Sign retroreflectivity in spotlight

**NIGHTTIME SIGN VISIBILITY**
is in the spotlight with the recent release by the Federal Highway Administration (FHWA) of a new minimum retroreflectivity standard. FHWA adopted the second revision to the 2003 Manual on Uniform Traffic Control Devices (MUTCD) on January 22, 2008.

Mandated by Congress in 1993, the revision came after several years of FHWA research that culminated in a 2003 report on safe minimum retroreflectivity levels. Retroreflectivity refers to how a surface, like a highway sign or pavement marking, reflects or bounces light back to a source. Upgrading signs and materials for better retroreflectivity is, in part, a response to a greater number of older drivers on the road who need more light and more reaction time after dark.

**From management method to action**
The MUTCD phases the changes in over 10 years, giving agencies that maintain signs time to respond. The initial phase addresses an important element of the new requirements. Agencies must implement an ongoing management or assessment method by January 2012 to track the condition of signs. The MUTCD describes three acceptable management methods and two assessment methods designed to monitor retroreflectivity and keep it at or above minimum levels.

Phase two requires the January 2015 replacement of regulatory, warning and ground-mounted guide signs—not including street name signs—that fail to meet new minimum levels as determined by the agency's established management or assessment method.

The final phase involves replacement by January 2018 of street name signs and overhead guide signs that fall short of the standard for retroreflectivity.

**Working with the standard**
Matt Rauch, State Signing Engineer with the Wisconsin Department of Transportation, says WisDOT is reviewing and preparing to implement the new retroreflectivity standard. He and Tom Heydel, Traffic Engineer for WisDOT Southeast Region, say local governments will find the state's approach a helpful guide. But they encourage them also to review the revision in light of their own sign management operation.

Heydel says establishing a workable management or assessment method is a critical first step. He points out local governments and other agencies have four years to implement one of five recommended methods for keeping signs up to the new standard.

Two acceptable management methods do not require measuring the retroreflectivity of signs in service—Expected Sign Life, monitoring individual signs based on the sign material with the shortest life, and Blanket Replacement, doing upgrades at specific intervals. The Control Sign management method and the two assessment methods—Visual Nighttime Inspection and Measured Sign Retroreflectivity—all require a retroreflectometer measurement.

WisDOT already uses the blanket approach now when they do an improvement project, Rauch notes. He anticipates applying the expected sign life method for general sign management going forward as they do now for deciding replacements in a blanket program. Measured sign retroreflectivity and visual nighttime inspections cost too much time and money, he says, to be feasible.

Routine visual inspection of signs remains important in every sign-management program, says Heydel, and helps to keep inventory records up to date.

**Inventory system improves sign management**
Setting up an inventory system to track sign assets helps reduce the risk of liability. It also institutionalizes the sign management process, making it easier to meet all MUTCD sign standards.

Continues on page 6
“Our mission is to research practical ways for the people in charge of the roads to improve the safety of all our roads and manage them better.”

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Resources
http://www.topslab.wisc.edu/
Website link for Wisconsin Traffic Operations and Safety (TOPS) Laboratory
http://transportal.cee.wisc.edu/
Link to WisTransPortal data crash request resources.

Real-time access to data
An important product introduced in 2006 was the crash-data component of the WisTransPortal. It is a powerful data management system used to collect, archive and deliver valuable transportation data from a variety of sources. The system gives state and local governments access to current and historical crash data from a centralized source. The goal was to create a “data hub” that supports multiple applications in traffic safety and operations.

Xiao Qin, Assistant Scientist and Traffic Safety Program Manager for the TOPS Lab, says the archived record of all reported crashes catalogs each incident using over 50 attributes. These include crash location, time and severity of crash, amount of damage, object hit and driver behavior.

Availability of the data in this form helps state officials meet a federal safety reporting requirement. It also is a plus for Qin and his colleagues as they work on specific projects to identify crash “hot spots” and develop tools that accurately code reported crashes to a map. Analysis of data generated this way, for example, can help officials build adequate safety measures into road construction projects.

Qin notes that safety is a top priority for everyone concerned with road maintenance in Wisconsin, a major factor in transportation planning at all levels. Yet, before TOPS, there were few systematic ways to identify problem traffic areas. “Now to have such comprehensive information available means decision makers can plan and then take appropriate measures to reduce the type and severity of crashes.”

