all aspects of excavation and trenching, 44 pgs.

Excavation, Trenching and Shoring Safety, 13 pgs.

Examples of Good Practices for Trenching and Excavations, 8 pgs.

Development of Safer Trenching Operations-Presentation, 15 pgs.

Safety in Excavations and Trenches, 17 pgs.

Guidelines for Excavation Work, 13 pgs.

A Guide to Transportation Enhancements, 11 pgs.

Getting to Smart Growth: 100 Policies for Implementation, 104 pgs.

Creating Great Neighborhoods: Density in Your Community, 42 pgs.

Travel & Environmental Implications of School Siting, 33 pgs.

Handbook on Successful Supervision, 130 pgs.

Practicas Efectivas Para El Control De Trafico En Zonas De Trabajo En Las Carreteras, Calles Y Puentes, 5 pages

Colorado LTAP

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Colorado LTAP

May 2004

Serving local transportation agencies throughout Colorado

Summer Issue

Avoiding the Dangers of Trenching

We all know that construction work can be dangerous, but work involving trenching and excavating activities has been found to be the most dangerous in the industry.

In the U.S., about 400 workers die every year and 6,400 are seriously injured while trenching². And it appears that accidents of this kind are most common in municipal and county governments. Organizations such as the Occupational Safety and Health Administration (OSHA) and Local Technical Assistance Program (LTAP) centers across the country are dedicated to promoting safe work practices in

an effort to reduce injuries and fatalities of this kind.

Since accidents are continuing to occur, workers involved in trenching activities need to become better informed and trained to recognize dangerous situations and how to protect themselves. This article was developed to inform and educate those working in trenches about the dangers they face and the safe work practices that they should follow for their protection.

Excavation work requires cuts to be made in the earth's surface through soil removal. Therefore, knowledge in determining different soil types and classifications becomes critical in determining appropriate safety precautions. Soil is categorized into four types:

Solid Rock: Although considered to be the most stable, solid rock is practically unobtainable due to the drilling and blasting required to excavate it.

Soil Type A: Considered to be the next most stable, Type A soil includes cohesive soils such as: clay, silt clay and hardpan (resists penetration of roots). Care should be taken in classifying Type A. If the soils in this category appear to contain fissures (cracks) or are affected by other adverse conditions such as surrounding vibrations, have been previously disturbed (which is usually the case), are part of layered system, or are exposed to water and freeze-thaw conditions, then they must be classified as Type B soil.

Soil Type B: This type is considered to have medium stability and includes both cohesive and non-cohesive soils: silt, sandy loam, medium clay and unstable dry rock.

Soil Type C: These are the least stable soils and produce the greatest hazard if used. Soils in this type include: gravel, loamy sand soft clay, submerged soil or dense heavy unstable rock. Type C soil may be present if sloughing of the sides of the walls occurs or if water is seeping from the sides.

Regardless of which soils exist, excavations in or near backfilled or previously disturbed ground are especially dangerous



Participants at MT LTAP's recent Trenching Workshop. Photo by Steve Jenkins, MT LTAP.

In This Issue

COVER STORY
Avoiding the Dangers
of Trenching

**Program
Manager's Corner** 2

**How to Increase
Your Training
Budget, Part 3** 3

**Roads Scholar
Graduates** 4

**Highway Work
Zone Problems** 5

**Eligibility Changes
to Roadway
Worker Memorial
Scholarship Fund** 6

Upcoming Events 7

**2004 CARSE and
APWA officers** 7

Free Publications 8

Routing Slip

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

Return to:

...continued on page 4

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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Program Manager's Corner

Colorado LTAP would like to welcome its first ever full-time Program Coordinator, Lindsay Marshall. Lindsay started working at the center through a temp agency last fall. As of April 1, 2004, she is now a full-time employee at the University of Colorado at Boulder working for the Local Technical Assistance Program.



Program Coordinator
Lindsay Marshall

Lindsay handles technical assistance requests and answers questions our office receives regarding transportation and safety related issues, providing guidance for local highway and public works agencies.

