On the Road in New Hampshire

Two Slip Lining Culvert Projects

A recent study showed that slip lining is the most often used culvert maintenance practice in the US. However, few agencies in NH are slip lining. The NHDOT District 2 is actively slip lining culverts where there is deep cover and/or high traffic volumes.

District 2’s first project was in Sutton, eight years ago. It was on the interstate at exit 17. The culvert was damaged and replacing it would mean closing the ramp. Slip lining was a quick repair and traffic was maintained.

In the two NHDOT projects featured in this article, T160 PVC 1120 was used as a liner. After each liner was installed, the space between the old culvert and the liner was sealed with a cement grout.

The picture on this page shows the completed installation of a liner. The existing culvert was 25’ deep and 100’ long. The 48” cement culvert was lined with a 36” liner. A 36” liner was used because the cement culvert was no longer straight and could not accommodate a larger liner.

For these projects, the NHDOT installed the liners from the inlet end. The liners were pulled through the existing culvert. A 3/8” cable was fastened to a wooden disk which was fitted over the end of the liner to evenly distribute the pressure.

As each 20’ section of liner was pulled through, a coupling (or collar) joined the next liner. The crew found it effective to screw the pipes together, especially if they needed to remove the liner. To keep the pipe from cracking, they made a pilot hole and then used a 1/4” wood screw.

As each liner was pulled through, two-inch electrical conduit clips were fastened to the top of the liner. The clips secured a two-inch PVC pipe to the top of the liner; this pipe delivered the grout to the

continued on page 6
Master Road Scholars

Allan Bolduc--Meredith

Allan Bolduc is the assistant public works director in Meredith. He has held this position for four years. Allan began working in public works in the 70's at Pike Industries. He held several construction jobs before joining Meredith.

Even as a master roads scholar, Allan will continue to take classes. New technology is introduced every year and he feels it's important to keep up-to-date. He likes to share information he learns in classes with younger people entering the field.

Allan and Nancy have been married for 28 years. They have two daughters and two grandsons. The grandchildren keep him very busy. Additionally, Allan is on the Board of Directors for the New Hampshire Public Works Association. He likes to play golf. He has held an interest in all sports, especially NASCAR, and is a professional candlepin bowler.

Wayne Elliott--Sanbornton

Wayne Elliott became the operations manager in Sanbornton this past June. In the early 70's, he ran a farm in Tilton. He then got involved with the highway department, worked construction jobs, and spent the past 17 years as the equipment operation mechanic in Gilford.

Wayne plans to continue taking classes. He wants to learn new ideas as information and technology are introduced.

Wayne has a wife, a son and daughter, and 3 grandchildren. In his spare time, he enjoys camping.

Ken Fanjoy--Portsmouth

Ken Fanjoy is an heavy equipment operator in Portsmouth. He has worked with the city for 23 years. Ken started his work in the water department. He transferred to public works. He worked as a laborer, utility mechanic, truck driver, and utility manager in the highway department. Ken is the president of the local union on Portsmouth.

Ken hopes to continue taking classes. He feels that the education is excellent, especially for his field and job. As technology and information changes, he wants to stay current.
Chuck Grassie--Stratham

Chuck Grassie is the town planner in Stratham. He has worked as a town planner for 15 years. He has held a seat on the city council in Rochester for over 22 years. He is the longest serving council member. Chuck became involved with public works when joined the Rochester City Council.

As a master road scholar, he plans to continue to take classes. He feels that it is important because the industry and technologies are always changing and classes keep him current. Chuck enjoys the networking. He feels that classes are important to a town planner because he is regularly dealing with people about public works issues. Classes provide a basis for him to understand the issues and improve his communication. He believes that in the end, better understanding and communications makes for a better project.

Chuck is married and has three children. In his spare time, he enjoys spending time with his 13 grandchildren, playing any kind of instrument, and politics. Both he and his wife are heavily involved in politics.

David Haskell—Tamworth

David Haskell works for Verizon as a contract engineer. He was a selectman for the town of Tamworth when he first began to take classes. As an local official in the town, he needed to understand public works. David was an Army Corp. Engineer and has always been interested in equipment.

He plans to continue to take classes. Other than using the classes to keep his knowledge fresh and updated, he also has a strong interest in the things he learns from the classes.

David has one son who served in Iraq and made it home safely. David is a motorcyclist and an interest in side-cars.

