On the Road in New Hampshire

Town and City Officials Successfully Apply Pavement Management Systems

For over six years the UNH T² Center has supported the Road Surface Management System (RSMS) through distribution, training, telephone and field visits, student inventory and condition surveys, and software modifications. We have received considerable positive feedback from users, but this summer set out to find measurable information. Just how, we wanted to know, have towns and cities benefited from using RSMS?

We conducted a telephone survey of municipal officials in towns who had UNH students assist them in the summer of 1994. We reached 49 officials who had knowledge of the students' reports. In addition to road agents and public works directors we interviewed town administrators, selectpersons, town engineers, planners, and budget committee members. Two general conclusions emerged:

1. When RSMS results were available to them, municipal officials used the information for many important decisions.

2. No municipality used the management system to its full capabilities.

Of the 15 towns represented by the respondents:

- Nearly all used the results to prepare budgets in the next budget cycle;

- Three-fourths used the results to substantiate budgets to towns officials; and

- Two-thirds used the results to substantiate budgets at town meetings.

Two-thirds of the towns had a Capital Improvement Program (CIP) before they requested the survey by UNH students. Three of the remaining five towns established a CIP after the RSMS survey. We find this finding particularly encouraging because we have seen the lack of Capital Improvement Programs as a shortcoming in many towns.

An additional use of RSMS for town budgets is verification of road mileage which is a major factor determining the amount of state aid, the so-called "block grants." Four of the fifteen towns, over one-fourth, found their actual mileage to be greater than in official records. They have requested an increase in state aid based on the RSMS results.

Budget-related decisions and presentations were the most common uses of a pavement management system, but others can be easily applied. These include

- Assessment of various repair strategies (about half changed one or more road repair method),

- Scheduling Work (two-thirds of the responding road managers used results in scheduling), and

continued on page 2
Provisioning citizens and state agencies with accurate information in town reports (Two-fifths included in their reports and at least one town had it available to the public in the Town Office).

One Road Agent gave copies of the report to his crew. "They know the roads. I need their input, too." A Public Works Director applied the analytical tools in RSMS: "I could try various repair scenarios." Other town officials expressed their reactions to the results.

"It raised a lot of red flags. Opened our eyes."
"It showed me the state of our disrepair and a plan to bring roads back into shape."
"It documents improvements; we have a history."
"The priority system helps deal with citizens. Can show them where their road is on the list."
"Handy tool for strategic planning."
"Helps set developer impact fees."
"Having students survey the roads allowed objectivity in evaluating the roads."

These findings confirmed the need for continuing UNH T² Center support for RSMS. They also showed

1. That towns and cities who have not applied a pavement management system to their roads would be well advised to do so, and

2. That towns who have applied a pavement management system could make even greater use of the information.

For information about how your town might use or better use the Road Surface Management System, call Kathy or Dave at the UNH T² Center.

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**Routine and Preventive Maintenance Again Shown Cost Effective**

A key concept in the Road Surface Management System is that routine and preventive maintenance treatments are more cost effective than rehabilitation and reconstruction. A team of researchers recently confirmed this concept for flexible pavements. Their project, a continuation of the Strategic Highway Research Program, included chip sealing, slurry sealing, crack sealing, and thin overlays on flexible pavement in test sections spread across the United States and Canada. The engineers and researchers, also from across the continent, are analyzing the data to determine the factors that influence the quality of the maintenance treatments. One early conclusion is that it is more cost effective to apply preventive maintenance treatments throughout the life of a pavement than to allow the pavement to deteriorate until major rehabilitation is needed.

The conceptual diagram in Figure 1 shows, in the heavy line, the decay of a typical pavement from initial construction and then its restoration through a major

![Figure 1](image-url)

rehabilitation to a near-original service life. The light lines in Figure 1 illustrate that applying modest-cost surface treatment early in the decay cycle can delay the need for future major rehabilitation. Also, pavement service life can be extended longer if a particular maintenance treatment is applied before significant deterioration has set in, rather than waiting until the pavement has deteriorated badly.

In practical terms, early treatments will save money in the paving budget. It will also save the expense of longer traffic delays and accidents that major reconstruction work zones often produce.

