

# CROSSROADS



WISCONSIN TRANSPORTATION INFORMATION CENTER – LTAP at the University of Wisconsin–Madison

## Accurate pavement ratings key to budget planning

**LOCAL ROAD OFFICIALS** are busy this year rating pavements under their jurisdiction and submitting the results to the Wisconsin Department of Transportation. Due every two years, the ratings give WisDOT a credible way to analyze the condition of the state's local highway system. The snapshot helps WisDOT understand the need for local street and highway improvements and spot trends in pavement conditions on the local system.

The more accurate those ratings are, the more they communicate a realistic picture of what local public agencies are managing, says Wisconsin Transportation Information Center Director Steve Pudloski. TIC hosts webinars and workshops for public road agencies on

effective use of the PASER rating system and WISLR analysis tools. Find information about upcoming summer programs in the Calendar on page 12 and under Workshop listings at <http://tic.engr.wisc.edu>.

Pudloski encourages raters to take the training so they can avoid over-rating their pavements, a tendency that affects local planning but also the data's usefulness in making a case for local road funding in the state budget process.

### Cost-effective strategies

Joseph Nestler, Director of the Bureau of State Highway Programs for WisDOT, agrees about the value of having accurate pavement condition data for funding decisions at the state level and suggests that same detail is

equally important for establishing cost-effective strategies at the local level. "Public agencies succeed at providing the best roads for the money when they can base their choice of maintenance and improvement activities that achieve minimum lifecycle cost on good information."

Some public road agencies in Wisconsin use PASER to rate conditions on every road surface and, after submitting the data to WisDOT, evaluate pavement condition and pavement management information using the WISLR Pavement Analysis Tool. Users then

create road segment-specific estimates for repair and rehabilitation. They project future pavement condition according to the strategies selected. These projections, based on averages of statewide pavement deterioration data, help highway and street departments set priorities and decide on the best treatment.

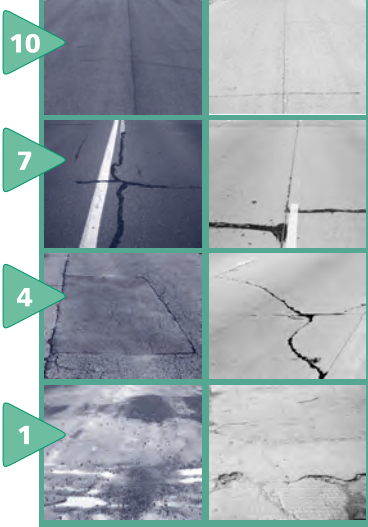
### Ratings imply action

Ratings need to mean something, says Nestler. When they do, they imply action. PASER ratings correlate with the type, severity and

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### PASER RATINGS

*Pavement Surface Evaluation and Rating*



*The more accurate pavement ratings are, the more they communicate a realistic picture of what local public agencies are managing.*



*Rating this asphalt pavement a 4 on the PASER scale due to longitudinal cracking in the wheel path indicates the need for structural improvement with an overlay or full-depth reclamation. Choosing a maintenance or improvement approach that effectively extends the life of a road depends on an accurate condition rating.*

## Accurate ratings

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*Recalculating, the city found that more than 25 percent of the streets inventory required rehabilitation versus an initial estimate of 8 percent.*

extent of surface distresses, and give pavement managers budget planning information that makes best use of existing resources. Accurate pavement ratings also help justify requests for road improvement grants through various state programs.

The goal of budgeting better over the long term for road projects is a good reason for local governments to improve rating accuracy. The City of Sun Prairie in Dane County and the Town of Warren in St. Croix County are two communities making changes they hope will result in more effective budget planning.

## Question the accuracy

In Sun Prairie, the push for better ratings came after the city missed the cut for a Local Road Improvement Program (LRIP) matching grant. Public Works Director Larry Herman says the major rehabilitation project they proposed was a rarity for a department that concentrates the majority of road maintenance resources on crack-sealing, seal coating and complete reconstruction. As Herman explains it, they submitted the LRIP application with the rating on file for the streets in question. The PASER rating of 7 they submitted did not

support the need for rehabilitation. While the high rating sank the city's chance to apply LRIP funds to the initial group of streets, the program let them use the matching dollars on other streets.

The experience also brought a serious problem to light.

