



Spring 2008

Spring Thaw Predictor Project Aims to Protect Roads While Ensuring Commerce

Ask New Hampshire motorists what time of the year the roads are in the roughest shape and the vast majority will quickly respond -“spring!”

Warmer weather means sections of road across the state are vulnerable to pavement breaking up as the frost leaves the underlying road base. That leads to annual road postings for weight limitations and much frustration among certain industries (i.e. logging, concrete, construction, etc.).

In an effort to more precisely predict when to post and lift weight restrictions, the NHDOT’s Bureau of Materials and Research is working with District 2 and the USDA Forest Service to develop a real-time spring load methodology to assist the Maintenance Districts with posting roads during the spring thaw.

The Spring Thaw Predictor project involves gathering data to be used in the modification of a pavement strength model known as the Enhanced Integrated Climatic Model (EICM) to New Hampshire conditions. The EICM is embedded in the soon-to-be published AASHTO Mechanistic Empirical Pavement Design Guide.

Materials and Research and District 2 are gathering data for use in modifying the EICM weekly at several sites in District 2 and on the Kancamagus Highway in District 3. Each site has water table measuring holes, frost tubes, pavement and subsurface temperature sensors, and atmospheric weather stations.

The stiffness of the road at each site under the current conditions is measured using a special piece of equipment called a Falling Weight Deflectometer (FWD) rented from Worcester Polytechnic Institute. Using the FWD, the researchers drop weights to simulate a 6,000 lb, 9,000 lb, 12,000 lb, and 16,000 dual-wheel loads from a truck. The FWD measures and records the corresponding pavement deflections and the information is transmitted to a computer in the FWD van. The data gathered will be used to calibrate the EICM to New Hampshire conditions, and the 10-day weather forecast will be integrated into the model to form a real-time predictor of pavement strength based on roadway characteristics and what’s happening with the weather every winter and spring.

“The goal is to give the Districts a more accurate window of when to post roads,” says Andrew Hall,

Assistant Research Engineer with the Materials and Research Bureau.

“No one has investigated what’s going on below the surface of the road during the spring thaw to this extent. By developing the EICM into a real-time prediction tool, New Hampshire and the Forest Service should have a scientifically based, first-of-its-kind aid in roadway preservation. It’s hoped that this will permit us to post restrictions in time to prevent damage and lift the restrictions in a timely manner so that commerce involving heavy trucks can resume as quickly as possible.”

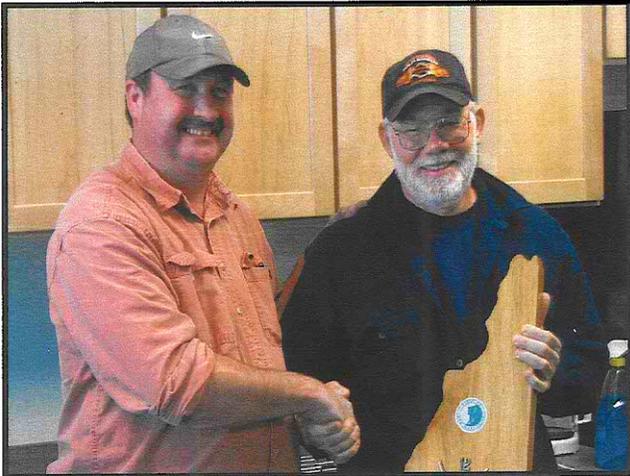


District 2’s Bob Eaton shows students from the Warren Village School a frost tube that’s part of the Spring Thaw Predictor project.



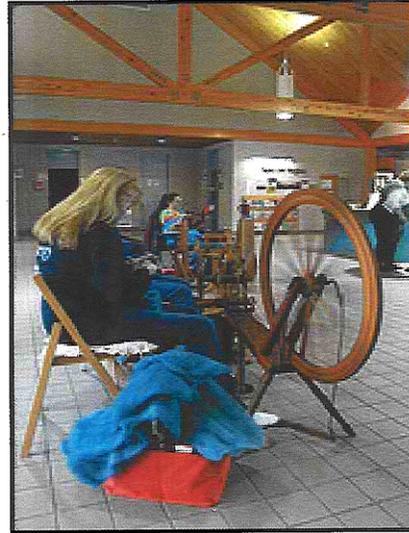
The Falling Weight Deflectometer van and trailer.

40+ Years of Maintaining State Highways



District 2 Maintenance Supervisor Jay Burbee (left) congratulates Highway Patrol Foreman Stephen Chellis upon his retirement after nearly 41 years of service on January 28. Steve had been the patrol foreman in the 216 patrol section in Newbury since 1978 and worked his entire career on the same 30 miles of state highways. Special guest Richard Heath, who retired as District 2 Engineer in 1990, shared a few old stories about Steve's early years. Dick was Assistant Division Engineer in the old Division 4 when Steve was hired. Two weeks prior to the retirement reception, Steve received his 40 year service award and Jay received his 25 year award.

Seabrook Spin Control



Visitors to the Seabrook Welcome Center have gotten the additional bonus of viewing New Hampshire artisans up close and personal. The Hampstead-based Island Pond Spinners have offered demonstrations of their weaving and knit crafts. "Spinners" members include NHDOT employees Carol Spoerl (Turnpikes), Pat Bancewicz (Turnpikes - Seabrook Welcome Center) and Catherine Goodmen (Environment).



Senior Roads Scholar

District 2 Highway Patrol Foreman James Rostron (Patrol 224 Enfield) was presented with a plaque commemorating his achievement of Senior Roads Scholar through the UNH Technology Transfer Center. The Senior Roads Scholar level requires completion of 70 contact hours of classes.



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Safety, Innovation, and the Future.*

Spring 2008

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PRINTED IN THE NHDOT PRINTSHOP ON RECYCLED PAPER

Work Zone Safety - A First Person Account

Editor's note: The following story is from Margaret "Peg" Smith, a District 5 Patrol Foreman (Bedford #511). April 7-11, 2008 is the eighth annual National Work Zone Awareness Week.



During a hot day last summer, many crews from District 5 Maintenance gathered to perform shimming operations (paving) on NH Route 28 Bypass in Derry. While flagging the one-lane work zone, I had my lane of traffic stopped.

After a couple of minutes, the third vehicle (a motorcycle) decided not to wait any longer. He crossed over the double yellows, passed the two cars stopped in front of him, and proceeded to drive head-on into the oncoming traffic beyond a hill. With both lanes now blocking his way, he zipped in and out of our closed lane, around our personnel and equipment, then into and out of the woods so as to avoid any collision with the moving traffic.