Ken Louzier--NHDOT

Ken Louzier a maintenance supervisor for the NHDOT, District 2. He has held this position for over 12 years. Ken’s career in public works began in 1973.

As a master roads scholar, he plans to continue taking classes in order to learn about new ideas and technology.

Ken and his wife Cynthia have three children, 14 year-old Sandra, 13 year-old Kenneth III, and 11 year-old Annie. In his spare time, he enjoys spending time with his family.
Are Marked Crosswalks Safer?

Marked crosswalks are thought to increase visibility and therefore, pedestrian safety. But do they in every case? This article shares the results of a University of North Carolina study to determine how marked crosswalks affect pedestrian safety where there is not a signal or stop sign. These are called uncontrolled crossings.

**Study Objective and Methods**

The five year study, compared pedestrian crash data at marked crosswalks and unmarked crossing areas at uncontrolled intersections. Data were collected from 2,000 sites (half marked) in 30 cities. Marked crosswalks were compared with nearby unmarked crossing. Many of the marked and unmarked crosswalks were at opposite sides of the same intersection. Data were not collect at school crossing.

To compare safety between marked and unmarked crosswalks, data was collected on traffic volume, pedestrian exposure, number of lanes, median type, speed limit, and other variables. Crash causes were also examined (see above).

**The Results**

Results indicate no difference in pedestrian safety between marked and unmarked crosswalks at uncontrolled locations under the following conditions:

- Two lane roads;
- Multi-lane roads without raised medians and average daily traffic volume below 12,000;
- Multi-lane roads with raised medians and average daily traffic volume below 15,000.

Surprisingly, there was a significant increase in crashes on roads with marked (versus unmarked) crossings under the following conditions:

- Multi-lane roads without raised medians and average daily traffic volume about 12,000;
- Multi-lane roads with raised medians and average daily traffic volume above 15,000.

**Speed, Lanes, Type of Marking**

Speed was not found to be related to crash frequency although 93% of study sites had posted speeds 25 to 30 mph. Multi-lane crossing had higher crash rates than two-lane crossing. For both marked and unmarked multi-lane crossing, those with raised medians or raised crossing islands had lower pedestrian crash rates than the multi-lane crossings without them.

Type of crosswalk marking pattern (parallel lines, zebra stripes, etc...) had no effect on pedestrian crash rate.

**MUTCD Guidelines**

The Manual of Uniform Traffic Control Devices (MUTCD) does not give specific guidelines for when marked crosswalks should be used at uncontrolled intersections. Instead, its guidance includes:

- Crosswalk width should not be less than 6 feet;
- Crosswalk marking should be provided at points of pedestrian concentration, such as at loading islands, mid block pedestrian islands, and/or where pedestrians need assistance in determining the proper place to cross the street.
According to the MUTCD, “Crosswalk lines should not be used indiscriminately. An engineering study should be performed before they are installed at locations away from traffic signals or STOP signs.”

**Study Conclusions**

The report finds that “under no condition was the presence of a marked crosswalk alone at an uncontrolled location associated with a significantly lower pedestrian crash rate compared to unmarked crosswalks.” It makes a strong argument for not spending funds to mark crosswalks to improve safety at uncontrolled intersections. However, marked crosswalks are appropriate in a few cases (e.g. selected low-speed, two-lane streets at downtown crossing locations).

The effectiveness of a marked crosswalk increases when coupled with islands. Therefore, measures such as installing pedestrian refuge islands and reducing street crossing distance should be considered instead of or along with crosswalk markings.

Source:
*Are Marked Crosswalks Safer?* Mass Interchange, Bay State Roads

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**Exercise helps you think better and faster**

If your job requires good judgment and quick thinking, then exercise regularly.

Regular exercise, according to studies, increases brain function. Exercise also reduces anxiety and depression and helps to ward off the mental effects of aging.

A report published in the *Journal of Exercise Physiology* compared fitness scores to state-mandated test scores and found the fittest students had the highest scores on the academic test.

A study of the cognitive consequences of exercise published in the journal *Acta Psychologica* shows that exercise facilitates thinking, especially information processing.

Other research shows that exercise can make the brains of older people act younger. Magnetic resonance imaging before and after six months of aerobic exercise show that the brain activity of older people was similar to that of 20 year olds, according to the University of Illinois.