Pilot tests data value in safety planning
For this reason, Qin sees the Circuit Rider pilot as a benefit to both local governments and TOPS researchers.

“Having the Circuit Riders on the spot to review crash data with local officials, go through the data analysis steps and assist with identifying safety improvements gives us a chance to test the process. Can the contents of the database become really usable in safety planning? How will local governments handle the data? What results will they get?”

He adds that every local government—not only those working with a Circuit Rider—can request specific crash records through the TOPS Lab right now. Qin and his group process the requests within one to three weeks depending on complexity and volume.

The crash data request process begins at the WisTransPortal page (http://transportal.cee.wisc.edu/) on the TOPS website. Follow the Data Services link to the Crash Data Resource page where visitors can choose to submit a simple request form or request a login account for direct access to data and retrieval tools. Users specify a time period for crashes of interest and a list of locations that can be as broad as an entire county or as narrow as a single intersection.

Good information, sound investment
Szymkowski calls the merging of concrete data with safety planning a sound investment of time and money. He hopes more local governments realize this as they work with the resources of the TOPS Lab.

“Lots of small communities do a good job dealing with safety issues, even where the person in charge of roads wears many hats,” Szymkowski says. “TOPS can fill a need where local governments lack the expertise in-house to gather and evaluate data in a way that justifies critical safety improvements. We’re ready to do that.”
SAFETY CIRCUIT RIDERS on the move

**Meet the Safety Circuit Riders**

Two experienced professionals bring decades of expertise to the field as Wisconsin’s first-ever Safety Circuit Riders. Jack Gerlach and Pete Rusch will meet with local governments selected for the pilot to view locations identified as traffic safety Opportunities for Improvement (OFI). With support from the TOPS lab, they will help local officials analyze the problem and come up with workable, low-cost safety strategies.

Jack Gerlach retired as Highway Commissioner for Marinette County a year ago. He got his start in transportation working summers for WisDOT 41 years ago while finishing his engineering studies. A design engineer with the City of Eau Claire for 11 years, he took over the city’s streets division and served in that capacity for 10 years before taking the Marinette County post.

Gerlach’s experience includes designing, building, and maintaining everything from alleys to interstate highways. He has worked closely with the Wisconsin Towns Association over the years and with administrators in all levels of governments on traffic safety issues. He has been active on regional traffic safety committees and is knowledgeable about a host of traffic-safety resources.

“The Circuit Rider program turns the idea behind a traffic safety committee into a one-on-one collaboration,” notes Gerlach. “We’re on the spot, able to survey crash locations with local officials, review the data together, and help them come up with solutions that fit the problem.”

Pete Rusch recently retired in Illinois where he provided technical expertise on highway safety and traffic engineering subjects to agencies and staff at the federal, state and local level. Before that, he was the State Traffic Engineer for the WisDOT Office of Traffic, responsible for all traffic-engineering functions on the State Trunk Highway System. He then served as the Bureau of Highway Operations Safety Engineer until retiring from WisDOT in 2002.

In his role with FHWA, Rusch helped develop and conduct workshops in highway safety, including subjects on intersection safety, the safety and operations effects of geometric design features on rural a two-lane highway, use of intelligent transportation systems, low-cost safety improvements and comprehensive safety planning.

He says his experience evaluating, developing and researching many safety programs influences his belief that it takes a proactive approach combined with traditional “spot” improvements to reduce highway fatalities and serious injuries significantly. “Our access in this program to crash data and other resources will give the local officials we work with a chance to look at that whole picture. We’ll look at engineering issues but also driver behavior, car design and other factors that affect safety in the locations we survey.”

**Request a Safety Circuit Rider visit**

**NAME OF LOCAL GOVERNMENT**

**COUNTY**

**CONTACT NAME**

**TITLE**

**TELEPHONE**

**EMAIL**

Specific location of safety Opportunity for Improvement (OFI). For intersection, name of both intersecting roadways or streets. For road segment, name of road and spot locator from known intersection.

Describe traffic safety OFI:

Fax back to (608) 263-3160. Mail back to TIC, 432 North Lake Street Madison, Wisconsin 53706.

The landmark program is a first for the Transportation Information Center, a chance to provide ongoing, direct technical assistance to local governments.
EMPLOYEES who manage or hope to manage any aspect of local government operations take on a lot of responsibility. They:

- keep essential services running effectively,
- meet many complex budget and technology challenges,
- inspire people they supervise to exceptional job performance.

