

Crossroads

Fall 2002



TRANSPORTATION Information Center — LTAP

University of Wisconsin—Madison

Think snow. Update your winter maintenance plans

September is the time many agencies begin their winter preparations. It may seem early, but it is actually late if you want to make any significant changes to your policies, equipment or operations.

Start by reviewing last winter's operations. What went well? Where did you have problems? If last winter was mild, don't let it lull you into complacency.

Next, think about what will be different this winter. Do you have any new people, or people in new jobs? How about new equipment? Are there any changes in your road system that could impact your plowing or spreader routes? Have you changed any traffic or parking ordinances or did you log public complaints that may merit a change? Will the budget allow you to operate in the same way, or will modified staffing or overtime require changes? What are your plans for major storms? Have you arranged for back-up equipment from contractors or planned with other agencies for assistance? Who has authority to close roads

due to severe driving conditions and how do you communicate this to the public?

After reviewing operations and updating your procedures, it is time to communicate with your staff and your winter partners. Review your plans with the other organizations that work with you — law enforcement and emergency services, other public works departments, and your neighboring road maintenance agencies. Don't forget local schools and major employers. They all need to know what will be the same and what you may be changing. It is helpful to update contact names, cell phone numbers, etc.

Law enforcement staff can be your best partners or can cause you challenges. They are your eyes for much of the winter and should be able to help in spotting poor road conditions. They can work to control and educate the driving public and can provide traffic control during special road clearing operations. The wording they use in accident reports can have a bearing on liability suits.

Their help is sometimes hampered by their limited knowledge of your policies and operational limits. It is your job to keep them informed and to help them appreciate the limits of your operations. Fall coordination meetings are a good start. Some agencies have also found it helpful to invite law officers for a "ride along" in your plows. They can see first-hand the difficulties involved in plow-

ing operations and observe how vehicle drivers behave around plows.

Finally, don't forget the public and elected officials. It helps to place stories in the local media covering your plans and operations. Most winter maintenance agencies have a high level of frustration with the driving public and abutting property owners. Now is the time to communicate clearly what your agency will be doing and offer suggestions about how they can help make it a safe and cost effective year for snow removal! Even if you don't plan major changes, everyone needs to be reminded about good winter driving habits.

The T.I.C. is offering a series of practical workshops to help you prepare for and handle winter road problems. The **Winter Road Maintenance program** covers plow driving safety, use of salt and sand, and effective operations and plans. Plow and spreader equipment are highlighted this year, including what is new and what is time-tested. (See the *Calendar* on page 3 for times and locations.) The *T.I.C. Videotape Catalog* also has many videos that you can use for training and updating your operations staff (see *Resources* page 6).

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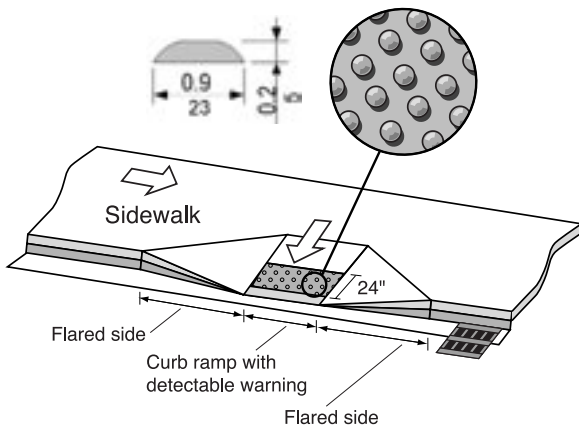
Truncated domes required on curb ramps

Crossing a street on foot can be hazardous for anyone, and more so for pedestrians who are blind or have impaired vision. Determining the best way to warn the visually impaired of a street crossing has been the subject of debate and a variety of rules and recommendations.

In 1994 the Americans with Disabilities Act Accessibility Guidelines (ADAAG) required truncated dome detectable warnings at curb ramps on new construction, but that rule was suspended while the ADA Access Board sought additional research. The requirement took effect again as of July 26, 2001, but standards are still being developed.