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**Sick Time**

Does a hacking and sneezing co-worker make you grimace? According to Ron Goetzel, the director of Cornell University’s Institute for Health and Productivity, you probably should. Why? It’s likely that person is going infect others as well.

Here are a few ways to stay healthy in the office, even when co-workers are not.

- Keep a clean desk, disinfect it every day.
- Clean your desktop tools: phone, mouse and pad, and other items touched regularly.
- Wash hands frequently, for 20 to 30 seconds with soapy water.
- Keep tissues on hand for sneezes and to muffle coughs.
- Stay in good general health. Get enough sleep, eat a healthy diet, and drink lots of liquids.
- Maintain a regimen of cleanliness at all times. People are more contagious before they show symptoms and after their symptoms are gone.

Source:
Cornell local Roads Program, Winter 2006, p. 2
installation. The grout hose was inserted into the PVC pipe.

Beneath the liner, they placed another two-inch PVC pipe as a weep hole (to allow water to exit between the culvert and liner). The weep hole was capped before grouted. It is vital to dewater the culvert and liner to allow the grout to set-up and cure.

Once the liner was fully installed, a mini-header was constructed between the pipe and liner (about one foot in). The header kept the grout between the culvert and liner. Before the grout was inserted, an excavator was placed at the outlet end to hold the liner. Without this support, the liner may pump out of the culvert as the grout was pumped in.

These projects used a 8-12 bag mix (eight bags of cement to one yard of concrete sand) cement grout. Once mixed, it was screened so it didn’t clog the PVC pipe that delivered the material. If the PVC pipe became clogged then one of the two vent pipes can be used.

They maintained a pump pressure of less than five psi. They closely watched the pressure as it can increase rapidly. They begun pumping at the half-way point of the space (from the inlet end). It took about a half-day to grout and it cured within a few hours. The biggest challenge was in estimating the quantity of grout needed, as any cracks or holes in the old culvert, may allow the grout to leach into existing soil or cracks in the liner may occur.

Dennis Ford, the District 2 maintenance supervisor said, “You don’t have to tear up the road. Even if the costs are the same, the indirect costs are substantially more. We aren’t impeding traffic. In fact, people don’t even know that we’re out there.”

Next summer, District 2 plans to line 6-8 pipes. In all cases, the pipes are at least 100’ long with 50’ of cover. With traditional replacement techniques, they could expect to replace only one or two culverts.

Special thanks to Dennis Ford, Tony Albert, and Hue Weatherbee of NHDOT District 2. Also, Bob Eaton and Doug King of NHDOT District 2.

Benefits of Slip Lining:
- Does not disturb the road, compaction, or surface,
- Lessens environmental impact,
- Does not disturb underground utilities,
- Does not impede traffic,
- Quicker than replacing culvert.

Lessons Learned
- Dewatering the culvert before grouting is vital,
- Screw the liners to the culverts,
- Keep the grout smooth and the pump pressure below 5 psi,
- Each installation is unique,
- Properly seal joints.
- The liner pipe is brittle, use straps and a fork loader to move rather than chains.
Chemical anti-icers or de-icers are valuable tools to fight winter storms. They are costly and may have negative environmental impacts therefore, highway agencies need to understand how they work. This publication provides basic information and tips to use chemicals effectively.

**De-Icing with Chemicals**

Many agencies use de-icing chemicals to achieve bare pavement during winter storms. Salt (sodium chloride) is the most widely used. Salt is mined and crushed, screened, and treated with an anti-caking agent.

Calcium Chloride (CaCl) is sold as pellets, flakes, or liquid. Calcium magnesium acetate (CMA) has fewer negative environmental impacts than salt and calcium chloride. Additives reduce the chemicals’ corrosive properties. CMA is more expensive, but a good solution in special situations.

De-icing chemicals work by lowering the freezing point of water. A 23.3% concentration of salt water freezes at -60 F and a 29.8% solution of calcium chloride freezes at -67 F. Low freezing points make salt and calcium chloride effective.

Before a dry de-icing chemical becomes effective, it must form a brine. Snow on the road or humidity can provide the moisture to create the brine.

Heat is also necessary to melt snow or ice. Heat may come from a number of sources: air temperature, sun, pavement, or traffic friction. Even when the pavement temperature is below freezing, it will hold heat.

The graph on the left shows that salt melts more ice per pound at higher temperatures. The graph at right shows the comparative time for different compounds to melt 1/8” of glare ice.