"It made us question the accuracy of all the pavement rating numbers we used to forecast the next year's rehabilitation plans," Herman says. A sample survey of ratings on a group of city streets proved many were higher than warranted. Recalculating, they found that more than 25 percent of the streets inventory required rehabilitation versus an initial estimate of 8 percent.

The review also alerted Herman to the fact the department was applying treatments to pavements based on these overratings, a potential waste of resources unlikely to produce the anticipated extension of pavement life.

## Re-evaluate

Sun Prairie Public Works made the commitment to re-evaluate city streets and adopt a more-concise pavement rating process. The department introduced a two-team rating process with a mix of veteran maintenance staff members and newer employees. The teams double-check each other to verify each rating. They train with the PASER manual and a series of sessions conducted on city streets so the crews learn to identify urban surface distresses.

Herman also is examining where the previous rating process went wrong to avoid the missteps that caused inaccuracies. Were the rated segments too long? Was the averaging process error prone? Did crew members have a sub-conscious reluctance to rate low? Sun Prairie's quality assurance process is ongoing as Herman works to answer these and other questions.



*Sun Prairie might have missed the need to do reconstruction on this pavement in very poor condition before the city instituted a quality assurance process designed to improve the accuracy of their pavement ratings.*



*Were the rated segments too long?  
Was the averaging process error prone?  
Did crew members have a subconscious reluctance to rate low?*

Already on the table is a strategy to divide the inventory up and rate a portion of it each quarter rather than during a concentrated few weeks every other year. Making the process more routine should help people hone and maintain their rating skills, Herman reasons, and allow the department to review and possibly correct inaccurate ratings sooner.

### Planning beats reacting

A good program of preventive road maintenance starts with a budget that emphasizes planning over simply paving any problems that crop up after the spring thaw. So says Frank Phillips, a consulting engineer working with the Town of Warren. After inputting accurate PASER ratings for the town into the WISLR inventory, Phillips downloads the WISLR data into a parallel database he designed to help identify and prioritize road projects. This system also tracks the costs of infrastructure assets and improvements for Warren's GASB 34 Compliant Report.

Since the usefulness of a road inventory system for forecasting costs depends on the accuracy of the data entered, Phillips says

the first order of business was amending the town's pavement condition ratings, many of them too high.

"Without such data, it's hard to plan rather than react, as Warren was doing before," he notes. "Now the town has a seven-year plan for preventive maintenance that takes a reasonable approach to patching or replacing roads according to their actual rated condition."

The improved inventory came in handy this spring when the town had to revise a road budget strained by late winter storms. Having a clear picture of pavement conditions helped Phillips advise elected officials about which

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## Rate failure by section



AN IMPORTANT STRATEGY in the PASER rating process is to differentiate between the overall condition of a pavement section and failures that occur on a small portion of the section. It may not help, for example, to rate the entire stretch of the road in photo on left as POOR, or a 2 on the PASER scale, when only 200 feet of the section deserves



that rating. If the local road agency does a full-depth patch, they can rate the repaired segment based on the condition of the larger section. Consulting Engineer Frank Phillips explains this was the Town of Warren's strategy with the road pictured here. The full-depth patch on right, done

after evaluating the segment, addressed the localized failure. Raters then based the overall rating of the road on the predominant condition of the entire section. The approach allows the town to plan the most cost-effective maintenance timing and treatment for the road.

## Accurate ratings

from page 7

*As tight budgets become the new normal for local governments across the state, so does the requirement for good data to back up decisions about how to deploy limited resources.*

projects they could afford to defer. "The fact I had good information gave them the confidence to be decisive and keep critical road improvements in the budget," says Phillips.

Another advantage is the savings that come from scheduling contractors in advance. Phillips

says Warren has seen a 10-to-15 percent reduction in project costs because they plan and let the work early. The contractor can have crews ready to begin and complete projects on time without costly delays or disruptions.

Formal and fair joint maintenance agreements Warren has

with neighboring local governments, based on an up-to-date WISLR inventory, also profit from accurate ratings. "They require a commitment to accuracy on both sides so everyone can see who owns what and determine how best to share costs," Phillips says.

