

Crossroads

Fall 2001



TRANSPORTATION Information Center — LTAP

University of Wisconsin—Madison

Demonstration day shows asphalt how-tos

The Transportation Information Center's Asphalt Pavement Maintenance Workshop and Demonstration, July 11, drew over 100 participants from public agencies and private industry to the Green Bay area.

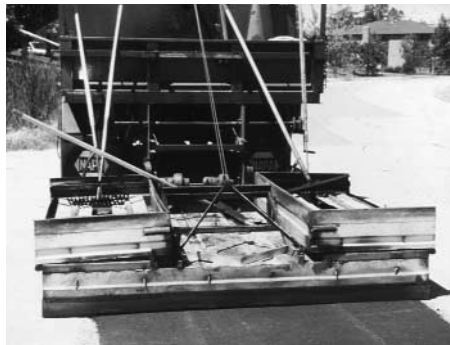
Field demonstrations showed equipment and techniques for seven proven asphalt pavement maintenance treatments: spray injection patching, infrared patching, crack routing and sealing, chip sealing, slurry sealing, milling and patching small areas around manholes, and a thin asphalt overlay. (See related story on page 7.)

The experience along with information sheets and sample specifications will help participants implement the techniques in their agencies and companies. There were also brief classroom presentations, and question and answer opportunities at the sites.

The T.I.C. worked with the Wisconsin Asphalt Pavement Association to find the demonstration contractors and demonstration sites. Demonstrators who donated labor, materials, and equipment included: Daffinson Asphalt Maintenance, Fahrner Asphalt, Northeast Asphalt, Scott Construction, and the City of Green Bay. The City of Green Bay, the Town of Scott and the University of Wisconsin-Green Bay provided sites used in the demonstrations. Funding to make the Demonstration possible came from the Federal Highway Administration.



A – high pressure spray injection patching



B – infrared heat unit removes asphalt



C – routing cracks for sealing

Spray injection patching (*photo A*) Wisconsin communities and contractors are finding applications for high tech spray injection patching equipment. One or two employees can operate it to produce a durable patch on both asphalt and concrete pavements. The “all-in-one” machine allows the operator to blow the hole clean, then tack and patch the area by blowing in asphalt and aggregate under high pressure.

Infrared surface patching (*photo B*) provides a good ride and long-lasting patch. The special heating unit allows you to remove deteriorated asphalt and replace it with new material. With careful attention to hand leveling and compaction you can produce an excellent-riding patch with durability that matches the surrounding pavement.

Crack sealing (*photo C*) is a basic maintenance task. The demonstration highlighted good practice and current equipment in routing and sealing and provided options in routing configurations and sealant selection.

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Q & A about signing and the new MUTCD

Participants in the T.I.C. Safety Workshops last April learned about some of the new signs that are in the *Manual on Uniform Traffic Control Devices (MUTCD) 2000* in addition to brushing up on their signing and safety knowledge. Here are some questions that participants asked:

Q If we have the old school crossing sign which has the lines under it, can we just add the arrow or do we have to replace the sign?



A The arrow signs (W16-7) may be used with existing school crossing signs that have the parallel lines. When the older crossings signs are replaced, they will not use the parallel line symbols.

Q Are no passing zone markings required in an urban area?

A The new *MUTCD* does not exempt urban areas from the use of no passing zones where centerlines are marked. It says: "Where centerline markings are installed, no-passing zones shall be established at vertical and horizontal curves and other locations where an engineering study indicates that passing must be prohibited because of inadequate sight distances or other special conditions."

Q Will the new Wisconsin Supplement be a loose-leaf binder?

A The format of the WisDOT Supplement has not been determined to date. Both electronic and hard copy versions are likely to be available.

Q Can we go ahead and make changes now or should we wait until the new *MUTCD* is adopted?

A It is best to wait before making major changes until the WisDOT Supplement is completed. Sign and marking changes or replacements should be made with the new *MUTCD* in mind. For example, it is not wise to purchase a supply of signs that are not consistent with the new manual. Call the T.I.C. or your District WisDOT Traffic Engineer for advice if you have concerns.