Truncated domes come in many styles and materials.



ADAAG defines detectable warnings as raised, truncated domes with a diameter of 0.9 inches, a height of 0.2 inches, and a center-to-center spacing of 2.35 inches. Proposed guidelines specify a top diameter of 0.4 inches and a square arrangement of the dome pattern. ADAAG also requires that the detectable surface contrast visually with adjoining surfaces, either light-on-dark or dark-on-light. The guidelines recommend a 70% contrast.

The material used to provide contrast must be integrated into the walking sur-

face and the detectable surface should extend the full width of the sidewalk. It should be 24 inches across, stopping 6-8 inches away from the curb face. WisDOT, in cooperation with FHWA, is reviewing the ADAAG requirements and design recommendations to develop standards for use in Wisconsin.

A publication, *Detectable Warnings: Synthesis of U.S. and International Practice*, thoroughly reviews the history and research on detectable warnings. It reports that objective and subjective research found truncated domes to be the only type of warning that was consistently detectable by blind pedestrians. They also found that truncated domes do not impede pedestrians with physical handicaps or shopping carts.

The report is available on the Web at <http://www.access-board.gov/publications/DW%20Synthesis/report.htm>. It also includes information on the various detectable warning surface manufacturers and the materials available as well as information on local agency experience with installation, maintenance and durability of detectable warning surfaces.

In addition, the Access Board has developed a set of Draft Guidelines for Accessible Public Rights-of-Way. The draft appeared in the June 17, 2002 *Federal Register* and the Access Board is requesting public comment until October 28, 2002.

The draft guidelines include provisions to increase the minimum width of clear pedestrian access routes to 48 inches, clarify requirements for sidewalk grade by allowing it to be as steep as the adjacent street, provide

guidelines for street furnishings, provide standards for detectable warnings, and require on-street accessible parking, with standards for the number and layout of parking spaces.

After the comment period this document will continue through the rule-making process, with some version of it eventually becoming the rule-book for accessibility in public right-of-ways. The Draft Guidelines are available on the Web at: <http://www.access-board.gov/rowdraft.htm>

Supervisors hone skills at Public Works Supervisory Academy

Many local agencies promote staff workers to supervisory positions. Frequently these new managers have no formal training in how to do the job, and the municipality has limited resources to supply the need. As a result, the community may "pay" in lower productivity from poor employee relations, dissatisfied residents, and problems with budgeting, purchasing, and general management.

"How front-line supervisors behave professionally, and their skill levels, reflect directly on the municipality," says Gregg Miller, Director of the Public Works Supervisory Academy (PWSA), in the UW-Madison Division of Continuing Studies. "I don't think people are necessarily doing it wrong, but I do believe an investment in upgrading skills pays off for both the professionals and the community."

To help meet the need, the PWSA offers training in 10 supervisory skill areas ranging from budgeting to managing troubled employees to customer/resident relations. The day-long classes meet throughout the year in Appleton, Beloit, Menomonee Falls, and West Allis.

The program started in 1997, developing out of discussions with the Wisconsin League of Municipalities

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Crossroads

This newsletter provides information on roads and bridges to local officials and is published quarterly by the Wisconsin Transportation Information Center, part of the nationwide Local Technical Assistance Program (LTAP). **Crossroads** is produced with assistance from the Federal Highway Administration, the Wisconsin Department of Transportation, and the University of Wisconsin-Extension.

Non-profit organizations are welcome to reproduce articles appearing here. Please contact us first for any updates or corrections.

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Supervisors hone skills *from page 2*

and the Wisconsin Chapter of the American Public Works Association. These organizations helped identify the skill areas and continue to review the course content jointly with the instructors and PWSA director.

Instructors are current and former city administrators; city engineers; public works directors; and consultants in municipal safety, customer/resident relations and marketing, and supervision. Many have attended Academy classes themselves.

