New tools for winter road maintenance

New salting equipment may be needed, however. The WISDOT program will be exploring new multi-purpose equipment that combines pre-wetting systems and fine spreaders, such as a truck with a light spinner. As pavement temperatures drop and snow accumulates, a truck with this equipment could quickly switch from anti-icing to de-icing with pre-wetted salt. Another anti-icing technique under study is to apply a finer gradation of pre-wetted salt with zero velocity spreaders.

Share WisDOT’s equipment buying power

You can invest in this new winter maintenance technology with relative ease. Through the state’s cooperative purchasing agreements with vendors, any municipality (county, city, village, town) can order the same new equipment being used by counties.

According to Tom Lorfeld, who is familiar with WisDOT’s winter equipment purchasing effort, local municipalities are welcome to buy equipment under the state’s contract. He has detailed equipment specs and vendor information. WisDOT is considering buying some of the following equipment types. (These 1995 prices are for equipment only, not installation):

- Infrared pavement temperature sensors: $2000 to $2500
- Zero-velocity spreaders: $8990
- Ground speed oriented spreader controls: $2550
- 3000 gallon calcium chloride storage tanks: $7150
- 5000 gallon tanks: $8050
- On-board prewetting systems: $2350 to $4745

For equipment specs, vendor names, and contract information, call Tom Lorfeld at 608/267-3149.

Anti-icing studies show that in snow-fighting “an ounce of prevention is worth a pound of cure.” Preventing the ice-pavement bond saves a significant amount of salt.

New tools for winter road maintenance

Truck-mounted pavement temperature sensors are one of the promising new tools WisDOT tested last winter in their Winter Maintenance Initiative program. Zero-velocity salt spreaders, on-board prewetting systems, and ground-oriented speed control units which help make salting more efficient were also deployed. Many counties who tried out the new state-purchased equipment last winter found it very effective in helping reduce the salt required. WisDOT is looking into buying more state-of-the-art equipment.

“Traffic volumes are increasing, and so are drivers’ expectations,” says Tom Martinelli, WisDOT’s regional maintenance engineer. New equipment and new techniques are helping meet that goal. The Winter Maintenance Initiative will invest again this year in equipment, salt sheds, and public education to better maintain the state’s roads in winter.

County crews who maintain state highways are anxious to use the mobile pavement temperature sensors. Mounted on a supervisor’s car or a patrol truck, they help supervisors determine when it is most effective to call for salting. “We’ve had requests to buy about 77 additional units for next year,” says Martinelli, who expects they’ll actually order just a few of the $2000 units to try in a pilot program.

“I think the sensors produced substantial cost savings,” says Roger Kolb, Brown County Highway Commissioner. “With a five or six degree difference between air and pavement temperature, it can be difficult to gauge when to begin salting. We’ve found pavements are often warmer than we expected so we can send crews out later.” The mobile sensors were accurate when tested against stationary pavement temperature sensors, Kolb reports, and much handier than returning to the office to dial up computer reports.

Anti-icing clears pavements sooner

The sensors also help with anti-icing technology, the preemptive approach designed to keep snow and ice from bonding to pavements. “We had some good luck preventing bonding last year,” says Ed Kazik, a Brown County Patrol Supervisor whose vehicle carries one of the sensors. “You know when the temperature is right to give the pavements a light shot of salt to prevent icing.”
Dispenser for edge dropoffs

By modifying a commercial rock spreader, maintenance staff at Illinois DOT’s Carlinville yard have a neater, easier way to fix low shoulders along pavements. A platform built onto the front of a grader holds the spreader. It attaches to the grader’s scarfifying hookups and hydraulic controls.

40 states to metricate by October

A survey by AASHTO found that 40 of 49 states responding are on target to convert to metric system by the October 1996 deadline. Most are already doing design and construction in metric units. Alaska, Hawaii, Nevada, the Dakotas, Pennsylvania and the District of Columbia will delay; Maryland and Arkansas were undecided, and Washington did not reply. The survey appeared in AASHTO’s January/February 1996 Metrication Clearinghouse Newsletter.

Do you have an idea to exchange? Have you designed a gadget or found a new way to do something? How can other streets and highway people use it? Use the form on page 7 to let us know, or call Don Walker or Steve Pudloski at 800/442-4615.

