



US Department of Transportation  
Federal Highway Administration

# ROAD BUSINESS



Vol. 16 No. 2

Summer 2001



*Traffic Calming in Durham*

The solution included bump outs (narrowing) which extended the curbs. These make pedestrians more visible to drivers and narrow the road to slow traffic. Brick textured crosswalks also slow the traffic and add to the

## On the Road in New Hampshire

### *Traffic Calming in Durham, NH*

Like many cities and towns, the Town of Durham had a problem with speeding traffic through the downtown area. Their remedy used several traffic calming methods to slow traffic, create more parking, and increase pedestrian safety. This article will discuss their traffic calming approach. An article on pages 4 and 5 will describe other traffic calming methods.

To make this program a success the Town involved residents and business owners in the planning and design process. An engineering firm presented traffic calming options. Durham used some of these options and ideas from residents to develop an aesthetically pleasing and functional plan. The whole process took approximately three years, which included many public hearings.

beauty of downtown. The sidewalks have been widened and the lighting brightened, making it safer for pedestrians to shop in local businesses.

Along with reaching its main goals of slowing traffic, increasing parking, and making the area safe, the project has created a more appealing and accessible downtown area that will attract new businesses. Through the involvement of the whole community the solution is a working example of traffic calming in New Hampshire.

### ALSO IN THIS ISSUE

|   |    |
|---|----|
| RSA 265:3-b Obedience to Flagpersons..... | 2  |
| How Potholes Form .....                   | 3  |
| Traffic Calming.....                      | 4  |
| Leadership Skills.....                    | 6  |
| Road Scholars .....                       | 8  |
| Publications.....                         | 9  |
| Videos.....                               | 10 |
| Milestones.....                           | 11 |
| Calendar.....                             | 12 |

Road Business is a quarterly publication of the:  
**Technology Transfer Center**  
**University of New Hampshire**  
**33 College Road**  
**Durham NH 03824**  
603-862-2826  
800-423-0060 (NH)  
Fax: 603-862-2364

t2.center@unh.edu  
<http://www.t2.unh.edu>

**UNH T<sup>2</sup> Center Staff**

David H. Fluharty  
LTAP Director  
Charles H. Goodspeed  
TRCG Director  
Kathy DesRoches  
Assistant Director and  
Road Business Editor  
Marisa DiBiaso, Project Assistant  
Beth Terney  
Project Assistant



The Technology Transfer Center at the University of New Hampshire (UNH) is supported by the Federal Highway Administration (FHWA), the New Hampshire Department of Transportation (NHDOT), and UNH. Any opinions, findings, conclusions, or recommendations presented in this newsletter are those of the authors and do not necessarily reflect the views of the FHWA, NHDOT, or UNH.

Any product mentioned in *Road Business* is for information only and should not be considered a product endorsement.



# New RSA Gives Flagger's Recognition

*By Adam Sandahl, Project Assistant*

Traffic flaggers are an important part of the road construction process. The primary goals of a flagger are to give protection to construction workers and motorists. Their secondary goal is to keep traffic moving as smoothly as possible through the work zone.



A flagger must be aware of moving traffic at all times. Flaggers do their best to keep the motoring public happy, while focusing on safety. Each year, motorists injure many construction workers.

Recently, RSA 265:3-b *Obedience to Flagpersons* was passed in the New Hampshire House to help keep highway workers safe. This bill makes drivers obey flaggers. The new law states:

## **265:3-b Obedience to Flagpersons.**

I. The driver of any vehicle shall obey the instructions of any flagperson in the act of directing, controlling, or regulating traffic within any construction, maintenance, or utility work area indicated by official traffic control devices. If the flagperson is displaying a signal to stop, the driver of a vehicle upon a way shall stop the vehicle at least 25 feet before reaching such flagperson. The driver shall not proceed until the flagperson indicates that traffic may proceed and until the driver may do so safely.

II. Any person who violates the provisions of this section shall be guilty of a violation and shall be fined not more than \$100 for the first offense and not more than \$250 for any subsequent offense committed during any calendar year.

Effective Date. June 8, 2001

To enforce this RSA, flagpersons must follow proper procedures. These procedures are described in the UNH T<sup>2</sup> video DC-235. See page 10 for loan of this video.