Source

CDL Drug and Alcohol Policies

Setting Policies Should Precede Decisions About Procedures and Before Positive Results Occur

On January 1, 1996, municipalities will no longer be exempt from the Federal Motor Carrier Safety Regulations requirements for drug and alcohol testing of large trucks operators. The testing requirements are summarized in Figure 1 and have been discussed in previous issues of Road Business. Also, see the "Calendar" for upcoming training activities.

<table>
<thead>
<tr>
<th>Drug and Alcohol Testing Requirements</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-employment</td>
<td>Drugs</td>
<td>Alcohol</td>
</tr>
<tr>
<td>Random</td>
<td>50% drivers</td>
<td>25% drivers</td>
</tr>
<tr>
<td>Reasonable Cause</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Post Reportable Accident w/in 32 hours(1)</td>
<td>By Plan</td>
<td>By Plan</td>
</tr>
<tr>
<td>Return to Duty</td>
<td>By Plan</td>
<td>By Plan</td>
</tr>
</tbody>
</table>

(1) Within 2 hours or record why not; within 8 hours or cease attempt to test and record why not

Positive for Drugs: Any evidence above minimums for particular substances; cannot perform safety-sensitive functions until retested.

Positive for Alcohol:
0.02-0.039 – Cannot perform safety-sensitive function for 24 hours
0.04 or greater – Cannot perform safety-sensitive functions until retested.

Refusal to take test is considered a positive.

Figure 1. Summary of drug and alcohol testing requirements which will affect municipalities after January 1, 1996.

Federal regulations require employers to furnish employees with some of its written policies, but the scope is minimal. Because policies influence selection of testing and related services, clear policies should be established before making other decisions. The policy issues facing municipal officials center on (1) the testing procedures themselves and (2) disciplinary and/or treatment actions in cases of positive results.

Testing Procedure Policies

In addition to federally required written policies, others are essential to developing workable procedures. For example, whether a city or town joins a consortium or engages and service provider is influenced by a number of policy decisions. These include:

- How will selected employees be notified?
- Will temporary employees be treated as permanent members of the pool or tested as new employees each time they are "rehired"?
- Who will conduct the training required in the regulations?
- Who will keep the records required by the regulations?

Most service providers can assist in formulating policies. They can also offer information about the questions below, but town officials will have many more internal considerations when formulating hiring and disciplinary policies.

Disciplinary Policies

Commercial drivers have been tested for over three years, and many in New Hampshire have tested positive during that period. In other words, towns officials are faced with more than merely setting up a testing program. They must also consider what they will do if their employees test positive. Policy issues which should be addressed include:

- Will an individual who fails a pre-employment test be considered for employment later, if so, how much later?
- Will employees who test positive receive the same discipline regardless of drug type or alcohol, or will discipline for certain positives be of greater degree?
- Will employees who test positive be disciplined the same across all testing circumstances; i.e., random, reasonable cause, and post-accident?
- Will employees who refuse to take a test be disciplined the same as those who test positive after giving a sample?
- If employees who test positive are allowed to remain employed, what duties will they perform and what will they be paid?
- Will employees be offered treatment after they test positive the first time?
  - If so, who will pay for the treatment and the retesting?
  - If so, how about the second positive, etc.?
- What will be the grievance procedure?

Many officials will find some of these policies difficult to establish now. Cities and towns with unions representing their employees will have additional considerations. It should be noted, however, that policies difficult to set now will be even more difficult after an event forces a decision.

Note: The UNH T2 Center has a list of service providers which it will mail upon request.
Master Road Scholar Brian Barden

Road Agent, Town of Dublin

Brian attends so many classes because he "gets to learn a lot." He gains information from the classes and also from the people who are there. He always learns things that are new and better. As Brian says, "It always helps to have more than one idea."

"It's good for the town," adds Brian. "They get a lot out of the money they put into it." His supervisors "support me 100 percent."

Brian has a crew of three people. He's sent one or two to classes, mostly safety classes. With such a small crew it's hard to let everyone go to workshops.

When asked if Brian was married, he said: "of course". He and his wife, Jean, have two children and a new granddaughter. They visit often.

