

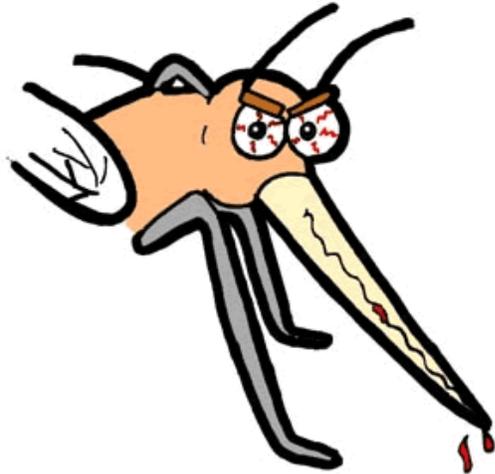


Road Business

A University of New Hampshire Technology Transfer Center publication

Vol. 19 No. 1

Spring 2004



On the Road in New Hampshire

Road Drainage Can Become Focus in Combating West Nile Virus

The West Nile virus (WNV) first appeared in New York in 1999. This mosquito-borne disease has since spread to 45 states. In 2002, 284 people died from WNV and 246 in 2003. There were 4,156 cases in 2002, and the number more than doubled in 2003.

Even though New Hampshire had only 3 cases in 2003, public health officials have reason to be concerned about WNV. They have known for years that mosquitoes spread diseases. They have developed programs to combat the insects. Their focus on pest control is returning to disease control.

One affect is seeking additional means to combat mosquitoes. Increasingly, they view stormwater drainage systems as potential standing-water breed-

ing grounds. Mosquito larvae and pupae need standing water to become adults, which can carry WNV and other diseases. If they can reduce standing water, they can reduce mosquitoes and thus disease.

To preserve local roads, drainage systems must move water away from them. Road drainage systems usually have ditches, culverts, catch basins, and pipes. Many have an array of structures and ponds for special situations. Drainage components can hold water. In addition, environment regulations restrict flow into wetlands and other water bodies without treatment. Many of these treatments also become reservoirs for standing water. In other words, road drainage systems are important and necessary, but can also create attractive places for mosquitoes to lay eggs.

Stormwater magazine has recently published articles on these possibly conflicting purposes. They describe both perspectives. Local road managers can use them to work with their public health officials. Together they must define specific problems and develop mutually beneficial solutions. The UNH T² Center has prepared a package of this information. It is available upon request, or on the UNH T² Center website.

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Preventing and Correcting Corrugated Gravel Roads

Corrugated gravel roads generate more complaints than any other condition. Even a shallow "washboard" creates a bumpy ride. More severe corrugations can reduce driver control of vehicles.

Washboarding occurs when the surface gravel has too few "fines." These tiny particles will pass through a screen with 200 openings per square inch. They bind the larger particles together to distribute and support vehicle loads. With too few fines, vehicle tires easily move the larger particles into the washboard pattern shown here. Corrugated roads occur due to four factors.



1. Vehicle speed and related driving habits.
2. Vehicle volume.
3. Poor gravel quality.
4. Lack of moisture.

Vehicle speed, acceleration, and braking are the greatest causes. Of course, changing the public's driving habits is unrealistic. However, cities and towns can minimize the affects of vehicle volume, gravel quality, and moisture. This article will describe ways to control these factors.

Vehicle Volume

The NHDOT recommends a gravel wearing surface for new roads with less than 50 ADT (average daily traffic). The UNH T² Center recommends the NHDOT minimums for existing roads. Cities and towns should pave roads above 200 ADT. They should apply an asphalt surface treatment on roads between 50-200 ADT. Above 50 ADT, it becomes increasingly expensive to maintain gravel roads adequately.

Gravel Quality

High quality gravel is a "graded" blend of stone, sand, and fines. Table 1 shows the recommended gradation by weight for both the base and surface courses. The base is NHDOT Specification 304.3 with a 2 inch maximum size. All surface course stones should pass the ¾ inch sieve. The surface gravel should have 10-15 percent fines.

