Former NH T²Center Director
John Anderson

On The Road In New Hampshire

John Anderson departs New Hampshire for Pennsylvania

Since establishing the New Hampshire Technology Transfer Center in 1986, John Anderson has traveled the roads of New Hampshire serving its local roads managers. In October John became the head of a similar, and much larger, organization in Pennsylvania.

Hired as the NH T²Center Director with only a proposal for guidance, John applied his management skills and creativity to develop it into a major contributor to local road management. The products of his skill and dedication have been recognized nationally as well as throughout New Hampshire. The following describes only some of his many accomplishments.

John established this newsletter, serving as its principal reporter as well as its editor and publisher. During the seven years of his leadership, the New Hampshire T²Center has sponsored and arranged numerous workshops on a wide range of topics: managing people, motor grader training, winter operations, work zone safety, geotextiles, timber bridges. The list goes on and on.

He became extremely proficient in computer operations, and expanded that self-taught knowledge to coordinate the development of several computer programs: the Road Surface Management Program (RSMS), the Municipal Equipment Management Program (MEMS), and the soon to be released Sign Inventory Management Program. John managed the distribution of RSMS and MEMS, and developed and coordinated training programs to enable their use in over forty New Hampshire municipalities and in other states.

Six years ago John created the Mountain of Demonstrations, a day of static displays and working demonstrations of equipment, materials, and construction methods related to municipal roads. Twenty-five people attended the

Readers: Give Us Your Wish List

Survey featured in this newsletter

To effectively plan for 1994 and beyond, we at the NH T²Center must ensure that we focus on the needs and desires of our primary clients — municipal officials responsible for New Hampshire's local roads. And what better way than to have such people tell us what they need and want? If you have responsibilities for some aspect of local road management, we would appreciate your completing the survey which begins on page 3. If you supervise the responsible individuals, please ask them to complete it.

continued on p. 2

ALSO IN THIS ISSUE

Conversion of U.S. Highways to Metric ....... 2
Local Roads Needs Assessment Survey ....... 3

continued on p. 2
CONVERSION OF U.S. HIGHWAYS TO METRIC

Affects Local Road Design and Construction, and Signs

National and state governments are converting U.S. highways to the metric system. Although mandated for all direct federal and federal-aid highway construction by 1996, local road managers and their municipalities will have to convert as well. State codes and design and construction practices follow national codes and practices, and local codes and practices follow their respective state's. Motorists will insist that signs on local roads conform to those used on federal and state highways. In other words, national and state decisions made during their state transitions to metric will ultimately impact those responsible for local roads.

The following is a summary of conversion process features which will likely affect local road management.

Highway Design and Construction

The Federal Highway Administration (FHWA) is attempting an orderly conversion from United States Customary System (USCS) to Systeme International (SI) to ensure that all direct federal and federal-aid construction contracts be in metric units by September 30, 1996. Because of the long lead times required for highway design and construction, planning for 1996 projects is already underway. The FHWA is therefore attempting to notify states and others of the metric conversion that will be required.

Part of that notification process includes the FHWA's issuance of an "interim final rule" in which it adopts the AASHTO "Interim Selected Metric Values for Geometric Design." That publication includes metric values covering design speed, running speed, lane width, shoulder width, vertical clearance, certain clear zones, curb heights, definition of high speed/low speed highways, continued from p. 11

Give Us Your Wish List

continued from p. 1

Local Road Managers and Related Individuals: With your needs incorporated into our planning, you should benefit directly from our services. The time investment is small -- in pretests nearly all respondents completed the survey in less than twenty-five minutes.

All replies will be processed to ensure confidentiality. Only when respondents request information about our services will TCenter staff note the identity of a particular individual. In any published results no one will be able to connect any information with a particular individual or municipality.

After completing the survey, please mail it in the enclosed postage-paid, pre-addressed envelope. Should the envelope become misplaced, please mail the survey to

Technology Transfer Center
236 Kingsbury Hall
Department of Civil Engineering
University of New Hampshire
Durham NH 03824-3591

If you have any questions about the survey, call Dave at (800) 423-0060 (NH only) or (603) 862-2826.