More than 2000 people have enrolled in the PWSA since it began. Many take one or two classes, but 78 so far have completed them all, earning a certificate. "One person finished all 10 in nine months and ended up getting a promotion," Miller says.

In an informal e-mail survey last January one person reported saving \$25,000 in buying 10 trucks because of what he learned in the purchasing class. Another found that skills from the labor relations class helped him negotiate the town's first contract with a labor union.

"I have had supervisory positions before and not done as well as I thought or wanted to," said another survey respondent. "In just taking a few courses, things have really improved. This program is really the only way that I can get this training."

Check the Calendar for fall course topics, dates, and locations. There is a detailed course list on the Web at: <http://www.dcs.wisc.edu/pda/academy.htm> or call for a brochure: 608/263-2088 or 800/442-4617. New titles in the T.I.C.'s video collection can also be helpful. See Resources page 6.

Calendar

T.I.C. workshops

Specific details, locations and registration forms are sent to all Crossroads recipients nearer the date of each workshop. Registration begins after announcements are sent.

Winter Road Maintenance

Prepare for winter operations. This workshop covers developments in winter maintenance equipment, the latest on ice control materials, operations planning, and an opportunity to share experiences and tips.

Sep 23	Rhineland	Oct 1	DePere
Sep 24	Hayward	Oct 2	Brookfield
Sep 25	Eau Claire	Oct 3	Barneveld
Sep 26	Tomah		

Culvert Workshop

Update your knowledge on highway culvert replacement. Workshop addresses culvert type and size, and proper installation. Covers ways to minimize environmental impacts and discusses inventory and inspection methods for existing culverts.

Nov 12	Ashland	Dec 17	Dodgeville
Nov 13	Rice Lake	Dec 18	Kewaunee

Local Transportation Issues (ETN)

The T.I.C. and the UW Local Government Center present a series on transportation via the Educational Telephone Network (ETN) at 103 Wisconsin locations. Programs are Thursdays 10:30 a.m. to 12:20 p.m. Call 608/262-9960 for a brochure.

Right-of-Way — October 10

Review procedures for acquiring right-of-way for local road improvements: appraisal, negotiations and condemnation, deeds and easements, and determining existing right-of-way.

GASB 34 & Local Government — Nov 8

Wisconsin local governments that borrow money will be expected to have asset accounting systems that meet the require-

ments of the Government Accounting Standards Board (GASB) Rule 34. Many larger local governments are currently building inventories of their public assets including streets and utilities. Smaller governments will be starting soon. Learn about GASB 34 from three people who have "been there, done that."

Road Design Standards — January 16

Review Federal and Local Road Improvement Program (LRIP) standards for road cross-sections. Learn when exceptions to the standards may be appropriate and how to seek exceptions. Discuss how narrow streets and traditional neighborhood ordinances can coexist with the standards.

Local Transportation Funding — Feb 13

Get the latest information on state and federal funding programs for local projects. Review funding programs, hear about recent changes and discuss funding issues.

Solving Subgrade Problems — Mar 13

Pavement problems are often caused by poor subgrades. There are a variety of solutions, but selecting the most cost-effective one requires an understanding of soil mechanics and the options available. Learn some basic soils concepts and review several methods to solve subgrade problems, including soils stabilizers, undercutting and back filling with selected material, geotextiles, and improving the drainage.

UW-Madison Seminars

Local government officials are eligible for a limited number of scholarships for the following Engineering Professional Development courses, held in Madison unless otherwise noted.