In his "spare time" Brian downhill skis and restores Model T Fords. He restored one car for himself and another for someone else. He has to machine some of his own parts when they aren't commercially available. He occasionally drives his car in a parade, and has, as a favor, driven it for a wedding.

Brian's advice to the UNH T-2 Center is to "keep doing what you're doing." We would advise the same, Brian, and sincerest congratulations on your becoming a Master Road Scholar.

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Master Road Scholar Clark Hackett

Road Agent, Town of Farmington

The Road Agent in Farmington is Master Road Scholar Clark Hackett. He's been the Road Agent for nine years and has worked in the Highway Department for 22 years. Clark is an elected official with elections held every year. Previously he has served in the Navy, worked in a shoe factory, and operated heavy equipment on construction sites.

Clark attends so many workshops because "things change every one and half to two years." Training keeps him "abreast of the latest technology" and helps his do his job better. His supervisors are more than pleased by his achievement.

His crew is made up of 4 road crew members, 2 mechanics and 2 people at the landfill. Town officials often ask him to put a person receiving town assistance to work. He sends his workers to classes every once in a while. Mostly they "put their heads together" to come up with good ideas. Clark strongly advocates teamwork.

The Town of Farmington received a large grant in the late 70's and paved all its roads. Little maintenance or improvement was performed through the 1980's; officials believed they would get another large grant at another time. That attitude has changed. Clark has been asked to make a 10 year plan for improvement to the network. He uses the Road Surface Management System (RSMS) to help return the network to proper asphalt specifications.

Clark and his wife, Sandra, have one grown son. Clark and Sandy love to motorcycle and camp as a means of escape. Their favorite camping spot is in Glen, NH. Clark certainly deserves a vacation and congratulations for achieving the Master Road Scholar milestone!
Master Road Scholar Peter Prentice
Road Agent, Town of Sandwich

Peter has attended so many classes because "there is a lot of good information." He, like most Master Road Scholars, has attended some classes more than once. He finds a lot of interaction and the class structure very flexible. This "allows for questions and I pick things up." He also likes the time for interaction with other participants.

In his view, traditional Road Agents were contractors who happened to own a truck or backhoe. They didn't share information. "Times have changed; people need education."

Peter characterizes his town as professional. The selectmen support his efforts. Most people realize that education is important and that the town benefits from his educational experience.

Peter grew up in Berwick, Maine. He has three grown children, a daughter and two sons, who have all attended the University of New Hampshire. He likes to travel and has been to Alaska four times. He hunts — mostly deer, with black powder or a rifle — and fishes for trout and salmon. Peter's gave his winter hobby, with his tongue deep into his cheek, as snow plowing.

Our best wishes to you, Peter, and congratulations on achieving Master Road Scholar!

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The 72-Hour Law

Notices of Insufficiency and Municipal Liability

Questions received at the UNH T² Center, and concerns raised at the recent Tort Liability and Risk Management Workshop, indicate that some confusion and anxiety exist about what is commonly called the "72-Hour Law."

Several instructors at the workshop furnished handout material which applies to this law. Don Gardner, an attorney with Devine, Millimet, and Branch, furnished copies of the RSA's. These are reproduced below and on page 6. A "Hazard Documentation Form" similar to that distributed by Don Hambidge, Goffstown Public Works Director, is provided on page 7.

RSA 231:90 Duty of Town After Notice of Insufficiency

I. Whenever any class IV or class V highway or bridge or sidewalk thereon in any municipality shall be insufficient, any person may give written notice of such insufficiency to one of the selectmen or highway agents of the town, or the mayor or street commissioners of the city, and a copy of said notice to the town or city clerk. The notice shall be signed and shall set forth in general terms the location of such highway, bridge, or sidewalk and the nature of such insufficiency.

II. For purposes of this subdivision, a highway or sidewalk shall be considered "insufficient" only if:

(a) It is not passable in any safe manner by those persons or vehicles permitted on such sidewalk or highway by state law or by any more stringent local ordinance or regulation; or

(b) There exists a safety hazard which is not reasonably discoverable or reasonably avoidable by a person who is traveling upon such highway at posted speeds or upon such sidewalk, in obedience to all posted regulations, and in a manner which is reasonable and prudent as determined by the condition and state or repair of the highway or sidewalk, including any warning signs, and prevailing visibility and weather conditions.

