

Crossroads

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Armoring pavement at snowmobile crossings

PHOTO CREDITS: R.J. & LINDA MILLER, WISCONSIN DEPARTMENT OF TOURISM



Up North, in the “Snowmobile Capital of the World,” snowmobile traffic can get very heavy. “It’s like being in an anthill during

the race,” says Marv Laspa, Operations Supervisor, WisDOT District 7. “I’ve been told that at times there are 200 snowmobiles an hour at some crossings!”

All that activity puts a lot of wear on pavement surfaces and bridge decks from the snowmobiles’ carbide-tipped studs. To protect the roads and avoid having to patch them, Laspa borrowed an idea from Michigan—gluing durable stone to the crossing surface with epoxy-like polymers.

The first surfaces were installed in 2000 at busy Minocqua and Eagle River crossings. The wear layers worked well, and others were added throughout the District’s eight counties. About 50 crossings are now armored. “I think it saves

quite a bit on the pavement,” says Laspa. “I just can’t imagine what we’d be fixing on the road if we didn’t have this armor.”

The material costs \$1500-\$2000 per crossing to install and lasts several years, depending on how heavily the trail is used. The process is pretty “low-tech” and uses common equipment. Local road crews can do it themselves. Some important elements are getting very hard stone (7 on the Mohs scale), having a moderate air temperature during application, tapering the downstream edge so plow blades ride over it more easily, and making saw cuts to reduce pavement cracking.

The materials were originally designed for use on rigid concrete bridge decks, where they work quite well. However, when applied to asphalt, the coatings can sometimes delaminate. The polymer is stiffer than blacktop and expands and contracts differently.

Overall, the snowmobilers seem happy. The material delineates the crossing, making it easier for drivers—vehicle and snowmobile—to see. Although there

is some concern about wear to the studs, as taxpayers the snowmobilers appreciate the savings in road repairs. “It also reduces the amount of negative sentiment,” Laspa says. Having a level pavement instead of a dip where the surface was patched helps keep the non-snowmobilers happy, too.

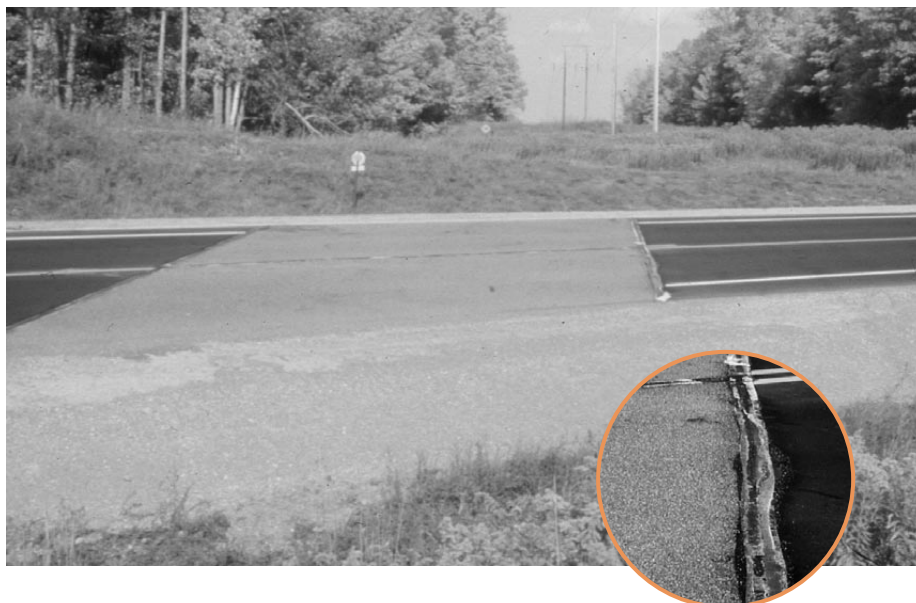
One potential problem is that some crossings move when a snowmobile club loses its lease for the trail. It’s important to have some assurance that the trail will continue to be used, Laspa notes.

A thermoplastic option

Michigan DOT began studying the coatings in 1997. They identified issues like potential for snowplow blades to peel them off, and developed installation procedures. In 2000 they also learned of and began testing a different approach: hot-applied thermoplastic. The material, imported from Norway, is applied in three layers with fine-grade silica sand on top for skid resistance.

The thermoplastic costs about the same as the polymer, but works better on

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asphalt, expanding and contracting at a similar rate, while it takes less time to install—2-4 hours versus 6, says Laspa.