As training coordinator, Lindsay has been essential to the center in researching and developing new training sessions and coordinating the implementation of all training programs, workshops and conferences

conducted at locations throughout Colorado. In just 5 short months, Lindsay has quickly gained the knowledge and skills needed to help as office manager in overseeing daily operations and other library staff members.

LTAP's mission is to foster a safe, efficient, environmentally sound transportation system by improving the skills and knowledge of local transportation providers. Lindsay's help has been critical to the success of Colorado LTAP in accomplishing this goal.

Good luck Lindsay, the LTAP family welcomes you!

Renée Cusson

Quotes

Eighty percent of success is showing up.

-Woody Allen

of

The more extensive a man's knowledge of what has been done, the greater will be his power of knowing what to do.

- Benjamin Disraeli

the

If you think education is expensive, try ignorance.

-Derek Bok

Day

The illiterate of the 21st century will not be those who cannot read and write, but those who cannot learn, unlearn, and relearn.

- Alvin Toffler



<http://ltap.colorado.edu>

Visit Colorado LTAP online today for committee openings, workshop listings and reference tools.

Upcoming Events

Conferences

2004 Technology, Innovation and Safety Deployment Conference

June 8 - 10, 2004

Adam's Mark Hotel, San Antonio, TX
For information and registration:
<http://teexcit.tamu.edu/texasltap/fhwa/index.cfm>

International Municipal Signal Association (ISMA) 109th Annual Conference

July 16 - 23, 2004

Marriott Tech Center, Denver, CO
Visit www.imsasafety.org
for more information.

National LTAP/TTAP Conference

July 31 - Aug. 4, 2004

Hyatt Tamaya Resort, Bernalillo, NM
For more information, call the CLTAP office or visit www.ltapt2.org/inside/conference.htm.

2004 APWA International Public Works Congress

Sept. 12-15, 2004

Atlanta, GA

For complete information or to register online, visit the APWA website at www.apwa.net.

Education

Click, Listen and Learn

TARGET Finance 1: Tools for Effectively Preparing & Managing Your Operations Budget

June 3, 11 a.m.-1 p.m., Internet

What to Ask, How to Answer: Getting Real About Your Public Works Fleet

June 16, 9 a.m.-11 a.m., Internet

TARGET Finance 2: Capital Budgeting for the Public Works Professional

July 15, 11 a.m.-1 p.m., Internet

Doing Due Diligence: What Lawyers Want Public Works Directors to Know

July 22, 9 a.m.-11 a.m., Internet

For registration information, please visit the APWA website at: www.apwa.net.

CLTAP Training

Training will resume in September. See you then!

Roads Scholar Core Classes

Roadway Safety & Work Zone Traffic Control

Dates and locations TBD

Drainage

October 6 - Northglenn

October 14 - Pueblo

October 26 - Rifle

November 4 - Durango

Roads Scholar Elective Classes

Roadside Vegetation Maintenance

August 30 - Grand Junction

August 31 - Castle Rock

Basics of a Good Gravel Road

October 4 - Ft. Morgan

October 12 - Colorado Springs

October 25 - Glenwood Springs

November 3 - Durango

Heavy Equipment Training - Western Slope

Sept. 13 - Classroom session for all

Sept. 14-15 - Group 1 in-field session

Sept. 16-17 - Group 2 in-field session

Advanced Computer Skills

Dates and locations TBD

Equipment Maintenance and Inspection

Dates and locations TBD

Safety Risk Management

Dates and locations TBD

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Upcoming Supervisory Skills and Development Program (SSDP) Classes

So You're a Supervisor Now? Roles & Responsibilities

Sept. 14 - Western Slope

A Whole New World: The nuts and bolts of how government works

Date TBD - Front Range

Developing the Leader Within

Date TBD - Western Slope

Successful Employees Makes Successful Supervisors

Nov. 9 - Front Range

Roadway Worker Memorial Scholarship Program

NEW This Year: Parents with Custody or Legal Guardianship of Surviving Children Are Now Eligible for Scholarships.