Graded gravel greatly reduces washboarding, and the related maintenance expenses. Cities and towns should specify the Table 1 gradations and test materials.

continued on page 3

continued from page 2

Table 1. Recommended Gravels

| Sieve Size | Base Course % passing | Surface Course % passing |
|----------------------|-----------------------|--------------------------|
| 2 inch | 100 | --- |
| 1 inch | 55-85 | |
| 3/4 inch | --- | 100 |
| No. 4 | 25-70 | 50-78 |
| No. 8 | | 37-67 |
| No. 40 | --- | 13-35 |
| No. 200 in sand only | 0-12 | --- |
| No. 200 in total | --- | 10-15 |
| Plasticity Index | --- | 4-12 |

The stones provide strength. In the surface course, they transfer vehicle loads to the base course. In the base, stones support the load, and are therefore larger. Too much stone compacts poorly, allowing stones to move between wheel tracks and onto shoulders.

In the surface course, adequate fines form a crust on the surface. Too many fines can make a road slick in wet weather. The plasticity index (PI) ensures good binding characteristics. Fines with low PI will loosen and quickly erode.

Gravel pits have rounded stones, and few have graded aggregates. Crushed gravel performs better than natural, round stones. Blended, crushed gravel compacts into a dense, tight mass with an almost impervious surface. If a municipality uses native materials, it should test it and determine what is lacking. It should then mix clay or stone as needed for properly graded gravel.

Just blading and/or filling depressions remove washboarding for only a short time. Crews must add gravel for long term correction. Adding gravel is especially important if depressions are in the base course. A minimum surface course is 3 inches thick.

Before adding gravel, crews should cut and rework the existing surface. A grader should cut the existing surface to a depth 1 inch or more below the bottom of depressions. The grader then mixes new and existing materials and gives the road a proper crown and shape.

Crews should add gravel and grade corrugated roads with good moisture. Whenever possible, they should work on problem areas after a good rain.

If graded gravel is hard to obtain, crews should add the best materials on the trouble spots and use regular materials on the rest of the road. They can also improve gradation by pulling materials from shoulders and mixing it with the surface gravel. The end product will seldom be the best material, but it provides temporary benefits.

Some towns have successfully used a 50/50 mix of recycled asphalt and new gravel. The asphalt works as a binder, which resists washboarding. The mix should have a compacted depth of at least three inches.

Moisture

Even if the surface initially has adequate fines, wind and water will erode them off the road over time. In dry weather, wind quickly removes large quantities of “dust.” On hills, or if the cross section is too steep, water erosion can be problematic.

Hauling and spreading water is usually expensive. Many find it cost effective to treat the gravel with calcium or magnesium chloride. These products pull moisture from the air and create a hard road surface. They work best if the gravel is well graded.

Conclusion

A corrugated road indicates that city or town managers need to take one or more of the actions described above. The most common needed action is to add graded gravel. Applying calcium or magnesium chloride is usually cost effective. Perhaps they should surface treat or pave the road.

Some will see these as expensive actions. In the long term, alternatives are more expensive.

Sources:
 Salim, Ali, and Ken Skorseth. 2000. *Gravel Roads Maintenance and Design Manual*. FHWA. <http://www.epa.gov/owow/nps/gravelman.pdf>
<http://www.bikenfly.org/MT1.htm>

Road Preservation

A “ Right Treatment on the Right Road at the Right Time” Program

Local Roads Are Wearing Out

There are over 17,000 miles of public roads in New Hampshire. Cities and towns maintain almost two-thirds of the mileage. Residents expect to drive on safe, smooth, and well-maintained roads. In many places, residents and commercial vehicles travel on rough, poorly maintained roads. Even towns with good roads see repair needs increasing. Municipal roads wear out due to many factors:

- **Increased traffic.** Both vehicle volumes and weights have increased throughout the state.
- **Climate.** New Hampshire’s cold winters and hot summers accelerate deterioration.
- **Lack of proper maintenance.** Few budgets have kept pace with maintenance and repair needs.

Road Preservation

Some road managers have applied practices that provide well-maintained roads. Recently, FHWA and state DOTs pulled together these practices. This article draws on their report to describe “Road Preservation.”