Q When should I buy the new *MUTCD* manual?

A We suggest that you hold off buying the new *MUTCD* until all changes are final in 2002.

The FHWA issued editorial corrections to the 2000 *MUTCD* in June that covered only format, spelling, and grammar changes (errata).

A significant number of pages are expected to be further revised because of technical corrections or changes and some new proposed revisions. These will be addressed in a Fall 2001 rulemaking process with final approval in early 2002.

In addition, the *MUTCD* does not take effect until WisDOT completes and adopts the *Wisconsin Supplement*, scheduled for late 2001. Also the earliest compliance date is January 2003 for implementing changes in the new *MUTCD*, except where FHWA allows a longer compliance period.

You can review or download the 2000 *MUTCD* with errata corrections on the FHWA website: <http://mutcd.fhwa.dot.gov>

Resources

Materials are available free from the T.I.C. unless an alternate source is listed.

2001 Design Guide, Wisconsin Asphalt Pavement Association. This revised edition of the Design Guide provides basic information on hot mix asphalt pavements, discusses structural design considerations for asphalt pavements, and supplies a simplified thickness design for hot mix asphalt pavements. It includes charts on aggregate gradations, Superpave mix design recommendations, minimum and maximum layer thickness, and equivalent single axle loads. Guide information is based on WisDOT standards.

Asphalt Pavement Maintenance Demonstration Day Information Folder. 2001. Transportation Information Center. Information sheets on crack routing and sealing, infrared patching, slurry seal, spray injection patching, chip seal, ultrathin overlay, and milling and patching. Sample specifications for several of these processes are also included.

Unimproved Roads PASER Manual. 2001. Transportation Information Center, 16 pp. This new manual provides information for local officials to evaluate earthen and unimproved roads. It may be used to develop PASER ratings for the WisDOT Local Road Inventory and to establish priorities for future road improvements. The manual is a companion to the other PASER manuals produced by the Wisconsin Transportation Information Center.

Videotapes

Videos are loaned free from UW-Extension county offices. The complete videotape lending library catalog is available from the Transportation Information Center or can be viewed on line at <http://epdweb.engr.wisc.edu/centers/tic/>

Videotape Lending Library Catalog. June 2001. T.I.C. 54 pp. This newly revised catalog has over 300 videos covering a wide range of topics, including pavement maintenance and construction, bridges, drainage, equipment maintenance, liability, safety, and winter maintenance. Videotapes are loaned at no cost, through county UW Extension offices and returned to the Extension library. Tapes can be scheduled for future meetings or requested for immediate viewing.

CORRECTION: The contact information for nine counties without Community Resource Development agents was inadvertently left out of the new catalog:

Adams	608/339-4237
Buffalo	608/685-4560
Clark	715/743-5121
Crawford	608/326-0223
Eau Claire	715/839-4712
Pepin	715/672-5214
Polk	715/485-3136
Rusk	715/532-2151
Vernon	608/637-2165

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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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Rating unimproved roads

Many local communities have a few unimproved roads in their systems. These very low volume roads typically are 8-20 feet wide. Some may be grass-covered wheel tracks that look like trails and get more use by ATVs and bikers than trucks and cars. In wet weather these roads can turn into deep muddy ruts.

Under the new Wisconsin Local Road Inventory program (WISLR) even these seldom-used routes should be rated and reported. The T.I.C. has prepared a new **PASER Manual for Unimproved Roads** to help you record their condition if they are listed on the WisDOT inventory. The T.I.C. has copies available for your use (see *Resources* on page 2).

On an unimproved road the existing natural soil is the surface. In some areas the soil is sand or gravel and the road is relatively stable in wet conditions. Other roads are on clays, silts and organic materials that are unstable in wet weather and develop ruts under heavy traffic. Sometimes these roads have been lightly graded—cut into the soil with ditches for drainage and a small crown. Occasionally gravel has been added at some spots to stabilize wet or flood-prone areas.