1993 Road Scholars

<table>
<thead>
<tr>
<th>Scholar</th>
<th>Municipality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thomas Plourde</td>
<td>Mont Vernon</td>
</tr>
<tr>
<td>Timothy Fiske</td>
<td>Temple</td>
</tr>
<tr>
<td>Thomas Woodley</td>
<td>Hemmiker</td>
</tr>
<tr>
<td>James Wilson</td>
<td>Northwood</td>
</tr>
<tr>
<td>Kenneth Fletcher</td>
<td>Washington</td>
</tr>
<tr>
<td>E. Douglas Barnard</td>
<td>Concord</td>
</tr>
<tr>
<td>Bruce Tarro</td>
<td>Keene</td>
</tr>
<tr>
<td>Wesley Staples</td>
<td>Westmoreland</td>
</tr>
<tr>
<td>Richard Hauger</td>
<td>Hanover</td>
</tr>
<tr>
<td>Robert Kline</td>
<td>Lebanon</td>
</tr>
<tr>
<td>John Ruest</td>
<td>Brentwood</td>
</tr>
<tr>
<td>Richard St. Hilaire</td>
<td>Kingston</td>
</tr>
<tr>
<td>Ernest Nason</td>
<td>Wakefield</td>
</tr>
</tbody>
</table>

CONGRATULATIONS!
LOCAL ROADS NEEDS ASSESSMENT SURVEY

We greatly appreciate your completing this survey. The information will enable the UNH T²Center to plan effectively and to update records, and enable you to request information about T²Center services.

After completing the survey, remove it from the newsletter and mail it in the enclosed envelope. If you have any questions please call Dave at the T²Center [(800) 423-0060 (NH only) or (603) 862-4348].

SOURCES OF INFORMATION

Where do you USUALLY seek information? (Check all that apply.)

___ Other Road Agents or Public Works Directors.
___ State DOT staff.
___ Hired consultants.
___ Private Vendors.
___ Periodicals from Professional Associations.
___ UNH Technology Transfer Center.
___ Other (specify) ______________________
___ Other (specify) ______________________

MOTOR GRADER OPERATOR TRAINING

What are your needs for motor grader operator training? not slightly moderately greatly
needed needed needed needed

If NOT NEEDED, go to the next page;
If NEEDED answer the questions below.

How likely is your employer to pay your motor grader operator’s salary while he or she attends a 2-day long training program?

<table>
<thead>
<tr>
<th>Very Likely</th>
<th>Likely</th>
<th>Neither</th>
<th>Unlikely</th>
<th>Very Unlikely</th>
</tr>
</thead>
</table>

How likely is your employer to pay your motor grader operator’s salary while he or she attends a 1-day long training program?

<table>
<thead>
<tr>
<th>Very Likely</th>
<th>Likely</th>
<th>Neither</th>
<th>Unlikely</th>
<th>Very Unlikely</th>
</tr>
</thead>
</table>

Which of the following is the MOST your municipality is likely to pay in training fees for two-day motor grader operator training?

<table>
<thead>
<tr>
<th>$0</th>
<th>$10</th>
<th>$20</th>
<th>$30</th>
<th>$40</th>
<th>$50</th>
</tr>
</thead>
<tbody>
<tr>
<td>$75</td>
<td>$100</td>
<td>$125</td>
<td>$150</td>
<td>$175</td>
<td>$200</td>
</tr>
</tbody>
</table>
TRAINING PROGRAMS

Using the values from the scale below, indicate your needs, or those of your subordinates, for future training program topics.