III. A highway or sidewalk shall not, in the absence of impassability or hidden hazard as set forth in paragraph II, be considered "insufficient" merely by reason of the municipality's failure to construct, maintain or repair it to the same standard as some other highway or sidewalk, or to a level of service commensurate with its current level of public use.
RSA 231:91 Municipality to Act; Liability

I. Upon receipt of such notice of insufficiency, and unless the highway agents or street commissioners determine in good faith that no such insufficiency exists, the municipality shall immediately cause proper danger signals to be placed to warn persons by day or night of such insufficiency, and shall, within 72 hours thereafter, develop a plan for repairing such highway, bridge, or sidewalk and shall implement such plan in good faith and with reasonable dispatch until the highway, bridge, or sidewalk is no longer insufficient as defined by RSA 231:90.II.

II. If the municipality fails to act as set forth in paragraph I, it shall be liable in damages for all personal injury or property damage proximately caused by the insufficiency identified in the notice, subject to the liability limits under RSA 507-B:4.

RSA 231:92 Liability of Municipalities; Standard of Care

I. A municipality shall not be held liable for damages in an action to recover for personal injury or property damage arising out of its construction, maintenance, or repair of public highways and sidewalks constructed thereupon unless such injury or damage was caused by an insufficiency, as defined by RSA 231:90, and;

(a) The municipality received a written notice of such insufficiency as set forth in RSA 231:90, but failed to act as provided by RSA 231:91; or

(b) The selectmen, mayor, or other chief executive official of the municipality, the town or city clerk, any on-duty police or fire personnel, or any officers responsible for maintenance and repair of highways, bridges, or sidewalks heretofore had actual notice or knowledge of such insufficiency, by means other than written notice pursuant to RSA 231:90, and were grossly negligent or exercised bad faith in responding or failing to respond to such actual knowledge; or

(c) The condition constituting the insufficiency was created by an intentional act of a municipal officer or employee acting in the scope of his official duty while in the course of his employment, acting with gross negligence, or with reckless disregard of the hazard.

II. Any action to recover damages for bodily injury, personal injury or property damage arising out of municipal construction, repair or maintenance of its public highways or sidewalks constructed on such highways shall be dismissed unless the complaint describes with particularity the means by which the municipality received actual notice of the alleged insufficiency, or the intentional act which created the alleged insufficiency.

III. The acceptance or layout of a private road as a public highway shall not be construed to confer upon the municipality any notice of, or liability for, insufficiencies or defects which arose or were created prior to such layout or acceptance.

IV. The setting of construction, repair, or maintenance standards or levels of service for highways and sidewalks by municipal officials with responsibility therefor, whether accomplished formally or informally, shall be deemed a discretionary, policy function for which the municipality shall not be held liable in the absence of malice or bad faith.

RSA 231:92-a Snow, Ice and Other Weather Hazards

Notwithstanding RSA 231:90-92, a municipality shall not be held liable for damages arising from insufficiencies or hazards on public highways, bridges, or sidewalks, even if it has actual notice or knowledge of them, when such hazards are caused by snow, ice, or other inclement weather, and the municipality's failure or delay in removing or mitigating such hazards is the result of its implementation, absent gross negligence or reckless disregard of the hazard, of a winter or inclement weather maintenance policy or set of priorities adopted in good faith by the officials responsible for such policy; and all municipal employees and officials shall be presumed to be acting pursuant to such a policy or set of priorities, in the absence of proof to the contrary.

RSA 231:93 When Municipalities Not Liable

Municipalities shall not be deemed to have any duty of care whatsoever with respect to the construction, maintenance, or repair of class I, III, III-a or VI highways, or state maintained portions of class II highways. Upon any highway or other way with respect to which a municipality is found to have a duty of care of any kind, its liability shall be limited as set forth in this subdivision.