As with other types of road surfaces, you can rate unimproved earthen roads based on condition and distress. Conditions include: profile and ride, drainage, crown, access, and surface material. Common types of distress are: ruts, pot-holes, rocks and roots, and washboarding.

The new manual suggests using a 4-point rating system: very good, good, fair, or poor. A very good unimproved road, for example, would be graded with a crown, and it may have ditches

and culverts. It is usually accessible in all weather, has no significant ruts and a stable surface material, and it is possible to ride it comfortably at 25 mph or more.

By contrast, a fair unimproved road would be ungraded with little or no crown, ditches or culverts. Ruts are common. The surface is uneven with occasional potholes, and access may be limited during and after rain. Most of the time the ride requires speeds lower than 15 mph.

Rating unimproved roads follows similar procedures to rating other surfaces and has similar benefits. You develop written documentation about changing road conditions which helps with annual budgets and long range planning. In general, light grading with some crown and ditch improvements will improve these roads. If current and future traffic and land use will keep the number of vehicles very low, it may be appropriate to limit any improvements.

For copies of the new PASER Manual for Unimproved Roads see resources page 2, or contact the T.I.C. using the form on page 7.



Graded road with crown allows good ride and speeds of 25 mph. Sandy surface soil.



Low volume forest access. Stable surface. Comfortable ride at 10 mph.

Resources

from page 2

NEW **Safe Winter Driving Considerations**, #18442 National Safety Council, 2001, 21 min. Basic winter driving advice for passenger vehicle drivers. Covers preparation and typical road hazards. Helpful for new auto drivers or a refresher. Does not discuss snowplow equipment operations.

NEW **Foam Injection Recycling**, #18446 Payne & Dolan, 2001, 8 min. Reviews process and benefits of foam injection recycling of asphalt pavements. Shows construction process of an alternate recycling method to rebuild pavements. Intended for elected officials and managers interested in asphalt recycling.

Recommended **Winter Operations Training Program Series**, Iowa DOT:

Introduction to Winter Operations, #18172, 11 min. Equipment types and use including trucks, graders, loaders and plows. A good introduction for new employees.

Pre-Season Preparation, #18173, 30 min. Mounting snow removal equipment and pre-season equipment checks. Intended for operators and shop personnel.

Equipment Operation, #18174, 10 min. Routine equipment checks before and after plowing. Proper radio procedures and winter clothing tips. Intended for operators.

Plowing Techniques, #18175, 30 min. Excellent review of snow plowing techniques on 2-lane and multi lane roads. Includes intersections, bridges, rail crossings and ramps. Covers plowing, winging, ice blades, and V-plow use. Intended for operators and supervisors.

Anti-Icing/Deicing, #18187, 30 min. Review of chemicals and abrasives for snow and ice control. Special topics on snow fences, salt brine production, and use of brine for pre-wetting salt. Excellent guidelines for use of brine for anti-icing. Intended for supervisors.

Sharpen your grader operations

Most grader operators learn on the job from those with more experience. It's a good way to learn, says Bruce Higgins, but people often don't get exposed to the newer techniques. Higgins teaches operator training and has nearly 20 years' experience operating a grader on roads and construction sites.



"One of the older methods we used in Michigan was to cut each side to the center of the road," says Higgins. "Then we straddled the center and went down it with the blade. Of course, that would flat-top the road and eliminate the crown." Learning good scraping techniques and how to get a 2%-4% crown slope laid out properly is a challenge for operators.

In his workshops Higgins spends one day in the classroom and a second in the field: three or four operators practice with a grader on a local gravel road or parking lot. Operators switch off driving the machine while those on the ground can ask questions and hear each others' ideas.

"Bruce's training worked out very well for us," says Gary Kennedy, Manitowoc County Highway Commissioner. "The classroom training allowed more operators to attend. We plan on having him back next year so other operators can benefit from the field work."