I got a partial plate number and description of the offender but decided not to call the police. I realized that without an entire plate number, not much could be done. My opportunity to provide an entire plate number came about three hours later.

With my "Stop paddle" clearly displayed and no traffic yet waiting in my lane, I saw this same motorcycle approach me. With traffic approaching from the other direction in the only open lane, I motioned with my Stop paddle and my free hand for this person to stop. He smiled and shook his head "no". Once again, he blew through my signal to stop and went head on into traffic. The crew helped me verify the license plate number. I called Derry Police.

The officer asked me if I could identify him in court and if I wanted to press charges. I said yes.

Six months later, I am at court sitting in the hall. I observe a man complaining to another person about how "these people tried to kill" him with their trucks and their stop sign. Not knowing who I was, he continued his conversation stating that he knows 'he disobeyed' the flag person and that he 'agrees' he traveled through the stop sign. He said he "saw no reason that he should have been stopped. There were no cars coming the other way". He also stated the same thing later to the judge. "That's why I didn't stop, I didn't see the need to, your honor."

The state prosecutor calls me into a small room, stating it is better to go to trial with this. He said the man had been giving "flippy answers" to the judge during arraignment and trial was the best way to go.

The judge asked the man "How do you plead?" The man said "Guilty" to Obedience of a Flagger but "Not Guilty" because being stopped was unwarranted. In other words, he admits he didn't stop for the flagger, but he didn't see any reason for the flagger to stop him. The prosecutor asked for a trial and the judge agreed.

After calling me to the stand and taking the oath, the prosecutor asked me to identify this person in the courtroom and then explain what happened. After my testimony, the defendant (acting as his own lawyer) was then allowed to ask me questions. He said "I have just one question... Why are you lying through your teeth?" I glanced at the prosecutor, then the judge, and then in the eye of this man and said "Sir, I am not lying".

Now it's time for the defendant to give his testimony. First, he acknowledges he defied my signal to stop. He said he didn't see a need to stop. Then, he says that two 'big trucks' tried to hit him and that he did not want to be hit because he was on a motorcycle. He said that the flagger tried to hurt him by jumping in front of him. He said he saw no reason to have to obey the flagger because he didn't see any other cars coming at him. He rested his case.

Enter the prosecutor, who asks "How long had you been at your house before the Derry Officer approached you?" He said a few hours. The prosecutor asked "in those hours, why did you not call the police stating that trucks were trying to hit you. He did not answer. "When the officer spoke with you, why didn't you tell him about the trucks trying to hit you?" No answer.

The state rests. The judge finds him "Guilty" on both counts. "First Offense, One hundred dollars. Second Offense, suspended six months on good behavior."

A Closer Look at the Data Generated by the NHDOT's Remote Weather Stations

by Julie Soper, Graduate Student in Applied Meteorology, Plymouth State University

Winter weather can present extremely hazardous driving conditions, especially in an area of varying weather patterns and mountainous terrain, such as New Hampshire. In order to thoroughly treat roadways, NHDOT personnel rely on accurate and frequent up-to-date weather data to assist in the decision-making process because the timing and onset of a winter storm is crucial when making a decision. The purpose of the Road Weather Information System (RWIS) is to improve travel safety and provide effective and cost-efficient road maintenance.

The NHDOT and Plymouth State University (PSU) have collaborated on a joint research project involving the newly implemented Road Weather Information System (RWIS) network.

The following is a summary of how this research demonstrated RWIS sensor reliability and any documented trends or instrumentation issues. The RWIS atmospheric and pavement data were validated during the 2006 – 2007 “cool season” (October through April).

Atmospheric validations were done through a buddy-check system where the data from each of the 12 RWIS stations were compared to data from the closest (in distance and elevation) Automated Surface Observation System (ASOS) station, which are National Weather Service/FAA stations located at airports. For example, the Ashland RWIS was compared to the Plymouth ASOS station (K1P1) while the Sanbornton RWIS was compared to the Laconia ASOS (KLCI).



The Derry RWIS station.

The parameters validated were air and dew point temperature, relative humidity, wind speed and direction, visibility and precipitation. Once the data from each RWIS/ASOS comparison was compared, consistencies and inconsistencies were identified.

Overall, the atmospheric data from the RWIS was accurate and reliable. Any differences or inconsistencies in atmospheric measurements were within acceptable ranges and occurred mainly due to differences in distance and elevation between buddy stations. It has been determined that when the ASOS stations reported rain and snow, most of the RWIS buddy stations also reported some sort of precipitation type more than 50% of the time. Stations that have shown strong evidence of over-reporting some types of precipitation were Manchester (all types), Derry (“unidentified” and “snow”) and Ashland (“rain” and “unidentified”). Little Bay under-reported “unidentified” and “snow” (the only RWIS w/sensors from a different manufacturer). A case study showed that Woodstock’s precipitation sensor was not functioning properly due to an instrumentation issue. The sensor is not sensitive to fog and reported many more events of rain than surrounding ASOS and RWIS stations and during no meteorological precipitation events.

The RWIS pavement data was more challenging to validate due to the lack of comparable pavement data available. It was determined that 74% of all RWIS freeze point temperature data (from the FP-2000 pavement sensor) were either missing or an error. Less than half of the remaining 26% of valid data reported usable freeze point temperatures. Hence, freeze point temperature is not a reliable parameter on the RWIS.

In an attempt to validate RWIS pavement condition, it was compared to RWIS precipitation type (both sensors work independently of each other). When RWIS reported “Trace Moisture” on the surface, it was usually not associated with any falling precipitation, but should rather be associated with dew or frost on the surface, snow melt or remnants of a wet road surface. Any reports of “Ice Watch” on the surface should be regarded with high caution because a majority of their occurrences did not coincide with precipitation. However, the few stations that had reports of precipitation during “Ice Watch” reports were Canterbury, Littleton, Woodstock, Westmoreland and Lost River. Otherwise, the remaining surface condition reports were shown to be mostly accurate and reliable.

It is important to realize that although RWIS was purposely placed in known trouble spots around the state and hence, to be representative of a small region, the nature of any automated weather station is that it only measures one point on the surface.

Due to the state’s complex terrain and highly variable weather, there are some situations when RWIS does not fully represent a small region. But overall, the RWIS atmospheric data and pavement temperature data are accurate and the system has proven to be reliable. It is suggested that the NHDOT could use surrounding ASOS station data to further verify the RWIS data on a regular basis. A better understanding of RWIS can improve winter road maintenance.