Training programs that help managers build critical leadership skills increasingly matter as the public sector competes for the best and brightest.

WCPM hones practical skills
Among training options local Wisconsin governments tap to improve management strength is the Wisconsin Certified Public Manager (WCPM) program. UW–Madison administers the nationally accredited statewide program for managers in federal, state, tribal and local governments. Participants receive 300 hrs of training on a range of management and supervisory topics.

Director Susan Paddock, who founded the program in 1990, says bringing public managers at all levels together is a unique benefit of WCPM. “State and local governments need to understand one another to appreciate what influences the decisions each of them make, decisions often with far-reaching effect. “They address familiar challenges and explore solutions together in a way that teaches them more than great manager skills,” Paddock adds. “It is a powerful shared learning experience where they see and recognize what managers in other public sector specialties face.”

Paddock says unlike general management courses, the WCPM program is “practice oriented.” Graduates return to their work assignments with specific tools and ideas they can apply strategically and operationally.

Since the program emphasizes practical skill building, the curriculum itself evolves to meet real-world issues. For example, the push to measure how well a government entity meets its mission places new demands on public managers at all levels, including the need to set and report performance goals.

WCPM Director Susan Paddock

Ratings review: WEB-WISLR use up

Fifty-seven percent of local governments made ratings submissions directly into WEB-WISLR last year compared to 45 percent in 2005. This method of registering ratings numbers has gained momentum as more local governments achieve better web access and staff members become more comfortable with web applications. Ongoing improvements in the WISLR data entry screen also make it easier to use.

Data instantly accessible, useful
Entering the rating information directly into WEB-WISLR gives local governments instant access to their current pavement data. No waiting for someone in Madison.

Entering the rating information directly into WEB-WISLR gives local governments instant access to their current pavement data.

Training programs build skills, add value

WCPM Director Susan Paddock

WEB-WISLR use up

CONGRATULATIONS to the local officials around the state who rated the condition of their pavements and submitted those ratings to the Wisconsin Department of Transportation before the December 15, 2007 deadline.

Given the early, persistent and severe weather that hit most of Wisconsin this past winter, it looks like the impressive 87 percent of local governments who submitted road ratings on time planned ahead. The total compliance rate in past years is just seven points better at 94 percent of all local governments submitting ratings.

Another fact worth noting is that more local governments than ever used the WEB-WISLR (Wisconsin Information System for Local Roads) data entry screen to submit 2007 ratings. Introduced about four years ago, the data management system is emerging as a powerful decision-making tool for local officials as they inventory roads and plan improvements.

Entering the rating information directly into WEB-WISLR gives local governments instant access to their current pavement data.

WEB-WISLR gives local governments instant access to their current pavement data.

WEB-WISLR gives local governments instant access to their current pavement data.
to enter the data or upload an electronic spreadsheet.

With new ratings entered, local officials can take advantage of the WISLR’s mapping, pavement analysis and budget tools. They can prepare and communicate maintenance plans, three- or five-year plans, and budget proposals for the coming year.

A WISLR printout of the updated ratings also is useful in the field. Local officials can use it to record any new deterioration or new condition ratings when inspecting roads in spring for winter damage. It is a helpful guide to revising annual maintenance plans that result from inspection.

Remember users can update their pavement ratings in WISLR any time. It is a good idea to do so after each spring inspection rather than waiting for the December deadline. At the end of the construction and maintenance season, revise and enter ratings of the improved roads.

Working with WisDOT

Susie Forde, WisDOT’s Chief of Data Management, says the PASER/WISLR training sessions held last year by the TIC in conjunction with her office helped make many more local officials comfortable using WEB-WISLR. She encourages local governments eager to simplify ratings submissions and improve the value of the database they create to work with WisDOT. Some communities did request extra time to submit ratings for 2007 because of the weather. A few local governments with GIS databases of their own have an extension to work with WisDOT staff to build a better interface between their system and WISLR.

As the success of 2007 suggests, this web technology has the potential to become routine and provide local governments an invaluable way to maintain quality data and manage resources.

“These applied projects demonstrate what people learn about what they need and the research they do is helpful for all of us,” explains Paddock.