Higgins' training covers grader operation and maintenance, safety, morale, and attitude. "I do what I call full circle training," says Higgins. "It's not just about equipment, it's also about attitude. I ask them to think: If I lived on that road would I be satisfied with the job?"

Newer equipment such as slope meters, and new types of blades and tires are also important topics both for the classroom and in informal talks with supervisors. Many counties don't have slope meters that show the 2%-4% crown grade, says Higgins. "A meter only costs \$90-\$140 to put on a \$140,000-\$180,000 machine," he says. "That's less than one cent on the dollar for the operator to see what he's doing to the road and to get it properly

laid out." New tire tread styles nearly eliminate the need for chains in snow, he says. Serrated, carbide-bit blades cut, mix and lay the road out better with just one pass each side and last for years.

"I try to cover a little bit of everything and give more detail on topics that the agency wants work on," says Higgins. "If they are primarily interested in road maintenance and shoulder work, that's what we emphasize."

Higgins retired in 1997 from the Genesee County, Michigan, Highway Department and since that time has offered training in 76 of Michigan's 83 counties, and in Minnesota, Florida, and Wisconsin.

For information from Higgins about grader operator training contact him at: 810/730-7698; e-mail: BruceHig@hotmail.com

On-site training: your shop, your schedule

Regular training is important as a refresher for long-term employees and to bring new staff up to speed. Employees also see training as a reward. Sending them to workshops away from your facility is expensive and can disrupt on-going work. As an alternative, you can train more crew members, more economically, with on-site programs. The T.I.C. offers four topics that can be presented at a time and location most convenient for you. Often the content can be tailored to your specific needs.

T.I.C. on-site training workshops

Basic Surveying for Local Highway Departments

Highway workers and foremen with little or no surveying experience can learn to use a tape and hand level for fast, reliable measurements to: lay out a building, set culvert and ditch grades, determine crown and slopes, and set construction stakes. Classroom instruction and outdoor field exercises. One day, 20 participants, \$500.

Basic Work Zone Traffic Control Crew leaders, designers and field personnel learn Wisconsin standard practice for work zone traffic control. They will do group exercises using the T.I.C. pocket-sized *Work Zone Safety Handbook* to set up the work zone traffic control for a variety of situations including short term operations, moving operations, and full scale construction projects. One day, 30 participants, \$500.

Flagger Training This three-hour workshop provides solid flagger training for all your field personnel. It covers procedures approved for WisDOT construction, maintenance and utility flagging operations. All participants receive a flagger pocket guide and actually practice flagging. \$500 per instructor per day.

Flagger Instructor Training For key staff who will be training new employees and temporary help, add this extra half-day workshop to the flagger training. Participants practice teaching the flagger training, and receive an instructor's manual, video, and a supply of flagger handbooks. Class limited to 20. Fee depends on the number of flagger sessions.

For more information or to schedule T.I.C. on-site training sessions call Jane Sauer at 800/442-4615, e-mail: tic@epd.engr.wisc.edu, or use the form on page 7.

Independent instructor on-site workshops

As a service to local agency officials, the T.I.C. offers information about training programs offered by other organizations and individuals.

Grader Operator Training Learn how to get the best performance from your motor grader. Workshop covers techniques for grading gravel roads, shoulders, and new roads. Includes one day of classroom

continued on page 5

Calendar

T.I.C. workshops

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

PASERWARE 2.9 training

PASERWARE 2.9 is a *revised* version of PASERWARE 2.5 that is designed to download the new format of the state local roads data base that will come on line in September 2001. This workshop is for local governments that have not used any previous version of PASERWARE or ROADWARE and have not downloaded their local roads data base before September 2001. At this course, you will receive PASERWARE 2.9 and learn how to use PASERWARE to help you develop your capital improvement program, project the results of your street maintenance and improvement decisions, keep a history of your projects, and report your condition ratings to WisDOT.

Oct 17 Green Bay	Oct 23 Cable
Oct 18 Brookfield	Oct 24 Eau Claire
Oct 19 Barneveld	Oct 25 Tomah
Oct 22 Rhinelander	

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 for better win-

ter operations. Winter survival techniques is a new topic, presented by a national expert.