Soper presented her findings at the February NHDOT major staff meeting in Concord.

The RWIS atmospheric data is available online at <http://vortex.plymouth.edu/rwis/>

An In-Depth Look at the Future of Surface Transportation in the United States

A two-year study looking at the future of surface transportation in the United States has concluded that the nation's highways and rails are at a crossroads and that "significant, decisive action" is needed to sustain them. According to "Transportation for Tomorrow: Report of the National Surface Transportation Policy and Revenue Study Commission" that was issued in December, the ever-increasing needs of the transportation system have reached the crisis stage and that at least \$225 billion must be invested annually for the next 50 years to both repair the existing system and make the improvements necessary to sustain growing travel demands.

Without "bold action", the commission predicts:

- A further deterioration of the Nation's transportation system.
- Automobile casualties will increase.
- Congestion times will lengthen daily, and
- America's economic leadership in the world will be jeopardized.

Perhaps the most controversial recommendation of the Commission is that the Federal fuel tax be increased from 5 to 8 cents per gallon per year over the next five years, after which it should be indexed to inflation. Among the Commission's other findings and recommendations:

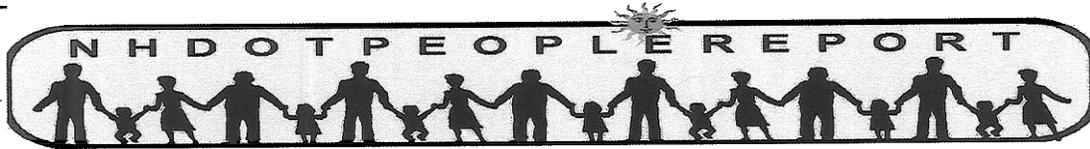
- Significant more investment will be needed from state and local governments, and the private sector.
- A new user-financed Federal surface transportation program that will be performance-driven, generally mode-neutral and refocused to pursue activities of genuine national interest.
- To reduce costly project delivery times for major transportation projects, the time to complete environmental reviews must be shortened.
- State and local governments accepting Federal funds must implement asset maintenance and support programs to preserve and protect the life of the transportation asset.
- An alternative to the fuel tax must be found to fund surface transportation programs.
- State and local governments should be given flexibility to toll and/or implement congestion pricing.
- Establishment of national safety standards with the goal to cut highway fatalities in half by 2025.
- A program to accelerate the development of environmentally-friendly replacement fuels.
- Legislation to keep the Federal Highway Trust Fund solvent.
- The creation of a National Freight Transportation Plan.
- The establishment of a distinct program to fund programs that reduce congestion in the country's largest metropolitan areas (populations of at least one million).
- The nation should pursue the development of a fast and reliable rail passenger network.
- Develop an Environmental Stewardship Program funded at 7% of the total funding for the Federal surface transportation program.

The Commission was made up of 12 members, representing Federal, state and local governments; metropolitan planning organizations; transportation-related industries; and public interest organizations.

It's important to note that the Commission's recommendations were not supported by all of its members, with the most notable dissenter being US Transportation Secretary Mary Peters. On behalf of the minority of Commission members, Peters wrote, "We believe... that a failure to properly align supply and demand, not a failure to generate sufficient tax revenues, is the essential policy failure. The Commission Report thus serves only to reinforce the misconception that substantially more Federal spending will improve America's surface transportation system."

For more information, including the complete report, visit the Commission's website at www.transportationfortomorrow.org

Did You Know? At 91.2 percent, the vast majority of personal trips in the United States are made by private vehicles. 2.1 percent of personal trips are made by public transportation and 3.4 percent by airplane. 3.3 percent are made by other means including taxis, school buses, bicycle and walking.



NEW HIRES

Erik Hansen, Automotive Service Tech., Mechanical Services
Robert Lajoie, Highway Maintainer 1, Turnpikes
Deborah Angwin, Secretary 2, Highway Design
Raymond Burovac, Heavy Equip. Mechanic, Mech. Services
Andrew Clark, Highway Maintainer 1, Turnpikes
Martha Coughlin, Information Center Attendant 1, District 3
Jillian Cunningham, Secretary 2, Environment
Leon Forest, Highway Maintainer 1, District 5
Nicholas Goulas, Civil Engineer 4, Bridge Design

Sarah Graulty, Environmentalist 3, Environment
Andrew Hill, Highway Maintainer 1, District 3
Justin Lang, Highway Maintainer 1, District 2
Greg Lingley, Highway Maintainer 2, District 5
William McDonough, Highway Maintainer 2, District 2
Jitesh Patel, Civil Engineer 2, Construction
Aaron Smart, Civil Engineer 4, Materials & Research
Lee Weatherbee, Highway Maintainer 1, District 5
Scott Whitehouse, Highway Maintainer 2, Turnpikes

PROMOTIONS

Robert Bennett, Geological Exploration Tech, Mat. & Research
Richard Bixby, Highway Maintainer 2, District 5
Benjamin Blanchette, Highway Maintainer 2, Traffic
Chris Chaloux, Highway Maintainer 2, District 2
Jake Clarke, Highway Maintainer 2, District 2
Joan Clinton, Carpool Coordinator, Rail and Transit
Karen Gola, Principal Engineer, Bridge Maintenance
Eric Healey, Supervisor 2, Traffic
Steven Jeffries, Toll Supervisor, Turnpikes
John Kallfelz, Engineer, District 4
Kevin Kennedy, Engineering Technician 3, Construction
Craig Levesque, Assistant Highway Patrol Foreman, District 6
Elizabeth Malone, Right-of-Way Appraiser 4, Right-of-Way
Barry Moore, Right-of-Way Appraiser Supervisor, ROW
Kenneth Morrison, Bridge Inspector, Bridge Design
Daniel Plourde, Carriage Operator, Traffic
Filiberto Real, Right-of-Way Agent 1, Right-of-Way
Alan Robinson, Highway Maintainer 3, Turnpikes
David Tyler, Highway Maintainer 2, District 2
Adam White, Equipment Mechanic Foreman, Mech. Services
Dean Wilson, Civil Engineer 6, Construction
Debra Albertelli, Administrative Secretary, District 6
Steven Babalis, Civil Engineer 2, Highway Design
Jason Bard, Assistant Highway Patrol Foreman, District 2
Joseph Briere, Highway Maintainer 2, District 1
Michael Chapman, Highway Maintainer 3, District 1
Michael Charlton, Highway Maintainer 2, District 3
Lori Clare, Grants Program Coordinator, Rail and Transit