Road preservation treats roads and streets as an asset that serves customers. Its goals are to extend road life, improve road performance, ensure cost-effectiveness, and provide safe, smooth roads for motorists and passengers. The program includes asset management, preventive maintenance, and multiyear plans and budgets

Asset Management

Asset management is an organized, logical approach to maintain and upgrade physical assets cost-effectively. It provides a framework for both short and long-range planning. This approach involves the following steps.

1. Inventory all road assets.
2. Identify conditions with scaled measures across the road network.
3. Establish desired, future condition levels.
4. Determine priorities, needed repairs, and costs.
5. Develop annual budgets to maintain roads at or above the established condition levels.

The result is a systematically developed repair plan by year. It ensures cost effective repairs. Roads will better serve municipal residents and commercial interests. The program enables city and town officials to report actual budgets and expenses for roadway asset repairs, an option in GASB 34.

The UNH T² Center’s Road Surface Management System (RSMS) has applied this approach since its inception in the 1980s. It also applies the principles of preventive maintenance to prepare multiyear plans and budgets.

Preventive Maintenance

Figure 1 shows the classic deterioration curve and preventive maintenance (PM) cost effectiveness. The vertical axis is pavement condition; the horizontal axis is time in years. The thick line shows how roads initially deteriorate slowly for some time. Without any maintenance, they soon wear out.

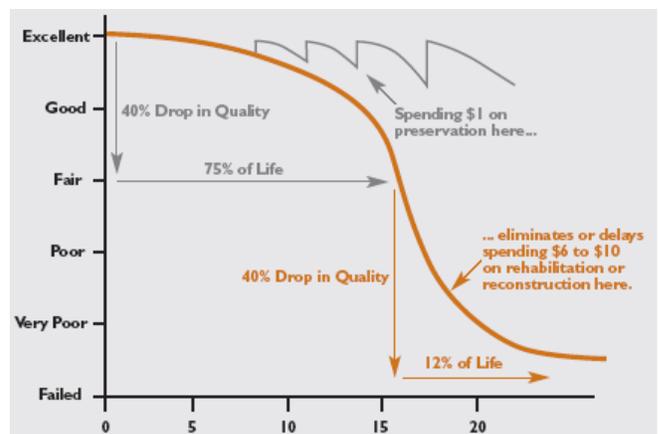


Figure 1

Deterioration Curve and PM Cost Effectiveness

The increased deterioration occurs because water has penetrated into the structure. Traffic over the saturated structure quickly breaks it up. On paved roads, the earliest distresses are small cracks, which soon grow wider and deeper. Left unsealed, cracks allow water to penetrate the pavement into the aggregate base. Unpaved roads rely on smooth, sloped cross sections to keep excessive water out of the base. Traffic removes gravel and creates minor corrugations and potholes. Without PM, these get bigger and hold water that filters into the structure.

Preventive maintenance is a set of repair treatments applied early in the deterioration cycle. PM repairs retard deterioration. They preserve the road network while improving it. For paved roads, PM treatments include crack sealing and surface coats -- sand seals, chip seals, and thin (1 to 1½ inch) overlays. For unpaved roads, shaping and grading the road surface, and adding some gravel as necessary, are PM treatments. For both road surface types, PM includes cleaning ditches and culverts.

The top wave-like curve in Figure 1 shows that even repeated PM treatments cost less than waiting to rehabilitate or reconstruct roads. These less expensive repairs extend road life. Applied before structural deterioration, they make more expensive repairs unnecessary for many years. In other words, preventive maintenance means **APPLYING THE RIGHT TREATMENT TO THE RIGHT ROAD AT THE RIGHT TIME.**

Figure 1 is from a national publication. In New Hampshire, cities and towns should expect to seal cracks on 4 to 6 year roads rather than the indicated 8 years.

Multiyear Plans and Budgets

When applying road preservation, cities and towns prepare multiyear plans to accomplish all the work. Many PM treatments are within a highway department's capability. Crack sealing and surface treatments usually require contractor assistance. For all PM work, municipalities should have dedicated annual budgets to accomplish PM. They should have separate budget line items for rehabilitation and reconstruction. Road managers should give PM higher priority than rehabilitation or reconstruction.

A Road Preservation Program

A road preservation program is a municipal program. Establishing a program requires actions by road managers, and approvals by municipal officials and residents.

