



# Road Business

A University of New Hampshire Technology Transfer Center Publication

Vol. 18 No. 4

Winter 2003



*New crosswalk installation in Dover.*

## On the Road in New Hampshire

### *Dover Tests New Crosswalk Application*

The city of Dover recently installed a new crosswalk, with a new material. It is a modified asphalt compound of graded sand and granite aggregate and reinforced with two types of fibers. Dover is the first community in NH to test the new crosswalk, and only one of ten in the US.

The process, developed in the United Kingdom 15 years ago, is used in traffic areas with 80,000 Average Daily Traffic (ADT) in London. The material does not abrade and reportedly lasts about twenty years. The Dover crosswalk, at 366 Central Ave, should see an ADT of less than 10,000.

Twelve standard colors are available and custom colors are possible. The color is part of the mixture so it will not wear off. The product composition allows for a skid resistance value of more than 60. The ASTM E274 specifications describes skid

numbers of 30 and above as acceptable for low-volume roads and 35-38 as acceptable for heavily traveled roads.

The crosswalk installation begins with grinding down the existing crosswalk. The area is prepared by sweeping and the material is heated to 437°F. It is placed by hand and “ironed.” The ironing gives the finished effect a “heritage” look as it is not exactly level like asphalt texturizing. After the material smooth, it is imprinted. The material cannot be put down in lifts greater than 1 inch as it will begin to crack. The road can be opened to traffic in 30-45 minutes.

The City of Burlington, Vermont, installed two crosswalks two years ago. The first was quite mild but last year was not. Dan Bradley, of the Public Works Department, is very please with the products performance.

Other applications for the imprinting process include sidewalks, median strips and traffic calming devices such as speed tables. Readers should contact the UNH T<sup>2</sup> Center or the City of Dover for more information

Source:  
<http://www.usroads.com/journals/rej/9706/re970603.htm>

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## Tack Coat



Tack coat is diluted emulsified asphalt applied to an existing paved surface. It creates a bond between the existing surfaces and a hot-mix overlay, which increases the pavement strength. Omitting tack coat can reduce pavement life. It creates the necessary bond between the adjacent and the underlying materials and the new pavement layer. Therefore, crews should apply tack coat to all adjacent surface (i.e. curbs, gutters, structures, or existing pavement). This ensures that the entire pavement structure will act together.

Without tack coat, pavement deficiencies such as debonding, mat slippage, and top-down cracking can occur. The deficiencies will create other distresses and can greatly reduce the life of the pavement surface.

### NHDOT Standards

The *NHDOT Standard Specification for Road & Bridge Constructions* states that a tack coat shall be applied immediately prior to placement of pavement. The rate of emulsified asphalt application shall be between 0.02 and 0.05 gal/yd<sup>2</sup>. An engineer should determine the rate considering the relative absorbance and texture of the pavement surface.

### Application

Properly applied tack coat results from good surface preparation and application, along with the properly setup and function of the equipment. The three essential requirements to tack coat are:

1. the surface must be clean,
2. the coat must be thin, and
3. applied evenly.

Agencies should apply tack coat when the surface of the road is clean of dust, soil, pavement grindings, and other foreign matter. The surface should be dry before applying the tack coat. This ensures a proper bond and cool.

*continued on page 3*

*continued from page 2*

Tack coat should set sufficient time to cure before allowing construction vehicles on it. Cured tack turns from brown to black and the surface becomes sticky. Paving equipment on wet tack coat may result in tracking, which typically occurs in the wheel paths. These are the most critical locations for new surfaces to bond to existing surface.

Tracking occurs more often on milled surfaces because large amounts of debris can remain from the milling process. Sweeping alone is typically inadequate to remove the debris. A broom and vacuum system works best to completely clean the roadway prior to tack coat application.

Too much tack coat is wasteful and takes too long to cure. Too much tack can migrate into the overlay, negatively affecting mix properties. It can even bleed through thin overlays. Excessive tack can act as a lubricant, creating a slippage plane as well as paving over uncured crack. A slip plane is noticeable during rolling operations in the form of checking or micro cracking.