The American Traffic Safety Services (ATSS) Foundation is now accepting applications for the "Roadway Worker Memorial Scholarship Program."

The Scholarship Program provides financial assistance for post-high school education to children of roadway workers killed or permanently disabled in work zones, including mobile operations and the installation of roadway safety features.

Parents with custody or legal guardianship of surviving children are also eligible. Scholarships will be awarded through a competitive process and have a value of up to \$3,000 each.

If you or a family you know qualifies, apply today. To download an application form and selection criteria, visit the Foundation link at www.atssa.com. For a complete scholarship packet, contact the ATSS Foundation Department at (800) 272-8772.

What a Difference 100 Years Makes!

In 1903, there were 8,000 cars in the United States and 144 miles of paved roads. The maximum speed in most cities was 10 mph.

The secrets of boosting training money

continued from page 3 ...

4) Spend all of the money you have, and then ask for more.

Often, we'll get training requests in July, August and September from training officers who are trying to spend everything from their budgets so they can receive comparable budgets for the next fiscal year. While this practice makes sense, if you take it a step further, you might be able to get more than what you got in the previous year. Instead of waiting until the eleventh hour to spend your money, try making these "final" requests in May or June. Then, try to find more money to schedule training at the end of the fiscal year. Even if you don't get it, you'll be demonstrating a need that is greater than in years past. By demonstrating this need, you could be setting yourself up for an increased budget in the next fiscal year. Which brings us to the final tactic ...

5) Ask for more training dollars than you think you'll be satisfied receiving.

Your budget request for training and employee development is one huge, complicated negotiation, so always keep that in mind. When people negotiate salaries in the private sector, the smart ones ask for more than they'll be satisfied receiving. If someone is currently earning \$40,000 per year, and she's up for a raise, it makes sense to ask for more than she needs. She might ask for \$52,000 plus more vacation days when all she really wants is \$45,000 and the same amount of vacation days. Since she is valuable to the organization, her boss might grant her request. But even if she doesn't get it all, she'll probably get at least the \$45,000. When you

ask for more than you need, you'll often be surprised with getting at least what you need.

The same theory can apply to requesting a new training budget. Let's say you currently have a \$225,000 training budget. If you think you need a bit more and will be satisfied with a \$250,000 training budget for the next fiscal year, it might benefit you to request \$400,000. What's the worst that can happen? If you've prepared valid reasons for your higher request and you can defend these reasons with solid evidence of the value of the training, you'll probably get at least \$250,000. If not, you almost surely won't get less than \$225,000, and you'll have positioned yourself for more money in the future. Plus, if one of your higher-up advocates complains that his or her employees aren't getting enough good training opportunities, you can show that you sought more but were denied it. It's a win-win for the training office.

As we've said before, none of these strategies are fool-proof. Every organization has its quirks. All you can do is give them a shot. Maybe your budget personnel will surprise you. And then you're off to the races!

.....

Benchmark Training was founded in 2003 to provide training solutions that produce lasting improvement for government organizations. They educate their clients by providing Training Officer Tips similar to this one each month as an opt-in email service. The tips focus on strategies and techniques to help training officers do their jobs more effectively and improve upon their training. To sign up to receive these tips monthly by email, go to: <http://www.benchmark-training.com/tips.html>.

Website Question:

When should you discontinue the use of a PCMS or alter its message?

One of the most significant problems perceived with a Portable Changeable Message Sign (PCMS) is credibility. A failure to display the correct information on a PCMS creates a negative image in motorists' minds. When should you discontinue the use of a PCMS or alter its message?

Please visit the Colorado LTAP website at <http://ltap.colorado.edu> to find the answer and a link to FHWA's Portable Changeable Message Sign Handbook.

How to Increase (or at least protect) Your Training Budget, Part 3

Part 3 of 3, Provided by Benchmark Training, December 9, 2003

The following suggestions, combined with your own good ideas and best practices might breathe some life into your training plans:

1) Find examples of standout performers in your agency or department who have benefited from training.