A Sample "Hazard Documentation Form" is provided on page 7. As indicated from the above laws, documentation of known hazards and their resolution are essential to defend a liability claim or court case.
Hazard Documentation Form

Hazard Location: ________________________________________________________________

Hazard Description: ___________________________________________________________

____________________________________________________________________________

Reported by: ___________________________ Address: ____________________________
Date: _________________________________
Time: _________________________________
How: _________________________________ Phone: ______________________________

Investigation Date: _____________________ By: _________________________________

Findings: ________________________________________________________________

____________________________________________________________________________

Initial Conclusion: __ Insufficiency Exists (Re: RSA 231:90.II) __ Insufficiency Does Not Exist

Supplemental Report Prepared By: ______________________________________________
It's location: __________________________________________________________________

If an insufficiency exists, a plan for repair must be developed within 72 hours of receipt of the written notice. Once developed, the plan must be implemented with reasonable dispatch.

Recommended Corrective Action: ______________________________________________

____________________________________________________________________________

Danger Signals: __ Necessary __ Not necessary

Type Installed: ________________________________________________________________

When: ___________________________ By: ______________________________

Other Temporary Action(s):
____________________________________________________________________________

When: ___________________________ By: ______________________________

____________________________________________________________________________

Permanent Action Taken:
____________________________________________________________________________

When: ___________________________ By: ______________________________

Reviewed by: __________________________ Date: ____________________________

page 7
1995 Snow Plow & Motorgrader Rallies

New Hampshire Municipal Association Property Liability Trust Emphasizes Safe Equipment Operation

The 1995 Final Snow Plow & Motorgrader Rally was held on September 27th at the Hopkinton Fairgrounds. This was the tenth year for the snow plow rally and the first year the motorgrader event was held. Participants in the Final Snow Plow Rally were the drivers who scored (overall) first, second, or third in the three Regional Events. Over 140 people participated in the Regionals. Twenty-six people participated in the Motorgrader Rally. Fun was had by all with safety as the theme of all events.

US Savings Bonds and trophies were given out to all drivers winning first, second, and third in all categories, at both the final and Regional Rallies. Grappone and HP Fairfield donated equipment for the event and the New Hampshire Road Agents Association participated by officiating.

The winners of the final event are pictured below, the overall winners of the regional Plow Rally events were: Dover: Marc St. Pierre, Ken Henderson (Rochester); Lancaster: Chris McCormack, Joe Fagnant (Plymouth); and Swanzey: Rod Forward, Raymond Swift (Hanover).

The Winners of the Finals at the Snow Plow Rally were: (L-R) Raymond Swift and Rod Forward, of Hanover. Mike Chase, also of Hanover, took first in the Motorgrader Rally. All three won an all expense paid trip to the Colorado Snow and Ice and Equipment Conference in Estes Park, Colorado where they will compete in the National Championship Plow and Grader Rallies. In Colorado, the NH Plow Team came in 7th out of the 55 teams participating and the NH Motorgrader operator came in 6th out of the 44 teams participating.

The Plow Rally Traveling Team Members: (L-R) Linda Pandolfi, Brandy Jacobs, Pam Fecteau, Mike Fanny, Scott Weden, Dave Crane, and Dave Higgins. Missing from the photo: Ken Ward, David Chapman, and Bruce Sartwell.
PUBLICATIONS
from the
University of New Hampshire Technology Transfer Center

Copies of the following books or pamphlets are available through the UNH T² Center. You can request them by mail or telephone. If by mail, follow the instructions below. To request by telephone, call (603) 862-2826 or, in New Hampshire, (800) 423-0060.

Controlling Nonpoint Source Runoff Pollution from Roads, Highways, and Bridges. Published by the EPA in August 1995. A fact sheet (the first in a series) produced by the EPA and APWA to improve knowledge about and efforts to control runoff pollution from roadways and construction activities.

A Guide for Erecting Mailboxes on Highways. General principals and guidelines covering location, mail stop and mailbox location, mail stop design, and mailbox support and attachment design.

Handbook of Successful Supervision. Intended for use by persons who carry out the responsibilities of local government supervisors.

Maintenance of Small Traffic Signs. A guide for street and highway maintenance personnel. 37 pages. Covers:
- Importance of Maintaining Small Traffic Signs
- Repair and Replacement of Sign Panels
- Repair and Replacement of Sign Supports
- Materials and Equipment to Maintain Small Traffic Signs.


"Errata Sheets"--Editorial changes to MUTCD Part VI. Please specify which version.