Distributor equipment is essential for proper application. To ensure the desired rate and uniformity, distributor operators must maintain proper temperature, pressure, and spray bar height.

The suggested spraying temperature of a slow setting asphalt emulsions, such as SS-1H, is between 75 and 130F. The correct temperature ensures adequate flow of the material.

The pressure depends on truck speed, application rate, type of emulsion, and type of spray bar nozzles. The correct opening of the spray bar nozzles produces the right pressure. Incorrect pressure results in spray back or misting.

The nozzle angle should be 15 to 30 degrees. All nozzles should be set at the same angle to optimize overlap and minimize interference.

Spray bar height depends on truck speed, the snivy configuration, and the application pressure. Operators should adjust the spray bar height throughout the day depending on the amount of emulsion in the tank.



The fundamental aspects of tack coat success include:

- Thoroughly clean roadway surface.
- Ensure all the equipment functions properly and is set up correctly.
- Choose the proper application rate for the emulsion used and the existing surface conditions.
- Apply the materials uniformly.
- Allow the tack to break prior to paving to ensure the best possible bond between layers.

The proper preparation of the existing surface and tack coat will lead to longer performance of asphalt overlays.

Sources:

NHDOT Standard Specification for Road & Bridge Constructions  
Photograph: <http://www.dot.state.ct.us/bureau/eh/ehcn/road/superpav.htm> October 22, 2003

*Proper Tack Coat Application*, Technical Bulletin, May 2001, Flexible Pavements of Ohio, [www.flexiblepavements.com](http://www.flexiblepavements.com).

*Tack Coat*, [www.tppub.com/eqopbas.232.htm](http://www.tppub.com/eqopbas.232.htm) September 24, 2003  
*WST2*, Washington State Technology Transfer Center, Summer 2003, Issue 79



# Public Works and the Incident Command System



Many public works employees know that Incident Command System (ICS) is used in the fire service. Few understand the value of knowing ICS or the role they play in it during an emergency.

During an emergency, few public works professionals worry about who is in charge or how the operation runs. They do whatever it takes to get the job done. They act as first responders during the initial response, and then complete the clean up. Typical PWD's are task oriented. Their strength is bringing manpower, equipment and expertise to current problems.

Public works crews frequently respond to a disaster, and wait while decision makers decide what they need done. Or, they respond and then realize that the people in charge have requested the wrong equipment, perhaps because they did not know what to ask for. These are good reasons for public works to become involved in ICS. Being involved means appreciating the design of the system and how highway departments integrate into it.

ICS builds from the bottom up as the event grows in scope and intensity. The obligation of public works resources usually parallels an event's escalation. Generally, the public works manager response coordinates with the on-scene commander of the primary emergency response agency. As the incident changes, the Incident Commander (IC) may delegate functions to an operations section and/or a planning section. A major sustained event may include sections to oversee logistics, finance and accounting.

In ICS a manager should only supervise between 3 and 7 people. The optimal number is 5. Therefore, as the operation expands, divisions or groups are required as layers. Layers contribute to public works obtaining directions from multiple sources. Sound and timely guidance on public works

capabilities and limitations work to everyone's advantage.

The first step towards PWD full involvement in ICS is to ensure training of the right personnel. Training is available through fire service agencies and through New Hampshire Public Works Mutual Aid Program. It should be mandatory for all key supervisory personnel who would respond to an emergency. Most public works departments have talented people whose normal duties are not associated with emergency response. They can be valuable to fill the public works void found in most ICS scenarios. For example; engineering staff personnel may work in the planning or logistics section during a significant event.

PW staff works well in the operations section. Here immediate plans are coordinated, executed and resources committed. They also can contribute to the planning section, which recommends future operations and commitments of resources. Planning provides the IC with the best and most comprehensive recommendations on how to proceed. It gives public works advance notice of realistic future requirements.

An incident can grow from a single ICS command scenario to a multi-jurisdictional one. It has shared management responsibilities geographically or functionally. Command is exercised through a Unified Command System. If the incident involves a terrorist act or weapons of mass destruction, federal agencies will likely be involved. This requires a Joint Operations Command focusing on "crisis management" and "consequence management."