CDL exemption expected in November

After a late July public hearing, WisDOT has forwarded to the Legislature a proposed rule exempting from the CDL requirement backup snowplow drivers in municipalities of less than 3000 population. This brings Wisconsin’s rules in line with previously enacted federal rules. If there are no Legislative hearings, the rule will be published and is likely to take effect around the beginning of November, according to Wes Geninger at WisDOT.

The exempted person must be an employee of the town or village and have a valid class “D” (regular) driver’s license. He or she must be operating within the boundaries of the local governmental unit and must be needed for help in plowing snow because the local unit has determined that a snow emergency exists. A local unit of government means: county, city, village, town, school district, county utility district, sanitary district, metropolitan sewerage district, or other public body created by or under state law. A copy of your local paper and association newsletters for the official announcement of the rule.

Glass: the new aggregate

Recyclers, aggregate suppliers, and WisDOT are working together to take advantage of a new raw material for roads: mixed glass. Between 35,000 and 45,000 tons are produced a year at Wisconsin recycling facilities. Cleaned, milled, and blended 10%, and possibly as much as 20%, with aggregate, the glass can be used economically and effectively as utility trench backfill and base course material.

"Outagamie County is now using a glass-aggregate mix in backfill," says Jeanine Knap, who manages the Outagamie County Materials Recycling Facility. Under a Department of Natural Resources grant, the County Highway Department has also experimented with adding glass to asphalt mixes in some test pavements, a technology about which WisDOT pavement researchers have strong reservations.

A statewide working group plans to hold two demonstrations before the 1996 construction season ends. Outagamie County Recycling Facility Manager Jeanine Knap says. These may show glass being used as backfill, base material, drainage medium, or in the lower layers of asphalt pavement. She hopes a copy of Wisconsin’s streets and highway people will be able to attend.

Having completed two research projects on glass use, WisDOT now encourages using it for base course and backfill material. A Supplemental Specification to the Standard Specifications for Road and Bridge Construction is nearly complete. Updated sections in the Facilities Development Manual describing glass and other recycled material use are due out soon.

One aggregate dealer, Valley Sand and Gravel in Muskego, is producing a “compacted bank run” material that includes glass up to 1/2 inch in diameter. Before mixing the glass with the aggregate, the dealer uses screens to “beneficiate” or clean the mixed color glass, removing unwanted material like plastic or metal. “There will be no restrictions or tracking requirements when the material is used in accordance with approved specifications," says Kate Cooper, chief of the Waste Reduction and Recycling Section at the Department of Natural Resources.

Recycling facilities can sell color-separated clear, green and brown container glass, but there are limited markets for what is called “mixed color cullet." Some Wisconsin recycling facilities currently pay to have their mixed color cullet mechanically color sorted and beneficiated at a high-tech facility in Illinois. Other recycling facilities are stockpiling their glass and searching for local projects where glass can be used beneficially. Mixing glass with aggregate and incorporating it into trenches and road base courses is a good way to reuse these resources.

"As long as the glass-aggregate meets performance requirements and specifications we’re happy to have contractors and municipal crews use it," says Steve Shober, Chief Pavement and Research Engineer at WisDOT.

For information on the fall demonstration projects contact Jeanine Knap, phone: 414-832-4710, fax: 414/88/4-130. A performance report: use of recycled glass in edge drain trench, WI-03-96, is available from the T.C.C. Use the form on page 7, call, or e-mail for your copy. When the new specifications and Facilities Development Manual sections are ready they will automatically be sent to people who normally get those materials. Others can contact: Mark Truby at WisDOT, 608/266-9349, PO Box 7965, Madison, WI 53707-7965 to request copies after they are printed.

to Wes Geninger at WisDOT.

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The Wisconsin Transportation Information Center (T.I.C.) has collected a lot of information on roads and bridges—booklets, research reports, training materials, video tapes, etc.—in its 14-year history. More importantly, Don Walker, Steve Pudlowski, and the other T.I.C. staff frequently review material to make sure they are still current and useful.

If you want to know what’s available in a specific topic area, be sure to check with us. If you can’t find the information you’re looking for, we can even check with centers in other states to see if they have what you may be looking for.

If you’ve found some useful information — video, print, audio, photographs — please send us a copy, or send us the reference and we’ll collect it, check it out, and let others know about it.

