On the Road in NH: NH Public Works Mutual Aid

By Christopher Bourque, UNH T² Project Assistant & UNH Civil Engineering Student

Thanks to Chris Carazzo, Barnstead Road Agent, for completing an interview.

The town of Barnstead and surrounding communities were hit by a tornado in July 2008. The Barnstead Selectboard declared a local emergency and Governor John Lynch declared a state emergency.

Chris Carazzo, Road Agent in Barnstead, requested approval from the town selectboard to join New Hampshire Public Works Mutual Aid (NHPWMA) to assist in the aftermath of the tornado.

Upon hearing Carazzo’s request to join Mutual Aid, the Selectboard was hesitant to adopt the program until they knew all of the facts about it, including the enormous benefits it provides to municipalities. Once they learned more about the program, they were surprised they town had not already joined.

Carazzo says his experience with Mutual Aid was excellent. He says joining was “perfect, easy and smooth.” To join, Carazzo filled out the agreement and listed his equipment and faxed them to UNH T². To get assistance, Carazzo faxed letters to other towns and awaited responses.

Seabrook, Farmington, Loudon, and Bow were able to provide assistance to Barnstead. Seabrook provided trucks and personnel, Farmington provided a backhoe, and both Bow and Loudon supplied chippers and personnel.

The greatest task was cleaning up and hauling away the debris. “It was a mess. You couldn’t get around,” says Carazzo.

Barnstead was able to get federal funding from the Federal Emergency Management Agency (FEMA) since the damage from the tornado was classified as an emergency.

Carazzo says that Mutual Aid is a good thing to have and recommends it to municipalities that have not joined.

See www.t2.unh.edu/ma for more information on NHPWMA

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UNH Technology Transfer Center Mission: To provide technical and management information about roads and bridges to municipal officials and road-related organizations.
Master Roads Scholar—Perry Day

Perry Day is the building and grounds foreman and transfer station foreman. He has worked for the town of Amherst for 10 years. He became interested in his job because of the variety of duties associated with it.

Perry will continue to take UNH T² classes because he wants to keep his knowledge updated. Perry is interested in learning new things because “everything is always changing” he says.

He has a wife of 30 years, four daughters and six grandchildren.

Master Roads Scholar—David Herlihy

David Herlihy is the lead foreman for the town of Amherst. He has been in that position for 10 years. He started working in public works in 1972. He got involved with public works because he enjoys working for the public and was interested in the work.

David will continue to take UNH T² classes because the courses keep him informed with technological changes and he gets information on new topics. David feels someone is never too old to learn. He has a wife who greatly supports his education.

Master Roads Scholar—John Paul-Hilliard

John-Paul Hilliard is the highway patrol foreman for the NHDOT District 1. Previously, John worked in law enforcement for 13 years. Also, he was the road agent for the town of Woodstock.

John will continue to take classes with UNH T². He is interested in furthering his education to help his employer as well as himself.

John has a wife and four children. He enjoys spending time with his family.

Master Roads Scholar—Scott Kinmond

Scott Kinmond is the chief of police for the town of Moultonborough. He is also the highway safety chairman for the town. Scott has been employed by the town for 20 years. He has 24 years of experience in law enforcement.

Scott will continue to take classes with UNH T² and is looking to teach safety and law enforcement classes in the future. His hobbies include road maintenance, hunting, spending time outdoors, and being involved with his community. He is married to Ann and has two daughters, ages 12 and 14.

Master Roads Scholar is the fourth achievement level, the last level, in the UNH T² Roads Scholar Program. It requires the completion of 100 contact hours plus the requirements for Roads Scholar Two. The requirements for Roads Scholar Two are: 5 hours in basic road construction, 5 hours in supervision or personal development, 5 hours in environmental, 5 hours in tort liability or safety, and 20 hours in other technical areas. The next 50 hours to reach Master Roads Scholar are at the learner’s discretion. Most UNH T² workshops yield five contact hours, therefore an individual must typically attend twenty one-day workshops.

Roads Scholar Program Information: www.t2.unh.edu/training/rdsclr.html
Benefits of an Ergonomic Workstation
By Justin Pelletier, UNH T² Project Assistant & UNH Civil Engineering Student

Workplace injuries are a primary concern for employers and their employees. Missing work due to injury is detrimental to the employee and the organization.