Public works professionals can benefit being involved in ICS. They will be able to provide better service and response to their citizens.

## Source

Henry, Terence M., *Public Works and the Incident Command System*, *APWA Reporter*, Vol., 68, No. 4, April 2001, p. 48-49



# Vegetation Control for Safety

During the growing season, grass, weeds, and brush often limit a driver's view of approaching vehicles. Lush vegetation acts hide pedestrians and bikers from drivers, and vice versa. Often, vegetation needs to be trimmed.

The main goals for vegetation control include:

- Keep signs and vehicles visible to drivers, pedestrians, and bike riders in cross walks, street lights, uncontrolled intersections, and bike paths.
- Assist pedestrians and bike riders to see oncoming traffic more easily.
- Improve winter road maintenance in snow and ice areas.

## NH Laws

NH RSA 231:90-231:92 covers liability for roadways. This is commonly known as the 72 hour law. After municipalities have received notification, they must make a plan to correct it within 72 hours.

## Line of Sight Clearance

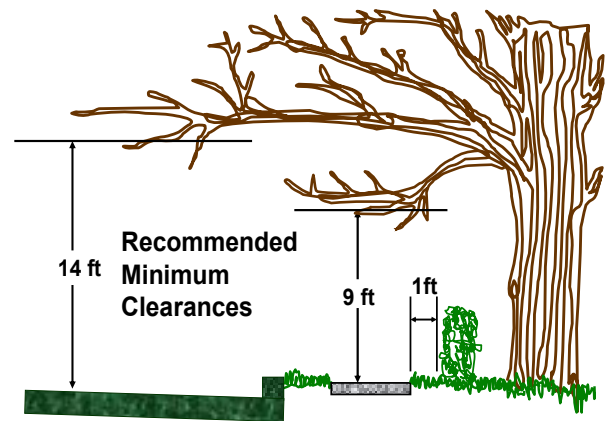
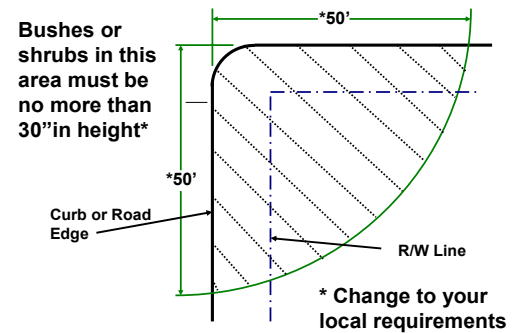
Intersections require a clear line of sight along crossroads to prevent vehicle, pedestrian, and bicyclist collisions. An unobstructed line of sight allows adequate distance for drivers to react safely to each situation. To keep signs and traffic visible follow these suggested maintenance steps:

- Look for signs and other traffic control devices blocked by brush, trees, grass, or weeds when on routine maintenance patrol. Cut vegetation along the ditch or shoulder blocking a driver's view of a signs.
- Follow municipal policy regarding the distance from a sign in which vegetation has to be cleared for safe view. The chart is a suggested guideline to allow a driver 3 to 5 seconds to read and respond to the sign.

Sources:

Country Road & City Streets, WV Transportation Technology Transfer Center, March 2003 Vol. 18 No. 1 pgs 1-3  
The figures are from a presentation given by Alan Gesford of the Pennsylvania T2 Center.

**Figure A: Vegetation Restriction for Road or Street Intersection Sight Distance**



**Figure B: Vegetation Clearance for Street with Curb and Sidewalk**

Trees and shrubs on the roadside can cause result in safety hazards. Establish some height requirements to eliminate low hanging branches and sight distance blockage. These figures may serve as guidelines to establish ordinances for both the road or street and sidewalk.

Speed Limit (MPH)	Noncritical Signs (Feet)	Critical Signs (Feet)
30	150	250
40	200	350
50	250	450
60	300	600

Critical signs are: STOP, YIELD, DO NOT ENTER, ONE WAY, WRONG WAY, and other regulatory signs. Non-critical signs are destination guide signs, parking regulations; advance warning signs, and similar warning or information signs.