Road Managers. The above asset management section describes the planning steps for a road preservation program. Road managers must prepare competent plans and budgets, monitor progress, and modify the plan as necessary. They will also have to educate their governing body, municipal officials, and the public.

Municipal Officials. In the past, many officials have given priority to roads in poor condition. PM means repairing roads still in relatively good condition, before having to rehabilitate or reconstruct them. Road managers will have to educate some officials that "making bad roads good" is ineffective in two ways. First, it is more expensive to wait until roads need reconstruction or major rehabilitation. Second, deteriorated roads are rough, and at times unsafe, to drive on.

Residents. Many residents have given bad roads priority when approving budgets. Road managers must educate them as well. All concerned should also know that some additional work will still be needed. For example, crews will still have to patch potholes, unplug drainage facilities, remove fallen trees, and fill ruts and washouts.

Officials and residents should also understand that PM yields long-term benefits. In addition to initial selling of the program, road managers should create early successes and publicize them.

This spring and fall the UNH T² Center will hold "Repair Treatments" workshops. The purpose is to help road managers select the right treatment for the right road at the right time.

Source:

Galehouse, Larry, James Moulthrop, and R. Gary Hicks. 2003. "Principles of Pavement Preservation," *TR News*, No. 228, September-October 2003.

Master Road Scholars



Master Roads Scholar George Bachelder

George Bachelder is the Road Agent in the Town of Pittsfield. George has worked in Pittsfield for over 20 years. He became the Road Agent in 1986.

George believes it is important to take many classes to keep up with the latest technology. George also finds the classes helpful to keep informed about the latest regulations.

The Town of Pittsfield understands the value of training. George's supervisors are interested not only in his training, but they have taken advantage of it themselves. Everyone enjoys taking UNH T² classes.

George and his wife have two daughters. In his free time, he likes to fish and hunt.

Congratulations to Master Roads Scholar George Bachelder!

Master Roads Scholar Brian Beers

Brian Beers is a Maintenance Worker IV in the Town of Durham. He has worked in Durham for 34 years, starting out as a laborer. He has worked in many positions, including superintendent of highways.

As superintendent of highways, training was part of the job. However, Brian set reaching the level of Master Road Scholar as his personal goal. He enjoys all the courses he has taken. He especially likes being able to apply the techniques and information learned in the workshops in his daily work.

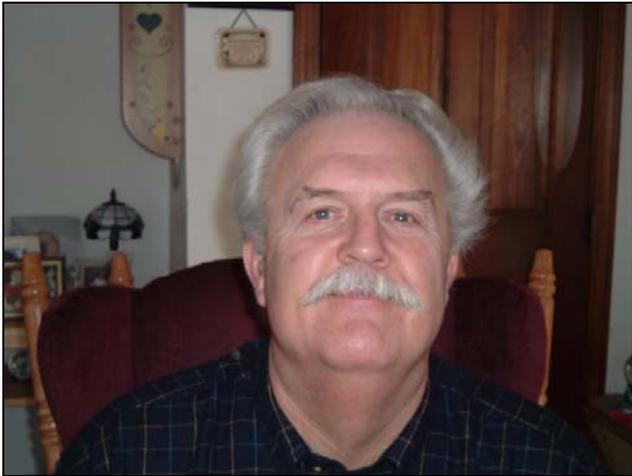
Brian's supervisors are very supportive of his training. He recommends the program to all public works employees. Even though he has become a Master Road Scholar, Brian plans to continue taking classes.

Brian is married and has two adult sons. In his free time, he is an avid bird watcher. He also enjoys building doll houses and furniture.

Congratulations to Master Roads Scholar Brian Beers.



Master Road Scholars



Master Roads Scholar Norman Litalien

Norman Litalien is an Equipment Operator in the City of Nashua. Norman is beginning his 17th year with the City of Nashua. He started out his public works career as a trash picker for the City. Prior to working for Nashua, he worked for Nashua Beef.

His supervisors have been very supportive and have encouraged him to attend training. Norman thinks that training and achieving the Master Roads Scholar level have been important to improve his skills.

Norman is married to his wife Diane. They have four sons, ages 31, 26, 21 and 12. In his free time, he enjoys surf-casting.

Congratulations to Master Roads Scholar Norman Litalien.