Ergonomics is a science concerned with designing and arranging things so people and things interact most safely and efficiently. This includes proper lifting techniques to avoid back injury and fatigue, or proper arrangement of a workstation to avoid muscle cramps and aches or more serious injuries, such as musculoskeletal disorders.

Employees who work at a computer are at high risk of developing injury due to repetitive movement. An ergonomic workstation greatly reduces the risk of office injury, encourages good posture, and provides the least amount of stress on the body while allowing the worker to be productive and efficient.

This article will focus on how to arrange a proper and ergonomically friendly workstation.

Office Chair
Buy a chair with an adjustable seat height, adjustable back angle with lumbar support, and with arm rests. All three are important to reduce strain and injury while lumbar support for the lower back will decrease back fatigue.

To adjust the chair, first, set the seat height so the employee’s knees have an angle between 90 and 110 degrees, with the feet resting flat on the floor or a footrest, and the thighs parallel to the floor. Second, set the back angle so the hips of the employee are at a 90 degree angle. Third, adjust armrests low enough to not interfere with mouse use.

Computer Monitor
Place the monitor directly in front of the keyboard at a height so the eyes land on the top 1/3 of the screen while looking straight forward. This will reduce the risk of neck and shoulder pain. Also, place the monitor at a comfortable distance from the employee to reduce eye strain.

Keyboard & Mouse
Some of the most common computer-related injuries, such as carpal tunnel syndrome, come from improper placement of the keyboard and mouse.

First, buy an adjustable tray for the keyboard and mouse. Second, adjust the tray at a proper height so the elbows of the worker are at a 90 degree angle while the wrists remain straight and relaxed. Third, place the mouse at the same height as the keyboard and within easy reach. Elbows should be at the worker’s side and close to the body while working.

Having a properly set up keyboard and mouse greatly reduces strain on the workers elbows, forearms, wrists, hands, and fingers.

Breaks
Take frequent breaks throughout the day to stretch and refocus. Stretch your back, neck, wrists, and forearms to reduce stress and allow work to be more comfortable for longer periods of time.

A properly designed and arranged workspace is worth the time and effort to create. It will lead to less discomfort, more productivity, and an overall more enjoyable work place.

References:
New Hampshire Roads Scholars

We are pleased to recognize those who have achieved the following levels in the UNH T2 Center Roads Scholar Program during the Spring and Fall semesters of 2008.

Roads Scholar Level 1

John Bartlett  Keene
Kevin Bartlett  Concord
Morgan Bartley  Keene
Zach Bauer  Hampton
Jack Berquist  NHDOT
Dave Bogannan  Laconia
Randy Borelli  Derry
Robert Borowiec  Littleton
Jason Brown  Seabrook
Kipper Brown  Keene
Ernie Buck  Merrimack
Robert Buxton  Derry
James Cadwell  Hanover
Eugene Call  Springfield
Rick Carlson  Derry
Charles Cheney  Waterville Valley
Donald Class  Winchester
Jim Colbert  Exeter
Scott Cook  Exeter
John Coons  Keene
Donald Corliss  Winchester
Jeremy Cornell  Franklin
Ben Crowder  Keene
Larry Crowder  Keene
Benjamin Daley  Raymond
Tim Dalton  Hampton
Montgomery Davis  NHDOT
Tom Estes  Exeter
David Field  Hanover
David Glidden  Whitefield
Jon Graichen  Salem
Dale Gray  Winchester
Jeremy Hall  Littleton
Glen Hansen  Groton
Shawn Hanson  Hampton Falls
Mike Hartness  Keene
Timothy Hines  Littleton
Ralph Holmes  Exeter
Bill Holt  Goffstown
Trevor Hood  Swanzey
Mike Howe  Dublin
Fred Ingerson  Whitefield
Steve Jerome  VT LTAP
Nathaniel Jones  Concord
Tom Jordan  Northfield
David Keets  Laconia
Asa Knowles IV  Seabrook
Robert Lang  NHDOT
Kevin Leonard  North Point Engineering
Bill Lowney  Hampton
Ralph Lucas  Littleton
Alan Mandigo  Dover
Kevin Mason  Seabrook
Brad Meade Sr.  New Castle
Carl Mitchell  Keene
Bill Mock  Warner
Michael Moriarty  Keene
Dan Morrill  Laconia
Daniel Morrow  Exeter
Russell Nickerson  Hampton
Jim Pittman  Exeter
Frank Podlenski  Hinsdale
Chris Puhfal  New Castle
Tim Robare  Rochester
Paul Robichaud  NHDOT
Mark Roy  Danville
Robert Rudder  Lebanon
Jim Ruggles  Laconia
Bruce Sanborn  Hanover
Laura Scott  Private Consultant
Charles Seamans  Hampton
Ryan Sharpe  Hampton
Leon Smith  New Durham
Mitchell Smith  Keene
Ames Sorell  Laconia
Steve St. Pierre  Laconia
Bernard Swan  Laconia
Christian Tarr  Keene
Dana Taylor  Richmond
Tyler Tommila  NHDOT
Bill Toomey  Nashua
Ken Vallancourt  Merrimack
Edwin Wakefield  Moultonborough
Ray Wenninger  Wenninger Engineering
Tom Weston  Henniker