<http://www.wsdot.wa.gov/regions/eastern/faw.htm>  
<http://gencourt.state.nh.us/legislation/2001/hb0369.html>

# Maintenance to Reduce Potholes

*By Stefanie Fishman, Project Assistant*

Potholes form when water becomes trapped beneath the pavement surface. As vehicles run over the saturated base material, the unsupported surface layer collapses resulting in a hole. The pothole expands as traffic hits the hole.

Water enters the road base through surface cracks or from the sides of the road. In New Hampshire potholes occur most often in the spring. During the winter the water freezes, drawing more water into the base material. The February and March freeze-thaw cycles often cause frost heaves, which let in more water. The ice melts from the top down, leaving a trapped pool of water.

Highway departments can minimize the number of potholes formed by keeping water out of the base material. Preventive maintenance preserves or extends the life of a pavement. It does not improve the structural capacity of the pavement. A preventative maintenance program is intended to fix light deterioration, and to reduce failures, routine maintenance, and other service activities.

## Proper Budgeting

At the end of a winter, budgets have often been drained to cover snow removal costs. To ensure money for spring repair, agencies should have separate budgets for snow removal and for road maintenance. This money can be used for preventative maintenance such as crack sealing, debris removal, and drainage repair.

## Using a Management System

Along with a maintenance budget it is important to have a plan of action. A pothole control program is an essential part of an overall pavement management system. By sticking to regularly scheduled maintenance tasks, agencies can decrease the accumulation of water in the subgrade and road base. The elimination of water reduces pothole formation.

A pavement management system such as RSMS can help detect early signs of roadway failure. It enables maintenance action before potholes



develop. Having a comprehensive inventory of all city or town roads by pavement type, thickness, and condition of roadway allows the department to coordinate and prioritize maintenance efforts, which is more effective and saves money. Agencies can train crews or hire an expert to recognize problem areas before potholes develop. By having well-trained people the problem areas can be preserved, repaired, and strengthened immediately.

## Drainage

Poor drainage is a major contributor to pothole formation. Water weakens pavement support and contributes to frost heaves and cracking. Maintenance and improvement to drainage features reduce the amount of water on the road.

Preventive maintenance of drainage includes clearing debris and foliage from ditches, storm drains and culverts. The department may install underdrains along shoulders where it is difficult to prevent water from entering the subgrade. Load limits may also be applied to roads during periods where the subgrade is saturated.

## Crack Sealing

An active crack sealing program is cost effective and extends the life of the pavement. The base, subbase and subgrade of a pavement lose

*continued on page 11*

# Taming Traffic

By Stefanie R. Fishman, Project Assistant

## What is Traffic Calming?

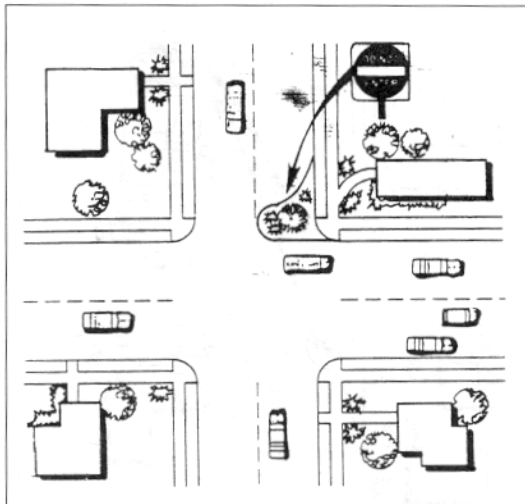
Many cities and towns employ traffic calming to improve the conditions on a roadway for pedestrians, bicyclists, and neighborhoods. Traffic calming techniques alter the appearance or geometry of a roadway to reduce traffic volume or speed. Techniques should be self-enforcing. Some make drivers seek alternate routes. Others, by creating a sense of shared space between the driver and resident, make drivers want to slow down on local roads.

Traffic calming project success depends on whether:

- Traffic speeds and volumes decrease, and
- Resident and business owner approval of the device.

## Volume Reduction

**Full Street Closures** prohibit through traffic. They are controversial when they cut off a route for Roadway volume can be reduced in many different ways. The methods usually cause an inconvenience for the drivers, which causes them to use alternative routes. emergency response vehicles or cause an increase in traffic on parallel streets.