Close the knowledge gap

Greg Epping, a 2007 graduate of the program and TIC Advisory Committee member, says WCPM closed a knowledge gap for him in ways that made a genuine difference in his manager’s role.

Epping wears many hats as Superintendent of Public Works for the Village of Darien. He and his small staff run the water utility, oversee the sewage system, manage streets and parks, and maintain public buildings.

“The training covered many areas I didn’t know quite how to approach,” he says. “It gave me the resources to better organize and plan and be more proactive on the job.” He also gained confidence in managing performance reviews in a way that benefit staff and the operation as a whole.

Epping developed a public works safety program as his applied project. The process gave him the focus, he says, to formalize something everyone agrees is important but puts off in response to daily demands.

“Safety is in the forefront now,” Epping notes. “We do training on a regular basis, coordinating it with our workload. We saw results almost right away, a fact that tells me creating the plan was time well spent.”

Make lasting connections

Jim Hessling, Director of Public Works for the Village of Cottage Grove, describes achieving his certification through the program as a source of pride. He completed the program in 2005 and continues to use the extensive resource materials to test out a strategy or idea. And he still checks in with members of his colleague group.

“I made lasting connections with other managers I still talk with when something comes up.” Hessling notes that the open discussion format encouraged people to share issues and explore solutions together. “It made you appreciate you weren’t alone in trying to tackle a tough problem.”

Hessling’s project—a simple capital improvement plan for Cottage Grove—became the catalyst for a more-ambitious document. He now has a 20-year, village-wide plan that addresses a range of public works projects, including future sidewalk projects.
Sign retroreflectivity in spotlight
continued from page 1

Agencies must implement an ongoing management or assessment method by January 2012 to track the condition of signs.

WisDOT and some larger municipalities in the state use versions of the SIGNview sign-management system from Carteographe. The software lets users customize screens, libraries and reports, and synchronize data from other sources. It takes training and practice to use, but Heydel says a tool like this is essential for managing a complex inventory of signs.

Simpler, less expensive software on the market offers good options for small- to medium-sized communities. As Crossroads reported early last year, one of them is SimpleSigns from RoweKamp Associates. Available in the state since December 2006, the product is in use by 11 Wisconsin counties.

From a main entry screen, SimpleSigns imports existing spreadsheet data or new information. Drop-down menus let users navigate sign location, condition, and repair activities. Cost for the basic program includes tech support. The company also offers data conversion and a GIS mapping tool.

PWS Signs is a sign-inventory tool developed by the Technology Transfer Center at the University of New Hampshire. Due out spring 2008, it is described as low-cost. The software uses GPS and a digital map to locate signs and their attributes. It provides sign inventory, condition assessments, maintenance management and budget planning.

Sign companies also offer inventory options. TAPCO, a Wisconsin-based company that works with many government agencies, has a sign-inventory package in development that combines existing software with GPS and retroreflectometer technology.

**Material improvement**

The new standard specifies minimum maintained retroreflectivity levels as measured by the degree of reflected light seen at different angles and distances. Based on these minimums, the MUTCD outlines sheeting types that meet the specified levels for different signs. These include more reflective materials like high-intensity prismatic sheeting made without glass beads.

Scott Plouff, Sign Division Manager with TAPCO, says manufacturers keep improving the performance and durability of sheeting material. Engineer-grade sheeting in wide use for decades has an expected life of five to seven years, he says, while the new prismatic are warranted for 10 years, and the diamond-grade sheeting for 12 years. The expected life for fluorescent sheeting is 12 to 15 years. “The new materials are made to be brighter and last longer,” Plouff notes. “And when budgets are tight, sheeting that holds up longer is more cost effective.”

Plouff says he knows 3M plans to stop making engineer-grade sheeting. The current product does not meet retroreflectivity