Shawn White  Whitefield
Harold Wood  Wood Engineering

Senior Roads Scholars

Donald Blanchard  Private Consultant
Chris Hammond  Enfield
Emile Lacerte  Bedford
Michael Summersett  Northfield
Matt Waite  Warner

Master Roads Scholars

Scott Brooks  Freedom
Bruce Brown  Northfield
William Byrne  Keene
Michael Clarke  New Durham
Gene Cuomo  Fitzwilliam
Perry Day  Amherst
Gerard Decosta  Litchfield
David Herlihy  Amherst
Harold Johnston  Lebanon
Michael Kercewich  Alstead
Scott Kinmond  Moultonborough
Richard Lefavour  NHDOT
John Paul-Hilliard  NHDOT
Charles Pease  Northwood
Bob Seawards  Dover

Roads Scholars Level 2

Charles Beckley  Northfield
Bradly Butcher  Springfield
Larry Gaskell  Washington
Robert Golemo  Merrimack
Christopher Guay  Amherst
Randall Heglin  Jaffrey
Wayne Husband  Nashua
Alan Jones  Hampton
Louis Lapointe  Merrimack
Paul Mackinnon  Laconia
Robert Meunier  Nashua
Eric Poitras  Dover
Joe Rice  Greenfield
Dwayne Searles  NHDOT
Earl Thibodeau  Laconia
Bruce Thomas  Manchester
Dean Truax  Dover
Kurt Grasset, PW Director Hancock, Receives Sustainability Award

Kurtis J. Grassett, Director of Public Works in Hancock, was presented with a 2008 Portland Cement Association (PCA) Sustainable Leadership Award at the UNH T² Full-depth Reclamation (FDR) workshop. This workshop was conducted jointly by the Road Recycling Council-New England Region and UNH Technology Transfer Center on October 23, 2008.

The Portland Cement Association (PCA) has a commitment to raise awareness and understanding of the importance of cement and concrete to sustainable building solutions. They have given this award in eight cities across America to local leaders, who have created policies or completed projects that promote sustainable development through the use of concrete and other cement-based products.

A New Way to Learn: Webinars

A webinar is usually a presentation viewed through a website. Communication via a webinar is usually only one-way, from the speaker to the audience with limited or no audience interaction.

Many webinars are free to view.


GO GREEN with Road Business!

Start receiving Road Business by email only. Email k.myers@unh.edu and include your name and affiliation. As soon as the newsletter is complete, you will receive an email with a link to the .pdf online. Thanks in advance for being green!

To view previous newsletter editions: www.t2.unh.edu/newsletter.html
This article discusses ways to prevent erosion by using natural techniques as opposed to modern construction. Natural techniques do not involve the use of steel, concrete, or other synthetic material which are commonly used in construction. Instead, natural techniques make use of living plants and trees as the source of anchoring soil. This helps drier soil areas retain water instead of allowing it to run off. It also helps to remove and evaporate excess water in damp areas to prevent dangerous unstable soil.

### Soil Bioengineering

Soil bioengineering is the use of live cut brush layers as an alternative to reinforced or mechanically stabilized earth (MSE). Live cut brush, woody stems, and roots are used to create stable soil, which is quite resistant to erosion.

The live cut stems and branches provide immediate reinforcement. Secondary stabilization is created by rooting, which occurs along the length of buried stems.