*Half Closure.*

**Half Closures** are barriers that block travel in one direction for a short distances on otherwise two-way streets. This closure type still allows through movement by staggering the barriers.

**Forced turn islands** are raised islands that block certain movements on approaches to an intersection.

**Median barriers** are raised islands located in center of the street and continuing through the intersection to block movement at a cross street.

## Speed Reduction

The most effective types of speed reducers are physical measures that compel the driver to stop or slow down. There are three types of speed reduction measures:

**Vertical measures** cause the driver to decelerate. Speed humps are raised rounded or flat areas placed across the road. The typical 12 feet long and 3 to 4 inches high speed hump reduces speeds to 15 to 20 mph. Speed tables are flat-topped speed humps, often constructed with brick or textured materials on flat sections. Textured pavement is often used on crosswalks in downtown areas. Made of brick, cobblestone, concrete pavers, stamped asphalt, or other surface materials they produce constant small changes in vertical alignment.

**Horizontal measures** force the driver around curves and islands and block views of the road ahead. Traffic roundabouts are placed at intersections of high volume roads to help control the right of way with yield signs on all approaches. Roundabouts cause the traffic to flow in a counter-clockwise direction in a controlled manner.

Lateral shifts are located on otherwise straight streets bending travel lanes one way and then back to the original direction. Decreasing sight distance and shifting causes the driver to slow down.

**Narrowing** measures discourage speeding by giving the driver a sense of enclosure. Neckdowns are curb extensions at intersections that reduce the roadway width. They make the intersection safe for pedestrians by shortening the crossing distances. Center islands are raised and located along



the centerline of a street that narrows the travel lanes at that location. Chokers are curb extensions in the middle of a street that narrow a street by widening the sidewalks or having planting strips.

Another method to slow drivers is a speed radar trailer board that displays the speed of passing vehicles and encourages compliance. In most instances drivers slow but are not forced to.

## Choosing a Solution

The best way to decide which traffic calming measure will work best in the city or town is to:

- Determine if the problem is particular to one roadway or throughout the whole area of the city or town.
- Identify whether the problem is caused by volume or speed of the traffic.
- Select a safe solution that complies with the city or town rules and is acceptable to street residents.
- Implement a cost-effective measure.

Sources

*Effects of Changing Speed Limits in Speed Zones*, p. 33, Washington State Technology Transfer Center, WA, Summer 2000.

*Traffic Calming State of Practice*. Institute of Transportation Engineering, Washington DC, August 1999.

Kircher, James Editor, *Portland's City-Wide Speed Bump Study: Seeing the Big Picture*, PublicWorks, Ridgewood, NJ, February 2000

Peo, Christopher, *Traffic Calming and Low-Speed Urban Street Design*, <http://www.azfms.com/DocReviews/Feb97/art15.htm>, Pennsylvania Transportation Institute, University Park, PA. December 1995.

Special Thanks:

Skip Grady, Retired Public Works Director, Durham, NH.



## PW.NET

Want to know what is happening in other towns? 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



## Fiber Reinforced Plastic (FRP) Showcase

Join the UNH T<sup>2</sup> Center on October 3, 2001 at the New England Center to learn about a recent research project accomplished by Charlie Goodspeed, Associate Professor, and Robert Steffen, Assistant Professor of Civil Engineering at UNH. The training will showcase a bridge deck built using FRP rather than the traditional reinforced steel, which rusts when salt water comes in contact with it. This first in New England showcase is certain to be informative to all who attend. Contact the UNH T<sup>2</sup> Center for information as it become available. Or check our website.

# Making the Step to Supervisor Successful

*How to become a Leader*

*by Kathy L. DesRoches, Assistant Director*

Many public works managers are promoted from within their department. For people good at their jobs, being promoted is easy. The next part is hard: making the successful move from taking orders to giving them and becoming a leader. This article will discuss how to gain the respect of the crew, along with delegation, and leadership styles necessary to become a successful leader.

## Earning Respect

As a new supervisor, it is vital to gain the respect of the employees. There are several things to consider when attempting this challenge. Good managers:

- Know that trust is fostered through good communication.
- Stand up for the ideas and work of the employees.
- Are positive in their assessments and judgments.
- Cultivate a sense of fairness and demonstrate competence.