<table>
<thead>
<tr>
<th>least</th>
<th>--</th>
<th>--</th>
<th>--</th>
<th>--</th>
<th>--</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>most prefer</th>
</tr>
</thead>
<tbody>
<tr>
<td>prefer</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>10</td>
<td>prefer</td>
</tr>
</tbody>
</table>

- Paved roads -- Design
- Paved roads -- Construction
- Paved roads -- Inspection
- Paved roads -- Signing
- Paved roads -- Winter
- Paved roads -- Maintenance
- Paved roads -- Materials
- Unpaved roads -- Design
- Unpaved roads -- Construction
- Unpaved roads -- Inspection
- Unpaved roads -- Signing
- Unpaved roads -- Winter
- Unpaved roads -- Maintenance
- Unpaved roads -- Materials
- Bridges -- Design
- Bridges -- Construction
- Bridges -- Inspection
- Bridges -- Maintenance
- Bridges -- Materials
- Bridges -- Winter
- Drainage -- Design
- Drainage -- Construction
- Drainage -- Inspection
- Drainage -- Maintenance
- Drainage -- Materials
- Drainage -- Winter
- Equipment -- Products
- Equipment -- Inspection
- Equipment -- Management
- Equipment -- Operations (other than motor graders)
- Equipment -- Maintenance
- Equipment -- Purchasing
- Work Zone Safety
- Other Job Safety
- Traffic Control
- Tort Liability
- Computers -- Operating
- Computers -- Purchasing
- Computers -- Software
- Managing People
- Communications Skills
- Personal Relations Skills
- Conflict Resolution Skills
- Planning
- Budgeting
- Report Preparation

What specific training program would you recommend we develop? ____________________________________________________________

Considering your own schedule, which month or months are generally the best for you to attend training programs? (Check all that apply.)

<table>
<thead>
<tr>
<th>January</th>
<th>April</th>
<th>July</th>
<th>October</th>
</tr>
</thead>
<tbody>
<tr>
<td>February</td>
<td>May</td>
<td>August</td>
<td>November</td>
</tr>
<tr>
<td>March</td>
<td>June</td>
<td>September</td>
<td>December</td>
</tr>
</tbody>
</table>

Considering your own schedule, which days of the week are generally best for you to attend training programs? (Check all that apply.)

<table>
<thead>
<tr>
<th>Monday</th>
<th>Wednesday</th>
<th>Friday</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tuesday</td>
<td>Thursday</td>
<td></td>
</tr>
</tbody>
</table>
Which of the following locations are generally the best for you to attend training programs? (Check all that apply.)

- Manchester
- Concord
- Meredith
- Nashua
- Keene
- Lebanon
- Berlin
- Conway
- Pease AFB

Considering your own schedule, how likely are you to attend a 2-day long training program?

<table>
<thead>
<tr>
<th>Very Likely</th>
<th>Likely</th>
<th>Neither</th>
<th>Unlikely</th>
<th>Very</th>
<th>Unlikely</th>
</tr>
</thead>
</table>

Considering your own schedule, how likely are you to attend a 1-day long training program?

<table>
<thead>
<tr>
<th>Very Likely</th>
<th>Likely</th>
<th>Neither</th>
<th>Unlikely</th>
<th>Very</th>
<th>Unlikely</th>
</tr>
</thead>
</table>

Considering your own schedule, how likely are you to attend a 1/2-day long training program?

<table>
<thead>
<tr>
<th>Very Likely</th>
<th>Likely</th>
<th>Neither</th>
<th>Unlikely</th>
<th>Very</th>
<th>Unlikely</th>
</tr>
</thead>
</table>

How likely is your employer to pay your salary while you attend a 2-day long training program?

<table>
<thead>
<tr>
<th>Very Likely</th>
<th>Likely</th>
<th>Neither</th>
<th>Unlikely</th>
<th>Very</th>
<th>Unlikely</th>
</tr>
</thead>
</table>

How likely is your employer to pay your salary while you attend a 1-day long training program?

<table>
<thead>
<tr>
<th>Very Likely</th>
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<th>Neither</th>
<th>Unlikely</th>
<th>Very</th>
<th>Unlikely</th>
</tr>
</thead>
</table>

How likely is your employer to pay your salary while you attend a 1/2-day long training program?