**Factors affecting de-icing**

Chemical concentration, time, pavement temperatures, weather conditions, type of road surface, topography, traffic volume, width of application, and, most importantly, time of chemical application all affect the process of melting snow and ice.

Concentration Using too little chemical may not sufficiently lower the solution’s freezing point. Ice will not melt; or melted snow may refreeze.
When too much chemical is used, it will not fully dissolve and some will be wasted.

**Temperature** The road surface temperature determines de-icing chemical and melting rates. As temperatures go down, the amount of de-icer needed to melt a quantity of ice significantly increases. The effectiveness of de-icing is sensitive to small differences in pavement temperatures. The graph on page one shows that salt can melt five times as much ice at 30°F as at 20°F.

**Time** The longer a de-icing chemical has to react, the greater the amount of melting (see page one). At temperatures above 20°F both salt and calcium chloride melt ice in a reasonable time. At lower temperatures salt takes much longer than CaCl.

**Weather** The sun’s heat warms the pavement and speeds melting. Radiant heat increases pavement temperature 10°F or more above the air temperature. On clear nights, pavement temperatures are lower than air temperatures. Use less chemical when temperatures are rising and more when they are falling.

The lower limit for using salt is 15-20°F. At lower temperatures more salt is needed and melting takes longer. Use other chemicals such as calcium chloride and magnesium chloride.

**Road surface type** Snow and ice melt more rapidly on an asphalt surface. Asphalt absorbs more solar radiation and is warmer for melting. This explains why snow melts more rapidly next to bare asphalt pavement.

**Topography** Ice tends to form where conditions such as high banks or vegetation shade the road surface from the sun. The longer an area is shaded, the more likely that ice will form. Pavement temperatures are lower in shaded areas, so it becomes necessary to use more chemical.

**Application width** The amount of snow melted over a long period of time is the same regardless of application width of salt. However, in the short-term, snow melts faster when salt is applied in narrow strips.

Concentrated spreading (windrowing), exposes the road surface more quickly to the sun. Then, the pavement absorbs solar heat and increases the melting rate on the rest of the roadway.

**Time of Application** Timing of application is the most important factor when using chemicals. Early application is critical. Spread a small amount of de-icer when snow is loose to turn it into slush. Slush is easy to plow and traffic cannot pack it (slush is 15% to 30% water).

After a road is plowed, apply de-icing chemicals in a windrow two to four feet wide down the middle of a two-lane road.

To remove black-ice or keep snow in a plowable condition, apply chemicals across a broader portion of the road. It is better to reapply chemicals as needed than to over-treat. Do not plow off chemicals until they have an opportunity to work.

**Environmental impact**

Environment is a concern with any maintenance activity, particularly winter maintenance. Studies show that soils, vegetation, water, highway facilities, and vehicles are affected. Most soil and vegetation damage occurs within 60 feet of the road.

Localized environmental damage from salt is largely due from stockpile runoff. Stockpiles are at maximum concentration and any exposed environmental element receives a very large dose. To prevent stockpile runoff contamination, cover salt and store it on an asphalt base.

**Spreading**

**Spreading rates** No two storms are alike, so no one set of standards provide the proper spreading rate for all conditions. Generally, only apply enough chemical de-icer to permit plows to remove snow or melt black-ice. The most effective rate to spread de-icers are between 100 and 300 pounds per single lane mile. Do not use any de-icer when temperatures are below its effective range.

Concentrate spreading de-icers in the center of two-lane roads and on the high side of curves because melting action spreads across the pavement to lower areas.

**Chute vs. Spreader** A spreader with a spinner is the most common way to apply de-icers. A spinning circular plate spreads the materials in a semi-circle. A chute can distribute de-icer in a windrow, usually on
calcium chloride is most widely used. Applications of 6-10 gallons CaCl per cubic yard of salt are recommended.

Salt brine as a pre-wetting agent is becoming more common because of its low cost. Some agencies produce their own salt brine (23% solution).

To pre-wet salt with a liquid, use truck-mounted equipment to spray the salt as it leaves the spreader to create a more uniform application. This eliminates the problem of handling pre-wetted salt not immediately used. Some agencies spray salt as it is loaded into the truck. This is not as effective as spraying salt at the spreader.