Hold them up to decision makers. Scan your brain for and ask your colleagues to identify your standout performers. Then, ask these winners what kinds of training programs and coaching arrangements have positively impacted their performances. Make sure they are specific about which topics helped them and why. Ask them to state the exact benefits that they derived from their training, and then ask them for recommendations for future training. Three things will happen when you do this: a) you'll learn which topics work and why, b) you'll learn the best way to sell these benefits to budgetary decision makers, and c) you'll be giving the top performers a role in the process. Since many top performers have influence in your organization, you'll be more likely to get their endorsement for the training dollars you request. This outcome can only help your chances of being taken seriously.

2) Compile training evaluation data in a purposeful and creative manner.

A seldom used — but tremendously valuable — tool at your disposal are the evaluations of training programs and instructors. A couple of important pieces of information can be gleaned from them that can help you make a case for increased training dollars. a) Direct quotes and testimonials from participants. By compiling the best critiques into justification documents for each program and instructor, you can help justify your training requests. Try to write the evaluations in such a way that the participants will write specifically about the benefits they've received from the training. The best quotes should say why the training is effective and how the skills learned in the program can be taken back to the office and be used in a positive, productive manner. b) Compile "averages" of the program and instructor effectiveness. Even though it is not the most scientific way to write evaluations, the easiest way to get general feedback about programs and instructors is to have the participants rate the content and delivery on a scale of 1 to 5. Average out the ratings from each course and compile the data. Assemble the averages in the same document

as the quotes, and you'll be creating a comprehensive look at the value of the program and the popularity of the instructor. What's known as the "Hawthone Effect" holds true with your training evaluation. It says that things that we monitor and measure tend to improve over time. So, by diligently compiling your evaluations, you can experience a double-whammy: You're employees will get better at their jobs and you can better justify running the courses in the future.

3) Institute a Mentoring Program in your agency or department.

If you are not currently running a mentoring program, or if you think you can run a better one than you currently have, make sure you inquire about Benchmark Training's experience in this important employee development and succession planning tool.

In general, mentoring programs do three things: a) They enhance organizational performance, b) they develop emerging leaders, and c) they enhance the effectiveness of the established leaders. These are all very positive outcomes. And, they can help you increase your training budget. How? In at least two ways. Good mentoring programs have training components that are aligned with the employee development goals of the organization. And since many organizations see the budgets for mentoring programs as being separate from training, you can train many employees within mentoring program without putting a dent in your regular training budget. The second way mentoring programs can help to increase your training budget is to leverage the fact that the mentors are usually GS-15s and SESers. These employees have influence throughout your organization, so mentoring programs in which they participate will generate positive buzz in the upper echelons of your organization. You can get them to be advocates for your cause and point to the success of the mentoring program as a justification for increased training dollars in the future. In order to achieve this result, remember to build evaluations into the mentoring program, and always tie the goals of the program back to your agency's workforce plan and human capital goals. Keep your agency's goals at the forefront of your program, and budgetary decision makers won't be able to ignore the return on investment (ROI) of all of your programs.

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FHWA



Yunping Xi
University of Colorado
at Boulder

...continued on page 6

Roads Scholar Graduates

Colorado LTAP would like to recognize the following *Roads Scholar* and *Supervisory Skills & Development* training program graduates. We appreciate the dedication not only of the participants, but of their supervisors as well. Thank you for your continued dedication to workforce development.

2nd Quarter Supervisory Skills Plaque Recipients

Mike Schaller, City of Black Hawk

Dan Dennison, City of Mead

Dave Frost, City of Castle Rock

2nd Quarter Roads Scholar Plaque Recipients

Jerry Slanovich, City of Arvada

Andrew Loats, CDOT Region 6

David Day, Garfield County

Daryl Eggers, Jr., CDOT Brush

Jeff Sloan, City of Thornton

Casey Hoyt, Mesa County

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Ken Overs, City of Boulder

Avoiding the hazards of trenching

continued from page 1 ...

since the soil is “loose” and does not support itself well. Previously excavated soil will never return to the way it was originally formed.