<table>
<thead>
<tr>
<th>Very Likely</th>
<th>Likely</th>
<th>Neither</th>
<th>Unlikely</th>
<th>Very</th>
<th>Unlikely</th>
</tr>
</thead>
</table>

Which of the following is the MOST your municipality would pay in training fees for a one-day training program?

<table>
<thead>
<tr>
<th>$0</th>
<th>$10</th>
<th>$20</th>
<th>$30</th>
<th>$40</th>
<th>$50</th>
</tr>
</thead>
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<tr>
<td>$75</td>
<td>$100</td>
<td>$125</td>
<td>$150</td>
<td>$175</td>
<td>$200</td>
</tr>
</tbody>
</table>
NEWSLETTER

Do you regularly receive, or have access to, *Road Business*, the quarterly TCE Center Newsletter? Yes __ No __

If NO, would you like to be on the mailing list? Yes ___ No ___

If YES, how often do you read *Road Business*?

<table>
<thead>
<tr>
<th>Always</th>
<th>Frequently</th>
<th>Sometimes</th>
<th>Never</th>
</tr>
</thead>
</table>

Whether YES OR NO, use the values from the scale below to indicate your preference for future article topics.

<table>
<thead>
<tr>
<th>least</th>
<th>prefer</th>
<th>--</th>
<th>--</th>
<th>--</th>
<th>--</th>
<th>--</th>
<th>--</th>
<th>most prefer</th>
<th>prefer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motor Grader Operations</td>
<td>Drainage -- Maintenance</td>
<td></td>
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<tr>
<td>Paved roads -- Design</td>
<td>Drainage -- Materials</td>
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<tr>
<td>Paved roads -- Construction</td>
<td>Drainage -- Winter</td>
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<tr>
<td>Paved roads -- Inspection</td>
<td>Equipment -- Products</td>
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<tr>
<td>Paved roads -- Signing</td>
<td>Equipment -- Inspection</td>
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<tr>
<td>Paved roads -- Winter</td>
<td>Equipment -- Management</td>
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<tr>
<td>Paved roads -- Maintenance</td>
<td>Equipment -- Operations</td>
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<tr>
<td>Paved roads -- Materials</td>
<td>Equipment -- Maintenance</td>
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<tr>
<td>Unpaved roads -- Design</td>
<td>Equipment -- Purchasing</td>
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<tr>
<td>Unpaved roads --- Construction</td>
<td>Work Zone Safety</td>
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<tr>
<td>Unpaved roads -- Inspection</td>
<td>Other Job Safety</td>
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<tr>
<td>Unpaved roads -- Signing</td>
<td>Traffic Control</td>
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<tr>
<td>Unpaved roads -- Winter</td>
<td>Tort Liability</td>
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<tr>
<td>Unpaved roads -- Maintenance</td>
<td>Computers -- Operating</td>
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<tr>
<td>Unpaved roads -- Materials</td>
<td>Computers -- Purchasing</td>
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<tr>
<td>Bridges -- Design</td>
<td>Computers -- Software</td>
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<td>Bridges -- Construction</td>
<td>Managing People</td>
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<tr>
<td>Bridges -- Inspection</td>
<td>Communications Skills</td>
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<tr>
<td>Bridges -- Maintenance</td>
<td>Personal Relations Skills</td>
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<tr>
<td>Bridges -- Materials</td>
<td>Conflict Resolutions Skills</td>
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<tr>
<td>Bridges -- Winter</td>
<td>Planning</td>
<td></td>
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<tr>
<td>Drainage -- Design</td>
<td>Budgeting</td>
<td></td>
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<tr>
<td>Drainage -- Construction</td>
<td>Report Preparation</td>
<td></td>
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</tr>
</tbody>
</table>

What specific topics, if any, would you like to see in upcoming issues? ____________________________________________

________________________________________________________

What suggestions do you have, if any, for improving *Road Business*? ____________________________________________

________________________________________________________
ROAD SURFACE MANAGEMENT SYSTEM (RSMS)

Do you currently use, or have you used, RSMS? Yes ____ No ____

If NO, why not? __________________________________________

Would you like us to send you information about it? Yes ____ No ____

If YES, who conducts the surveys? ________________________________

Who enters the data into the computer? ____________________________

Who analyses the data? _________________________________________

Who uses the results, and how? __________________________________

How would you evaluate the ease or difficulty of learning how to use RSMS?