Thomas Cutter, Engineering Tech. 4, Highway Design
Kathleen Eddington, Program Specialist 1, Human Res.
Jeffrey Harpring, Civil Engineer 4, Planning
Bryan Hayes, Highway Maintainer 3, District 6
Donna Hoadley, Administrative Secretary, Mat. & Research
Jon Homer, Engineering Technician 4, Construction
Peter Jaskal, Highway Maintainer 3, District 5
Nathan Kimball, Highway Maintainer 3, District 2
Russell Lemire, Civil Engineer 2, Construction
Michael L'Esperance, Highway Maintainer 3, District 5
Paul Lessard, Engineering Technician 4, Highway Design
Eric Levesque, Highway Maintainer 3, District 5
Charles Lowe, Heavy Equip. Mechanic, Mech. Services
Denise Markow, Civil Engineer V, Traffic
Julius Nemeth, Civil Engineer 2, Highway Design
William Oldenburg, Bureau Administrator, Right-of-Way
Craig Pearson, Civil Engineer 4, Construction
Lorijo Place, Design Drafter 2, Highway Design
Joshua Prescott, Engineering Tech. 5, Highway Design
Steven Quirion, Engineering Tech. 4, Construction
Carl Ruel, Assistant Highway Patrol Foreman, District 1
David Simonella, Engineering Tech. 4, Construction
Gregory Smith, Engineering Technician 4, Right-of-Way
Susan Soucie, Civil Engineer 4, Traffic
Brian Sousa, Highway Maintainer 3, District 2
Linda Wescott, Program Assistant 2, Finance & Contracts
Kathleen Mulcahey-Hampson, Senior Hearings Examiner,
Commissioner's Office

RETIREMENTS (years of service)

Earl Caddel, Bridge Maintenance (11)
Truman Champagne, Highway Design (36)
Stephen Chellis, District 2 (41)
Dennis Danna, Environment (33)
Irene Jutras, Turnpikes (21)
Richard Keegan, Construction (21)
Thomas Miller, Construction (32)
Robert Perriello, Materials & Research (37)
Joseph Powers, District 3 (20)

Kenneth Smith, District 1 (19)
Stephen Canton, Bridge Maintenance (35)
Carol Drew, Bridge Maintenance (22)
Richard Frizzell, District 1 (9)
Lorraine Petit, Turnpikes (18)
Michael Rayno, District 5 (13)
Mildred Reynolds, Turnpikes (19)
Ronald Spalthoff, Construction (32)
David Szcublewski, Traffic (31)



SERVICE AWARDS



April through June 2008

30 YEARS

Keith Cota, Highway Design
Louis Derosia, Bridge Maintenance
Raymond Gilpatric, District 3
Doug Graham, District 4
Steven Huckins, District 4
Richard Hutchinson, Bridge Maintenance
Karen Jennison, Rail and Transit
David Moulton, District 3
David Powelson, Bridge Design
Alan Rawson, Materials & Research

20 YEARS

John Corcoran, Turnpikes
Kenneth Fogg, District 3
Guy Giunta, Highway Design
Jamie Gooden, District 1
Bernd Huber, Turnpikes
Mark Huntoon, Bridge Maintenance
Herman Johnson, District 3
Douglas King, District 2
Marc Laurin, Environment
Eric Milliken, Highway Design
Andrew Nichols, Highway Design
John Pillsbury, District 3
Daniel Riordon, Mechanical Services
Ralph Sanders, District 6
David Scott, Bridge Design
William Smith, District 6
Francis Sullivan, Traffic

15 YEARS

Robert Blake, District 5
Linda Cate, Turnpikes
Scott Foster, District 5
Richard Gagnon, Mechanical Services
Joseph Giunta, Traffic
Edward Godfrey, Turnpikes
Douglas Hinton, Traffic
Norman Howcroft, District 6
William Lambert, Traffic
Charles Reed, Bridge Maintenance
Ronald Woods, Right-of-Way

35 YEARS

Paul Avery, District 3
Michael Carpenter, Construction
Kerrie Hartshorn, Highway Design
Kenneth Knowlton, Traffic
Kenneth Louzier, District 2

25 YEARS

Diane Acres, Turnpikes
Robert Aubrey, Bridge Design
Arthur Eaton, District 6
Christopher Flag, District 4
Mary Goulet, Bridge Maintenance
Alan Hinerth, Construction
Peter Marshall, Construction
Cynthia Poole, Right-of-Way
Kevin Prince, Materials & Research
Richard Trempe, District 4

10 YEARS

Richmond Parker, District 1
Jay Nevin, Bridge Maintenance
James Otis, Traffic
Frank McClay, District 3
Larry Myers, District 5
Eric Healey, Traffic
Seth Beane, Bridge Maintenance
Edward Nichols, District 6
Kathryn Sanders, District 6
Andrew Brundle, District 1
William Dusavitch, Fuel Distribution
Adam Shackford, District 3
Rachel Perkins, Turnpikes
Wendy Johnson, Highway Design
Kevin LaPointe, Construction
Stephen Debow, District 3
Brian Schutt, District 1
Charles Willeke, Highway Design
Peter Crouch, Traffic
Scott Provencher, Turnpikes

Spaulding Turnpike Widening Finally Under Way in Rochester

Editor's note: The following article by reporter Adam Krauss appeared in the February 19 edition of Foster's Daily Democrat in Dover, NH. It is reprinted with permission. Photo credits - Scott Baker (Foster's Daily Democrat).

ROCHESTER — With beeping sounds sure to get anyone's attention, dump trucks begin their slow descent to the muddy area next to the frozen Cocheco River that sits below the Spaulding Turnpike, by Exit 12.

Motorists whiz by overhead, rumbling along one of the shakiest parts of the half-century old turnpike, likely unaware of exactly what's playing out below.

Or maybe they drive by on Route 125, scratching their heads at what that guy in denim jeans and the Carhartt jacket is doing with a small device mounted on yellow tripod.

Wonder no more.

Work is steadily progressing on the first phase of the turnpike widening project. After years of locals hoping and expecting, the state approved the work to improve safety, quality of life and make sure traffic woes don't keep away business.

Every week day, about 50 workers from city-based SUR Construction and other outfits arrive by 7:30 a.m. They get their excavators and bulldozers revved up and proceed to move earth and set up steel or concrete. It's hard work, but they seem to be enjoying themselves.

Passersby should get used to the sights — and, in the words of Trooper Stan Dombroski, who was stationed there Thursday, "please slow down."