If material from the T.I.C. seems out-of-date or inaccurate, let us know. We’ll check to see if anything more recent is available.

### Resources

A limited number of copies of the printed materials listed here are available from the Wisconsin T.I.C. unless otherwise noted. To get your copy call 608/442-4615 or use the form on page 7. Videotapes are loaned free by Wisconsin County Extension Offices.

Weather forecasting information and services

You need accurate weather forecasts to use snow removal resources most efficiently. The Winter ’96 Crossroads had a feature on weather forecasting and offered a list of private and public forecasting services. Copies of the article and list are available again from the T.I.C.


Understanding and Using Asphalt, Wisconsin Transportation Bulletin 41, revised 1989. This updated T.I.C. fact sheet describes types of asphalt, typical uses, physical properties, and the standard tests used to evaluate and specify asphalt. It includes a list of related publications and resources.

The Superpave System: New Tools for Designing and Building More Durable Asphalt Pavements, FHWA-A-96-010, 1996, 8 pp. Describes Superpave and how it was created to address two pavement distresses: permanent deformation caused by inadequate shear strength in the mix and low temperature cracking. The Superpave system includes binder selection based on several new tests, volumetric mix design, and analysis using environmental and performance models.

How ‘super’ is Superpave? article series from Roads & Bridges, February, 1996, 5 pp. Includes a primer on Superpave by the Asphalt Institute and a review of the experience with this new mix-design process, including Wisconsin DOT’s approach to implementation.

The T.I.C. has just received a collection of work zone safety information from the Safety Committee of the Wisconsin County Highway Safety Association (WCHA). “When we started looking into making a video tape on how to drive in work zones, we had to search all over the country for references and materials,” says Bob Fasick, the WisDOT Highway Operations Engineer who works with the committees. “The videos are side to side to every work zone, is complete (see Resources for a description) WCHA and Fasick want others to have easy access to what they collected.” Call, write, fax, or e-mail the T.I.C. if you have information to share or need information to help you. Write or fax using the form on page 7; phone 800/442-4615, e-mail Don Walker at donald@engr.wisc.edu or Steve Pudlowski at pudlowski@mgbr.wisc.edu.

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### T.I.C. workshops

Specific details and locations for workshops are in the announcements mailed to all Crossroads recipients.

**Winter Road Maintenance**
Prepared for better winter operations at work zones on equipment preparation, safe winter driving skills, the latest on ice control materials, and operations planning. Share experiences and tips.

- Sep 11 Brookfield
- Sep 12 Green Bay
- Sep 19 Cable
- Sep 18 Eau Claire
- Sep 19 Cable
- Sep 20 Rhinelander
- Sep 12 Tomah

**Selecting Materials for Local Roads**
A two-hour ETN workshop on selecting, specifying, and testing materials used in local road maintenance and construction projects, including stone, asphalt, and culvert pipe. What you learn will help you effectively implement the Sample Bidding Documents for Small Road Projects developed by and available from T.I.C. No votes on an ETN in every county

- Nov 5 and 7 Madison

**Equipment Maintenance**
Your chance to re-evaluate your approach to equipment maintenance and repair, including trouble shooting and preventive maintenance.

- Nov 6 Green Bay
- Nov 7 Brookfield
- Nov 8 Barneveld
- Nov 12 Tomah

### Fall 1996

#### Crossroads

**WisDOT’s no-sale policy gets attention**

After studying Portland Cement Concrete (PCC) pavement performance since the 1950s, WisDOT concluded in 1990 that sealing contraction joints is a waste of money. The policy has saved Wisconsin as much as $8 million a year with no loss in pavement quality, according to a report for the 1996 World Congress on Joint Sealing and Bearing Systems for Concrete Structures.

The research applies to contraction joints and cracks in PCC pavement. Crack sealing in asphalt pavement appears to be effective and economical in helping preserve them. Similarly, sealing edge cracks between PCC pavement and asphalt shoulders can also be effective.

“The Wisconsin Division of the Federal Highway Administration has concurred,” said FHWA Pavement Engineer Wes Shemwell. “Wisconsin has a lot of research to show that crack sealing is needed so that the pavement performs better.” He admits that the conclusion is very controversial. The American Concrete Pavement Association has called for a national working group to consider the issue.