Master Roads Scholar Carl Somero

Carl Somero is the General Foreman of Public Works for the Town of Milford. He began his career in public works 19 years ago with the Town. He started as an equipment operator and then became the Foreman for water treatment. As the General Foreman, he is responsible for highway and water treatment. Before joining the Town, he worked for R.H. White Construction in the natural gas and water side of the business.

Carl first attended a few classes and found them to be very informative and helpful to his job. Ever since, he has continued his training.

Carl's supervisors have been very supportive of his training. He said that achieving the Master Roads Scholar level benefits both him and the Town.

He and his wife Marilyn, have a 29-year-old son. When he is not working, he enjoys snowmobiling, boating, fishing and scuba diving.

Congratulations to Master Roads Scholar Carl Somero.

Road Business Four Year Index

Call the UNH T² Center for Articles You Can't Find, or use the Website

Computers. Join pw.net, 2000, #4. Websites, 2000, #4. Load Limits (posting roads), 2000, #4. Virus update, 2003, #1.

Drainage. Culvert Inspection, 2000, #3. Storm Water Phase 2, 2000, #3. Regulations Will Challenge NH Municipalities in the New Millennium, 2000, #4. Ditch Basics, 2000, #4. Wetlands Permits, 2001, #1. Test Your Culvert Design Knowledge, 2001, #3. Catch Basin Cleaning, 2002, #4. Culvert Maintenance and Repair, 2003, #1. Place Culverts Correctly the First Time, 2003, #2.

Erosion. Culvert Inspection, 2000, #3. Wetlands Permits, 2001, #1. Test Your Culvert Design Knowledge, 2001, #3. Seacoast Coalition Creates a Stormwater Video, 2003, #1. Culvert Maintenance and Repair, 2003, #1. Pulverized Glass Aggregate, 2003, #1.

Legal Matters. Regulations Will Challenge NH Municipalities in the New Millennium, 2000, #4. Load Limits (posting roads), 2000, #4. Wetlands Permits, 2001, #1. Conducting an Interview, 2001, #1. RSA 265:3 Obedience to Flagpersons, 2001, #2. Signs at Pedestrian Crosswalks, 2001, #3. Traffic Signs to Restrict Trucks, 2001, #4. Rumble Strips in Workzones, 2002, #1. NPDES II Rule Changes Will Impact Many Municipalities, 2002, #2. MS4s, 2002, #2. NPDES II and Highway Garage Complexes, 2002, #2. Setting and Posting Speed Limits, 2002, #3. Crosswalk Placement, 2002, #3. Wetlands Permits, 2003, #2. MUTCD Revision, 2003, #4.

Management. Edgeline Marking, 2000, #1. Storm Water Phase 2, 2000, #3. Join pw.net, 2000, #4. Traffic Calming, 2001, #2. How Potholes Form, 2001, #2. Signs at Pedestrian Crosswalks, 2001, #3. Installing the Correct Traffic Sign, 2001, #4. Public Works Mutual Aid, 2001, #4. Rumble Strips in Workzones, 2002, #1. Setting and Posting Speed Limits, 2002, #3. Crosswalk Placement, 2002, #3. Street Sweeping, 2002, #4. Tracking Departmental Costs, 2003, #2. ICS, 2003, #4. Controlling Vegetation, 2003, #4.

Other. Storm Water Phase 2, 2000, #3. Traffic Calming, 2001, #2. Leadership Skills, 2001, #2. Technology Transfer Center Celebrates its 15th Anniversary, 2001, #3. Installing the Correct Traffic Sign, 2001, #4. Rumble Strips in Workzones, 2002, #1. PGA, 2003, #1. Work Smarter: How Time Slips Away, 2003, #2. Changes for Many Dig Safe Callers, 2003, #3. Dover Tests Crosswalk, 2003, #4.

Paved Roads. Flowable Fill, 2000, #1. Edgeline Marking, 2000, #1. Ditch Basics, 2000, #4. Load Limits (posting roads), 2000, #4. Street Sweeping, 2002, #4. Guiding Motorists Through Turns and Curves, 2003, #2. Center and Edge Line Pavement Markings, 2003, #3. Tack Coat, 2003, #4.