Approved for \$14.4 million, the Exit 12 work will last through spring 2009, after a new president is sworn into office, and make way for improvements up to Exit 16.

The new bridge, being built next to the current structure, has to be open for traffic by July 2009, according to Jim Hersey, contract administrator with DOT.

South and northbound traffic will use the new bridge when work begins on the northbound bridge, crews say.

The effort is the first leg of a \$177 million undertaking made possible by the toll increases that took effect last fall. In coordination with the Department of Transportation, crews are focusing on the southbound side of the Exit 12 bridge, which state officials are on record as saying they looked to get a couple more years out of in 1992.

That big steel structure to the west of the bridge is the cofferdam. It holds up the roadway while excavators dig about 12 feet below street level to prepare the foundation for the new bridge, which will be roughly 50 feet wide.

"That's the only way to do it when you're in that close of proximity," said Andy LePage, a city native and SUR's job superintendent.

Across Route 125, foreman Collin Landry was helping lay down a crane-supporting stabilizing fabric over muddy tracks leading to the river, which runs underneath the turnpike.

Six trucks were hauling away earth and mud from the river's floodplain in support of abutments for the new southbound on-ramp. To create the abutments, crews were dropping pressure-injected footings at least 75 feet below existing elevation. The new ramp — at 50 feet wide and 275 feet long — will begin further away from the turnpike, take motorists over the river and drop them 800 feet further south on the turnpike, after the existing 55 mph sign, crews say.

"It's going to make merging a lot easier," Landry said.

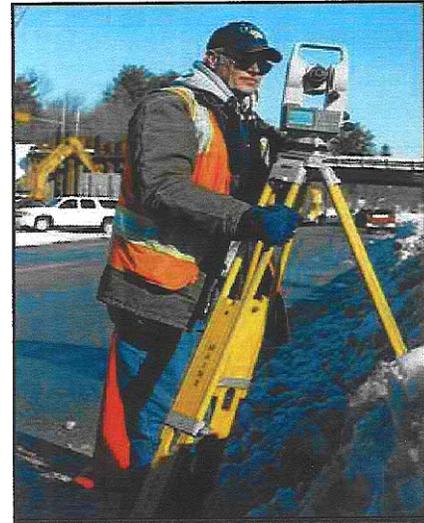
For just one abutment, 500 tons of material needed to be taken out and replaced with an equal amount of sand. A backhoe would load a dump truck and off it went, bound for a former concrete plant on Chestnut Hill Road that's providing 100,000 cubic yards of sand and serving as the mitigation site.

The mitigation is needed because of the wetlands along the river being disturbed. When it's all over, a 5-acre man-made wetland will be at the concrete site, LePage said.

Also in connection with the ramp work, crews were readying to install 1,200 small PV drains that are drilled approximately 65 feet into the ground. The drains take the moisture out of the ground.

"We want the clay compacted so when we're building the road it doesn't sink," LePage said.

Jim Driver, a DOT survey technician — or, as some passers-by may know him, the guy in the Carhartt jacket — was using a nifty device that "shoots out a laser beam" to where his partner, standing near the abutment points, was holding a mirror. With the help of a computer, they'd measure how close the contractors were to the working points specified on the plan.



NHDOT surveyor Jim Driver (Highway Design) prepares to take measurements near Exit 12 of the Spaulding Turnpike.

(continued on page 9)

Spaulding Turnpike Widening

The new on-ramp will mean an end to the days of two southbound on-ramps, specifically the loop ramp intended for motorists headed south on Route 125. When the new ramp opens — and the other one closes — a temporary traffic signal will go up to help those motorists looking to make a left turn onto the ramp and the turnpike.

A permanent light is planned with the reconstruction and upgrade of Route 125, which the state plans to advertise in January 2009, the same time as work for the northbound side of the bridge, Hersey said.

The exit's existing southbound offramp — set about 400 feet south of the bridge on Route 125 — will change in order to begin about 500 feet further north on turnpike and be more of a straight shot. But the general area where it brings motorists to Route 125 won't change a lot, crews said.

There's also work going on down the street, at the bridge over Axe Handle Brook. The area is being widened about 12 feet on each side, and the first concrete pourings, using a special underwater technique, was slated for Friday. The work is part of the Route 125 upgrade, but the state figured it was best to get a jump on the work to accommodate utilities being moved underground, crews said.

Turnpike motorists coming from the north of the project have likely noticed the acres — 12 acres, to be exact — of trees that have been cut for the project. The clearing was to facilitate 3,000 feet of new roadway leading to the bridge, and the lumber was either sold or chipped for wood-fired power plants, LePage said.

The project also entails about 4,000 feet of new roadway after the bridge, leading up to the toll plaza.

The stretch will have 3 12-foot lanes — two for traveling south, one for a shoulder and another 10 foot shoulder lane. That 46 feet dwarfs the 22 feet cars have to navigate now, LePage said.

"Hopefully it will ease congestion, make traveling this roadway easier," he said. "And from a safety perspective, it will also be good."

Come March, DOT's going to launch a Web-based "smart work zone" that will allow workers locally and in Concord to monitor traffic and post updates in real time to message boards and the Internet, Hersey said.



Sam Johnson (SUR Construction) works the excavator at the Exit 12 construction site in Rochester. Behind the excavator is where the new southbound bridge footings will be set.



The NHDOT Bridge Maintenance crew was assisted in their work by personnel from the Conway Scenic Railroad who helped mobilize the equipment and materials from the Crawford Station down the tracks to the bridge.

Crawford Notch Railroad Trestle Upgraded

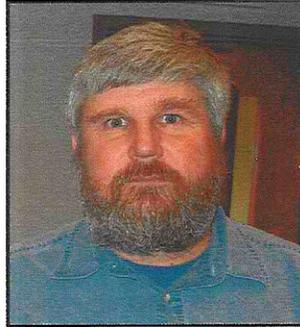
Wiley Brook Railroad Trestle in Crawford Notch has a new look thanks in part to the efforts of Bridge Maintenance's Crew 2 under the direction of the recently retired Steve Canton. The work included fabrication and replacement of the existing roller bearings, re-pointing the abutments and center pier and trimming trees back away from the structure. A new concrete pier cap was also part of the rehabilitation.

Also involved with the project was Albert Soucy from Mechanical Services, who machined all the new roller bearings.