Sep 17	Rhinelander
Sep 18	Cable
Sep 19	Eau Claire
Sep 20	Tomah
Sep 24	DePere
Sep 25	Barneveld
Sep 26	Brookfield

Using Portland Cement Concrete Effectively

This workshop will provide you with a basic understanding of Portland Cement Concrete and the factors that affect its quality, strength, and durability. Topics include: a discussion of the basic ingredients in concrete plus the many admixtures that can be used; proper procedures for mixing and delivery of quality concrete; preparation of the subgrade; placing and curing concrete; reinforcement and jointing to control random cracking.

Nov 13	Eau Claire
Nov 14	Wisconsin Dells
Nov 15	Brookfield
Nov 16	DePere

Local Transportation Issues (ETN)

The T.I.C. and the UW Local Government Center present five sessions on transportation over 103 Wisconsin ETN locations. Fee: \$15/session or \$65 for all five. Workshops are 10:30 am to 12:20 pm, Thursdays. Call 608/262-9960 for a brochure.

page: <http://www.newnorth.net/fista/> (Also see article in *Crossroads*, Spring 1998.)

Safety Training Serious emergencies can develop quickly in confined spaces. OSHA requires safety training for workers and supervisors involved in trenching and other confined space operations. The following instructors offer Competent Person training along with other safety programs: Gregg Swenson, Group One Limited, 608/365-2957; Kevin Schmitt, 920/901-6000. Web page with on-line safety training: <http://www.schmittsafety.com>.

These independent instructors have presented training to local agencies who recommended them to us. If you would like to recommend a trainer and topic, call the T.I.C. at 800/442-4615, or use the form on page 7.

Right-of-Way Maintenance – Oct 4

Discusses mowing, brushing and pesticide/herbicide use. Reviews mowing practices related to drainage, animal habitat impact, and safety.

Local Transportation Funding – Nov 8

Hear about funding issues including state and federal programs. Learn about recent changes in General Transportation Aids and the Local Road Improvement program.

Truck & Heavy Equipment Engines – Jan 17

Experts explain what is new with engines for large public works vehicles. Let information on future trends in diesel and large gasoline engines help you write specs for future equipment bids.

Local Road Inventory – Mar 14

Learn about early results of the WISLR program. Share experiences and data-use stories with fellow street and road supervisors.

Liability and Legal Issues – Apr 11

Improve your understanding of modern risk management practices and legal obligations relating to road, sidewalk, and bridge maintenance.

UW–Madison Seminars

Local government officials are eligible for a limited number of scholarships for the following engineering courses. Use the form on page 7, call 800/442-4615, or e-mail tic@epd.engr.wisc.edu for details. Courses are in Madison unless otherwise noted.

Implementing a Sidewalk Management System: Planning, Design, Construction, Maintenance and Inspection, Oct 8-9

Traffic Engineering Fundamentals, Oct 10-12, Milwaukee

Managing Snow and Ice Control Operations, Oct 10-11

Solving Environmental Problems at Your Vehicle Maintenance Facility, Oct 16-17

Soil Engineering for Non-Soils Engineers and Technicians, Oct 22-23

Deep Foundations Simplified, Nov 6-7

Earthwork Construction Using Geosynthetics, Nov 8-9

Applying the New Highway Capacity Manual 2000, Nov 12-13

Effective Bridge Rehabilitation, Dec 3-5

On-site training

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training on safety, maintenance and grading procedures, followed by field training in your machine on your road. Classroom, one day, 20 people max., \$800. Field instruction \$500/day in your machine for up to 4 operators. Instructor: Bruce Higgins, 810/730-7698.