**Anti-Icing**

Anti-icing prevents the formation of a bond between ice and the pavement surface. An accurate pavement condition forecasts anticipates condition to make anti-icing effective. Apply the chemicals before, or at the on-set, of the storm. This reduces total chemical use and provides a higher level of service to the public. Use anti-icing on high service pavements. Liquid chemical applications are the most successful method in anti-icing. Pre-wetted dry chemicals are also used.

Studies show that anti-icing produces equal or better road conditions using few chemicals. Apply liquid chemicals at fairly low rates (25 to 50 gallons per mile). The fairly light application rates produce a damp rather than wet surface. Liquid chemicals remain on the pavement long enough to work. The pavement temperatures must be compatible with the air temperature for the chemical being applied.

Problems can develop if heavy precipitation continues and the storm gets ahead of anti-icing efforts. Heavy rain, freezing rain, or intense snowfall rates can cause a problem. Under these conditions switch to de-icing to accomplish cleanup.

**Abrasives**

Sand and other abrasives may improve vehicle traction on snow and ice-covered roads. They can be used at all temperatures, especially when it is too cold for chemical de-icers to work.
Environmental impacts

Abrasives have a negative environmental impact. They can clog storm water inlets and sewers. Abrasives may wash downstream, ending up in streams and lakes. Cleanup may be necessary in urban areas, on bridge decks, and in ditches.

Air pollution from particles less than 10 microns in size (pm 10) has been documented from winter abrasive use. Therefore, cleaner abrasives and quicker cleanup after the storm are required in areas with air pollution issues.

Abrasive Quality

Some sand and abrasives are more effective than others. To increase traction, use materials with crushed or angular particles. Very small particles and dirt actually reduce traction. Materials larger than the #50 sieve are most effective. To minimize windshield damage, use materials with particles size smaller than 3/8 inch.

Combining with Chemicals

Treat sand with 50-100 pounds of salt per cubic yard to keep it from becoming frozen and unworkable. It helps to anchor the sand into the ice surface, makes the sand easier to load from the stockpile, and makes it spread more evenly from mechanical spreaders.

Pre-wet sand with a liquid de-icing chemical just before spreading has proven effective to embed the abrasive on icy pavements.

Sources:
http://epdweb.engr.wisc.edu/pd/walker/22REV.pdf November 17, 2006

Ten Commandments for Snow Fighters

1. Thou shalt present thyself to thy job physically and mentally fit and properly clothed in order to withstand the rigors of thy task.
2. Thou shalt always inspect thy lights, windshield wipers, defrosters, flares, and other safety equipment before entering thy cab.
3. Thou shalt know thy spreading and plowing routes, as well as the performance of thy spinner and the life of thy plow blade.
4. Thou shalt faithfully remain alert in order to avoid guardrails, headers, stalled cars, manhole covers, railroad tracks, and mailboxes. Otherwise thee may smite thy windshield with thy head.
5. Thou shalt contain thy temper, even though cars and trucks pass thee on both sides and tailgate thee too close for comfort. Anger only multiplies thy prospects of coming to grief by accident.
6. Thou shalt use thy radio as briefly as possible—assuming thee is fortunate enough to have one. Remember thy fellow workers may need to communicate in an emergency.
7. Thou shalt interrupt the flow of power to thy spreader before attempting to free any foreign objects or blockage if thee treasures thy fingers.
8. Thou shalt render thy truck and spreader out of gear and stoutly set thy brakes before dismounting from thy cab.
9. Thou shalt govern thy speed according to conditions; else thee may wind up with thy truck upside down.
10. Thou shalt mind thy manners on the roadway, clearly signal thy intentions, and remember that it is more blessed to give than to receive.

Sources:
Adapted from the National Local Technical Assistance Program/Salt Institute. Rural & Urban Roads, 1980
Ethics
By David Grouchy

Public officials from the White House to local agencies are often in the news for ethical issues. A number protest their innocence. Ethics can make or break a career. It’s important to know what’s involved as ethics can be confusing. There are many stories about people getting into trouble. This article will provide a few simple rules to stay out of trouble.

Salary and other compensation, such as vacation and sick leave, belong to the employee for doing their job. Some people feel that they don’t get paid enough. If this is true, talk to the boss, apply for a raise or promotion, or look elsewhere. Employees cannot accept anything of value for “just for doing the job.” They cannot accept favors from people who have pursued or are pursuing a contract with the agency.