# New Hampshire Roads Scholars

*We are pleased to recognize individuals who, during the Fall of 2003, have achieved the following levels in the UNH T<sup>2</sup> Center Roads Scholar Program.*

**Master Roads Scholar.** Participated in UNH T<sup>2</sup> Center training activities which totaled 100 contact hours and covering the range of topics required for Roads Scholar II.

<u>Name</u>	<u>Affiliation</u>
Jay Fitzgerald	Lebanon
Norman Litalien	Nashua
Carl Somero	Milford
George Turcotte	Franklin

**Senior Roads Scholar.** Participated in UNH T<sup>2</sup> Center training activities which totaled 70 contact hours and covering the range of topics required for Roads Scholar II.

<u>Name</u>	<u>Affiliation</u>
Ernie Ball	NHDOT
Ken Daniels	Enfield
Perry Day	Amherst
Charles Dilyn	NHDOT
Dennis Eastman	New Ipswich
James Hathaway	NHDOT
George Leel	NHDOT
Joe Maguire	Merrimack
Doug Sargent	Ossipee

**Roads Scholar II.** Participated in UNH T<sup>2</sup> Center training activities which totaled 50 contact hours and covered a set of minimum subject areas including road design and construction basics, other technical, tort liability and safety, and supervision or personal development.

<u>Name</u>	<u>Affiliation</u>
Bruce Adler	Chesterfield
Roger Deboisbriad	Nashua
Margueritte Dumont	Nashua
Donald Dunlap	Bow
David Duquette	Charlestown
Gregg Eastman	New Ipswich
Bob Eaton	NHDOT

William Fralick	NHDOT
Dan Lavoie	Nashua
Robert Lovering	Merrimack
Randall Macdonald	Hanover
Jim Major	Concord
Dennis Marquis	Nashua
Jim Plante	Chesterfield
Paul Wallace	Nashua
Dave Wholley	Salem

**Roads Scholar I.** Participated in UNH T<sup>2</sup> Center training activities which totaled 30 contact hours.

<u>Name</u>	<u>Affiliation</u>
Ken Barton	Hopkinton
Dave Bellamy	Amherst
Donald Blanchard	Henniker
Scott Brown	Amherst
David Cantor	Salem
Mark Chase	Lyndeborough
David Crosby	Alstead
Scott Frost	Madison
Kim Kercewich	Alstead
Michael Kercewich	Alstead
Joe Kopacz	Alstead
Richard Lefavour	NHDOT
Ray Long	Amherst
Steve Lucier	Bradford
James Maclean	Walpole
Richard Malasky	Newmarket
Nancy Mayville	NHDOT
Scott Pollock	Nashua
Kenneth Salisbury	Amherst
Eric Stevens	NHDOT
James Terrell	Walpole

# Master Road Scholars



## Master Road Scholar Bruce Moreau

Bruce Moreau is the Highway Coordinator in the Town of Merrimack. He joined the town as a summer laborer in 1976. Since then, he has held a wide variety of positions in Merrimack, including truck driver, backhoe operator, highway superintendent and assistant foreman.

Bruce enjoys taking classes, and says that training demonstrates his commitment to his profession. There is a lot of technology involved in his job, and becoming a Master Road Scholar proves an understanding of this technology. Bruce believes that he would not have advanced in his career without the information he learned in training.

Bruce says the Town of Merrimack has always been very supportive of training. They encourage everyone to attend training, and provide funding.

Bruce and his wife, Mona, have been happily married for 35 years. They have three children and six grandchildren. When Bruce has free time, he enjoys working around the house, doing yard work and carpentry.

Congratulations to Master Road Scholar Bruce Moreau!

## Master Road Scholar Paul Parker

Paul Parker is the Road Agent in the Town of Sutton. He worked in the Town of New London for ten years before joining Sutton 17 years ago. He has held a variety of positions, including highway worker and equipment operator. For the last five years, he has been the Road Agent.

He attends training in order to keep up-to-date with the latest practices, regulations, and technologies. The Board of Selectmen and all the townspeople have been supportive of his training. He says that he has a great crew.