ATSSA version (5 1/2" x 8 1/2"")

FHWA version (8 1/2" x 11")

The Salt Storage Handbook. A practical guide for storing and handling deicing salt. Published by the Salt Institute.

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

To Request Material by Mail

Check the items you would like to have. Fill in your name, address, and other information. Cut out this page, fold so the UNH T² Center Address is on the outside, staple closed, and mail.

Name

Address

Address

NH

Town

Zip

Position

Organization:

Private:

Federal:

State:

Local:

Academic:

Other
VIDEOS
from the
University of New Hampshire Technology Transfer Center

The following videos are available from the UNH T²Center Video Library. You may take the videos out for a two week period, there is no charge. To request by mail, check the videos you would like to have, fill out the mail request form on page 9, staple closed, and mail. To request by telephone, call (603) 862-2826 or (800)423-0060 (in NH).

___ Catalog. UNH T²Center Video Loan Program.

___ DC-212, Effective Snow Fences. Designed specifically for technical and operational staff, this film demonstrates the key elements of snow fences.

___ DC-226, Tort Liability Course. Filming of a course on tort liability. Presents examples of actual court cases, and how to conduct the battle for the prevention of tort liability.

___ DC-244, Effective Snow Fences, Benefits of Snow Fences. Collector type fences are shown and their storage of snow.

___ M-234, Patching Unpaved Roads. Eight step procedure that provides a long lasting repair. Shows proper maintenance practices for preparing the hole, filling it with granular material, and compacting the materials are detailed.

___ M-245, Snow Plowing and Sanding Techniques. Basic snow plowing and sanding techniques used in snow and ice control.

___ M-248, White Gold. Emphasizes the proper selection and operation of snow equipment. Discusses the advantages and limitations of various type of equipment, plows, and blades.

___ M-272, Snowfighting From A to Z. Demonstrates the snowfighter's job and what it takes to properly keep the roads up and running. Compares the use of salt versus abrasives on the road. Details the history of salt along with it's many uses.

___ M-285, Response to Winter. Discusses the ordering of roadways in the priority of plowing and discusses the levels of service roadways receive.

___ ST-206, Let Your Safety Show. Discusses the need for positive guidance on roadways and the Federal funds that are available for improving and constructing safe roads and minimizing tort liability suits.

___ ST-222, Mailboxes May be Hazardous to Your Health. Demonstrates mailbox crash tests to show the dangers of non-regulatory mailboxes.

___ ST-234, Safety Restoration During Snow Removal. Addresses maintenance and safety issues as they apply to post-storm cleanup.

___ ST-235, Chainsaw Safety. Demonstrates the do's and don'ts of chainsaw operation.

___ ST-246, Road Weather Service. Discusses the use of a weather service network to access the conditions (weather) of roads.
What Price Metric Conversion of Traffic Signs?

Federal Highway Administration Studying Options and Costs

While all other metric conversion mandates for federally-funded projects will likely meet the September 30, 1996, federal deadline, converting highway signs to metric has been exempted until further consideration. No specific date has been established for metric sign conversion in FHWA's Metric Conversion Plan, and Congress continues to prohibit use of federal money for metric signs.

To evaluate the costs involved, the Federal Highway Administration has engaged a consultant to conduct a study. Decisions relating to conversion will be reevaluated after 1996, and will consider this study. Once data have been compiled, cost estimates will be prepared for several metric sign conversion options. The options are as follows:

Option #1: Routine replacement

Signs and milepost markers would be changed from USCS (United States Customary System) to metric units as the existing USCS-unit signs wear out. The consultant will calculate the average replacement life for regulatory, warning, and guide signs. This average life may vary considerably by state or region of the country due to state policies or climatic conditions. The cost involved in this option would reflect the average annual replacement costs plus additional costs due to the need to use wider panels or the earlier wholesale replacement of milepost markers. Exit numbering conversion to match kilometer markers would also reflect possible cost differential.

Option #2: Variation of routine replacement option

All speed limit signs would be overlaid in a three-month period, and all distance signs would be replaced with metric units as the USCS-unit signs wear out. All height and weight clearance signs would be dual posted. Again, kilometer post markers conversion and companion exit numbering would have to be estimated based on some point in time or short interval in time. Speed advisory plates on warning signs would also likely be converted as soon as possible after the speed limit signs to reduce the time of confusion for the traveling public. Cost estimates will consider the 3-digit metric legend for speed signs in excess of 60 mph.