Three techniques of soil bioengineering are brush layering, live staking, and live fascines. This article will discuss each technique.

### Brush Layering

Brush layering consists of inserting live cut branches or brush between successive layers of compacted soil. This works best in conjunction with the construction of a fill slope. Make branch cuttings one half to two inches in diameter. Leave the side branches intact for installation.

**Follow these steps when installing brush layers:**

- Starting at the toe of the slope, excavate benches horizontally, on the contour, or angled slightly down the slope, if needed to aid drainage. Construct the bench two to three feet wide.
- Slope the surface of the bench so that the outside edge is higher than the inside.
- Place live branch cuttings on the bench in a crisscross or overlapping configuration.
- Align the branch growing tips toward the outside of the bench. Place backfill on top of the branches and compact it to eliminate air spaces. Make sure the brush tips extend slightly beyond the fill to filter sediment.
- Backfill each lower bench with the soil obtained from excavating the bench above.
- Space the brushlayer rows three to five feet apart, depending on the slope angle and stability. See figure 1.
- Seeding is best accomplished between brushlayer rows when a mulch is used. Place long straw or similar mulching material between rows on 3:1 or flatter slopes. Use jute mesh or similar material in addition to the mulch on slopes steeper than 3:1.
- Use brush layering on relatively uncomplicated upland site conditions, and uncomplicated shoreline sites with low velocities and wave heights, or to control erosion on moderate, dry land slopes.
**Figure 1: Brush Layering Spacing and Slope Requirements**

**Live Staking**

Live staking is another technique used to reduce erosion on vulnerable slopes. Live staking involves the insertion and tamping of live but dormant vegetative cuttings into the ground. If done correctly, the live stake will root and grow. Utilize the following guidelines when selecting the stakes to be used in your project:

- Cuttings are usually a half to one and a half inches in diameter and two to three feet long.
- Take cuttings from vigorous, undamaged, disease and insect free stock. Make sure the stock is either native or adapted to the planting site.
- Materials must have side branches cleanly removed and bark intact.
Cut the basal ends at an angle for easy insertion into the soil. Cut the top to make it square. Plant stakes with the butt ends into the ground. Make sure buds are oriented up.

Install the materials the same day they are prepared. They must not dry out. Store materials in water or in a cool, shaded, and wet environment.

Cut and install plants when they are dormant; that is, prior to bud swell and leaf emergence in the spring and after leaves have turned color and fallen off in the fall. Periodic pruning or replanting may be required.

When installing live stakes, follow these steps:

- Tamp the live stake into the ground at right angles to the slope face.
- Install live stakes two to three feet apart using triangular spacing. Place stakes with two to four stakes per square yard.
- Make sure the buds are oriented up.
- Install four fifths of the length of the live stake into the ground and pack the soil firmly around it after installation.
- Remove and replaced stakes that split during installation.
- An iron bar can be used to make a pilot hole in firm soil. Drive the live stake into the ground with a dead blow hammer (hammer head filled with shot or sand).
- Bare slopes may be seeded and mulched.

Figure 2 illustrates what a stake should look like at the time of installation. It also depicts the spacing between stakes and other appropriate uses of live stakes.

Live Fascine

Live fascines, or wattles, are long bundles of live dormant branch cuttings bound together into a long, cylindrical structure. Live fascines are inexpensive to construct and install, and offer immediate protection from surface erosion when securely anchored. They are a very effective soil stabilization technique once roots are established. The installed fascines reduce the overall slope into a series of smaller slopes by acting as mini-dam structures that hold fill soil on the face of a stream bank. Typical wattles along a stream embankment are shown in Figure 3.

Install live fascines as follows:

- Prepare the live fascine bundles and live stakes immediately before installation. Do not allow the bundles to dry out.
- Beginning at the base of the slope, dig a trench on the contour just large enough to contain the live fascine. The trench will be 12” to 18” in width depending on the angle of the slope to be treated. The depth will be six to eight inches depending on the individual bundle’s final size.
- Drive the dead stout stakes directly through

Figure 2: Live Stake Spacing and Stake Size Requirements.
the live fascine every two to three feet along the length. Use extra stakes connections or bundle overlaps. Leave the top of the stakes flush with the installed bundle.