Paul has been married for 31 years. He and his wife have two adult daughters. The youngest recently graduated from UNH. Paul likes to race cars, and trout fish in the winter.

Congratulations to Master Road Scholar Paul Parker!

## Master Roads Scholar Keith Weed

Keith Weed is the Superintendent for the City of Claremont. He joined the town as a laborer 22 years ago. He has worked in positions of increasing responsibility, including truck driver, foreman and supervisor.

Keith feels that becoming a Master Roads Scholar has been beneficial. It has helped him keep up with the ever-changing technology as well as rules and regulations. He feels the UNH T<sup>2</sup> Center provides the means for keeping the towns up-to-date. He enjoys all the classes and highly recommends them. He also enjoys the networking opportunity that classes provide.

Keith and Janet have been married for 21 years. They have three children: Amanda, Zachary, and James. Keith coaches a summer soccer team in Claremont and enjoys deer hunting.

Congratulations to Master Roads Scholar Keith Weed!

# MUTCD Press Release

by Linda Brown

Traffic control devices communicate critical messages about transportation safety and mobility. Signs, signals, and pavement markings guide road users to their destinations, decrease potential congestion, and reduce the severity and number of roadway crashes.

The Federal Highway Administration (FHWA) publishes the Manual on Uniform Traffic Control Devices (MUTCD). It is the national standard for the design, application, and placement of traffic control devices. Its main purpose is to provide uniformity and consistency so road users know what to expect across municipal boundaries. Uniformity also helps reduce the cost of traffic control devices through standardization.

New traffic patterns, unique roadway features, driver behavior, vehicle design innovation, and advances in technology make it necessary to update the MUTCD a periodically. The process for making changes begins with publishing proposed changes in the Federal Register for the public comment. The FHWA reviews the comments and develops the FHWA policy. That policy becomes the Federal Register final rule. The FHWA recently published a final rule announcing the release of the 2003 edition of the MUTCD. (see <http://mutcd.fhwa.dot.gov>) The new edition contains many changes described below:

## Traffic Control for Older Drivers

- Increased size of letters on street name signs to improve visibility.
- Street name signs used in advance of intersections for increased reaction time.
- Turning path pavement markings to enhance safety at intersections.

## Traffic Control for Incident Management

- New chapter on incident management.
- New color “florescent pink” to distinguish incident management operations.

- Enhanced reference location signs to assist road users in more precisely reporting incident and emergency locations.

## Pedestrian and Bicycle Safety

- In-Street pedestrian signs to warn drivers of pedestrian traffic at un-signalized mid-block crossings.
- Allow use of “Yield” pavement markings for un-signalized mid-block crossings.
- Allow “animated eyes” on pedestrian signal heads to alert pedestrians to look both ways.
- Allow “countdown signals” to help pedestrians judge the time remaining to cross the street.
- New sign to inform bicyclists where to position themselves for actuated traffic signals.
- Prohibit the unsafe practice of placing bicycle lanes within the circular roadway of a round-about.
- Prohibit the unsafe practice of placing bicycle lanes to the right of a right turn only lane.

## Safety in Work Areas

- High visibility clothing that meets the requirements of ANSI standards for workers and flaggers.
- Expanded use of channelization and barricade devices to protect workers.
- New language about the proper height and projection of signs in accordance with the Americans with Disabilities Act Accessibility Guidelines (ADAAG).
- Discussion about providing detectable path guidance through temporary or realigned urban work areas to protect pedestrians with visual disabilities.

*Note: FHWA publishes an Older Driver Pocket Guide it provides information on traffic control device applications that accommodate the needs of older drivers. These applications are based on recommendations from the Highway Design Handbook for Older Drivers and Pedestrians, FHWA-RD-01-103.*



# 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 T<sup>2</sup> 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](http://www.t2.unh.edu), or by e-mail to [t2.center@unh.edu](mailto:t2.center@unh.edu)

## The following materials are available free of charge.

\_\_\_\_\_ *Administrative Rules for Safety and Health.*  
This publication from the New Hampshire Department of Labor describes the codes and rules for employee safety and health.