Option #3: Quick change

All speed and distance signs, and interchange numbers, would be changed from USCS to metric units in a short period of time (e.g., six months) by overlaying metric units on the USCS units of existing signs. The overlay would be manufactured from retroreflective sheeting material using the same background and copy colors as used on the existing signs. In general, the overlay on speed limit signs would be the size required to cover the speed limit number on the existing signs and include, below the equivalent metric speed limit number, the unit "km/h." On distance signs, the overlay would be the size required to cover the distance number on the existing signs and include the equivalent metric number with the unit "km." The cost of converting speed limit signs using the quick change option will be determined and shown separately. Also, milepost markers would be changed to kilometer post markers.

Option #4: Variation of the quick change option by highway type

All Interstate and other freeway and expressway signs would be converted during a short (e.g., one-month) period. Next, all principal arterial signs would be converted during a short (e.g., two-month) period. Then, all collector signs would be converted during a short (e.g., three-month) period. Signs on all local roads and streets would be converted as they wear out. Replacement time for local road signs would likely be determined based on local government input.

Option #5: Dual posting

A metric unit equivalent sign or portion of a sign would be placed adjacent to all USCS-unit distances. On speed limit indications, a new sign with metric units would be placed adjacent to an existing USCS-unit speed limit sign. On distances, a new larger sign may be required or an overlay may be sufficient or, possibly, a panel added to an existing sign may be used. After the dual-posted signs wear out, they would be replaced with metric-only signs. Mileposts would be converted to kilometer posts when distance signs read only in metric units.

Option #6: International signs

The international design of speed limit signs would be adopted requiring all new sign panels.

Source

Article adapted with permission from APWA Reporter, August 1995, p. 22.
Road Business
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UNH $^2$ Center Staff
David H. Fluharty Manager
Charles H. Goodspeed University Liaison
Kathy DesRoches Administrative Assistant

Timber Bridge Grants
U.S. Forest Service
New projects for commercializing timber bridge manufacturing. Funding up to $150,000
Vehicular Bridges. Funded up to $50,000.
Pedestrian Bridges. Funded up to $10,000.
All require a 50% local match.
Proposal Deadline: December 6, 1995
For a complete grant application package, contact:
North Country RC&D
127 Highland Street
Plymouth NH 03264-1240
Voice: 603-536-2146
Fax: 603-536-2976

Calendar
By Others

CDL Drug and Alcohol Testing

November 28 Keene
November 29 Portsmouth
December 5 Lancaster
December 7 North Conway
December 11 Concord

Co-sponsored by Compensation Funds of New Hampshire and NHMA Property Liability Trust. For information and reservations call Michelle Pratt at 800-698-2364.

By UNH $^2$ Center

Dates and locations are being arranged for the following workshops. Look for flyers describing them.

January 17 Telecourse: Steven Covey's 7 Habits of Highly Successful People
January ?? Road Drainage Basics
February ?? Spring Road Use Restrictions
March ?? Can You Dig It? Trenching techniques, Wetlands Permits, and Digsafe
March 17 Telecourse: Emergency Preparedness for Public Works
March 19 Cold-Mix Asphalt Applications

Additional Spring Topics Planned
Introduction to Computers
Road Surface Management System: New Users
Road Surface Management System: Experienced Users
Municipal Equipment Management System: New Users
Municipal Equipment Management System: Experienced Users
Supervision and Personal Development
Maintenance and Grading of Unpaved Roads
Work Zone Traffic Control
Bridge Maintenance and Inspection

Additional CDL Drug and Alcohol Testing Service Providers
The Labey-Hitchcock Clinics were not listed in last issue of Road Business. Their locations and phone numbers are -

<table>
<thead>
<tr>
<th>Location</th>
<th>Phone Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Merrimack</td>
<td>424-0147</td>
</tr>
<tr>
<td>Concord</td>
<td>229-5125</td>
</tr>
<tr>
<td>Keene</td>
<td>355-3720</td>
</tr>
<tr>
<td>Manchester</td>
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