- Live stakes are generally installed on the downslope side of the bundle. Drive the live stakes below and against the bundle between the previously installed dead stout stakes. Allow the live stakes to protrude two to three inches above the top of the live fascine. Place moist soil along the sides of the live fascine. Leave the top of the fascine so it is slightly visible when installation is complete.

- Repeat these steps at intervals on the contour or at an angle up the face of the bank to reach the top of the slope. Place one or two rows over the top of the slope if possible.

- Place long straw or similar mulching material between rows on 2.5:1 or flatter slopes. Place jute mesh or similar material on slopes steeper than 2.5:1 in addition to the mulch. The slope may be seeded before mulching.

Consider the following guidelines when installing live fascines:

- Cuttings tied together to form live fascine bundles vary in length from five to thirty feet, depending on site conditions and limitations in handling.

- Make completed bundles six to eight inches in diameter with all of the growing tips oriented in the same direction. Stagger the cuttings in the bundles so that the tops are evenly distributed throughout the length of the fascine.

- Fascines may be secured with live stakes or dead stout stakes. Make sure live stakes used to anchor the fascines are 2.5 feet long in cut slopes and three feet long in fill slopes.

- Make sure the dead stout stakes used to secure the live fascines are 2.5 feet long, untreated 2 x 4 lumber. Cut each length again diagonally across the four inch face to make two stakes from each length. Use untreated twine for tying the bundles.

- The best planting times are in late fall at the onset of plant dormancy or in early spring before growth begins. Periodic pruning or replanting may be required.

Contact the Natural Resources Conservation Service (NRCS) or the Soil and Water Conservation District (SWCD) in your county for more info.

References:

Figure 3: Typical Wattles Along a Stream Embankment
In spring 2008, George Campbell was approved as commissioner for NHDOT after nomination by Governor John Lynch and praise from the Executive Council.

Governor Lynch, said, “George Campbell has more than 25 years experience in the public and private sector, and is highly regarded for his proven record as a strong administrator. George is a leader who can build on the progress we are making in fixing our roads and bridges and balancing the Department of Transportation’s finances.” (Union Leader, April 10, 2008).

Commissioner Campbell has a long experience in the public and private sectors. He served as Maine’s economic development director for one year before being named commissioner of Maine DOT in 1980.

He moved on to a vice-presidency at Guilford Transportation in Billerica, MA, then the presidencies of two consulting firms in Portland, ME before starting his own consulting firm working in public policy and economic development.

He also served as town manager for three Maine municipalities, on Portland’s city council for six years, and as its mayor from 1997 to 1998.

Campbell has both bachelor’s and master’s in public administration from the University of Maine.

Campbell expressed his enthusiasm for Governor Lynch’s community advisory group that is meeting with the heads of DOT and DES to discuss issues relevant to public works throughout New Hampshire. “What we are doing in transportation is really in partnership with local communities,” Campbell said at a meeting with the Technology Transfer Center at UNH on November 7, 2008.

From left to right: Alan Rawson, Charlie Goodspeed, George Campbell, Julia Faller, Kathryn Myers, Robert Strobel, George Leel, Linsey Shaw, and Jeff Brillhart.
New Technology: Wing Plow Guidance Laser

UNH T² does not endorse any product(s). Information presented here is for educational purposes only.

The GL3000PMC Guidance Laser uses an “ultra-bright” green Laser to show the driver where the wing plow trailing edge will be. The Laser spot is on the road and in the driver’s normal field of view.

The Laser is electronically designed for operation during cold weather. A blast of air is automatically fired every five seconds to the front of the Laser lens to remove snow and ice. Additionally, it comes with a heat source for the exit window to reduce or eliminate ice build-up on the front of the Laser output lens.

This product claims to reduce plow and property damage, reduce downtime for plow repair, there is less strain on the driver, and it increases job safety.

Contact New England Laser & Transit Company, 800-362-8734, for more information.

Crossword Puzzle

Test your knowledge after reading this newsletter.

ACROSS
1. NHDOT commissioner, George
4. Disaster that struck Barnstead and neighboring communities in the summer of 2008.
6. “M” in MAGS.
9. Coffee, tea, smoking, and chewing tobacco are initially stimulants but soon become _____.
10. Another name for live fascines or long bundles of live dormant branch cuttings bound together into a long, cylindrical structure.
11. The wing plow guidance laser shows the driver where the _____ edge of the wing plow will be.
12. The science concerned with designing and arranging things so people and things interact most safely and efficiently.