## Delegate

It is impossible to do many jobs well. Therefore managers must learn the art of delegation. They must let go of their old job and delegate tasks not related to planning, organizing, staffing, leading or controlling. Although the ultimate responsibility for work is the supervisors', they should recognize employee strengths and delegate based upon them.

To cultivate a strong team spirit, delegate work and responsibility based on employee's strengths, not weakness. People enjoy doing things for a supportive manager. This insures cooperation and pride in the work. Supportive managers:

- Understand the needs and expectations of employees.
- Ensure that employees are clear regarding what is considered improved performance.

- Establish an objective system for measuring progress.

Managers become role models by setting a personal example of doing things "right" and doing the "right things right."

## Qualities of Leadership

Effective leaders serve several critical roles in an organization. They display the following abilities:

1. Articulate a vision that compels people to commit their time, energy and resources to complete it.
2. Determine the strategies and goals that will best serve the vision.
3. Create the structures and processes for an organization from which results are produced.
4. Engage and enlist employees to achieve the vision quickly.
5. Shift self-limiting beliefs and frames of reference to a culture of possibility rather than constraint.

## Forms of Leadership

Understanding leadership qualities is important to those making the transition to supervisor. According to most experts, there are three major methods of leadership:

**Democratic**--This manager seeks ideas and suggestions through discussions. Whenever possible, good leaders will treat individual problems and situations on a democratic basis.

The democratic style works best when people are lacking information. Employees can provide input to help make the best possible decision. It also works well with a large number of experienced, cooperative people.

**Autocratic**—The autocratic leader assumes full responsibility for all actions--individual and group. This manager seeks obedience to specific orders, determines policy, and considers decision-making his/her prerogative.

The autocratic style is best when quick decisions and fast actions are necessary. Staffs of largely untrained and undisciplined people require an autocratic leadership. Firm and decisive force can make such organization productive.

**Free Rein** This leader exercises little direct control, but is the prime source of information, suggestions, and authority. This works best if the staff is well trained, responsible and professional. This is successful in public works when people working in the field have to make decisions with little direct supervision. Within certain limits, individuals are allowed to set their own goals. This often results in outstanding performance.

With a highly trained and professional staff free-reining leadership is most appropriate. These individuals are generally creative and solve problems as they encounter them, requiring much less guidance.

A mixture of styles works best with a dispersed organization that seldom meets and is made up of strong individualists.

## Methods of Leadership

The best approach to leadership may have to be tailored to the individual requiring leadership. Therefore it is dependent upon the person, situation, and organization. A good leader should base their style upon the following:

**Individual.** Some people only perform well when a certain type of leadership is used. When leadership is a problem, review the personality characteristics of each employee. Experiment to determine what style of leadership to use with each person. Reevaluate if problems arise.

**Situational.** Changes in the services, customer crises, and policy changes can make new demands on the type of leadership required.

**Organizational Flavor.** The total make-up of an organization reflects the type of leadership that should be used. Sometimes group needs and individual needs are quite different.

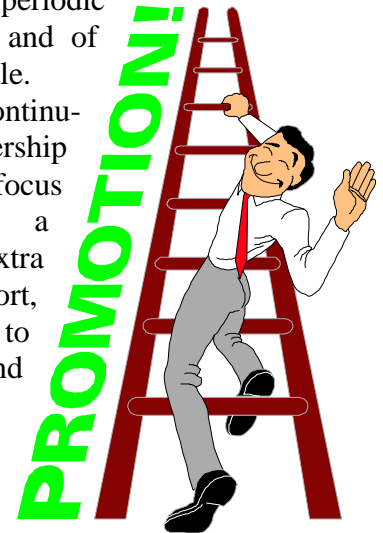
## Combining Methods & Styles

Leadership success depends on the flexibility of the leader to recognize the employees needs and their willingness to change gears. Leaders determine what is best for each individual and each

situation, with periodic employee evaluations and of their own operating style.

The best leaders continually refine their leadership to build loyalty. They focus on developing a successful team with extra effort and support, demonstrating loyalty to both the department and employees.

## How to Get There



To facilitate leadership skills, new supervisors should:

- Recognize that leadership is an everyday occurrence. A leader influences results as well as employee beliefs and behavior.
- Learn facilitative leadership skills such as listening, coaching, managing group dynamics and conflict, and leading with confidence.
- Regularly measure the results in context of the departmental goals. Set specific goals that have a direct link to the strategic goals.
- Ask daily: "To what degree does this program or initiative move the department towards its goals?"
- Rely on regular feedback from residents, employees, and management. Recognize that part of the department's success is measured by those served.