Personnel Management. Keeping Good Employees, 2000, #4. Conducting an Interview, 2001, #1. How to Interview, 2001, #1. Leadership Skills, 2001, #2. Stress in Today's Workplace, 2001, #4. Training to Improve Performance, 2003, #3. Learning Approaches, 2003, #3. Getting the Most from Training, 2003, #3.

Public Relations. Marketing, 2000, #1. Open House, 2000, #3. Improving Communications with the Public, 2000, #3. Traffic Calming, 2001, #2. How Potholes Form, 2001, #2. Telephone Etiquette, 2002, #3. Crosswalk Placement, 2002, #3. Seacoast Coalition Creates a Stormwater Video, 2003, #1.

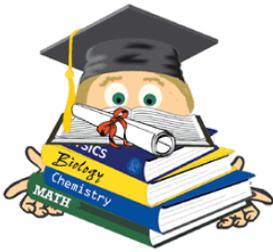
Safety. Bloodborne Pathogens, 2000, #1. Traffic Calming, 2001, #2. Signs at Pedestrian Crosswalks, 2001, #3. Installing the Correct Traffic Sign, 2001, #4. Rumble Strips in Workzones, 2002, #1. Stop Sign & Supplemental Devices, 2002, #2. Chainsaw Safety, 2002, #3. Crosswalk Placement, 2002, #3. Changes for Many Dig Safe Callers, 2003, #3. Dover Tests Crosswalk, 2003, #4. Controlling Vegetation, 2003, #4.

Unpaved Roads. Flowable Fill, 2000, #1. Ditch Basics, 2000, #4. Load Limits (posting roads), 2000, #4. Paving Gravel Roads, 2002, #1.

Winter Operations. Pros and Cons of Sand on Ice and Snowpack, 2001, #3. Snow Disposal, 2001, #3. Testing Winter Operations, 2002, #4. What to eat on Snow Plowing Nights, 2003, #4.

Publications

University of New Hampshire Technology Transfer Center



Copies of the following books and pamphlets, and our complete list of publications, are available from the UNH T² Center. The website has the most up-to-date list of publications. When requesting an item with a charge, please include the check with your form. If ordering by mail, follow the instructions below. To request by telephone, call 603-862-2826, or in NH, 800-423-0060. You can also request by fax to 603-862-2364, online at www.t2.unh.edu, or by e-mail to t2.center@unh.edu

The following materials are available free of charge.

___ *Chain Saw Safety*. Flyer on preventing accidents and proper maintenance of a chain saw.

___ *Contractor Beware: Your Real-Life Guide to Power Line Safety*. A Public Service of NH guide to working safely around power lines and electricity.

___ *Curb Cuts Information*. State of New Hampshire document from March 1997 about the regulations of driveways and other public access roads.

___ *Flexibility in Highway Design*. A guide written for highway engineers and project managers who want to learn more about the flexibility available to them when designing roads. It illustrates successful approaches used in other highway projects.

___ *Flowable Fill Packet*. This packet discusses different types of fills, covering specifications, materials, and construction recommendations.

___ *Gravel Roads Maintenance and Design Manual*. This comprehensive manual was developed by the South Dakota LTAP Center.

___ *Maintenance of Small Traffic Signs*. A guide for maintaining small traffic signs geared toward maintenance personnel.

___ *Measuring and Calculating Slopes*.

Information on how to measure a roadway slope. Recommended guidelines for roadway slopes are also included.

___ *Series of Quick Guides for New Hampshire*

Towns. A set of pamphlets dealing with the topics below. Developed by the UNH T² Center. And distributed as a set. 1) Culvert Installation and Maintenance, 2) Ditch/Channel Construction and Maintenance, 3) Vegetative Erosion & Sediment Control, 4) Non-Vegetative Erosion & Sediment Control, 5) Cut and Fill Slopes, 6) Beaver Pipe: Construction and Maintenance, 7) Stormwater Inlets and Catch Basins, 8) Mowing and Brush Control, 9) Snow and Ice Control, and 10) Obtaining Permits.

___ *NHDOT Suggested Minimum Design Standards for Rural Subdivision Streets*.

Describes suggested standards to use when designing rural subdivision streets.