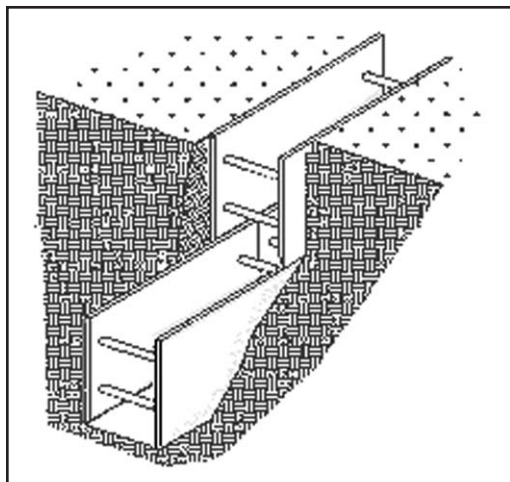
If the soil type is uncertain, always assume Type C.

Probably the most common hazard workers should be aware of is when the walls of an excavation collapse or cave-in. Initially, natural horizontal and vertical forces developed by nearby soil keep undisturbed soil in place.

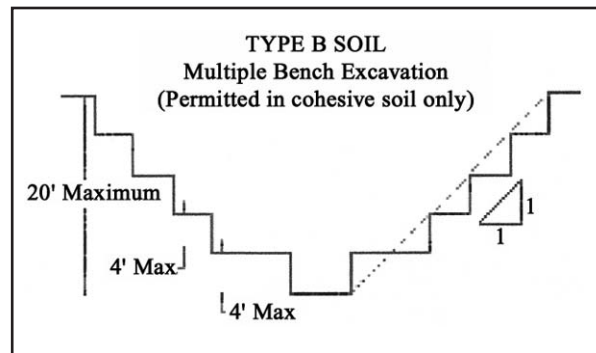
However, when we disrupt this balance by digging, the natural forces are no longer there to hold back the soil. With no support, gravity causes the surrounding soil to move downward and inward into the excavation ultimately causing a cave-in.

If a trench wall fails, workers can be trapped immediately. A worker does not have to be completely buried in soil to be seriously injured or killed. Workers who have been only buried up to their waist have died as a result of the pressures exerted by the soil on their bodies. Because soil can weigh almost 150 lb./ft.³, it would take 750 lbs. of force to remove a worker's buried foot⁴!

OSHA defines a trench as a narrow excavation made below the surface of the ground in which the depth is greater than the width, and the width does not exceed 15 feet. If the trench is more than 5 feet deep, there must be a protective system in place while workers are in the excavation. Trenches more than 4 feet deep must have proper access and egress, usually provided by a ladder placed every 25 feet of horizontal length.



Some shields are designed to be stacked. Never stack shields that are not designed for that purpose, and do not stack shields from different manufacturers, as they may not be compatible.



Sloping can be used as a system by itself or in conjunction with benching. The type of soil determines the horizontal to vertical ratio of the benched side.

After the soil has been correctly classified by both a visual and manual test, the right protective system is chosen based on both soil classification and site restrictions. Designed to prevent cave-ins, shoring must be adequate to overcome pressures from piles of excavated material, adjoining structures, vehicular traffic and nearby equipment. Spoil piles should be kept at least 2 feet from the surface edge and channel run-off water away from the excavation. Keep only the necessary heavy equipment near the excavation with nearby traffic being re-routed whenever possible.

The three main types of protective systems include:

- shoring and sheeting,
- shielding (or trench box), and
- sloping and benching.

Shoring systems use timber, mechanical or hydraulic structures to support the sides of a trench. Sheet piling is a type of shoring system that keeps the earth in place and can be helpful if the excavation is open for a long period of time.

Although they are not designed to prevent cave-ins, a trench box is used to “shield” workers within the structure should a cave-in occur. For continuous installations, portable trench boxes or safety cages are placed in the trench and can be dragged along with the progress of the work.