DOWN
2. Soil _____ is the use of live cut brush layers as an alternative to mechanically stabilized earth.
3. Eat _____-fat foods before plowing nights.
6. Take frequent _____ throughout the day to stretch and refocus.
7. _____ Tunnel Syndrome is often caused by improper placement of the keyboard and mouse.
What to Eat on Snow Plowing Nights

Some sleep deprivation studies support the idea that what people eat can either help or hurt. The body slows down during nighttime hours. Greasy protein foods cause the body to want to sleep! Operators can still enjoy eating with well-balanced meals and snacks. Such meals are compatible with a slower, nighttime digestive system.

Meal Before Night Work:

- Light protein foods — chicken, turkey, fish, cooked beans and peas.
- Low-fat foods only.
- Vegetables, fruits, breads, pasta and/or potatoes.
- Low-fat or skim milk, cheeses, and yogurt.

Meals During Breaks

- Soup and salad.
- Soup and a light sandwich.
- Light protein foods and vegetables.

Snacks Before and During Work

- Low-fat dairy products.
- Fruit, popcorn, cereal, plain cookies, and/or baked crackers.

Cut back on coffee, tea, smoking and chewing tobacco. These items contain cafféine or nicotine. Initially they are stimulants but soon become depressants; they make the heart beat slower.

Reprinted from Road Business, Fall 1994

Milestones

- Joe Boucher—New Highway Superintendent, City of Dover
- Dean Truax—New Foreman, City of Dover

Websites

- Maintenance Assoc. of Granite State (MAGS): www.nhmags.com
- LGC Legislative Bulletins: www.nhlgc.org/LGCWebSite/Advocacy/legislative_bulletins.asp
- LGC Training Calendar: www.nhlgc.org/LGCWebSite/Calendar/eventcalendar.asp
- Primex Training Calendar: www.nhprimex.org/EducationTraining/MemberOnlyBenefits/MasterTrainingCalendar.php
- NHI Training Catalog: www.nhi.fhwa.dot.gov/training/brows_catalog.aspx
- APWA Online Workshops: www.apwa.net/events/
- NHDES A-Z Topics: www.des.state.nh.us/programs.asp

Maintenance Assoc. of the Granite State (MAGS)

The Maintenance Association of the Granite State (MAGS) is dedicated to the education of vehicle maintenance personnel, including technicians, parts professionals and managers. Their mission is to improve job skills to make the job easier and more enjoyable.

They meet regularly for education and networking with others in the field. Meetings are held in Concord and at member facilities. They invite anyone to join by attending a meeting.

www.nhmags.com
These publications and videos are available from UNH T² FREE of charge. To request material, fax this completed form to 603-862-0620.

**Publications**

- **Integrating Climate Change into the Transportation Planning Process:** Reviews the experience of DOTs and MPOs that are already incorporating climate change into their transportation planning processes and identifies their successes and challenges. USDOT & FHWA.

- **Pre-wetting and Anti-icing -- Techniques for Winter Road Maintenance:** Maintaining safe roads during winter storm conditions, specifically with the use of liquid chemicals. Wisconsin Transportation Bulletin.

- **Stormwater Management and Drainage. NACE Action Guide:** Strong argument for stormwater management and planning. It explains the basics of drainage, ways to practice drainage of stormwater, and winter deicing and the environment. NACE, 2000.

- **The Salt Storage Handbook:** Handling deicing salt, including storage, quantity of salt needed, ordering salt early, selecting the site, delivery and storage tips, and a storage area checklist. The Salt Institute.

- **The Snowfighter’s Handbook:** Snow and ice control, including training, equipment, planning, types of snow, calibration, salt application, spreading and plowing problems, and safety. The Salt Institute.

- **Winter Maintenance Training Resources (CD):** This website is maintained by the Salt Institute and features several articles and resources for winter maintenance professionals. The Salt Institute.

- **Winter Operations Policies:** Various winter operations policies describing general policies, maintenance techniques, and equipment for snow and ice management. We currently have policies from the NHDOT and the Town of Durham. Feel free to forward a copy of your municipality/organization to us.