Pavement performance depends much more on how the joint was initially constructed, the WisDOT report says. It is difficult and costly to really seal the joints, they note.

Ten years’ effort to keep test segments on US Highway 51 completely sealed added as much as 45% more to the cost of the pavement. They also argue that when sealant fails it acts as a funnel forcing more water into the joint than would occur naturally.

The best overall PCC pavement performance is achieved with very narrow (½ inch thick), unsealed joints. Studies in the 1950s and 1960s showed that short segment spacing (15-20 feet) and using dowels at joints also improves performance.

More recent pavement sections under study have been on USH 51 (21 years), USHs 18/151 and 16/390 (12 years), and SHs 29 and 164 (8 years).

Performance is described in terms of a Pavement Distress Index which measures extent and severity of several factors including faulting, cracking, spalling, patching, etc. Ride quality, fatigue cracking and material integrity were also evaluated.

*By not sealing, we also avoid inconvenience to highway users during sealing operations and increase highway safety because no crews are out on the highway closing lanes when joints are resealed,* says Steve Shober, Chief of the Pavement and Research Engineer at WisDOT.

For copies of the WisDOT study The Effect of PCC Joint sealing on total pavement performance, contact Steve Shober at WisDOT, 608/442-5398.

### Calendar

- Dec 10 Eau Claire
- Dec 11 Wausau
- Dec 12 Green Bay
- Dec 13 Waukesha
- Oct 21-23 Madison
- Oct 22-24 Madison
- Oct 27-29 Madison
- Oct 7-8 Madison
- Nov 13-15 Madison
- Nov 17-19 Madison
- Dec 11-12 Madison
- Nov 18-20 Madison
- Dec 9-10 Madison

### UW-Madison Seminars

Local government officials are eligible for a limited number of scholarships for the following engineering courses in Madison. Use the form on page 7 for details or call 800/442-4615.

- UW-Madison Civil Engineering:
  - Oct 21-23 Foundation and Structures
  - Oct 24-25 Traffic Engineering Fundamentals

- UW-Madison Transportation:
  - Oct 7-8 Traffic Engineering
  - Oct 21-23 Timing Traffic Signals Using TEAPAC, PASSER, TRANSYT & NETSIM

- UW-Madison Architecture:
  - Oct 18-20 Lightweight Concrete

- UW-Madison School of Business:
  - Nov 1-3 Risk Management

- UW-Madison School of Law:
  - Nov 10-12 Litigation

- UW-Madison School of Nursing:
  - Nov 11-12 Health Care Administration

### Traffic Engineering

This is an opportunity to review some special topics of particular interest to street and highway operations, including several simple traffic studies. Also review the warrants for traffic control signs and signals and look at selected traffic control materials.

- Dec 10 Eau Claire
- Dec 11 Wausau
- Dec 12 Green Bay
- Dec 13 Waukesha

### U.S. Highway Bridge Design, Construction, and Inspection

- Nov 13-15 Madison
- Nov 18-20 Madison
- Dec 9-10 Madison
- Jan 13-15 Madison
- Feb 10-12 Madison
- Mar 16-18 Madison

- Traffic Engineering
  - Oct 21-23 Madison
  - Oct 24-25 Madison
  - Oct 7-8 Madison
  - Oct 21-23 Madison

- Transportation
  - Oct 21-23 Madison
  - Oct 24-25 Madison

- Traffic Engineering Fundamentals
  - Oct 21-23 Madison

- Pavement Rehabilitation and Construction
  - Nov 13-15 Madison
  - Nov 18-20 Madison

- Bridge Condition Evaluation
  - Dec 11-12 Madison
Pavement evaluation a long-term success

For rural Jackson County and suburban Brown Deer, long-term use of the PASER Pavement Surface Evaluation and Rating system has made a difference.

“Our overall pavement condition has shown marked improvement,” says Mike Hemp, Jackson County Highway Commissioner. Between 1992 when they did their first PASER inventory and the second one in 1995 the number of road miles rated excellent (8 or 10 on the PASER scale) increased from two to 18. At the same time the number of miles in the worst condition (rated 1 or 2) dropped from 19.6 to 11.8. The improvement came after PASER helped Hemp make the case for a larger highway budget.