Parking Lot and Site Access Design

Sep 26-27, Milwaukee

Solving Neighborhood Traffic Problems

Oct 7-8

Managing Snow and Ice Control Operations, Oct 7-8

Soil Engineering for Non-Soils Engineers and Technicians, Oct 15-16

Pavement Design, Nov 4-5

Evaluation & Rehabilitation of Pavements, Nov 6-8

Earthwork Construction Using Geosynthetics, Nov 13-14

Effective Bridge Rehabilitation, Dec 4-6

Highway Bridge Design, Dec 9-11

Other opportunities

Public Works Supervisory Academy classes – \$140 per session at the following locations: A–Appleton, B–Beloit, M–Menomonee Falls, W–West Allis

Basic Management Skills and Practices

Oct 4 – A, Oct 16 – W

Budgeting, Fund Accounting & Grant Administration, Sep 26 – B

Customer/Resident Service, Dec 3 – W, Dec 4 – A

Labor Relations/Negotiating Skills, Nov 13 – M, Dec 16 – B

Managing Troubled Employees, Nov. 1 – B, Oct 22 – M

Nuts & Bolts of Personnel Management, Sep 10 – M, Oct 10 – B

Purchasing & Inventory Control, Sep 6 – W, Sep 16 – A

Equipment Use and Workplace Safety, Dec 12 – M

Work Planning, Goal Setting & Time Management, Oct 28 – A, Nov 7 – W

Members of the Wisconsin Chapter of the American Public Works Association are eligible for scholarships. Detailed course list and registration information on the Web at: <http://www.dcs.wisc.edu/pda/academy.htm> or call: 608/263-2088 or 800/442-4617.

Strong concrete needs proper finishing, curing

Concrete is an amazingly durable construction material for roads and structures. However, commonly-used practices can weaken it and shorten its useful life.

"People are in a hurry, so they place concrete too wet and finish it too early," says Mike Stolpa, a sales representative for LaFarge North America. "They also overwork the surface and neglect the curing process," he adds. Before joining LaFarge,



High quality concrete has a relatively low water-to-cement ratio.

Stolpa was a quality control manager at a multi-state concrete ready-mix operation for 10 years and the chief quality instructor at WisDOT for 8 years.

Concrete is a mixture of water, coarse and fine aggregates, and Portland cement

which is a commercially-produced powder containing calcium, silicon, aluminum, and iron. It is important to keep the amounts of water, aggregate and cement in proper proportions. A common mix, for example, is 11% cement, 16% water, 27% fine aggregates, and 40% coarse aggregates. The other 6% is entrained air.

Mixing water and Portland cement produces a paste that coats the aggregates and begins a chemical reaction called hydration. A node forms on the surface of each cement particle which expands until it sticks to other cement nodes or adjacent aggregates. As hydration continues, the concrete gets progressively stiffer, harder, and stronger.

For most applications

concrete should be fairly stiff when worked. WisDOT specifies a 3-inch slump for roads, for example. High-quality concrete is produced by lowering the water-cement ratio as much as possible without sacrificing the workability of fresh con-

crete. "An easy way to check it is to make a snowball out of the wet concrete mix, then hold it in the palm of your hand," says Stolpa. "If it falls apart, it's too wet."

Finishing

Hydration starts immediately, so you have about an hour to place the mixture before it is too stiff to work. For slabs, the concrete is consolidated to remove air pockets, struck off and bullfloated, then left to stand. Sometimes the surface is broomed to be more slip-resistant.

For strikeoff, or screeding, finishers move a straight edge over the concrete with a sawing motion to take off excess material. Immediately afterwards, they pull a bullfloat across the concrete to eliminate high and low spots and embed larger aggregate.

When the film of surface moisture disappears it is ready to finish. "Finishing concrete too soon is a common mistake," Stolpa says. "It forces water back into the surface and raises the water-to-cement ratio in the top eighth-inch making it weaker. That's not good because that's the part that we use," he says.

Overworking the surface can also weaken the concrete. "We recommend not using a steel trowel because it seals the top of the concrete," says Stolpa. "Water can't evaporate so it collects between the skin and body. When evaporation eventually does take place, the skin has a weak bond and is likely to peel off or delaminate."

Curing

Most fresh concrete, even a very stiff mix, has considerably more water than is needed for hydration. The extra moisture has to evaporate — but not too quickly or hydration will slow down and may even stop.