Sloping utilizes the “angle of repose,” which is designed by cutting back the trench walls at such an angle that there is little chance of collapse. Benching is a process of stepping back the earthen walls of the trench. Sloping can be used as a system by itself or in conjunction with benching. This method tends to take up more space than previous methods discussed, and most material excavated needs to be replaced and compacted as well. During the backfill operation, remember to backfill

...continued on page 5

continued from page 4 ...

and remove trench supports together beginning at the bottom of the trench.

Any excavating under the base of a foundation or wall, or in a trench deeper than 20 ft. requires a support system designed by a registered professional engineer.

However deep the trench, OSHA requires a qualified person conduct frequent inspections of the excavation and ensure adequate structural protection is installed before workers enter the trench. Due to a number of variables that need to be considered while trenching, such as weather, traffic vibrations and pressure, excavations need to be continually reinspected for signs of distress especially after any disturbance. Look for cracking in the excavation walls, bulging of material or separation of small clumps from trench sides. Clay can be extremely treacherous if dried by the sun. Large chunks of material can break off a trench wall after having been stable and solid for along period of time. Water also increases the possibility of a cave-in. Increased water pressure exerted on the soil can be the final factor in causing the walls to collapse. In cold weather, it is not safe to assume that if the walls of an excavation are frozen that it is safe to enter. Frozen ground is not an alternative to proper shoring.

Several safety precautions to use while trenching:

- ✓ No one is allowed in the trench box while it is being raised or lowered into place.
- ✓ Using steel sheeting to extend the height of a trench box is unsafe because it over-stresses the box.
- ✓ Shielding or shoring used with a sloped trench must extend at least 18" above the bottom of the sloped part of the excavation.
- ✓ Ensure the individual shores are installed and released slowly to prevent failure of the remaining protection.
- ✓ Tabulated data on shores and shields must be followed if provided by the manufacturer or professional engineer regardless of soil classification.
- ✓ Excavations must be backfilled immediately after support systems are removed.
- ✓ Surface crossings should be discouraged.

Other Potential Hazards

Workers should also remain alert of the potential hazards such as poisonous gases, falling objects and dangerous equipment. An excavation should be considered a confined space and appropriate evaluation and controls undertaken to ensure workers are not exposed

to contaminated atmospheres. When appropriate, wear hard hats and vests and use appropriate traffic control devices in a street area.

References

OSHA Standard for Trenching and Excavation Safety, Title 29 Code of Federal Regulations, Part 1926.650-652, Subpart P, www.osha.gov.

OSHA Technical Manual, Section V, Chapter 2, Excavations: Hazard Recognition in Trenching and Shoring, www.osha-slc.gov/dts/osta/otm/otm_v/otm_v_2.html.

Guidelines for Excavation Work, Manitoba Labour & Immigration, Workplace Safety & Health Division, www.gov.mb.ca/labour/safety/publication/guidelines/excavate/index.html.

Excavation, Trenching and Shoring Safety and the OSHA Excavation Standard, AFSCME Training and Education Institute Manual, www.afscme.org/health/excavtc.htm.

Trenching Workshop, Montana LTAP, LTAP Matters, Spring 2004.

Online Training

Trench Safety – A Tutorial for Constructors is a ten-lesson tutorial based on the latest OSHA requirements for construction excavation safety. Its purpose is to utilize the internet to teach safe trenching practices. The training course can be taken on-line for 0.3 Continuing Education Units (CEUs). The tutorial lessons can be accessed at www.trenchsafety.org.

OSHA's Trenching and Excavation module of Construction eTools helps workers identify and control the hazards relevant to trenching and excavation. This eTool is available at www.osha.gov/SLTC/constructiontrenching/index.html.

OSHA's Trenching and Shoring Checklist provides links to OSHA excavation standards, a site analysis tool, a list of contacts to call before digging, information on vehicular traffic, as well as links to several other topics. This site can be accessed at www.osha.gov/SLTC/trenchingexcavation/index.html.