Last fall for the first time, Hemp used Roadware, the computer program that takes PASER rating information and develops alternate “what if” scenarios. The program showed that Jackson County should be doing a lot more sealing and crack filling. They planned 35 miles of sealcoating for 1996. Unfortunately, that was reduced to approximately 13 miles because of the state limit on tax increases and widespread winter damage to pavement.

“Of our roads are deteriorating at the same time, and at a faster rate than we can replace them,” says Hemp. Using PASER they had developed a six-year rehabilitation and patching program (ending in 2000) which has strong county PASER program. They had developed a six-year rehabilitation and patching program. Their plan was to increase funding from $150,000 to $300,000 per year.

“PASER was instrumental in helping us make a convincing presentation,” says Village Engineer Richard Hoffman. “When we did a pavement evaluation in 1994, one year into the new program, it showed our progress.” They’ll rate pavements again this fall and expect to see the trend continue.

Crack sealing became a much bigger part of the Village’s street improvement program after PASER showed it would save money in the long run by extending the life of existing asphalt pavements. A private contractor does a significant portion of Brown Deer’s crack sealing work.

Village engineering technician Jim Buske is working on entering PASER files into the new Roadware program. Roadware’s alternative scenarios will be another useful tool for developing their long-term maintenance and rehabilitation plans. They also are integrating the files with a new GIS (Geographical Information System) program which will let them print out digitized maps showing both road segments and utilities.

“In general we’ve been really pleased with the system. It’s made things simpler and standardized things for us,” says Buske.

Three booklets prepared by the T.I.C. explain the PASER system in text and photographs. Copies are available from the T.I.C. We also can advise you on where to get training and help in using PASER and Roadware. Call us at 800/442-4615, send an e-mail to Pavement@wisc.wisc.edu or mail or fax the form on page 7.

Prepare drivers with Snowplow Roadeo

Before it arrives, take advantage of the relatively quiet early fall period to run your own Snowplow Roadeo. The four-part knowledge and driving course competition can help train new drivers and sharpen experienced drivers’ skills.

Then send a team to Waukesha to try for state honors (or just to watch) on October 2nd.

“It’s not hard to set up a small obstacle course in a Public Works yard,” says Bill Kappel, Milwaukee’s Municipal Equipment Superintendent. “And the competition helps sharpen skills and get the drivers ready for winter. You don’t have to be planning to go to the state competition to get benefit out of it.”

Guidelines and sample tests prepared by the American Public Works Association explain how to set up your own Roadeo. The complete competition has four parts: knowledge test, pre-trip vehicle inspection, participants’ equipment inspection, and driving skills course. Copies of APWA’s Roadeo guidelines and sample written tests are available from the T.I.C.

Training takes time, energy and money, but it can help minimize accidents. “Backing accidents are our biggest problem,” says Kappel. “Out of 213 preventable accidents by Milwaukee Public Works equipment in 1995, 85 were backing accidents.” The Roadeo includes backing up to a dock as one of the nine obstacle course maneuvers. Send drivers over assigned routes on a dry fall day. Have them drive a plow equipped truck scouting for obstacles like raised manholes and overhanging mailboxes. This is especially important for novices and for backup and supplementary drivers who only drive the route occasionally.

“A dry run helps drivers know where the blade is on the truck,” says Kappel.

Copies of the APWA’s Equipment Roadeo Guidelines and a sample written quiz are available from the T.I.C. Mail or fax the form on pp. 7, 11 or e-mail for your copy.
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Village engineering technician Jim Buske is working on entering PASER files into the new Roadware program.

Roadware’s alternative scenarios will be another useful tool for developing their long-term maintenance and rehabilitation plans. They also are integrating the files with a new GIS (Geographical Information System) program which will let them print out digitized maps showing both road segments and utilities.

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Crack sealing became a bigger part of Brown Deer’s streets budget after PASER showed how it saves money in the long run.

PASER helps Brown Deer

Like Jackson County, Brown Deer has a lot of deteriorating same-age pavements. When they first used PASER five years ago, it revealed that pavements were in more serious condition than suspected. The Village’s manager and highway committee agreed to a five-year accelerated road improvement program and increased funding from $150,000 to $300,000 per year.

“PASER was instrumental in helping us make a convincing presentation,” says Village Engineer Richard Halfman. “When we did a pavement evaluation in 1994, one year into the new program, it showed our progress.” They’ll rate pavements again this fall and expect to see the trend continue.