NHDOT People

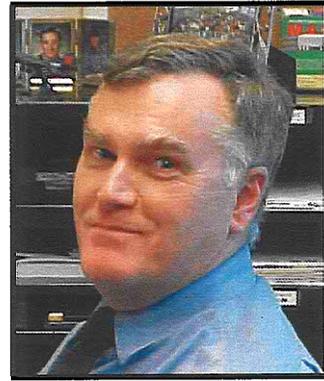


A Combined 62 Years of State Service



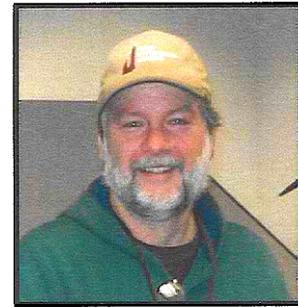
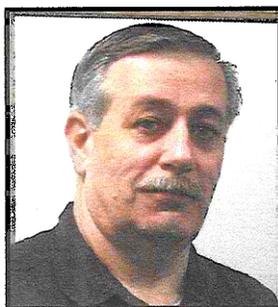
Longtime Construction Bureau contract administrators Richard Keegan (left) and Tom Miller were recognized at a reception on January 25 in honor of their retirements. In more recent years, Dick Keegan (30 years), of Rindge, worked on the widening of the Everett Turnpike, the Hillsborough Bypass and the Alstead flood clean-up. His immediate plans are a lot of home improvement projects. Tom Miller (32 years) plans to operate a lumber and sawmill business full-time in his hometown of New Boston. Tom's recent projects include the US 4 bridge over the Merrimack River in Concord-Canterbury and the new US 3 double-decker bridge over the Suncook River in Pembroke-Allenstown.

Jim Colburn Retires After 36+ Year NHDOT Career



Jim Colburn says a lot has changed at the NHDOT since he began his career at the State Highway Department in 1971. The Highway Maintenance project manager retired from State service on March 31 after more than 36 years with the same agency. His various positions included stops in Planning, Materials and Research and Traffic, where he served as Traffic Operations Engineer for 10 years. More recently Jim worked on incident management and stormwater issues. The Northwood resident says he has plenty of "retirement" work to do as President of the Coe Brown Academy Board of Directors.

Materials & Research Employees Reach 20 Year Milestones



Art Johnson (left), Craig Cleveland and Doug Rogers were recently recognized by Materials & Research administrator Alan Rawson for 20 years of State Service. Art is an Engineering Technician 3 in the Pavement Management Section's Ride Quality Unit. Two years ago he was a volunteer umpire in the Little League World Series. Craig (center) has worked for the Materials & Research Field Exploration Unit as a member of geotechnical drilling crews for his entire career at the NHDOT. Doug (above right) is an Earth Scientist 2 in the Geotechnical Section, Geology Unit at Materials & Research.

Environment Bureau

Manual Produced to Guide NHDOT Personnel in Addressing Invasive Plants

Increasing concerns over invasive plants and the role NH Department of Transportation activities could potentially play in the spread of these plants along roadsides in New Hampshire has prompted the Environment Bureau to produce the manual "Best Management Practices for Roadside Invasive Plants".

"Invasive plants wreak havoc on the natural environment and also cause safety and maintenance concerns along roadways," says Senior Environmental Manager Christine Perron, who prepared the manual. "Implementing the Best Management Practices described in the manual will help us control the spread of these plants along our roadways."



The invasive plant Japanese Knotweed growing and spreading along NH Route 10 in Lebanon, NH.

The manual prioritizes the many invasive plant species threatening the state's natural environment by considering how easily the plant can be spread by DOT activities, the degree to which the plant can impact transportation infrastructure, and how difficult it is to eradicate the plant.

NHDOT priority species are Japanese Knotweed, Purple Loosestrife, Phragmites, Oriental Bittersweet and Spotted Knapweed. Most importantly, the manual details Best Management Practices (BMPs) in such regular highway maintenance and construction activities as soil disturbance and stabilization, mowing, the movement and maintenance of equipment, the disposal of plants and working with excavated material. According to the manual, "An invasive plant is a non-native plant that is able to persist and proliferate outside of cultivation, resulting in ecological and/or economic harm."

Invasive plants impact transportation corridors in a number of ways, from reducing sight distance and encroaching on travel lanes, to pushing up through pavement and blocking culverts. Some can even be hazardous to your health. Giant Hogweed contains a phototoxic sap that can severely burn and blister the skin, making the use of gloves and long sleeves necessary when working with it.

The BMPs outlined in the manual will help to reduce the spread and establishment of the many types of invasive species by addressing how these species get moved around. For example, some invasive plants, especially Japanese Knotweed, can sprout from small fragments of stems. Mowing these plants should be avoided whenever possible.

NHDOT employees credited with contributing to the new manual include: Guy Giunta (Roadside Development), Dennis Croteau (District 1), Doug King (District 2), Doug Graham (District 4), Pam Mitchell (District 5) and Marc Laurin (Environment Bureau).

The manual is available online at: <http://www.nh.gov/dot/bureaus/environment/documents.htm>

The Staggering Costs of Crashes

If you think traffic congestion costs a lot, compare it to the cost of crashes on the nation's highways. According to a new study by the American Automobile Association (AAA), the societal cost of crashes is a staggering \$162.2 billion annually, nearly two and a half times greater than the \$67.6 billion pricetag for congestion. That equates to \$1,051 per person in medical, emergency response, property damage, lost productivity and quality of life.



LETTERS

February 7, 2008

Another "weather day" in the Monadnock area - and got into work with no problem and better yet with full confidence of the roads being plowed and sanded. I just want you to know I think you do an exceptional job and I really appreciate your keeping the roads in great shape!

Molly Littke
Marlborough, NH

Editor's Note: The above thank you card was sent to District 4 Engineer Doug Graham. The 412 Marlborough crew includes Glenn Smith (Foreman), Frank Colyn (Ass't Foreman), Skip Grassmuck (HM 2), Matt Clark (HM 2) and Chris Hall (HM 2). The below letter was sent by NHDOT State Maintenance Engineer Caleb Dobbins on 2/15/08.

TO: Highway Maintenance Personnel & Hired Equipment Operators

Because I cannot visit each and every one of you in the various patrol sheds statewide, I wanted to take a moment to express my personal appreciation of the tremendous job that you are all performing during this difficult winter season. I can assure you that those here in Concord are well aware of the difficulties that you continually face and hardships that you endure season long to fulfill the duties of your positions. We will continue to support you and make all efforts to provide you the tools and materials required to complete your task.

The citizens of the State of New Hampshire, as well as the thousands of visitors that our state critically depends on to economically survive rely on your dedication and expertise to keep the state's roadways open for daily travel, tourism and the critical movement of freight throughout the state. Without this dedication and commitment by all of you, the day-to-day activities that our citizens and tourists expect to be able to regularly perform would cease to occur.