Managers who lead with distinction create rather than manage change. They are perceived as decisive and responsible risk takers. They change their leadership style based upon situations that arise and the employees they manage. With leadership, one-size doesn't fit all. Knowing that is the biggest hurdle for leaders to overcome.

"How to Improve Your Leadership Ability," HR Focus, Jan 2000, Vol. 77 Issue 1, p 9, 2p.

"Make the Step Up to Supervisor a Successful One," Technology Transfer Quarterly, Ohio LTAP, 1994, Vol. 09 Issue 2, p. 15

Marken, Andy, "Improving your Leadership Skills," Public Relations Quarterly Spring99, Vol. 44 Issue 1, p40, 2p.

# New Hampshire Road Scholars

*We are pleased to recognize individuals who, during the Spring of 2001, have achieved the following levels in the UNH T<sup>2</sup> Center Road Scholar Program.*

**Master Road Scholar.** Participated in UNH T<sup>2</sup> Center training activities totaling 100 contact hours and covered the range of topics required for Road Scholar II.

| <u>Road Scholar</u> | <u>Affiliation</u> |
|---------------------|--------------------|
| Theresa McGinnis    | Hampton            |
| Peter Paris         | Sharon             |
| Frank Swift         | Hampton            |

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

| <u>Road Scholar</u> | <u>Affiliation</u> |
|---------------------|--------------------|
| George Bachelder    | Pittsfield         |
| Nate Hadaway        | Bow                |
| Tim Sweeney         | Bow                |



**Road 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 or safety, and supervision or personal development.

| <u>Road Scholar</u> | <u>Affiliation</u> |
|---------------------|--------------------|
| Albert Anderson     | Hancock            |
| Scott Clarke        | NHDOT              |
| Reggie Cleveland    | Henniker           |
| George Conkey       | Dorchester         |
| John Cote           | Dorchester         |
| Henri Frechette     | Claremont          |
| Mark Ober           | Ashland            |
| Dave White          | NHDOT              |

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

| <u>Road Scholar</u> | <u>Affiliation</u> |
|---------------------|--------------------|
| Marc Acebron        | Bow                |
| Michael Bernard     | Hooksett           |
| Gregory Bowen       | Loudon             |
| Henry Brooks        | Keene              |
| Ken Daniels         | Enfield            |
| Ronald Dubois       | Peterborough       |
| Donald Dunlap       | Bow                |
| Wayne Elliott       | Gilford            |
| Donald Foss         | Pelham             |
| David Howard        | Lempster           |
| Steve Jessman       | Laconia            |
| Robert Levesque     | Durham             |
| Richard Page        | Farmington         |
| Dan Phillip         | Rochester          |
| Birney Robbins      | Keene              |
| Randall Smith       | Sullivan           |
| Bruce Williams      | Ossipee            |
| Larry Young         | Hooksett           |



# Publications

## University of New Hampshire Technology Transfer Center

Copies of the following books and pamphlets, and our complete list of publications, are available through the UNH T<sup>2</sup> Center. 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, or by e-mail to t2.center@unh.edu

The following materials are available free of charge.

\_\_\_\_ *UNH T<sup>2</sup> Center Publications and Video Catalog.*

\_\_\_\_ *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.

\_\_\_\_ *Asphalt Texturing Information Package.* A set of information on a process that textures asphalt to give it the look of brick or stone. The package includes information on who has done it, what it looks like, and whom to call for more information.

\_\_\_\_ *Call Dig Safe Before You Dig.* An information pamphlet with regulations and helpful laws regarding digging.

\_\_\_\_ *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 about the regulations of driveways and other public access ways.

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

\_\_\_\_ *NH DOT Suggested Minimum Design Standards for Rural Subdivision Streets.* Describes suggested standards to use when designing rural subdivision streets.

\_\_\_\_ *Noise Wall Materials Comparison Matrix—Updated.* Reprinted from the May/June 1996 issue of The Wall Journal, this comprehensive chart gives information from type and materials to prices of noise walls for comparison to others.