Chainsaw Safety Training Classroom instruction covers proper body mechanics, personal protective equipment, and chainsaw maintenance, two hours. Outdoor field instruction and demonstration covers felling, limbing, bucking, and topping (four to six hours). Fee: \$500/day (and possible travel expenses), 15 people max. Contact: Forest Industry Safety & Training Alliance, Inc., 715/282-4979, 800/551-2656, e-mail: fista@newnorth.net. Web

Good techniques for concrete repair

New methods have improved concrete pavement repair techniques. The Wisconsin Concrete Pavement Association has recommendations for partial depth repairs, crack filling, and dowel bar joint repairs.

In the mid-1980s the Wisconsin DOT discouraged partial depth concrete repairs because of poor performance; they failed within a year or two. Since then the Minnesota DOT has perfected partial depth repair methods. In 1997 WCPA sponsored demonstration projects in Superior and Horicon, Wisconsin.



PHOTO CREDIT: WESTERN BUILDER

"They've performed wonderfully," says WCPA Executive Director Kevin McMullen. "There's been no documented failure yet." Since then WCPA has done 110,000 lineal feet of partial depth repair on several jobs with WisDOT, as well as other jobs with the Cities of Superior and Brookfield. The major change is to mill off the surface material rather than cut holes. Patches use normal PCC materials.

It's very important to match the repair to the severity and size of distress, McMullen says. Partial depth repairs are appropriate for small areas where distress is confined to the surface or top 2-3 inches. "It's much more economical to repair a little bit of area with a small patch than pulling out a 6 by 12 foot square to do a full depth repair," says McMullen.

Joint sealing

"We encourage people to seal concrete joints on low volume streets using low-cost hot pour fill material," says

McMullen. "You can spend a lot of money on sealants —\$1.50 to \$2 a foot—that doesn't perform any better than hot pour asphalt at 30 to 50 cents a foot."

There is some confusion about sealing concrete joints since WisDOT stopped doing it in 1989 after research showed it was ineffective. McMullen was on the WisDOT research staff at the time. "I still believe that policy is strong and applies to rural, high speed highways where the research was done," he says. The blast of air that follows trucks will push dust and stones off pavement and onto the shoulder on high speed roads. On low speed roads, it will find its way to the joint and end up causing spalling and joint distress.

It is important to watch the pavement performance where joints were sealed before the WisDOT policy. Some sealants have failed in places and that is where joint distress occurs. Normal expansion and contraction stresses are concentrated in the small, unsealed joint segment that is clogged with sand and rocks.

One repair option is to completely remove the old seal and leave it out if the road carries fast-moving traffic. The other option is to remove as much sealant as possible and blow stones and sand out of the joint, then refill the joint with hot pour asphalt.

"That stuff will stick to anything," says McMullen. "You can even seal over the old sealant." Over the years it tends to drain down into the pavement. In that case, just add a little more, making sure not to overfill it and allow traffic to track it over the pavement.

Retrofitting with dowel bar

For about 15 years, from 1972 to 1987, both WisDOT and municipalities built concrete pavements without dowels at the



Slots cut for dowel bar joint repairs

joints. While these pavements have performed well in general, they tend to develop faults at the joints due to the action of heavy truck tires.

Where these pavements are still in good condition and the faulting is no more than 1/2–3/4 inch, they can be retrofitted with dowel bar across the joint. This involves cutting a series of slots across the joint and inserting short lengths of dowel bar. Concrete is poured into the slots, then crews return later to grind the pavement smooth.

"It's been very well tested nationally and has a great track record," says McMullen. In Wisconsin, retrofits were done in 1999 and 2000 on US Highway 151 at Dodgeville and US Highway 61 north of Dubuque.

Initial cost of the retrofit is probably more than asphalt, says McMullen, but over the road's life cycle it is more cost effective. "There's reason to believe that this treatment will last 25-30 years. In that time you may have one or two additional asphalt overlays."

Voids under pavement slabs

Sometimes a hollow area will develop under pavement slabs. WCPA recommends using flowable fill to fill the void—usually a high fly ash mix with very little stone in it. It flows and densifies well and can be pumped in while removing a minimal amount of pavement. Flowable fills are generally proprietary materials and expensive.