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Council advises Center

The T.I.C. relies on an advisory council to help keep our newsletter, factsheets, and workshops up-to-date and useful. Representatives of nine county, city, and town streets and highway departments and of the UW Extension Governmental Affairs unit met with T.I.C. staff this spring to advise us on Center programs. From George Koval in Bayfield County’s Town of Keystone to Racine’s Jim Blazek, these advisors represent the varied geography, community, and budget size, roadway needs, and background experiences typical in Wisconsin.

“The Advisory Council continues to be a valuable resource for ideas and a good sounding board,” says T.I.C. Director Don Walker. “We really appreciate their help and information.” Current members of the T.I.C. Advisory Board include Ken Nelson, UW-Extension professor of governmental affairs and;

William Bittner, Dir. of Public Works, Eau Claire
James Blazek, City Engineer, Racine
Robert Henken, Dodge Co. Highway Commissioner
Nate Klasuy, Dir. of Public Works, Monroe
Roger Kolb, Brown Co. Highway Commissioner

George Koval, Town Chair, Keystone
Al Sattler, Town Chair, Calumet
Emmer Shields, Ashland Co. Highway Commissioner
John VanAlstine, Dir. of Public Works, Stevens Point

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The T.I.C. provides work zone information. If you didn't get your copy of the newly revised Wade DOT study, it is difficult and costly to real real the Joint Sealing Technology Association. He added that the conclusion is very controversial. The American Concrete Pavement Association has called for a national working group to consider the issue.

Pavement performance depends much more on how the Joint Sealing Technology Association took the lead in working to standardize the approach to equipment maintenance and repair, including faulting, cracking, spalling, patching, etc. Ride quality, materials and costs of rehabilitation were also improved.

"By not sealing, we also avoid inconvenience to highway users during sealing operations and increase highway safety because no crews are out on the highway closing lanes when joints are resealed," says Steve Shober, Chief of the Pavement and Research Engineer at WisDOT. For copies of the WisDOT study, see the Effect of PCC joint sealing on total pavement performance, contact Steve Shober at WisDOT.

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"By not sealing, we also avoid inconvenience to highway users during sealing operations and increase highway safety because no crews are out on the highway closing lanes when joints are resealed," says Steve Shober, Chief of the Pavement and Research Engineer at WisDOT. For copies of the WisDOT study, see the Effect of PCC joint sealing on total pavement performance, contact Steve Shober at WisDOT.

Traffic Engineering. This is an opportunity to review some special topics of particular interest to street and highway operations, including several simple traffic studies. Also, review the warrants for traffic control signs and signals and look at selected traffic control materials.

WisDOT's no-seal policy gets attention

After studying Portland Cement Concrete (PCC) pavement performance since the 1950s, WisDOT concluded in 1990 that sealing contraction joints is a waste of money. The policy has saved Wisconsin as much as $6 million a year with no loss in pavement quality, according to a report for the 1996 World Congress on Joint Sealing and Bearing Systems for Concrete Structures. The research applies only to contraction joints and cracks in PCC pavement, cracks sealing in asphalt pavements appears to be effective and economical in helping preserve them. Similarly, sealing edgecracks between PCC pavement and asphalt shoulders can also be effective. "The Wisconsin Division of the Federal Highway Administration has concurred," says FHWA Pavement Engineer Wess Schenkel. "Wisconsin has a lot of research to show that surface sealing on the pavement performs better." He adds that the conclusion is very controversial. The American Concrete Pavement Association has called for a national working group to consider the issue.

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Dispenser for edge dropoffs

By modifying a commercial rock spreader, maintenance staff at Illinois DOT’s Carlinville yard have a neater, easier way to fix low shoulders along pavements. A platform built onto the front of a grader holds the spreader. It attaches to the grader’s scarifying hookups and hydraulic controls.

This rock spreading system is neat and efficient. A rock truck hooks onto a pintle at the spreader unit’s front, dumping rock onto the belt as needed. The grader pushes the truck and the grader driver distributes the rock as needed.

“It’s very handy,” says Tom Shank, IDOT Field Technician. “It replaces one person and makes for a neater job and continuous operation.” The platform is simple to build, he says, and the unit can also be used to distribute cold mix or hot mix. The unit they use is a Hi-Way brand reversible tailgate conveyor, TGC-18, that costs about $4000.