"We all think we're waiting for the concrete to dry, but actually we want it to stay wet for a while so the chemical reaction can continue," says Mike Stolpa. This process, called curing, has a strong influence on the durability, strength, and watertightness of hardened concrete. Exposed slab surfaces are especially sensitive to curing which also helps them resist abrasion, freeze/thaw forces, and deicer salts.

To cure properly the concrete needs to be kept moist and warm (50°–75°F), the longer the better. Concrete surfaces are cured by repeatedly misting them with water, covering them with fabric mats, or sealing with plastic or special sprays. There are also techniques to cure concrete

Giving concrete some air

Concrete is porous, full of tiny spaces formed during hydration. When it is in service on a road or street, water will fill the spaces. When temperatures drop, the water freezes and expands.

"Freezing water expands at about 18,000-20,000 pounds of pressure per square inch," says Mike Stolpa, of La Farge Inc. "Since most concrete has a strength of 4,000 to 5,000 psi, it won't hold up very well to the pressure; it would be destroyed with each freeze-thaw cycle."

To help concrete resist these forces, manufacturers intentionally create microscopic bubbles in it —billions per

cubic yard—in a process called air entraining. The bubbles give water a place to expand into when it freezes.

In Wisconsin, concrete is usually air-entrained at the job site, by truck-mixing a chemical product into the concrete. The chemical is good for only about an hour before it loses its bubble producing properties.

"If there is insufficient air you can go out over the course of the winter and sweep the top layer of rocks off the surface," says Stolpa. "In one to five years the slab will turn into pile of rubble." For manually worked concrete WisDOT specifies 6% air by volume, plus or minus 1.5%.



1—strikeoff; 2—mag hand floating; 3—bull floating; 4—brooming

during extremely cold or hot weather. Most of the hydration and strength gain occur in the first month, but the process continues slowly for many years.

“Unfortunately, many people don’t take that last step, and they are cutting the strength of the concrete in half,” says Stolpa.

Watch out, GASB 34 is gaining on you

If you’ve been hearing moans from the finance officers, they may be wrestling with GASB 34. That’s the new national accounting standard for municipalities. It requires them, for the first time, to systematically inventory, value, and depreciate all infrastructure including roads, bridges, sidewalks, storm sewers, sanitary sewer, traffic lights, etc. The starting point is for periods beginning after June 15, 2002 for mid-sized communities with \$10-\$99 million annual revenues and June 15, 2003 for small communities, under \$10 million.

Local road agencies have an important stake in the process since roads, bridges and related systems are the biggest infrastructure assets in most communities. The statements will likely become a public “report card” on community and agency management and performance. Bonding agencies and others will use these government-wide financial statements to assess the community’s credit-worthiness.

The T.I.C. and Local Government Center will address GASB 34 in a November training session over the statewide Educational Telephone Network. (See *Calendar page 3*)

“I think it’s reasonably do-able,” says Carla Ballweg, CPA, audit and consulting manager with Virchow-Krause in Madison who is helping municipalities prepare for GASB 34. “It’s a matter of accumulating all the data on the infrastructure. The goal is to get an estimated value on the books now. Over time, the information will be replaced with actual data as communities report their future additions.” According to Ballweg there are four general steps to the process:

1. Identify the infrastructure networks—roads, sidewalks, drainage systems, bridges, etc.
2. Establish a method to inventory and cost the infrastructure.
3. Develop a comprehensive capitalization policy.
4. Address the decision and action items within the GASB 34 standard.

WISLR eases process

For road inventory and cost information, Wisconsin is ahead of many other states. Last December, all communities were

required to submit condition ratings to WisDOT for the Wisconsin Information System for Local Roads (WISLR). This means that every community has a detailed road inventory with segment-by-segment condition information.

Many large municipalities, and even some smaller ones, use computer software to record and manage capital projects, maintenance, and finances. These will make the GASB 34 process easier. The Village of Pleasant Prairie, for example, started using asset management software about three years ago.