___ *Vegetation Control for Safety*. A guide for street and highway maintenance personnel that goes through site clearance and safety operations for vegetation control.

To Request Material by Mail

Check the items you would like to receive. Fill out this form and include a check in the envelope, if necessary. Cut out this page and mail to the UNH T² Center.

Name: _____

Position: _____

Organization: _____

Address: _____

Videos

University of New Hampshire Technology Transfer Center
Road Business, Spring 2004, Vol. 19, No. 1

The following videos are available from the UNH T² Center Video Library. You can have five videos for a two-week period with no charge. To request by mail, check the videos you would like to borrow (up to 5), fill out the mail request form, staple closed, affix stamp, and mail. To request by telephone, call (603) 862-2826 or in NH, (800) 423-0060. Visit our complete publication and video catalog on our website at <http://www.t2.unh.edu> or email us at t2.center@unh.edu



___ *DC-214, Asphalt Pavement Applications*, 30 min. Shows application of various seals such as fog seals, sand seals, slurry seals, chip seals, penetrating prime, and other surface applications.

___ *DC-252, Roadway Design: Balancing Safety, Environment, and Cost*, 13 min. This video emphasizes the importance of considering safety, environment, and cost when designing a road. It explains how engineers must cooperate with the public in coming to a mutual agreement when constructing a roadway.

___ *DC-261, Accessible Sidewalks: Design Issues for Pedestrians with Disabilities*, 4 parts, 40 min. Illustrates the hazards and barriers faced by pedestrians with disabilities and recommends engineering and maintenance solutions to eliminate them.

___ *DC-262, Stormwater Runoff, There is No Away*. Provides a wide range of information about stormwater runoff. Explains the water cycle and basics of NPDES I & II. Provides information about methods of controlling runoff, such as silt fences and swales.

___ *M-202, Upgrading Gravel Roads*, 20 min. Discusses how gravel and asphalt roads can be recycled using low-cost alternatives.

___ *M-215, Guidelines for Spring Highway Use Restrictions*, 26 min. Shows where, how and when to post limits on roads in the spring. Discusses criteria for placing and removing restrictions, where to apply them, how much to restrict loads, and when to apply and remove restrictions.

___ *M-225, Crack Repair in Asphalt Concrete Pavement*, 12 min. Shows good procedures for crack sealing in asphalt pavement. It is particularly applicable to an area with extensive cracking severe enough to require work beyond normal crack sealing. There are guides in the film that will help to establish the extent of sealing that is appropriate.

___ *M-292, Low Volume Roads Series*, 20 min. This video explains how to set maintenance priorities for low volume roads and managing their maintenance.

___ *Video Catalog*.

Place
Stamp
Here

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Milestones:

City of the Laconia and the town of *Sullivan* have joined Mutual Aid.

Dustin Muzzey is the new Operations Manager in Gilford.

Doug Sargent has left the Town of Ossipee to become the new Public Works Director in Laconia.

Richard Seymour is the new Public Works Director in Nashua.

Websites:

UNH T2 Center: <http://www.t2.unh.edu>

NH Towns with links to websites:
<http://webster.state.nh.us/municipal/index.html#h>

NH Associated General Contractors:
<http://nh.agc.org/>

Federal Motor Carrier Rules
<http://www.fmcsa.dot.gov/rulesregs/fmcsr/fmcsrguide.htm>

Federal Highway Association Safety Media Site
<http://safety.fhwa.dot.gov/media/category.htm>

Wetlands Grant
<http://www.epa.gov/owow/wetlands/grantguidelines/>

PW.NET

Want to know what is happening in other towns? 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? Then, subscribe to PW.NET. It's free. Send an email message to:
kathy.desroches@unh.edu

In the body of the message type:

Add pw.net your name

For instance: Add pw.net John Doe

2004 Mountain of Demonstrations

Look for the 2004 Mountain of Demonstrations on May 27, 2004 at the Gunstock Recreational Area in Gilford. Last year over 700 people attended the Event. Details are under development for this year. Last year featured a new event called *Detour for Safety* where attendees participated in four safety training and had the chance to earn prizes. The events were entitled:

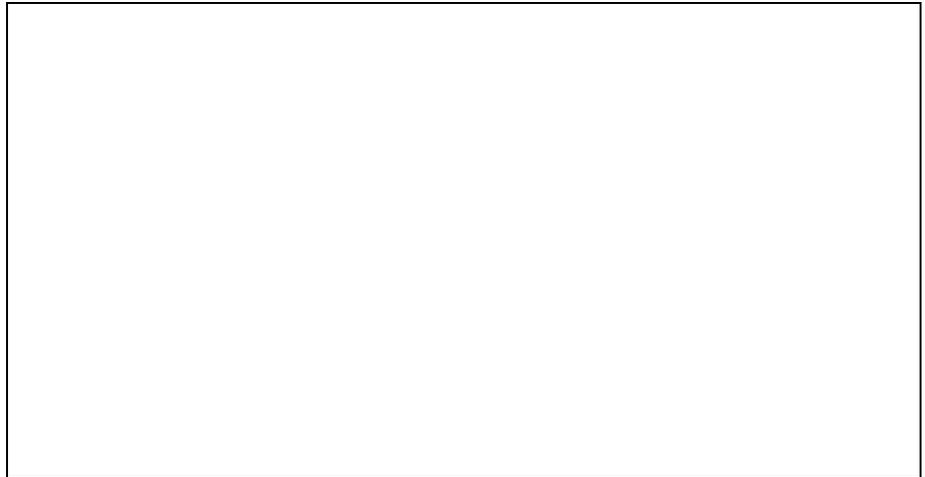
- Scoop the Skunk, UNH T² Center;
- What's Wrong with this Workzone? Stay Safe Traffic Products & New Hampshire Public Works Mutual Aid Program;
- Pre-trip Inspection, Southworth-Milton;
- Do you DigSafe? NH Utilities.

In 2003, features of the day included active demonstrations of Directional Drilling sponsored by Henniker Directional Drilling, Pavement Marking Demo sponsored by Franklin Paint Company; a Pavement Recycling Demo by Commercial Paving & Recycling; Asphalt Repair by Ray-Tech Infrared Corp.; and Hot Applied Mastic Mix by Artco Equipment & Jamieson Distributors, Inc. Mowing Demonstrations were done by Keats Equipment, Still's Turf Depot, and Owen's Leasing Company. Demonstrations before the event were by SEACO who applied Road Saver Plus to the main parking lot, All States Asphalt, Inc. who applied Calcium Chloride to the main parking lot, and Pike Industries who Resurfaced the gazebo area with asphalt hot mix.



Road Business

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Calendar

| March | | | | |
|-------|--|---|--|---|
| 22 | 23—Erosion Control, Lincoln | 24 | 25—Erosion Control, Keene | 26 |
| 29 | 30—RSMS, Manchester | 31 | 1 | 2 |
| April | | | | |
| 5 | 6 | 7 | 8 | 9 |
| 12 | 13—PR for PWD, Concord | 14 | 15 | 16—PR for PWD, Keene |
| 19 | 20—Repair Treatments, Lincoln | 21 | 22 | 23 |
| 26 | 27—Project Planning, Deerfield | 28—MUTCD, Manchester | 29 | 30 |
| May | | | | |
| 3 | 4 | 5—Municipal Road Standards, Manchester | 6--Municipal Permits, Manchester | 7 |
| 10 | 11—Workzone, Lincoln | 12 | 13—Workzone, Keene Municipal Road Standards, Lincoln | 14 |
| 17 | 18—Drainage, Manchester | 19 | 20—Drainage, New London | 21 |
| 24 | 25—Roadside Design & Maintenance, Manchester | 26 | 27—Mountain of Demos | 28 |
| June | | | | |
| 31 | 1 | 2 | 3 | 4—Roadside Design & Maintenance, Lincoln 5 |

New Hampshire Public Works Municipal Engineers Association <http://www.t2.unh.edu/nhpwmea>

Mud Matters, NHPDES II & Construction Activities—March 3, April 8 & May 12, 2004

Stormwater Outreach—April 1, 2004

Annual Meeting—April 22, 2004

Tri-State Safety Conference—April 21-22, 2004

Mutual Aid Program <http://www.t2.unh.edu/ma>

Weapons of Mass Destruction—June 8-10, 2004