### Sign color and type

<table>
<thead>
<tr>
<th>Sign color and type</th>
<th>Sheeting types and expected sign life</th>
<th>Phase-in sign date</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>WHITE on GREEN</strong></td>
<td>Prismatic high intensity 10-12 yrs</td>
<td>Jan 22, 2015</td>
</tr>
<tr>
<td>Guide signs</td>
<td>Fluorescent 12-15 yrs</td>
<td></td>
</tr>
<tr>
<td><strong>Overhead guide signs</strong></td>
<td>Prismatic high intensity 10-12 yrs</td>
<td>Jan 22, 2018</td>
</tr>
<tr>
<td>Warning signs</td>
<td>Fluorescent 12-15 yrs</td>
<td></td>
</tr>
<tr>
<td><strong>BLACK on YELLOW</strong></td>
<td>Prismatic high intensity 10-12 yrs</td>
<td>Jan 22, 2015</td>
</tr>
<tr>
<td>Warning in Work zone</td>
<td>Fluorescent 12-15 yrs</td>
<td></td>
</tr>
<tr>
<td><strong>BLACK on ORANGE</strong></td>
<td>Prismatic high intensity 10-12 yrs</td>
<td>Jan 22, 2015</td>
</tr>
<tr>
<td>Warning signs</td>
<td>Fluorescent 12-15 yrs</td>
<td></td>
</tr>
<tr>
<td><strong>WHITE on RED</strong></td>
<td>Engineer grade 7 yrs</td>
<td>Jan 22, 2015</td>
</tr>
<tr>
<td>Stop, Yield, Wrong Way Do Not Enter, etc.</td>
<td>High intensity beaded 10 yrs</td>
<td></td>
</tr>
<tr>
<td>Speed Limit, One Way U.S. Highway, etc.</td>
<td>Prismatic high intensity 10-12 yrs</td>
<td>Jan 22, 2015</td>
</tr>
<tr>
<td></td>
<td>Fluorescent 10-15 yrs</td>
<td></td>
</tr>
</tbody>
</table>

**Signs excluded from retroreflectivity maintenance guidelines:**

- Parking, Standing & Stopping signs (R7 & R8 series)
- Walking, Hitchhiking & Crossing signs (R9 series, R10-1 through R10-4b)
- Adopt-a-Highway signs
- All signs with blue or brown background
- Bikeway signs for exclusive use of bicycles or pedestrians

**Simplified version of MUTCD Table 2A-3, shows sign types, materials that meet minimum retroreflectivity levels, and phase-in dates.**
Insurers rely on visual information, not a mechanical device, to judge the serviceability of signs. While they log how long signs have been in service, the manufacturer’s expected sign life does not strictly determine when a sign gets replaced.

“We have many open agricultural fields in this area, lots of airborne sand and grit that speeds the breakdown of signs in close proximity,” Petersen says. “Our approach is to err the side of safety. Visual nighttime inspection gives us first-hand data to replace the signs that really need it.”

Sign inventory is now kept with spreadsheets and maps. Petersen says his crews look for deterioration and also record any seasonal or incidental damage to signs or sign posts.

One approach to assessment and upgrade

Portage County replaces about 150 road signs a year in an ongoing management program. The county does nighttime visual inspections annually to identify all warning and regulatory signs that need replacement.

Assistant Highway Commissioner Dale Petersen, who supervises the county’s sign division, says his crews look for deteriorating retroreflectivity and also record any seasonal or incidental damage to signs or sign posts.

Quick Take on Methods

Sign agencies must establish one or more of these management or assessment methods by 2012.

Management methods

Expected Sign Life
Note age of sign and replace before retroreflective material is expected to degrade to minimum level.

Blanket Replacement
Replace all signs at specific intervals based on expected life of sheeting material.

Control Signs
Use assessment method to monitor performance of each type of sign in the field or maintenance yard.

Assessment methods

Visual Assessment
Conduct nighttime inspections with accepted procedures for calibration and comparison to establish minimum levels.

Measured Sign Retroreflectivity
Take exact measurements of all signs using retroreflectometer.

Going for the max

While WisDOT plans to follow the Expected Sign Life method for managing its sign inventory, the department wants to learn more about the actual retroreflective durability of the high-intensity prismatic sheeting used on many state highway signs. State Signing Engineer Matt Rauch says they plan to test how signs in the inventory perform against the expected 10-year life.

“From a taxpayer and motorist safety perspective, we want to be sure we maximize the full life out of our signs while providing signs with retroreflective values that are within the FHWA guidelines,” he says. There is no existing outside research on sign life, Rauch notes, only the sheeting manufacturers’ warranties.

WisDOT Traffic Operations staff will monitor the performance of different types of sheetings and colors on control signs of varying age at the department’s Madison maintenance yard. They will work with the University of Wisconsin–Madison to assess measurements.