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

\_\_\_\_ *Pitstops Manual: An Environmental Guide for Automobile Service Facilities.* An overview by the NH DES of rules, regulations, and management options for automotive service facility managers. Updated March 1998.

\_\_\_\_ *Vegetation Control for Safety.* A guide for street and highway maintenance personnel. 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 T<sup>2</sup> Center.

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

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

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

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

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

# Videos

University of New Hampshire Technology Transfer Center  
Road Business, Summer 2001, Vol. 16, No. 2

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 (800) 423-0060 (in NH). Visit our complete publication and video catalog on our website at <http://www.t2.unh.edu>. Or email [t2.center@unh.edu](mailto:t2.center@unh.edu)

- \_\_\_\_ **M-226, Cleaning of Lined Ditches, Culverts, and Catch Basins**, 16 min. Demonstrates some good practices for maintaining lined ditches, culverts, and catch basins. It demonstrates before and after conditions and points out the benefits of a properly maintained drainage system. Supplement available. International Road Federation
- \_\_\_\_ **M-253, Dust Control with Calcium Chloride**, 9 min. Explains how CaCl<sub>2</sub> works as a stabilizer and absorber to control dust. Gives many facts about the benefits of CaCl<sub>2</sub>. General Chemical
- \_\_\_\_ **DC-235, Work Zone Traffic Control**, 58 min. Explains the extra safety precautions which should be taken at night; such as using flags and reflectors on signs. Goes over the duties, precautions, responsibilities, and actual instructions of flaggers.
- \_\_\_\_ **DC-240, Modern Timber Bridges: A New Return for Old New England**, 15 min. Utilization of timber instead of concrete and steel to reduce maintenance costs.
- \_\_\_\_ **DC-251, The Importance of Road Drainage**, 19 min. The basis for this film is that if you don't drain water from roads, nature will drain it for you. Describes surface and subsurface drainage, drainage systems, and procedures for their inspection and repair. FHWA
- \_\_\_\_ **PA-232, Inspecting Unsurfaced Roads**, 8 min. This video describes one of the first steps in the Unsurfaced Road Management System--inspection. It briefly explains what defects to look for in an unsurfaced road and how to measure them. USA CRREL
- \_\_\_\_ **PA-227, Low Volume Roads Series**, 20 min. Gives instructions for setting maintenance priorities for low volume roads and managing their maintenance.
- \_\_\_\_ **ST-219, New Directions in Sign Management**, 17min. Presents the problems that create the need for a sign management system. Highlights the main points of a management program. ATSSA
- \_\_\_\_ **M-284, Preventive Maintenance: Project Selection**, 30 min. The principle of this video is to apply the *right* treatment to the *right* road at the *right* time. It explains the advantages of preventive maintenance and the importance of preserving the life of the road, rather than restoring it.
- \_\_\_\_ **ST-260, Traffic Safety Series**, 35 min. This video identifies highway safety problems. It discusses selecting the best safety alternatives and evaluating safety program results.
- \_\_\_\_ **Video Catalog**.

Place  
Stamp  
Here

**Technology Transfer  
Center**

33 College Road

University of New Hampshire  
Durham, NH 03824-3591

## Milestones:

Master Road Scholar *Bruce Berry*, is the new Director of Public Works in Amherst.

*Jason Hatch* is the Road Agent in Danbury.

*Dale Hemeon* is the Highway Department Manager in Hooksett.

## Websites:

There are many helpful websites for public works employees. If you have others that your colleagues could benefit from, send the urls to [t2.center@unh.edu](mailto:t2.center@unh.edu). We'll publish the site and your name in *Road Business*. (*No commercial sites please*).

UNH T<sup>2</sup> Center: <http://www.t2.unh.edu>

Beaver damage  
<http://www.dec.state.ny.us/website/dfwmr/wildlife/beaver3.pdf>.

Search the New Hampshire Revised Statutes Online:  
<http://sudoc.nhsl.lib.nh.us/rsa/search.htm>

Description and Status of Bills in the New Hampshire Legislature:  
<http://www.gencourt.state.nh.us/ns/billstatus/default.asp>

---

*continued from page 3*

carrying capacity when wet. Water enters these layers through cracks. As traffic passes over unfilled cracks it weakens the surface allowing more and more water to enter. This problem can cause potholes to develop rapidly, causing severe pavement failures. Sealing is a preventative maintenance technique, it can stop the water from entering the pavements and reduce potholes.