Pavement dropoffs are very hazardous and have been the subject of liability claims around the country. Large dropoffs should be repaired right away for motorist safety. For more information contact Tom Shank at 618/633-2206.

CDL exemption expected in November

After a late July public hearing, WisDOT has forwarded to the Legislature a proposed rule exempting from the CDL requirement backup snowplow drivers in municipalities of less than 3000 population. This brings Wisconsin’s rules in line with previously enacted federal rules. If there are no Legislative hearings, the rule will be published and is likely to take effect around the beginning of November, according to Wes Geringer at WisDOT.

The exempted person must be an employee of the town or village and have a valid class “D” (regular) driver’s license. He or she must be operating within the boundaries of the local governmental unit and must be needed for helping to plow snow because the local unit has determined that a snow emergency exists. A local unit of government means: county, city, village, town, school district, county utility district, sanitary district, metropolitan sewerage district, or other public body created by or under state law.

A grader local and association newsletters for the official announcement of the rule.

40 states to metricate by October

A survey by AASHTO found that 40 of 49 states responding are on target to convert to metric system by the October 1996 deadline. Most are already doing design and construction in metric units. Alaska, Hawaii, Nevada, the Dakotas, Pennsylvania and the District of Columbia will delay; Maryland and Arkansas were undecided, and Washington did not reply. The survey appeared in AASHTO’s January/February 1996 Metrication Clearinghouse Newsletter.

Do you have an idea to exchange? Have you designed a gadget or found a new way to do something? Do other streets and highways people can use? Use the form on page 7 to let us know, or call Don Walker or Steve Pudloski at 800/442-4615.

Glass: the new aggregate

Recyclers, aggregators, suppliers, and WisDOT are working together to take advantage of a new raw material for roads: mixed glass. Between 35,000 and 45,000 tons are produced a year at Wisconsin recycling facilities. Cleaned, milled, and blended, and possibly as much as 20%, with aggregate, the glass can be used economically and effectively as utility trench backfill and base course material.

Outagamie County is now using a glass-aggregate mix in backfill,“ says Jeannine Knap, who manages the Outagamie County Materials Recycling Facility. Under a Department of Natural Resources grant, the County Highway Department has also experimented with adding glass to asphalt mixes in some test pavements, a technology about which WisDOT pavement researchers have strong reservations.

A statewide working group plans to hold two demonstrations before the 1996 construction season ends, Outagamie County Recycling Facility Manager Jeannine Knap says. These may show glass being used as backfill, base material, drainage medium, or in the lower layers of asphalt pavement. She hopes a number of Wisconsin’s streets and highway people will be able to attend.

Having completed two research projects on glass use, WisDOT now encourages using it for base course and backfill material. A Supplemental Specification to the Standard Specifications for Road and Bridge Construction is nearly complete. Updated sections in the Facilities Development Manual describing glass and other recycled material use are due out soon.

One aggregate dealer, Valley Sand and Gravel in Muskego, is producing a “compacted bank run” material that includes glass up to 1/2 inch in diameter. Before mixing the glass with the aggregate, the dealer uses screens to “beneficiate” or clean the mixed color glass, removing unwanted material like plastic or metal. “There will be no restrictions or tracking requirements when the material is used in accordance with approved specifications,” says Kate Cooper, chief of the Waste Reduction and Recycling Section at the Department of Natural Resources.

Recycling facilities can sell color-separated clear, green and brown container glass, but there are limited markets for what is called “mixed color cullet.” Some Wisconsin recycling facilities currently pay to have their mixed color cullet mechanically color sorted and beneficiated at a high-tech facility in Illinois. Other recycling facilities arestockpiling their glass and searching for local projects where glass can be used beneficially. Mixing glass with aggregate and incorporating it into trenches and road base courses is a good way to reuse these resources. “As long as the glass-aggregate meets performance requirements and specifications we’re happy to have contractors and municipal crews use it,” says Steve Shober, Chief Pavement and Research Engineer at WisDOT.