“When we set it up, most of the information was already available from other sources: WisDOT and PASER reports for roads, the PSC report for water and sewer,” says Village Streets and Parks Superintendent John Steinbrink. “For GASB 34, I made some spreadsheets and laid out the information I needed, getting it from the system and the new PASER evaluations.” As a result, Pleasant Prairie, located in southeast Wisconsin on the Illinois border, finished its first infrastructure asset report well ahead of schedule.

Many decisions to make

Although gathering data is time-consuming, the bigger challenge for many communities will be determining the historical cost of the infrastructure networks. The standard allows various options. Communities can search bond documents to establish costs of assets acquired through the use of bonds, use expenditure records in capital project funds, or calculate the current construction cost of the asset and then deflate that cost to its acquisition year using a deflation factor. Many communities are using the deflation indices provided by the Federal Highway Administration Office of Engineering in *Price Trends for Federal-Aid Highway Construction*, its quarterly publication. An abridged version of the 2001 table from that publication is shown below.

When local finance officers determine the historical cost of the community’s infrastructure assets, they need to use a method that their auditors will consider reasonable and appropriate. Road managers can help by using WISLR inventory

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Resources

The following publications are available free from the T.I.C. while supplies last.

Concrete in Practice (CIP), National Ready Mixed Concrete Association (NRMCA), 2000. These NRMCA two-page fact sheets give the “what, why, and how” of key topics in concrete construction:

Surface Scaling — CIP 2

The causes of scaling and how to prevent it.

Surface Cracking — CIP 4

The causes of cracking and how to minimize it.

Joints in Slabs on Grade — CIP 6

Where and how to construct joints.

Low Concrete Cylinder Strengths — CIP 9

What can cause low strength test result.

Curing In-Place — CIP 11

Why cure concrete and what methods work.

Hot Weather Concreteing — CIP 12

How to protect new concrete in hot weather.

Finishing Flatwork — CIP 14

How to place and finish pavements, walks, and floors.

Flowable Fill — CIP 14

How to order and use flowable fill material.

Synthetic Fibers — CIP 24

What do synthetic fibers do in concrete?

Adding Water at the Jobsite — CIP 26

The why and how of adding water.

Cold Weather Concreting — CIP 27

How to protect concrete in cold weather.

Supplementary Cementitious

Materials — CIP 30

About fly ash, slag, and micro-silica.

Ordering Ready Mixed Concrete — CIP 31

How to specify and order the right concrete for our job.

Websites

No Internet access? Many public libraries offer it free. Or ask local schools and colleges. If you can't access the Internet or have trouble getting to a resource listed here, contact T.I.C. We will try to supply it another way.

The Virchow-Krause & Company website at <http://www.virchowkrause.com/gasb.asp> includes a series of articles on GASB 34, frequently asked questions on GASB 34 and links to three financial statements from

Wisconsin municipalities that were completed under GASB 34 requirements.

Information on the Public Works Supervisory Academy is available at <http://www.dcs.wisc.edu/pda/academy.htm>

Additional information on handicapped accessible ramps, **detectable warnings** and other accessibility issues is available at <http://www.access-board.gov/news/ROWguide.htm>. The site includes a link to the report “Detectable Warnings: A Synthesis of U.S. and International Practice.”

Videotapes

The following titles are new to the T.I.C. Videotape Lending library and are loaned free through your county extension office.

Basic Principles for Proper Installation of Corrugated Steel Drainage Structures, #18551 National Corrugated Steel Pipe Association, 21 min.

This industry video covers steel pipe installation. Includes excavation, preparation, handling, assembly and backfilling. Good example of safe and effective installation. Helpful for general audience or field crews.

Chainsaw Safety, #18552, Long Island Productions, 21 min.

This video demonstrates common chainsaw safety problems such as starting, fueling, kickback, buddy system, limbing, pruning, preventive maintenance, and personal protective equipment. Suggested audience: highway and public works officials, safety officers, and crews.