*Road Business, Summer, 2001 Vol. 16, No. 2*

## Coordinating Road Work

Whenever possible the department should coordinate roadwork with utility companies. If a utility improvement is needed on a roadway, agencies should avoid reconstruction prior to this work. By talking to the utility companies and sharing the expenses, both participants will save money.

A permit system may also be established to make utility companies responsible for the maintenance of their patches for some period of time after work is done.

### Sources

Dauber, Greg *Pothole Prevention*, Moving Forward Pennsylvania Local Roads Program, Vol 18 No 4 Winter/Spring 2001.

Army Corps of Engineers "Pothole Primer" Is a Good Source Booklet, Road Management and Engineering Journal, TranSafety, Inc. [www.usroads.com/journals/rmi/9702/rm970204.htm](http://www.usroads.com/journals/rmi/9702/rm970204.htm), February 1, 1997.

*Crack Sealing Why Crack Seal?*, Asphalt & Concrete Repair, City of Fort Wayne Indiana Division of Public Works, [www.ci-ft-wayne.in.us/street\\_dept/crack\\_sealing.htm](http://www.ci-ft-wayne.in.us/street_dept/crack_sealing.htm), 2000.

*Pavement Maintenance Effective Preventive Maintenance Treatments*, Center for Advanced Transportation Systems Research Arizona State University US Department of Transportation, Federal Highway Administration, Washington DC, February 1996.

*Spring Has Sprung—and So Have the Potholes*, The Link, Kentucky Transportation Center, Vol 17 No 1 Spring 2001.

## Congratulations Stefanie

Stefanie Fishman graduated from Civil Engineering program at UNH in May. Stefanie, a UNH T<sup>2</sup> Center Project Assistant for three years was responsible for workshop publications, many *Road Business* articles and "other duties as assigned." Stefanie enthusiastically took on all challenges and many were thrown her way!

Stefanie leaves UNH to attend Graduate School at Berkley.

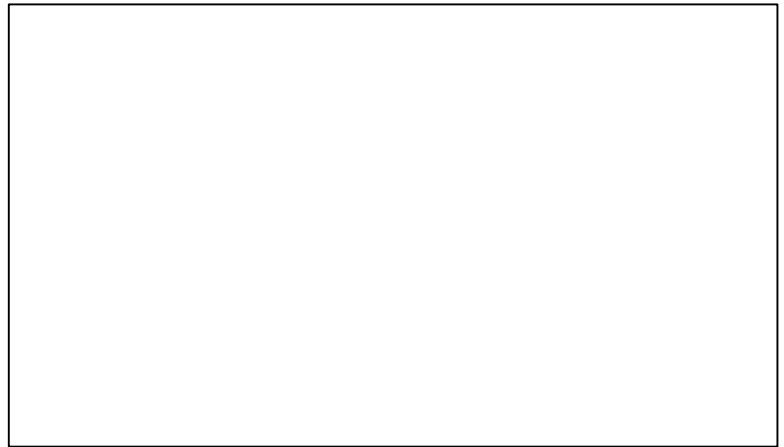
Stefanie,

Congratulations and best wishes for continued success and a happy life. We, and the many people you served in New Hampshire municipalities, will miss you very much.

Kathy, Dave, and Charlie

# Road Business.

Technology Transfer Center  
University of New Hampshire  
33 College Road, Kingsbury Hall  
Durham NH 03824-3591  
603-862-2826 or  
800-423-0060 (NH)  
Fax: 603-862-2364  
t2.center@unh.edu  
<http://www.t2.unh.edu>



## Calendar

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

*Fall of 2001*

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

### **Basics of a Good Road**

1 Location

### **Employment Law**

2 Locations

### **FRP Showcase**

October 3, 2001--Durham

### **Gravel Road Maintenance**

2 Locations

### **Incident Command System**

1 Location

### **Managing Run Off**

2 Locations

### **Municipal Garage Management**

2 Locations

### **MUTCD**

3 Locations

### **Rehabilitation Project Planning**

2 Locations

### **Roundabout Design**

1 Location

### **RSMS**

1 Location

### **RSMS Analysis and Planning**

1 Location

### **SIMS**

2 Locations

### **Winter Operations & Salt Storage**

3 Locations