For information on the fall demonstration projects contact Jeannine Knap, phone: 414/832-4710, fax: 414/882-4130. A performance report: Use of recycled glass in edge drain trench, WI-03-96, is available from the T.I.C. Use the form on page 7, call, or e-mail for your copy. When the new specifications and Facilities Development Manual sections are ready they will automatically be sent to people who normally get those materials. Others can contact: Mark Truby at WisDOT, 608/266-9349, PO Box 7965, Madison, WI 53707-7965 to request copies after they are printed.

Crossroads

This newsletter provides information on roads and bridges to local officials and is published quarterly by the Wisconsin Transportation Information Center. Crossroads is produced with assistance from the National Highway Administration, the Wisconsin Department of Transportation, and the University of Wisconsin-Stout.

Non-profit organizations are welcome to reproduce articles appearing here. Please contact us for any updates or corrections. Wisconsin Transportation Information Center, UW-Madison Department of Engineering Professional Development, 432 N. Lake St., Madison, WI 53706 Phone: 608/442-4615 Fax: 608/263-3160, or e-mail to individuals below. Don Walker, director Steve Pudloski, staff Nancy Ranum, program coordinator Lynn Green, editor and author Susan Kunner, graphics artist Antilax.

Idea Exchange

The AASHTO Metrication Clearinghouse Newsletter is a request for stories, 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 e-mail us:
phone 800/442-4615
fax 608/263-3160
e-mail Ranum@engr.wisc.edu

Reader Response

Please send me information on __________________________________________________________

(We’ll contact you to get more details or answer your question.)
New tools for winter road maintenance

New salting equipment may be needed, however. The WisDOT program will be exploring new multi-purpose equipment that combines pre-wetting systems by using both salt spinners and spray bars. As pavement temperatures drop and snow accumulates, a truck with this equipment could quickly switch from anti-icing with a light brine solution to de-icing with pre-wetted salt. Another anti-icing technique under study is to apply a finer gradation of pre-wetted salt with zero velocity spreaders.

Zero velocity application means more deicing material stays on the road than with a conventional spinner.

Share WisDOT's equipment buying power

You can invest in this new winter maintenance technology with relative ease. Through the state's cooperative purchasing agreements with vendors any municipality (county, city, village, town) can order the same new equipment being used by counties.

According to Tom Lorfeld, who is familiar with WisDOT's winter equipment purchasing effort, local municipalities are welcome to buy equipment under the state's contract. He has detailed equipment specs and vendor information. WisDOT is considering buying some of the following equipment types. (These 1995 prices are for equipment only, not installation):

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Truck-mounted pavement temperature sensors are one of the promising new tools WisDOT tested last winter in our Winter Maintenance Initiative program. Zero-velocity salt spreaders, on-board prewetting systems, and ground-oriented speed control units which also help make salting more efficient were also deployed. Many counties who tried out the new state-purchased equipment last winter found it very effective in helping reduce the salt required. WisDOT is looking into buying more state-of-the-art equipment.

“Traffic volumes are increasing, and so are drivers’ expectations. It’s a challenge to keep the same level of service. And at the same time we’re concerned about the amount of salt we’re using,” says Tom Martinelli, WisDOT’s regional maintenance engineer. New equipment and new techniques are helping meet that goal. The Wi inter Maintenance Initiative will invest again this year in equipment, salt sheds, and public education to better maintain the state’s roads in winter.

County crews who maintain state highways are anxious to use the mobile pavement temperature sensors. Mounted on a supervisor’s car or a patrol truck, they help supervisors determine when it is most effective to call for salting. “We’ve had requests to buy about 77 additional units for next year,” says Martinelli, who expects they’ll actually order just a few of the $2000 units to try in a pilot program.

“I think the sensors produced substantial cost savings,” says Roger Kolb, Brown County Highway Commissioner. “With a five or six degree difference between air and pavement temperature, it can be difficult to gauge when to begin salting. We’ve found pavements are often warmer than we expected so we can send crews out later.” The mobile sensors were accurate when tested against stationary pavement temperature sensors, Kolb reports, and much handier than returning to the office to dial up computer reports.

Anti-icing clears pavements sooner

The sensors also help with anti-icing technology, the preemptive approach designed to keep snow and ice from bonding to pavements. “We’d had some good luck preventing bonding last year,” says Ed Kazik, a Brown County Patrol Supervisor whose vehicle carries one of the sensors. “You know when the temperature is right to give the pavements a light shot of salt to prevent icing.”

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