Culverts: Not Just Something to Pass Over! #18553, UW Extension, 2002, 20 min.

Culvert purpose, planning, design and installation are covered. Includes details on erosion, durability, and impacts to wildlife. Excellent overview and helpful information for citizens and elected officials.

Forest Roads and the Environment, #18554, The Forest Service, 2002, 18 min.

An overview of a road's impact on a natural forest environment. Covers good road maintenance practice. For general audience and field crews.

Introduction to Modern Sewer Design, #18555, National Corrugated Steel Pipe Association, 23 min.

A review of the sewer pipe design manual. Covers types, planning, hydraulics, structural design and rehabilitation. Intended for engineers.

Maintaining the Ditch and Surface Cross Drains, #18556, The Forest Service, 2002, 16 min.

Shows techniques for constructing and maintaining ditches and culverts. Also demonstrates good practice and equipment operating techniques. Intended for equipment operators.

Making the Effort Works, #18557, Federal Highway Administration, 2002, 19 min.

Video encourages efforts to avoid construction delays due to road and utility conflicts. Has examples of effective coordination and communication between highway agencies and utilities. Intended for planners and designers.

Moving Up Into Management, #18558, Long Island Productions, 13 min.

This tape shows how to make a successful transition from employee to supervisor. It covers what makes you management material, supervising former coworkers, and tips on gaining cooperation and dealing with difficult employees. Suggested audience: new supervisors and foremen.

Reading Beyond the Traveled Way, #18559, The Forest Service, 2002, 17 min.

Shows problems on areas adjacent to forest roads. Includes gullies, slumps, cracks, and drainage. Useful for road maintenance crews.

Reading the Traveled Way, #18560, The Forest Service, 2002, 16 min.

Shows types of road conditions and problems on gravel and unimproved roads. Covers drainage, rutting, potholes, and other distress. Practical maintenance and repair methods on forest roads are explained. Intended for road crews.

Smoothing and Reshaping the Traveled Way, #18561, The Forest Service, 2002, 18 min.

Covers steps for grading unsurfaced roads. Intended for equipment operators.

Surviving the Cold, #18562, American Red Cross, 16 min.

Uses actual stories of stranded motorists to explain techniques to survive winter storms. Covers hypothermia, practical survival tips, and actions to avoid.

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information and PASERWARE inventory and cost information.

Abridged Table of FHWA Indices for Construction

Year	Roads and streets	Bridges
1960	23	21.7
1965	25	24.8
1970	34.8	38.2
1975	58.1	60.6
1980	97.2	100
1985	102	98.1
1987	100	100
1990	108.5	117.8
1995	121.9	119.5
2000	145.6	146.9
2001	151.2	136.9

Here is an example of how to use the deflation method to estimate historical cost. Old Mill Lane is an asphalt road one mile long and 22 feet wide with 2 foot shoulders that was last reconstructed in 1980. Many of the town records for 1980 have been lost, including the historical construction cost for Old Mill Lane. In 2001 it would have cost \$240,000 to construct Old Mill Road based on 2001 construction prices. Using the FHWA price indices for roads and streets, the

estimated historical cost for Old Mill Road is calculated this way:

$$2001 \text{ Construction Cost} \times (\text{Index for 1980} / \text{Index for 2001})$$

$$\$240,000 \times (97.2 / 151.2)$$

or approximately \$154,300

Modified or Depreciation Method

The municipality will also have to decide between using the Depreciation Method and the Modified Method on the various infrastructure networks. Under the modified method a government sets an asset condition level and commits to maintaining it at a specified level. However, most Wisconsin communities are leaning toward the depreciation approach since people are familiar with it and already doing it with some assets.