## Sound data make a strong argument

Due by December 15, the 2013 ratings are the basis for a fact-based assessment of needs on the local road system as a whole. Closer to home, sound data collected and analyzed through a simple but systematic process



*Among Sun Prairie streets that rated a 6 on the PASER scale, the one pictured here from two perspectives exhibits instances of longitudinal and transverse cracks with quarter to half-inch openings and slight raveling **LEFT**, and slight raveling and occasional patching in good condition **RIGHT**. With accurate pavement condition data, Public Works can budget appropriate time and money for preservative treatments.*



*A PASER rating of 3 for this Sun Prairie street takes into account the appearance of longitudinal and transverse cracks with crack raveling and erosion.*



*The alligator cracking, potholes and patches in poor condition visible on this pavement section justify a PASER rating of 2 and a place on Sun Prairie's list for reconstruction.*

can improve budget planning and appropriate resource allocation. Phillips and Herman both see accurate pavement condition information strengthening their arguments locally for adequate funds to manage and maintain town roads and city streets.

As tight budgets become the new normal for local governments across the state, so does the requirement for good data to back up decisions about how to deploy limited resources. Accurate pavement ratings are part of that. They provide local road officials with an unambiguous representation of the roads they manage that supports realistic long-range maintenance and reconstruction plans. ■

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## Resources

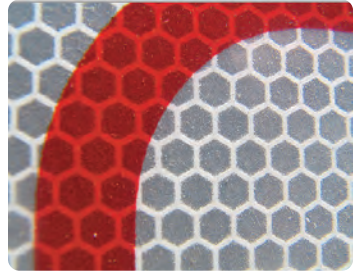
<http://www.dot.wisconsin.gov/localgov/wislr/index.htm>

Link to WisDOT information about WISLR, the Wisconsin Information System for Local Roads, including how to start using it.

<http://ttic.engr.wisc.edu/Workshops/index.lasso>

Workshop listings on the TIC website include PASER/WISLR webinars in July and August.

# Keep sign retroreflectivity in view



## SIGNS THAT ARE CLEARLY VISIBLE

both day and night help make roadways safe for all users. Public road agencies responsible for maintaining traffic signs at minimum retroreflectivity levels have a compliance deadline coming up that is part of ensuring safety-critical signs meet federal standards. By June 13, 2014, street and highway departments in Wisconsin and nationwide must establish and implement a management or assessment method to monitor and maintain the condition of regulatory and warning signs.

The rule is outlined in the latest Manual on Uniform Traffic Control Devices (MUTCD), which also notes that while the standard does not require road agencies to include **all** traffic signs in the methods they implement, those signs still must meet minimum retroreflectivity levels.

## Helpful fact sheet

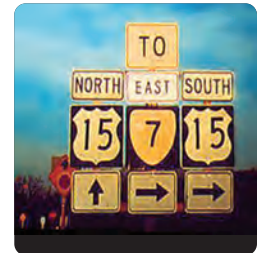
Local governments across the state can turn for guidance to a fact sheet published by the Wisconsin Transportation Information Center (TIC) in conjunction with the Wisconsin Department of Transportation. An updated version of *Meeting Minimum Sign Retroreflectivity Standards* features a comprehensive comparison of three

management methods and two assessment methods, and discusses how to work effectively with a combination of methods. There is information on the evolution in sheeting materials and recommendations for a sign inventory to augment any chosen method.

"TIC has always stressed the importance of inspecting and maintaining signs to assure visibility day and night," says TIC Staff Engineer Director Ben Jordan. "The new retroreflectivity standards provide more certainty about minimum retroreflectivity levels and what constitutes an acceptable sign maintenance, assessment and management program."

For agencies that already have programs in place, he notes, adjustments will be minor. Agencies starting a new program will need to budget for sign replacement as they begin implementing the management or assessment methods.

See the links under Resources to order or download the TIC fact sheet and learn more about the MUTCD at the Federal Highway Administration website. ■



## Resources

[http://lepdfiles.engr.wisc.edu/pdf\\_web\\_files/tic/bulletins/B1tn\\_023\\_Retroreflectivity.pdf](http://lepdfiles.engr.wisc.edu/pdf_web_files/tic/bulletins/B1tn_023_Retroreflectivity.pdf)

Digital copy of TIC Bulletin 23 in the Publication section of the TIC website.

<http://mutcd.fhwa.dot.gov>

FHWA site with links to details and downloads of the Manual on Uniform Traffic Control Devices.