Related materials in the LTAP library

Excavation & Grading Handbook

Videos:

Cave In! Trenching and Shoring Safety Working Safely in Confined Spaces

Trenching & Shoring Safety Update

Health & Safety-Trenching & Shoring

On Solid Ground: Safe Excavation & Trenching

Survival in Excavation: Safe Working Around Existing Utilities

In the Trenches: Excavation Safety for Workers

Top 10 Highway Work Zone Problems

1. **Signs Left Up:** When signs are left up with no work going on, drivers lose respect for them.
2. **Improper Sign Stands:** Self-erecting sign stands with a spring system should be used on all roadways (except in special cases).
3. **Improper Transitions:** When a lane is closed, the transition should be visible from the last warning sign. The beginning of a transition should not be in a curved section of the road.
4. **Improper Spacing of Cones & Barrels:** In a transition, cones and barrels should be spaced a maximum of 20 ft. for speeds up to 35 mph and a maximum of 40 ft. for speeds above 35 mph.
5. **Short Transitions:** Can cause improper merging or stopping by motorists.
6. **The Placement of Truck-Mounted Attenuators:** The truck-mounted attenuators must be placed 50-100 ft. in front of the hazard closest to the transition.
7. **The Use of Non-Reflective Devices:** Signs, cones and other devices must be retro-reflective and be visible at night.
8. **Lack of Buffer Space:** The space between the transition and the work area should be 500 ft. when the speed is more than 45 mph and 200 ft. when the speed is less than 45 mph.
9. **Improper Flagging:** Flaggers must flag from the shoulder of the roadway, be properly attired, and use hand signals along with a Stop/Slow paddle.
10. **Lack of Termination Signs:** All lane closures require "End Road Work" signs.

MAILING LIST UPDATE

The Colorado LTAP center continuously maintains a comprehensive mailing list. Our mailing list is divided into two sections: *a brochure mailing list* and *a newsletter mailing list*.

Brochure Mailing List: Includes the names of the contact people at each agency who receive notification of upcoming training and registrations through class brochures.

Newsletter Mailing List: Includes those people who receive our quarterly newsletter.

Each mailing list is used only by the Colorado LTAP center in support of Colorado LTAP activities. They are the sole property of the Colorado LTAP center, and neither the brochure or newsletter mailing list is sold or distributed.

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In an attempt to keep our mailing lists up-to-date, please make any changes, updates or additions on this form and return to the Colorado LTAP center by mail, fax, e-mail or website.

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Changes/Additions can also be made through our website at <http://ltap.colorado.edu/maillinglist.html>

Newsletter Mailing List

Add Delete Update

Brochure Mailing List

Add Delete Update

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Name: _____

Agency: _____

Department: _____

Title: _____

Address: _____

City: _____ State: _____ Zip: _____

Phone: _____ Fax: _____

E-mail: _____

Please feel free to copy this form for others in your agency.

THANK YOU



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. Library materials can also be ordered online through our website at <http://ltap.colorado.edu>.

Below is a list of the most recent materials added to the library.

New CDs

Location	Title
CD SJB	<i>Bicycle Safer Journey: Interactive Bicyclist Safety Awareness</i> Interactive CD-ROM provides a virtual journey designed to increase awareness of bicycle safety. Intended for the general public, road user, and safety advocates. Shows a bicycle ride with John, a 14-year-old, and how to handle tricky bicycle safety situations. **In English and Spanish**
CD SJP	<i>Safer Journey: Interactive Pedestrian Safety Awareness</i> Description: Interactive CD that takes the user through various pedestrian safety scenarios encountered every day across America. Developed to improve the level of pedestrian knowledge for all road users (including schools, driver education groups, enforcement, etc.) and safety practitioners. **In English and Spanish**
CD WZS	<i>Work Zone Safety - Beyond Cones and Barrels</i> Learn some key steps to determining how short-term work zone safety areas should be set up including what situations warrant a flagger, when to close lanes down, and whether or not to route a detour. See specific examples of work zone set-ups gone awry, and how they should be fixed. Also, get tips on how to manage your training needs to meet with MUTCD regulations. This 2-hour program is appropriate for public works street crews as well as water, sewer, and other utility maintenance crews.
CD RSAP	<i>Roadside Safety Analysis Program</i> The Roadside Safety Analysis Program (RSAP) represents one approach to using the "Roadside Design Guide." The RSAP program is comprised of two separate but integrated programs: the User Interface Program and the Main Analysis Program. The Main Analysis Program contains the cost-effectiveness procedure and performs all necessary calculations. The User Interface Program provides users with a simple and structured means to input data into the RSAP program. The RSAP program is intended as a tool for economic analysis and should not supersede the guidelines presented in the "Roadside Design Guide" or sound engineering judgment.