Town: \_\_\_\_\_

\_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

\_\_\_\_\_ *Deicing, Anti-icing, and Chemical Alternatives.* Informative fact sheet discussing the benefits of anti-icing, deicing, prewetting, and liquid chemical alternatives.

\_\_\_\_\_ *Guidelines for Spring Road Use Restrictions.* A system that must be started in the fall, for setting load limits in the spring.

\_\_\_\_\_ *Local Low Volume Roads and Streets.* Basic road design information on rural streets and other less-traveled roads for town officials, crew managers, and road managers.

\_\_\_\_\_ *Mutual Aid Packet.* Includes information about Mutual Aid, frequently asked questions, and a Mutual Aid and Assistance Agreement.

\_\_\_\_\_ *Non-Point Source Pollution.* Revised from the May 1994 edition, this guide describes the causes of non-point source pollution, and suggests ways that NPS pollution can be prevented.

\_\_\_\_\_ *Snow Equipment Preventative Maintenance.* Flyer discusses general repairs and maintenance for sand spreaders, plow equipment, dump bodies and hydraulics.

\_\_\_\_\_ *The Snowfighter's Handbook.* A practical guide for snow and ice control before, during, and after a storm. Published by the Salt Institute.

\_\_\_\_\_ *Standard Operating Procedures for Snow Removal and Ice Control.* Informative sample policy published by the New Hampshire Public Works best Practices Committee.

\_\_\_\_\_ *Statewide Travel Forecasting.* This FHWA book describes methods and techniques of statewide travel forecasting.

\_\_\_\_\_ *Winter Operations Snow Removal and Ice Control Policy.* Published by the State of New Hampshire DOT, it describes general policies, maintenance techniques, and equipment for snow and ice management.

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## 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 T<sup>2</sup> Center.

Name: \_\_\_\_\_

Position: \_\_\_\_\_

Organization: \_\_\_\_\_

Address: \_\_\_\_\_

# Videos

*University of New Hampshire Technology Transfer Center  
Road Business, Winter 2003, Vol. 18, No. 4*

The following videos are available from the UNH T<sup>2</sup> 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](mailto:t2.center@unh.edu)



\_\_\_\_ *DC-212, Effective Snow Fences*, 20 min.  
Demonstrates the benefits of snow fences.

\_\_\_\_ *DC-251, The Importance of Road Drainage*, 19 min. The basis for this film is that if you do not plan the drainage of water the way you want then nature will drain it for you. Describes surface and subsurface drainage, drainage systems, and procedures for their inspection and repair.

\_\_\_\_ *M-205, Potholes: Causes, Cures, and Prevention*, 11 min. Discusses how potholes develop, how they should be properly repaired, and how to develop a pothole repair program along with some preventive techniques.

\_\_\_\_ *M-302, Winter Operations Training Program: Pre-Season Preparation*, 30 min. This video discusses how to mount snow removal equipment, including reversible plow, V-plow, light-duty wing, and heavy-duty wing. It provides a step-by-step approach to conducting a pre-season check of plow trucks and all mounted equipment.

\_\_\_\_ *M-303, Winter Operations Training Program: Plowing Techniques*. 30 min. This video discusses the basic snow plowing techniques and procedures for clearing two-lane roads and multiple-lane highways. It also outlines how to use the heavy-duty wing, ice blade, V-plow, and the reversible plow. The video also covers special techniques for clearing intersections, bridges, railroad crossings, ramps, gores, curbs, and islands.

\_\_\_\_ *PA-210, Idea Store Edition 4*, 10 min. Illustrates new ideas for trapping rain water, equipment for keeping snow and ice off the bottom of plows, and placing materials in ditches, minimizing aggregate loss. Also, recycling old tires and portable sign displays. FHWA/Pennsylvania DOT.

\_\_\_\_ *ST-222, Mailboxes May Be Hazardous to Your Health*, 15 min. Demonstrates mailbox crash tests to show the dangers of non-regulation mailboxes. Texas State Highways and Public Transportation.

\_\_\_\_ *Video Catalog*.

Place  
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Here

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## Milestones:

*Ken Knowlton* is the new Road Agent in Franconia.

*The Town of Nelson* has joined Mutual Aid.