Michigan is still using some epoxy materials, but has mostly converted to the hot-applied thermoplastic. "The big reason is ease of application and its compatibility with asphalt," says Tom Miller, M-DOT Engineering Technician.

"The only wear we see is from our own snow plows. The snowmobiles hardly do any damage at all," says David Widrig, Transportation Maintenance Coordinator, M-DOT Cadillac office. "If it's applied right and we get a little taper on the downstream edge, then the plows don't bother it at all."

In Wisconsin, Laspa's District installed thermoplastic at an Oneida County crossing last year as a test. They may put it in at other high volume crossings later this year. The thermoplastic's light, "battleship grey" color is also beneficial, making the crossing more noticeable, says Laspa.

Currently the thermoplastic material, called Nor-Skilt protective coating, is only available from Clark Highway Services, Lake City, Michigan. It requires special equipment for installation.

Whatever the material, the pavement armor seems to be doing a good job. "It's a win all the way around," says Laspa.

For specs or more information, contact Marv Laspa, WisDOT District 7, 715/365-3490, marvin.laspa@dot.state.wi.us

New PASERWARE release

by Steve Pudloski

PASERWARE 3.0 will be released this November in a series of one-day training courses beginning in November and continuing through Spring, 2005. (See *Calendar, pg. 8, for initial course dates.*) Only training participants will receive the version 3.0 disk and user's manual.

PASERWARE 3.0 is very different from previous versions. It is written to be compatible with the data structure of WISLR, the state local roads database, and to support data transfer between the two. This will be useful in uploading pavement condition ratings to WISLR in December, 2005.

V. 3.0 has two separate databases that will be downloaded from WISLR. The first contains all of the road names with the intersections on each road and the distance between the intersections. The second database contains all of the pavement information, including detailed physical and operational attributes.

Because pavement sections are described using the ON/AT system, there is a direct link between the two databases that allows pavement sections to be precisely located and displayed using the WISLR mapping capability. Because of WISLR/PASERWARE compatibility requirements, there are a number of data control elements in PASERWARE 3.0 and a number of new audit reports that help users check the accuracy of the downloaded data and verify the correctness of any changes that they may make.

Like previous versions of PASERWARE, users can inventory their local roads and conditions, keep a maintenance history of work done on their roads, calculate the costs of fixing their roads, create yearly budgets, and project the condition of their road system for various budget amounts and project selections.

The analysis in PASERWARE is not only helpful in preparing budgets and capitol improvement programs, but also in presenting information about the consequences of budget decisions to elected officials and the public. Users with maintenance history files will have the option of exporting them to the new version.

See the T.I.C. web page for specifications and ordering information related to PASERWARE.



Snowmobile crossing signs

by Tom Heydel, Traffic Operations Engineer, WISDOT District 2

Snowmobile crossing signs are now specifically shown in the 2003 MUTCD under non-vehicular traffic signs (2C.41). These signs "Should be used only at locations where the crossing activity is unexpected or at locations not readily apparent," according to both the 2000 and 2003 MUTCD.

The 2000 MUTCD Wisconsin Supplement, currently in effect, says to place them where authorized snowmobile trails, as defined in Section 350.01 (17) *Wisc. Stat.*, cross the highway if there is a sight restriction issue or crash history or potential. The same language will most likely be used in the 2003 Wisconsin Supplement to the MUTCD due out by the end of 2004.

The agency with jurisdiction of the roadway decides when and where to install the snowmobile crossing warning sign. They should consult the DNR to make sure it is an authorized trail. The criteria for installing them should be per the MUTCD, which does provide some latitude for engineering judgment. Take into account crash history, crash potential and sight restriction.

Regarding sight restriction, the visibility chart is as follows:

55 MPH speed limit = 495' minimum visibility due to curves and hills
45 MPH = 360' 35 MPH = 250' 25 MPH = 155'

Visibility for this purpose refers to how far the snowmobile driver can see a vehicle on the roadway as the vehicle approaches.

Other factors to consider are roadside sight restrictions such as trees and intersections very close to the trail crossing that could distract a vehicle driver who may not be aware of a crossing at that location.

It is the ultimate responsibility of the snowmobile driver to yield the right-of-way to the motorist on the roadway.

If it is decided to install a sign on the road, then it should be installed in advance of the trail crossing. An AHEAD plaque is also desirable (although not required) to be installed under the advanced warning sign. In this way, the vehicle driver knows the trail is ahead and not at the sign. A warning sign can also be added at the crossing itself to supplement the advanced sign in select situations where the trail is very obscured.