Slab jacking is an alternative method for filling voids. One technique involves pumping grout into the void until it pushes the pavement up into place. It works well in limited applications, but can be very costly if a lot of grout is needed, says McMullen. Another technique involves physically jacking the slab up and pumping grout underneath, then releasing the jack. "That has been problematic," says McMullen. "If you don't watch it, you end up breaking the slab in half, creating more problems." Slab jacking works well and is usually done on small slab areas.

The Wisconsin Concrete Pavement Association has print materials giving more detail about partial depth concrete repair and dowel retrofits. For copies and more information contact WCPA at 608/240-1020, 2423 American Lane, Madison, WI 53704.

Ultra-thin asphalt overlay a maintenance option

Several Wisconsin contractors offer ultra-thin asphalt overlays as a maintenance alternative to double seal coating. The 1/2-2 inch thick overlay is applied with a conventional paver over a tack coat. The mix includes both fine aggregate and a modified asphalt cement with added polymers. These thin overlays are highly durable and add structural strength to the pavement.

"We had it laid 1/2-3/4 inch thick on a couple streets where the surfaces were deteriorating," says Mike Jorgenson, City of Neenah Engineering Technician. "It was thin enough that we didn't have to raise the manholes. It looks pretty good so far. It hasn't raveled or come apart at the edges where it meets the curb and gutter." They decided to try the overlay after having a bad experience with chip sealing. The overlay is expected to extend pavement life by 5-10 years.

The treatment is appropriate on pavements that are structurally sound with a good cross section and moderate cracking. Visible surface distress may include raveling and surface wear, slight to moderate flushing or polishing, and/or an occasional patch in good condition.

Preparation involves sweeping thoroughly, patching serious potholes, and making minor base repairs. Patches with high asphalt content should be removed and replaced to prevent asphalt bleeding

through the new surface. The tack coat bonds the overlay to the old surface, so quality and application are critical.

A conventional paver lays the asphalt, typically about 3/4 inch thick. This provides enough material to fill ruts and settled pavements and the paver can also make minor corrections to the crown and slope. Because the aggregate is small crews can feather the overlay edges to the curb and gutter level in urban areas and avoid reshouldering on rural roads.

"It costs a little more than a double chip seal but you don't have stones going into the ditch or problems with cracked windshields," says Mike Byrnes a vice president at D.L. Gasser in Onalaska (a division of Mathy Construction). "It's also nice not to have to wait a year til the stones are done flaking off to put the striping down."

Ultrathin overlays are not appropriate for severely distressed concrete pavements, pavements with a weak base, or



Ultra-thin overlay strengthens and smooths pavement.

asphalt pavements with ruts over 1/2 inch deep or severe cracking with cracks larger than 3/8 inch wide. The overlays can be useful where surfaces have a poor ride quality, light to moderate cracking, shoulder or edge drop wedging, wheel ruts, and aged, oxidized or slick pavements. "We have been laying the ultrathin overlay for three years in the Fox River Valley and we are projecting they will add at least six to eight years of life to the existing pavements and maybe up to 12 years," says Randy Brockington of Northeast Asphalt in the Fox Valley.

Information about ultrathin overlays is included in the Asphalt Demonstration Day packet. See Resources on page 2.

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 _____



Demonstration Day *from page 1*

Surface seal treatments (photos D & E) are an economical way to extend the life of pavements. Crack filling and patching ahead of the seal will increase the effec-

tiveness of the treatment. The slurry seal gives the appearance of a new road surface and provides many years of low maintenance service.

Chip seals are a low cost surface treatment. Using a combination rubber-tired and steel-wheel roller (see photo D) produces a tight, durable surface.



D – chip seal being compacted



E – slurry seal

Address incorrect?
Please call or write us with
the correct information

Route To

University of Wisconsin–Madison
College of Engineering
432 North Lake Street
Madison, WI 53706

TRANSPORTATION Information Center — LTAP



Do not use for return mail

Nonprofit Organization	
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PAID	
Madison, Wisconsin	
Permit No. 658	

Local Technical Assistance Program (LTAP)

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