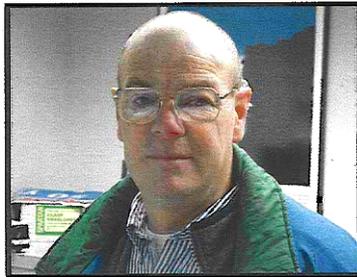
Please accept my utmost gratitude to all of you for your work and I ask that you pass this on to your family and friends, who also feel the effects from your absence while you are performing your duties to the New Hampshire Department of Transportation.

As both a citizen and an administrator, I thank you.

Sincerely;

Caleb B. Dobbins
State Maintenance Engineer

Traffic Bureau Employee Selected to Officiate U.S. Olympic Track and Field Trials *Dave Cook Works About 80 Days a Year at Meets Throughout New England*



Dave Cook did not grow up dreaming of being a track and field official. He simply stepped forward and volunteered to help when his son was on the track team at Bow Middle School. That was 17 years and hundreds of track competitions ago.

Today the Traffic Bureau accounting technician spends up to 80 days a year at track meets somewhere in New England, officiating at levels ranging from high school and Special Olympics to the college-level America East and Atlantic Coast Conference regional championships.

Dave Cook's longtime dedication to the sport has paid off with his selection from over 3,000 candidates to work as one of 145 Certified National Officials at the U.S. Olympic Trials in Eugene, Oregon from June 25 through July 7. Qualifiers will represent the U.S. at the Olympics in Beijing, China in August.

"It's a once in a lifetime opportunity," Dave Cook says. "It's as high as you can go except for the Olympics. I started out doing it because my kids were involved and other parents weren't stepping up. I kept on doing it and still enjoy it."

Over the years, Dave has worked all of the various track and field events, but likes the field events the best, including the long jump, high jump, shot-put, javelin and discus. You certainly can't get any closer to the action in a sport where the results are often decided by millimeters or fractions of a second.

"It takes an awful lot of concentration. We're there for the athletes and to support them."

Of course being close has its downside. A couple of years ago at a track meet in Springfield, Massachusetts, Dave suffered a gash in the leg that required 40 stitches when he was hit during the "hammer throw" competition.

While Dave Cook says he received his prize assignment "four years ahead of schedule", he's adamant that he will not stay in track and field officiating beyond when he should. He does make it clear that he does it for the love of the sport, and not for the money.

"I wouldn't have enough money to buy lunch," he jokes. "It's the personal rewards you get from it. We have a real tight-knit group of people, and you get to meet and watch the best of the best."



Stormwater Treatment Refresher Course Worth a Million Bucks



Those participating in "Who Wants to be in Compliance?" included Eric Paddleford, Laurel Kenna, Jon Homer, Chuck Flanders, Steve Glines, Laurel Kenna, Matt Urban, Randy Talon, Darrel Elliot, Russ St.Pierre, Ron Crickard and Bill Boynton (from DOT) - and from DES, Deb Loiselle, Barb McMillan and Nancy McGrath.

The use of a game show format to generate some excitement about the need for proper stormwater management returned to the NHDOT construction school in January after a one year hiatus.

Buoyed by previously well received shows based on "Jeopardy" and "Family Feud", "producer" Ron Crickard (Environment) this year presented "Who Wants to Be in Compliance?"

All of the questions asked in the program about the federal National Pollutant Discharge Elimination System (NPDES) stormwater permitting program were correctly answered by three contestants, prompting Crickard to state that "Construction Bureau personnel have developed a very good working knowledge of the NPDES regulations."

Construction Bureau's Dan Caouette Builds One-of-a-Kind Canoes and Kayaks *Clear Stream Woodworking Attracts Worldwide Attention for Its Quality Products*

Dan Caouette and his wife Christine decided to go shopping for a couple of plastic kayaks about four years ago.

Then the Construction Bureau contract administrator got the idea he would build the boats himself out of wood. He bought the book "The Strip-Built Kayak: Three Rugged Boats You Can Build" and the unanticipated journey began.

In his spare time these days, Dan Caouette is building custom kayaks and canoes in his Milan home workshop for customers from as far away as Spain and Florida. His company is called Clear Stream Fine Woodworking, and business is booming. According to the company website, Clear Stream is "a small part-time studio dedicated to one of a kind cedar strip kayaks, canoes and small boats, fine cabinetry, furniture and antique reproductions."

"I will build almost anything out of wood. I'll take on anything," Caouette says. He's been working with wood since he was a kid playing around in his father's workshop. But it's the boat building that has quickly established Dan as a craftsman in a field where less than 30 companies do something similar nationwide. Dan's boats are built exactly to his customer's desires and specifications, with meticulous craftsmanship that can include a variety of woods and inlaid designs.

After he launched a website, the business took off in the spring of 2006 when Dan sold his first kayak out of "Saco Bound" in Conway. Then he got a call from a Connecticut man who asked him to build a sea kayak that became known as "The Black Pearl". His latest order under construction is for a Spanish customer who wanted something "light, fast and beautiful". The 18 ½ foot "Nereida" Njord is being made out of mahogany, curly maple and black walnut, encapsulated in a clear epoxy/fiberglass matrix and should weigh only 45 pounds. Detailed craftsmanship comes with a cost, but in this niche market, price is not an obstacle for

those who want something truly special. It takes Dan 8 to 12 weeks to build a canoe or kayak that can range in price from about \$3,000 to \$6,000.

"People coming to me are in search of a very unique boat. I spend a lot of time talking to them before construction even starts. It's a labor of love. I know every inch of every boat and it's totally worth it when they are put in the water for the first time."

The Clear Stream website has generated worldwide interest as e-mailers from places as far away as Sweden follow Dan's boat construction updates online (www.clearstreamwood.com).

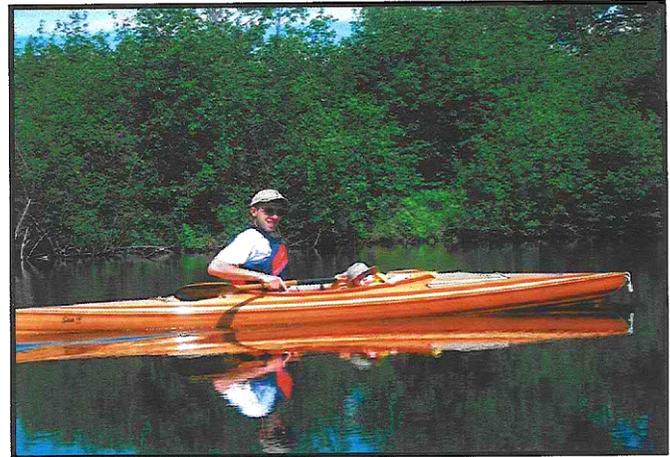
"It's incredible. A Scandinavian-designed boat for a guy in Spain is being built by a guy in northern New Hampshire using parts from Hawaii," Dan muses.