New Videos:

V50 SSSA	<i>Stay Safe, Stay Away: Children's Construction Safety Video</i> A complete public awareness program to educate elementary age school children on the dangers associated with various construction sites, from trenching to paving. This educational program is used to teach children about the dangers of playing on, near, or with, equipment or materials found on a construction site. **Also includes an instructor's guide and a student workbook. See Publications 50 SSSA1 and 50 SSSA2**
V20 AS	<i>Accessible Sidewalks: Design Issues for Pedestrians with Disabilities</i> Covers design issues for pedestrians who use wheelchairs, with ambulatory impairments, with low vision and who are blind.
V50 AROW	<i>Accessible Rights-Of-Way: A Design Guide</i> Accessible Sidewalks: Design Issues for Pedestrians with Disabilities. Covers design issues for pedestrians who use wheelchairs, with ambulatory impairments, with low vision and who are blind.

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New Publications:

- 50 SSSA1 ***Stay Safe, Stay Away: Construction Not a Place to Play - Instructor's Guide***
50 SSSA2 ***Stay Safe, Stay Away: Construction Not a Place to Play - Student Workbook***
A complete public awareness program to educate elementary age school children on the dangers associated with various construction sites, from trenching to paving. This educational program is used to teach children about the dangers of playing on, near, or with, equipment or materials found on a construction site. **Also includes a safety video. See Video V50 SSSA**
- 50 TSO ***Traffic Signal Operations Near Highway-Rail Grade Crossings: NCHRP Synthesis 271***
Presents a review of the current practices associated with the operation of traffic signals at intersections located near highway-rail grade crossings.
- 50 FM ***Utility Work Zone Traffic Control Field Manual***
Functions as a quality "supervisor" manual. Provides federal minimum utility work zone traffic and safety information to users throughout the U.S. Features: Based on the latest federal MUTCD requirements; For trained, experienced workers and supervisors; Specifically addresses utility roadway work situations; Condensed content, compact format, field durable; Quick and easy to use diagrams and indexes.
- 50 ADAA ***ADA & Accessibility: Let's Get Practical***
This book includes new regulatory status information items you can use. Children's guidelines, play areas, judicial facilities, public rights-of-way and a resource of new contacts to help address emergency.
- 50 AROW ***Accessible Rights-Of-Way: A Design Guide***
The Americans with Disabilities Act (ADA) Accessibility Guidelines contain requirements that apply to new construction and alterations to be readily accessible to and usable by people who have disabilities.
- 40 FRC ***Full Road Closure for Work Zone Operations: A Cross-Cutting Study***
This report is a second document in a series of products on the full closure approach. This report provides a summary of how a group of DOTs each used a full closure approach to conduct a road rehab/reconstruction project. For each project, information provided includes a project description, why the state decided to use full closure, the benefits experienced, and lessons learned. The report also contains a brief discussion of alternative strategies.
- 50 RSTLA ***Roadway Safety Tools for Local Agencies: NCHRP Synthesis 321***
Examines the safety tools and procedures that are practical and relatively easy to apply, and that can be implemented by agencies with limited financial support and personnel. Recognizing the wide variation in the operations and responsibilities of local agencies, the report acknowledges that the level of expertise in transportation safety analysis also varies greatly.

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