*Donna Nelson*, Maurice Nelson's wife (Pike Industries) passed away in October 2003.

*Walter Norris* is the new Road Agent in Pembroke.

*Brian Sullivan* is the new Public Works Director in Franklin.

## Websites:

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

NH 511 (Traveler) Information System  
<http://www.nh.gov/dot/511/>

Crash Experience Warrant for Traffic Signals  
[http://gulliver.trb.org/news/blurp\\_detail.asp?id=1974](http://gulliver.trb.org/news/blurp_detail.asp?id=1974)

Forester publications  
<http://www.forester.net/index.html>

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

Speed Management  
<http://safety.fhwa.dot.gov/programs/speedmgmt.htm>

### 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](mailto:kathy.desroches@unh.edu)

In the body of the message type:

Add pw.net your name

For instance: Add pw.net John Doe

## What to Eat on Snow Plowing Nights

As Road Business readers know, highway department crews often battle snow and sleet through many nights. Recent research on sleep deprivation reveals ways to lessen the effects of sleep loss. One set of findings suggests what people eat will help.

During nighttime hours, the body slows down. It does not want to digest most other fast foods. Greasy, heavy protein foods bring on sleep! Operators can still enjoy eating with well-balanced meals and snacks. Such meals are compatible with a slower, nighttime digestive system.

### *Main Meal Before Night Work.*

- Light protein foods—chicken, turkey, fish, cooked beans and peas.
- Low-fat foods only.
- Vegetables, fruits, breads, past 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.*

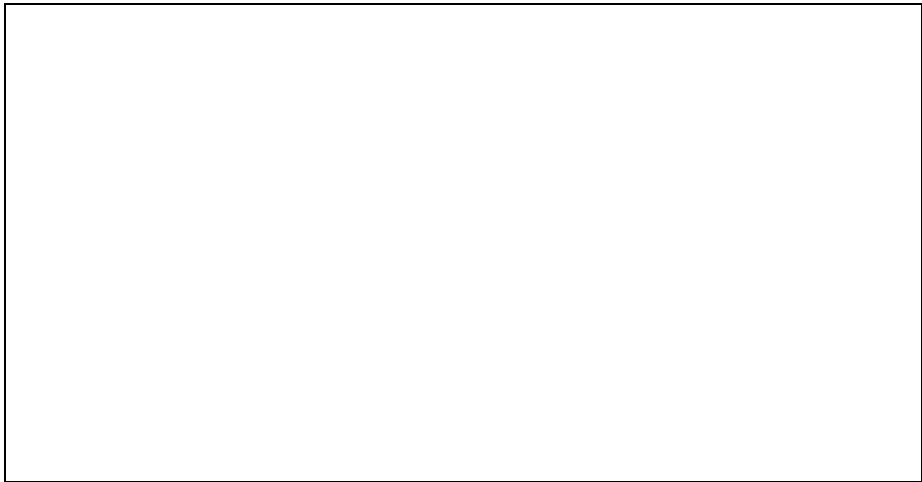
- Low-fat dairy products.
- Fruit, popcorn, cereal, plain cookies, and/or baked crackers.

Coffee and tea contain caffeine, and smoking and chewing tobacco contain nicotine. Initially these are stimulants but soon become depressants; they make the heart beat slower. CUT BACK.

*Reprinted from Road Business, Fall 1994*

# Road Business

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## Calendar

*Planned UNH T<sup>2</sup> Center workshops*

*Spring of 2004*

*For additional information or registrations, call the UNH T<sup>2</sup> Center or check the web-site*

**Drainage, Drainage, Drainage**  
2 Sessions

**Workzone Traffic Control**  
2 Sessions

**Erosion Control**  
2 Sessions

**Marketing PWD'S**  
2 Sessions

**MEMS**  
1 Session

**Municipal Road Standards**  
3 Sessions

**Municipal Permits**  
3 Sessions

**MUTCD, NH Traffic Sign Rules**  
2 Sessions

**Project Planning**  
1 Session

**Repair Treatments: Rehabilitation**  
3 Sessions

**RSMS**  
1 Session