Described as "the ideal all-round canoe", the 16-foot "Prospector" is one of three designs Caouette builds.

Dan Caouette says he loves his job as a NHDOT construction engineer and has no plans to go full-time with the boat building and wood working business. At age 34, he hopes to build 2 to 4 boats a year for the next 20 years and possibly expand with retirement. His next phase may be in creating some original kayak designs, which he names after New Hampshire and Maine rivers.

"I've only just scratched the surface," Dan says. "There are so many things to learn with each boat."



After hundreds of hours of work, Dan Caouette likes to take his hand-built boats out on the water for a test run.

UNH Bus Service Nationally Recognized for Creatively Boosting Ridership

The University of New Hampshire's Wildcat Transit bus service is one of ten transit providers nationwide that have been recognized by the Federal Transit Administration (FTA) for innovations in finding ways to increase their riderships.

The "Success in Enhancing Ridership Award" recognizes initiatives by transit agencies that result in significant increases of at least five percent more passengers per year over a two-year period.

"These transit agencies have shown that being customer-focused is the key to success in any business," said FTA Administrator James Simpson. "Each transit provider identified the specific needs in the community and created a plan that resonated beyond your typical advertising campaign."

The winning initiatives ranged from partnering with local university students to reduce crime, to advertising in local hotels and restaurants. The awards recognized transit providers who tried fresh approaches to boost their ridership in 2005 and 2006. The two-year period allowed enough time to put the new strategies into practice and then measure their results.

As the only winner in New England, "Wildcat Transit used better traveler information, nicer bus shelters (with solar powered lighting), and new biodiesel transit buses to increase its ridership by 21 percent. The University instituted a website with regularly updated transit and parking information, which is a boon to ridership during special events when parking is scarce."

In addition, "Students love the environmentally friendly vehicles and shelters. The University's Office of Sustainability promoted the biodiesel buses with a month-long campaign that included a press event attended by the Governor."



Rail and Transit Helps Secure Two New Trolleys for Downtown Concord



Two new trolleys have joined the Concord Area Transit (CAT) fleet and are offering another transportation option for traveling in downtown Concord. The trolleys will run half-hour loops through the State Capital.

New Hampshire's State Capital has two shiny new trolleys helping to relieve traffic congestion in the downtown area.

The two red and green trolleys were purchased at \$161,000 each for Concord Area Transit (CAT) by the Rail and Transit Bureau utilizing 80% Federal CMAQ funds. They were manufactured by Molly Trolley of Ogunquit, Maine.

Delta Dental is a local sponsor, thus explaining the names of the trolleys, "Healthy Smiles" and "Brush and Floss".

In addition to oak bench seating and brass entry poles and rails, the trolleys have wheelchair lifts and folding jumpseats for use by passengers when the space is not occupied by wheelchair passengers.

“Eyes on Owls” Program Featured at Materials and Research Safety Day

Steve Mandeville first saw the “Eyes on Owls” Program at the Northern New England Safety and Health Council in 2006. The Materials and Research Bureau safety officer thought the presentation would be a good educational program for the bureau’s safety day.

“Programs such as this one give us insight to wildlife habitats, life cycles and living areas, and help us to better plan our work activities to impact them as little as possible,” Mandeville says.

Marcia Wilson’s “Eyes on Owls” program on February 6 featured six live owls, a hooting lesson and tips on how to attract and protect owls in the wild.

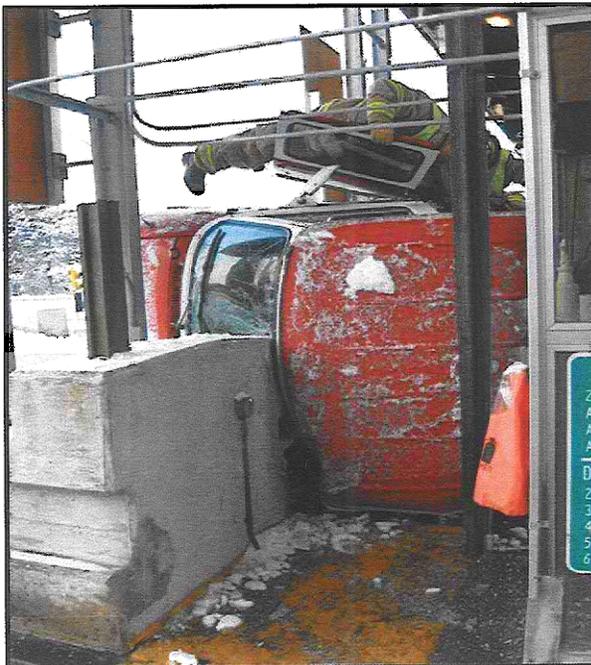
“There are quite a few of us in Materials and Research who engage in outdoor sports such as hunting, fishing, hiking and wilderness camping,” Steve says.

“We go by the principle called “no trace” camping, hiking, etc., which means that you leave absolutely no trace that you were there. We use the same philosophy for our field work. As an example, if we have to build a temporary road to allow us to access to where we have to conduct a field drilling operation, when we leave we remove the temporary road and return the land to the condition it was upon our arrival.”

The owls featured in the “Eyes on Owls” presentation are permanently disabled and unable to fend for themselves in the wild. Based in Dunstable, Massachusetts, Marcia and Mark Wilson are naturalists who share their passion for owls throughout New England. On the web at www.eyesonowls.com.



Steve Mandeville (Materials and Research) and Marcia Wilson of “Eyes on Owls” pose with a Barred Owl following her safety day presentation.



Close Call at the Dover Tolls

Dover firefighters work to free the driver of a truck that crashed at the Dover Toll Plaza on February 28.

No injuries were reported. The crash occurred about 7:30 AM in the northbound lanes.

The driver apparently lost control of the truck when its right front wheel collapsed. The truck rolled onto its side and dislodged two booths, as well as damaging lights and an E-ZPass camera.

Both booths were repaired by Turnpikes personnel and the lanes were back in service by the end of the day.