It is ok to be friendly with contractor or consultant. More work gets done in a cooperative relationship than in an adversarial one. But be careful! Employees attending sporting events or any entertainment, should pay their own way. It is usually alright to socialize with people who have contracts with the town or city, but don’t accept gifts or favors. Employees playing golf or going fishing with a contractor, should pay their own greens fees and share of the cost of the fishing trip.

Doing the job. Competence is an area of concern for public employees. People should do work that they are qualified for. Employees should not do work outside their area of expertise unless it is considered training and are supervised by an instructor or competent person. The most ethical thing a supervisor can do is to let their people do the work. Don’t micromanage, second guess or take authority away from subordinates.

Don’t hire family. Most public works agencies restrict family members from working closely with each other. This may be difficult if promoted to an area where a relative works. Check with human resources or the state ethics board before accepting a promotion. Ask, so others will know everything is above board. In private industry, it is OK to hire family, the public sector is different and the rules are not so liberal.

Unfortunately, people are quick to believe that public employees are incompetent or dishonest. Don’t associate with unethical behavior. One’s reputation is precious and very difficult to recover once it has been damaged.
New Hampshire Roads Scholars

We are pleased to recognize those who have achieved the following levels in the UNH T^2 Center Roads Scholar Program during the Fall of 2006.

**Master Roads Scholar.** Participated in UNH T^2 Center training activities which totalling 100 contact hours and covering the range of topics required for Roads Scholar II.

<table>
<thead>
<tr>
<th>Name</th>
<th>Affiliation</th>
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<tbody>
<tr>
<td>Doug Almon</td>
<td>NHDOT</td>
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<tr>
<td>Albert Anderson</td>
<td>Hancock</td>
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<tr>
<td>Ken Baldwin</td>
<td>Chesterfield</td>
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<td>Allan Bolduc</td>
<td>Meredith</td>
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<td>Tom Dubey</td>
<td>Thornton</td>
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<td>Wayne Elliot</td>
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<td>Chuck Grassie</td>
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<td>Rob Hatch</td>
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<td>David Kenneally</td>
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<td>Ken Louzier</td>
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<td>James MacLean</td>
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<tr>
<td>Richard Smith</td>
<td>Lebanon</td>
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<tr>
<td>Michael Sousa</td>
<td>Enfield</td>
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<tr>
<td>Brian Sullivan</td>
<td>Franklin</td>
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**Senior Roads Scholar.** Participated in UNH T^2 Center training activities totalling 70 contact hours and covering the range of topics required for Roads Scholar II.

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<thead>
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<tbody>
<tr>
<td>John Ahlman</td>
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<tr>
<td>Tony Albert</td>
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<td>David Brown</td>
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<td>Kelly Butler</td>
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<td>Robert Clough</td>
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<td>Jason Dewildt</td>
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<td>Ernie Doucette</td>
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<td>Richard Fairweather</td>
<td>Lemster</td>
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<td>Leonard Heath</td>
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<td>Jason Kimball</td>
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<td>Emile Lacerte</td>
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<td>Wayne Lombard</td>
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<td>Eddie Nason</td>
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<td>Richard Nunziato</td>
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<tr>
<td>Charles Pease</td>
<td>Raymond</td>
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<tr>
<td>Douglas Starr</td>
<td>Northwood</td>
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<tr>
<td>Thomas Willis</td>
<td>Jaffrey</td>
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<tr>
<td>William Wood</td>
<td>Rochester</td>
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<tr>
<td>Steve Yeaton</td>
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**Roads Scholar II.** Participated in UNH T^2 Center training activities totalling 50 contact hours and covering a set of minimum subject areas including road design and construction basics, other technical, tort liability and safety, and supervision or personal development.

<table>
<thead>
<tr>
<th>Name</th>
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<tbody>
<tr>
<td>Randy MacDonald</td>
<td>Hanover</td>
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<tr>
<td>Jim Mountford</td>
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<tr>
<td>Tracy Nash</td>
<td>Walpole</td>
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<tr>
<td>Carl Oehler</td>
<td>Deerfield</td>
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<tr>
<td>Charles Perkins</td>
<td>Raymond</td>
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<tr>
<td>Michael Plante</td>
<td>Chesterfield</td>
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<tr>
<td>Marc St. Pierre</td>
<td>Rochester</td>
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<tr>
<td>Sumner Weeks</td>
<td>Northfield</td>
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<tr>
<td>Troy Wilmott</td>
<td>Walpole</td>
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**Technology Transfer Center**

New Hampshire LTAP at UNH
Roads Scholar I. Participated in UNH T² Center training activities totalling 30 contact hours.