<table>
<thead>
<tr>
<th>Very Difficult</th>
<th>Difficult</th>
<th>Neither</th>
<th>Easy</th>
<th>Very Easy</th>
</tr>
</thead>
</table>

After learning, how would you evaluate the ease or difficulty of using RSMS?

<table>
<thead>
<tr>
<th>Very Difficult</th>
<th>Difficult</th>
<th>Neither</th>
<th>Easy</th>
<th>Very Easy</th>
</tr>
</thead>
</table>

What recommendations, IF ANY, do you have for improvement of RSMS?

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
MUNICIPAL EQUIPMENT MANAGEMENT SYSTEM (MEMS)

Do you currently use, or have you used, MEMS?  
Yes ___  No ___

If NO, why not?  

Would you like us to send you information about it?  
Yes ___  No ___

If YES, who conducts the surveys?  

Who enters the data into the computer?  

Who analyses the data?  

Who uses the results, and how?  

How would you evaluate the ease or difficulty of learning how to use MEMS?

<table>
<thead>
<tr>
<th>Very Difficult</th>
<th>Difficult</th>
<th>Neither</th>
<th>Easy</th>
<th>Very Easy</th>
</tr>
</thead>
</table>

After learning, how would you evaluate the ease or difficulty of using MEMS?

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<thead>
<tr>
<th>Very Difficult</th>
<th>Difficult</th>
<th>Neither</th>
<th>Easy</th>
<th>Very Easy</th>
</tr>
</thead>
</table>

What recommendations, IF ANY, do you have for improvement of MEMS?

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
RECORDS UPDATE

To conclude this survey, we ask for information about you and your municipality. Be assured that all information given is completely confidential. Except for specific requests for our service, neither your name nor your municipality will be identified with any individual responses.

Your name: ________________________________ Are you:

Address: ________________________________  __ less than 25 years old

__________________________________________________________________________

__________________________________  __ 26-35 years old

__________________________________  __ 36-45 years old

__________________________________  __ 46-55 years old

__________________________________  __ above 55 years old

What is your principal position?  Where? ________________________________

___ Road Agent  (Municipality)

___ Public Works Director or Manager

___ Highway Engineer

___ Foreman

___ Crew Member

___ Other (specify) ________________________________

Were you appointed or elected to your current position?

Appointed ______  Elected ______

What are your specific responsibilities with regard to local roads?

__________________________________________________________________________

__________________________________________________________________________

__________________________________________________________________________

Estimate of miles of roads  Residential  Residential  Rural  Rural

Paved: _____  Gravel: _____  Paved: _____  Gravel: _____

What are the occupations and numbers of the people who maintain the roads in your municipality? (Include yourself first.)

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Number</th>
<th>Occupation</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>

In addition to maintaining and repairing local roads, what responsibilities do you have in your municipality?

__________________________________________________________________________

What is the title of the person you report to? ________________________________
Time in your current position: _____ years

Time in similar, previously held positions: _____ years

What experiences, in your view, have prepared you for your current position?

________________________________________________________

________________________________________________________

Are you a T²Center Roads Scholar? Yes ____ No ____

If NO, would you like to know more about the Program? Yes ____ No ____

If YES, would you recommend the program to others? Yes ____ No ____

Why or why not? __________________________________________

________________________________________________________

Have you ever borrowed video tapes from T²Center? Yes ____ No ____

If NO, would you like information about the T²Center Video Library? Yes ____ No ____

What associations do you belong to?

<table>
<thead>
<tr>
<th>Association Name</th>
<th>Not a Member</th>
<th>A Member</th>
</tr>
</thead>
<tbody>
<tr>
<td>NH Road Agents Association</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NH Public Works Association</td>
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Thank you for completing the survey. Is there anything you would like to add?