To depreciate a road segment you need to know its length and width, pavement type (asphalt, concrete, gravel, sealcoat over gravel), historical cost, age, and expected useful life. Each community should evaluate its own road systems to determine an average expected useful life for each pavement type. As a starting point, you may want to adopt what PASERWARE uses in its calculations for average expected useful life:

Asphalt	25 years
Concrete	35 years
Sealcoat over gravel	12 years
Gravel	8 years

For example, if you set the average useful life of an asphalt pavement at 25 years and determine that the historical cost to construct Badger Lane in 1992 was \$165,000, then the annual depreciation expense for Badger Lane would be \$165,000 divided by 25 or \$6,600. As of 2002, the accumulated depreciation would be 10 years times \$6,600 or \$66,000 and the remaining book value would be \$165,000 minus \$66,000 or \$99,000.

Reality is more complicated, of course. WISLR and PASERWARE reports give you the length, width and pavement type, but many communities have little or no information on the ages of their roads. However, some of this information is available through the Local Roads program in the Wisconsin Department of Transportation. In addition, some low volume roads may be still serviceable, but are already much older than the average expected useful lifespan. You may want to consider setting a residual value for all roads to take this into account. You must also decide how to reckon the effects of sealcoats, full-depth concrete patches, and other maintenance efforts that extend a road's useful life.

"The national GASB guidelines do not include a standard for the useful life of a road since it would vary so much from state to state. So setting a useful life is

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Reader Response

If you have a comment on a **Crossroads** story, a question about roadways or equipment, an item for the *Idea Exchange*, a request for workshop information or resources, or a name for our mailing list, fill in this form and mail *in an envelope* to:

Crossroads

Transportation Information Center
University of Wisconsin-Madison
432 North Lake Street
Madison, WI 53706

Or call, fax, or email us:

phone 800/442-4615
fax 608/263-3160
email tic@epd.engr.wisc.edu

- Please put me on your **Crossroads** mailing list.
- Please send me information on _____

- My idea, comment or question is _____

(We'll contact you to get more details or answer your question.)

Name _____ Title/Agency _____
Address _____ City _____ State _____ Zip _____
Phone () _____ fax () _____ email _____

GASB 34 from page 7

really up to the community,” Ballweg says. “They need to define it in the capitalization policy.”

“We actually gave everything a useful life of 20 years to start out and straight-line depreciated everything, because of the work involved,” says John Steinbrink of Pleasant Prairie. “Later on, once we get a little more comfortable with it, we will go through and actually make the road life cycles and take into account patching, slurry seals, and so on. That will bring the asset value up.” Pleasant Prairie is a relatively new community, so they have age information on most of their roads.

If a community does not have age information and is unable to retrieve it from other sources, an average age for the road system must be estimated. It may be helpful to consider the current PASER ratings and their relationship to the average remaining useful life when estimating system age. While useful remaining life is not directly equal to the

expected life of a new pavement minus its age, the PASER condition rating may help you estimate a reasonable average age that you can explain and defend to others. Table A shows the relationship between useful life and PASER ratings that PASERWARE uses in its calculations.

TABLE A: PASER rating and useful life

PASER RATING	Remaining useful life* (years)			
	Asphalt	Concrete	Gravel	Sealcoat over gravel
1	0	0	0	0
2	5	3	1	2
3	8	6	3	5
4	11	10	5	8
5	13	14	8	12
6	16	17	*Based on deterioration tables and curves in PASERWARE 2.5	
7	20	20		
8	23	25		
9	24	30		
10	25	35		

A useful result

Like cleaning out a messy garage, the process may be a pain, but there are benefits when it’s done. The orderly and complete information will help local officials make better financial and management decisions about their roads.

“All of it is relatively easy; there isn’t anything they ask for that’s out of anyone’s control,” says Steinbrink. “The bonus is that once you have information you can use it as a manager to make wise decisions, and save time and money for your community.”

Ballweg agrees. “It shows what kind of investment the community is making in its assets and heightens awareness about what it will take to maintain that investment,” she says.


Participants in the November ETN session on GASB 34 will hear experts discuss the process, and can ask questions. Printed handouts will be sent to those who pre-register. See page 3 for registration information.

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