**Name**

Bradley Butcher  
Bill Chick Sr.  
Richard Cousins  
Scott Davison  
Steve Dickinson  
John Fumicello  
Robert Golemo  
Robert Harrington  
Patrick Holland  
Paul Jalbert  
Scott Kinmond  
Steve Larson  
Michael Limoges  
Paul Mathieu  
William Mc Auley  
Bruce McDonald  
Mark Messenger  
George Miller  
Barry Mueller  
Ed Parker  
Bryan Pease  
Victor Ranfos III  
Carol Raymond  
Joe Rice  
Scott Richey  
Chris Rocheleau  
Jason Roiko  
William Sargent  
William Scanlon  
Jim Shackford Jr.  
Tim Shackford  
James Smith  
Mack Tebbetts  
Earl Thibodea

**Affiliation**

Springfield  
Madison  
Rochester  
Henniker  
NHDOT  
Chesterfield  
Merrimack  
New London  
Epsom  
Grafton  
Moultonboro  
Conway  
Hollis  
Bedford  
Francesstown  
Franklin  
Strafford  
Franconia  
NHDOT  
Littleton  
NHDOT  
Pembroke  
Franklin  
NHDOT  
Rochester  
Fitzwilliam  
Hancock  
Littleton  
Newport  
Conway  
Conway  
Kingston  
Barnstead  
Laconia

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**Text Messaging and Emergency Preparedness**

Mississippi Department of Transportation debriefing after hurricane Katrina taught responders that all employees need to learn text messaging. During Katrina, text messaging was a fast, efficient and reliable way to communicate. Responders discovered that text messaging is a viable option when land and cellular phones and other devices failed.

“Everyone should have a plan for communicating in times of emergencies. Text messaging is efficient. In the time it takes a person to make a one-minute voice call, hundreds of thousands of text messages can be exchanged,” said Tom Wheeler, President and CEO of Cellular Telecommunications & Internet Association (CTIA).”

CTIA urges wireless users to learn the text messaging on their phones or devices:

**Prepare.** Most phones are easy to use and learn. People new to text messaging, shouldn’t wait for an emergency to learn. Review the directions for text messaging in the owner’s manual or on the carrier’s web site.

**Pre-Program.** Enter the wireless phone numbers of people to contact an emergency.

**Plan.** Let people know to look for a text message on their cellular phones.

**Practice.** Send test messages until comfortable. Ask others to send you test messages. Practice so that users won’t forget or be flustered texting in a stressful situation.

Immediately after the terrorist attacks of September 11, 2001, cellular networks were overloaded. In New York City, cellular traffic increased 1,300% over peak usage. During the peak hour of 11:00 a.m., about 95% of calls couldn’t get through due to congestion.

Source

Publications
UNH Technology Transfer Center

These publications are available from the UNH T² Center. See www.t2.unh.edu/video_pub/publist.html for a complete list and to access some publications online. To request publications, complete form and mail or fax to 603-862-0620.

___Another Sleepless Night
This publication gives guidelines to more productive “all-nighters” during winter operations. Primex³.

___Things to Know Before You Buy a New Plow
This article recommends specifications for snow plows, considering New Hampshire’s climate. UNH T² Center, Road Business, Spring 1996.

___Road Salt and Water Quality
Environmental Fact Sheet discusses road salt management, alternatives to road salt, and the DOT Reduced Salt Pilot Program. NHDES.

___Salt Storage Building Design
Illustrates the design of salt storage buildings used by the NHDOT to prevent sodium chloride infiltration into ground and surface waters. NHDOT.

___Snow Disposal Guidelines
Environmental Fact Sheet; flyer gives recommended guidelines for snow disposal. NHDES.

___The Snowfighters Handbook
This guide provides information on snow and ice control, including training, equipment, planning, types of snow, calibration, salt application, spreading and plowing problems, and safety. Salt Institute.

___Winter Operations Policies
Various winter operations policies describes 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.

___Calcium Chloride Package
This package includes information on uses for calcium chloride, chemical advantages, deicing, and options for deicing. General Chemical.