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Conversion of U.S. Highways to Metric

continued from p. 2

criteria for establishing stopping and passing sight distance, horizontal curvature, and the definition of long bridges.

The FHWA regulation took effect on January 10, 1994. They issued it as an "interim final rule" because they expect AASHTO to incorporate the guidelines into its 1994 or 1995 edition of "A Policy on Geometric Design of Highways and Street."

The FHWA officially proposed its USCS to SI conversion timetable in April, 1991. Remaining goals are to convert FHWA manuals, documents, and publications by May 1994; to complete data collection and reporting by May 1995; and to have all contracts for direct federal and federal-aid contracts in metric measurements only by September 30, 1996. It is anticipated that the FHWA will neither authorize, nor participate, in federal projects authorized by those who fail to include metric units of measurement after September 1996 (Better Roads, 1993).

AASHTO began comprehensive conversion activities in October 1991. In addition to developing metric values for design and construction, the AASHTO Task Force has addressed metrication impact regarding timing, plan submittal, and costs. Costs include (1) internal conversion, which covers manuals, specifications, and training, and (2) external conversion, which includes public awareness campaigns. The Task Force is continuing with a research project to determine the costs and benefits to states and local governments, and will issue a report soon to assist these entities in their conversion efforts.

Signs

The conversion of highway sign messages to metric units has been a contentious issue for years. After it mandated conversion to metric units, the federal government prohibited using any federal funds for changing the signs to metric. ISTEA repealed that prohibition, and now allows the federal government to reimburse states, at the appropriate pro-rata share, for funds they spend to convert signs to metric. According to the National Association of County Engineers,

This policy flip-flop has confused almost everyone in the highway industry and has made the inevitable conversion to the metric system anything but smooth. (Perry, 1993)

The degree to which funds will be available to municipalities is even less clear. The policy on conversion method is also not yet clear. FHWA is currently considering three options for the transition to metric message signs. It should be noted that FHWA considerations include education of the public as well as cost to implement.

Option 1 -- Conversion through Routine Maintenance. States and local highway agencies would replace USCS unit signs as they wear out with SI unit signs. If this option is selected the FHWA would allow each jurisdiction to design its own replacement plan, but would require all signs be replaced within four to seven years. The FHWA expects this option would keep costs to a minimum, at least initially. Although public education programs would probably be used, the FHWA anticipates that they could not fully compensate for the motoring public's confusion during the period concurrent use.

Option 2 -- Quick Conversion. The federal government would encourage conversion of all signs over a relatively short period, possibly six months or one year. The FHWA cites the successful implementation of the 55 mph speed limit in 1974 as an example of how this type of effort might work. This method would require a minimum installation of new signs, or the relocation of existing ones. Only the parts of existing signs that display USCS units would be replaced with overlays. An alternative method would have agencies replace messages by the type of sign -- e.g., speed limits first, then distances -- probably using dual messages. FHWA argues that a short implementation period may prove to be the least disruptive and most effective method of conversion.

Option 3 -- Transition with Dual USCS and SI. The federal government would encourage the posting of both USCS and SI unit message signs through 1996, followed by a phase out of the USCS unit signs. This option is probably the most expensive because of the need for additional sign panels, support posts, or whole signs. The FHWA expects this option to have little educational effect because motorists would tend to ignore the SI signs and rely on the USCS signs.

Whichever option is selected, the FHWA will require it for federal highways, and encourage states to comply for theirs. It appears likely that policy selection will be driven largely by costs expected to be incurred by federal and state governments. It also appear likely that federal policy makers, rather than deal directly with the cost effects on municipalities, will leave policies for local road metric sign conversion to the individual states.

Stay Tuned

The NH TCenter will continue to monitor FHWA and NHDOT decisions, and communicate them to local road managers in subsequent issues of Road Business. If readers wish specific information, including copies of the sources cited below, please call the TCenter (800) 423-0060 (NH only) or (603) 862-2826. The TCenter also has a limited number of FHWA's "SI Metric-English Converter" slide rules available for distribution.

Sources:


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