**Videos**

- **A Snowplow Operators Guide to Snow and Ice Equipment--purchase only, $15.** An interactive program with short segments on various winter operations and maintenance topics, such as types of equipment, mounting of equipment, inspection, anti-icing/de-icing, plowing techniques, and a final test. Note: This will not play on a DVD player. It is an interactive computer program and will only play on a computer.

- **Common Maintenance Problems and Causes, M-236, 21 min.--DVD.** Discusses problems with gravel roads, paved and unpaved shoulders, and drainage and presents typical causes of these problems. FHWA.

- **Frost Action in Soils, 13 min.--CD.** Describes how frost heaves are formed, the effects they have, and testing of frost action. USA CRREL.

- **Highway Safety & Trees: The Delicate Balance, ST-1, 21 min.--DVD.** Encourages highway agencies and the public to work together to improve safety while minimizing damage to the environment. FHWA.


- **Stormwater Runoff, There is no Away, DC-262--DVD.** Using local seacoast scenes, Details the importance of the local watersheds and storm water impacts on area water bodies. In addition, public awareness and ideas on how to lessen pollution are shared. Seacoast Stormwater Coalition, 2003.

- **The Importance of Road Drainage, DC-251, 19 min.--DVD.** Emphasizes the importance of drainage, including surface and subsurface drainage, drainage systems, and procedures for their inspection and repair. FHWA.

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**Customer Information**

Name: __________________________ Title: __________________________
Affiliation: __________________________ Mailing address: __________________________
Town/City: __________________________ State: __________ Zip: __________
Phone: __________ Fax: __________ Email: __________________________
Listservs

A listserv is a free way to use email to exchange information. To subscribe send an email to k.myers@unh.edu and include: your name (first and last), your email, your affiliation, and the list name you want to subscribe to.

- PW.NET: Want to know what is happening in other towns? Or, learn the latest regulations? Need a place to ask questions of other public works officials? Want to be the first to receive notifications of UNH T² Center trainings and other special projects? Sign up for pw.net.
- OFFICE.ADMIN: Do you work in an office? Do you spend a lot of time working on a computer? Do you supervise others? Do you conduct interviews? Sign up for office.admin.
- NE.PAVEMENT: Do you work in the New England region and manage a pavement program? Are you interested in learning about the latest products or solutions for pavement management? Sign up for ne.pavement.

T² Center advisory Board

UNH T² staff meet with the advisory board quarterly to discuss training, center initiatives and special projects.

NHDOT Representatives
- Steve Dubois - Civil Engineer, NHDOT Systems Planning
- Nancy Mayville - Municipal Highways Engineer, NHDOT Planning & Community

FHWA Representative
- Christopher Tilley - Area Engineer

Municipality Representatives
- Alex Cote - Director of Public Works, Town of Deerfield
- Martha Drukker - Associate Engineer, City of Concord
- Richard Lee - Director of Public Works, Town of New London

NH Public Works Standards & Training Council
- Dave Danielson - President, Forcee Advocacy LLC

About UNH T²

Congress established the Local Technical Assistance Program (LTAP) in 1982 to provide services to US municipalities. There is an LTAP Center in every US state and Puerto Rico, and there are Regional Centers serving Tribal Governments.

UNH T² was established in 1986. We continue the LTAP mission by providing services to NH municipalities, the NH Department of Transportation, and private road-related organizations.

T² Program Supporters
- Federal Highway Administration
- NH Department of Transportation
- UNH
- National LTAP & TTAP Program

T² Center Staff
- Christopher Bourque, Project Asst.—UNH Civil Engineering Student
- Julia Faller, Project Asst.—UNH Business Student
- Charles Goodspeed, T² Center Director
- George Leel, Technical Support Assistant
- Kathryn Myers, Training Program Manager & Road Business Editor
- Justin Pelletier, Project Asst.—UNH Civil Engineering Student
- Linsey Shaw, Program Assistant
- Robert Strobel, Software Project Manager

About Road Business

Road Business is a quarterly publication of the University of New Hampshire Technology Transfer Center. Any opinions, findings, conclusions, or recommendations presented in this newsletter are those of the authors and do not necessarily reflect the views of our sponsors. Any product mentioned is for information only and is not a product endorsement.
### Spring 2009 Training Calendar

**www.t2.unh.edu/training**

<table>
<thead>
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<th>Course</th>
<th>Skill Level</th>
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