___Accessible Sidewalks and Street Crossings
An informational guide to designing appropriate, legal, and safe structures for pedestrians with disabilities. USDOT & FHWA.

___Contractor Beware:
A guide to working safely around power lines and electricity. Public Service of NH.

___Rumble Strips in Workzones
This article explains the pros and cons of using rumble strips and some recommendations for their use. UNH T² Center, Road Business, Spring 2002.

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Material Request Form

Name: ____________________________
Affiliation: ________________________
Town/City: _________________________
Phone: ___________ Fax: ___________
Title: ______________________________
Mailing address: ____________________
State: __________________ Zip: ________
Email: ____________________________

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**Milestones**

*Domenic Ciavarro* has left Waterfield Design and has joined the Concord Hospital as the facilities director.

*Al Elliott*, retired director of public works in Franklin, passed away.

*Tom Hudon*, Merrimack, passed away on October 10, 2006.

*Ed Kelly*, former public works director in Bedford, retired from Keach-Nordstrom Associates.

*Nancy Mayville*, NHDOT, has been promoted to oversee the Community Assistance section of the Bureau of Planning at NHDOT formerly held by Bob Barry.

*Richard Perkins*, retired city engineer in Concord, passed away.

**Web sites**

Crosswalk related web resources [http://safety.fhwa.dot.gov/ped_bike/ped](http://safety.fhwa.dot.gov/ped_bike/ped)

Comprehensive site on pedestrian issues [http://www.walkinginfo.org](http://www.walkinginfo.org)


**VI. Public Works; Roads and Highways; Speed Limits; Airports; Rails**

Bonds for Highway Work. Chapter 177 (HB 1536) provides that when the state or a municipality requires the posting of a security under RSA 236:10 as a condition to permitting excavation or other activity that disturbs a public road, the person providing the security may decide what kind of security to provide, which may be in the form of cash, a letter of credit from a New Hampshire bank, or a bond from an insurance company. The person granting the permission may not arbitrarily withhold funds from the security, but must first make a good-faith effort to resolve any differences with the contractor performing the work. The chapter also amends RSA 236:11 to require that the person doing the work restore the road to “a condition at least equal to the condition that was present before the excavation or disturbance.” Previously, it required restoration to the satisfaction of the person giving the permission. E.D. July 24, 2006.

**Listservs**

A listserv is a free way to use email to exchange information. To subscribe send an email to List-Proc@lists.unh.edu. Leave the subject line blank, in the body of your message type:

Subscribe listname your name

For instance:

Subscribe pw.net John Doe

**PW.NET**

Want to know what is happening in other towns? Or, learn the very latest in regulations? Need a place to ask questions of other public works officials? Want to be the first to receive notifications of UNH T² Center workshops? Sign up for pw.net

**RunOff.Talk**

Want to discuss NPDES II issues and concerns? This list enables a dialog to clarify federal permits, and determine the best technical management for compliance. Use it to announce meetings and conferences. ❖
### Planned Spring 2006 Workshops

*Note: Space is limited. Flyers will arrive in the mail during the winter. They are posted online before they are mailed and advertised on pw.net (see page 11). Participants are invited to register as soon as flyers are posted.*

<table>
<thead>
<tr>
<th>Workshop</th>
<th>Location</th>
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<tr>
<td>Construction Inspection</td>
<td>1 Location</td>
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<tr>
<td>Drainage, Drainage, Drainage</td>
<td>2 Locations</td>
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<tr>
<td>Erosion Control</td>
<td>2 Locations</td>
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<tr>
<td>Ethics</td>
<td>2 Locations</td>
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<td>Geotextiles</td>
<td>2 Locations</td>
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<tr>
<td>Grader Training (Summer)</td>
<td>1 Location</td>
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<tr>
<td>Managing Small Highway Departments</td>
<td>1 Location</td>
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<tr>
<td>Math for Roadway Workers</td>
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<td>Municipal Permits</td>
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<td>Pavement Markings</td>
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<td>Plan Reading</td>
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<tr>
<td>Reconstruction Project Planning</td>
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<tr>
<td>Roads Safety Audits (Summer)</td>
<td>1 Location</td>
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</tbody>
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**The Public Works Academy**

*Contact Carl Quiram 479-3617 or cquirmam@ci.goffstown.nh.us. Flyers are advertised on pw.net.*

- Level One begins March 20, 2007
- Level Two begins May 29, 2007