The next step is to track reflective values of a variety of signs against the controls using a retroreflectometer. Besides sign color, age and type of sheeting material, the study will examine and compare compass direction as a factor in reduced retroreflectivity. Control signs will face south or west for the most ultraviolet exposure.

Rauch says the goal is to determine how long the signs will last and document findings in the state’s replacement policy for permanent signs, part of the WisDOT Traffic Guidelines Manual (TGM). He reminds local governments they do not have to follow the TGM recommendations but can adopt any policies that work for them.

Watch Crossroads for updates on study findings.

The new standard specifies minimum maintained retroreflectivity levels as measured by the degree of reflected light seen at different angles and distances.
**THE CITY OF BELOIT** offers an example of how one local government evaluates and plans winter maintenance operations year round. Beloit Director of Operations, Christine Walsh, tells Crossroads how they handle the season. She notes everyone in the department participates in National Incident Management System (NIMS) training. The City manages all snow and ice events as emergencies.

Q: **How did you plan for snow and ice events? What's your approach?**

A: The operations department follows a 12-month calendar of tasks related to the winter season. Even in July, we do things like ordering our bag salt. To be sure we have enough to get through the winter, we place dual bids for salt 1) the standard guaranteed state bid and 2) a non-guaranteed contract together with Janesville that gives us a backup supply we purchase only if we need it.

Beloit also has a snow-and-ice control policy. Our DPW Code Enforcement group meets with police to review ticketing and moving of parked cars during snow emergencies.

Staff members also need training on how they can do their jobs better. In August, we host a snow training day that includes classroom learning and hands-on equipment operation, followed by a snow plow rodeo for our staff and neighboring communities. Beloit supervisors meet with surrounding area supervisors to discuss tactics and changes each community may have.

For each snow and ice event (30 events and counting at press time), we prepare by conducting a conference call with all supervisors and our weather forecast service. Next we develop a game plan with employees, review equipment and what products to use and whether we will plow and/or treat depending on the length of the storm. Finally, all staff members, including supervisors, are given shifts and the game is on!

Q: **How has this extreme snow year prompted you to change any aspect of your approach?**

A: Luckily, we made changes before the season started, not anticipating how bad it would be. We had a staff committee working on a plan for responding to a long-term event. This helped when we had our worst event.

Operations staff made numerous changes this year, including purchase of an Accubrine system for making brine and blending chemicals and a new plow truck with a 1200-gallon tank for anti-icing and de-icing. During one long event, we used the Salvation Army to prepare meals and provided hotel rooms for employees who live outside the city.

We used tracking forms to record mailbox and lawn damage. Clerical staff handled general complaints. Operators now complete a new form for salt and liquid tracking per snow event and an operator truck maintenance form. Supervisors also complete an event tracking form.

Q: **What did you learn about your operation this recent winter season that you’ll use next year?**

A: We learned a lot from the pre-developed forms and by debriefing each snow event similar to how police and fire debrief. This allowed any staff that worked an event to talk about what worked and what didn’t. Topics included: equipment issues, clerical/dispatch issues, code issues and supervision issues. We plan to continue using all the above strategies. I would like to experiment with some different blends next year. We participate in the APWA North American Snow Conference and send new staff to TIC training on snow and ice to stay on the cutting edge of technology.

Q: **What additional observations can you share that would be of interest to other local governments?**

A: All communities should take a hard look at liquid application. It actually works in a variety of situations. Staff members like it, we use less salt, it’s better for the environment and friendly to municipal budgets. Also, monitor your operators and manage the salt they put out. For some storms, consider spot applications at curves, hills and intersections rather than applying salt along the full length of the road.
Now is the best time to evaluate winter operations

**READY TO FORGET WINTER?**

It is tempting to take a mental break from the daily grind of winter maintenance operations as spring arrives. But the early post-season is the best time for local highway and street departments to evaluate processes and procedures. While it is still easy to recall the response to snow and ice events, plan how and where to adjust for next year.

**Invite input from everyone**

People at all levels of the organization should participate in the evaluation. Make sure everyone understands the objective—to review recent winter operations and discuss constructive improvements for next year.

Schedule the meeting in an environment that encourages all staff members to speak up, share information and brainstorm solutions. Set a tone that invites open discussion and hear people out without arguing or becoming defensive. Allow time for everyone to speak.

Invite people to come prepared to identify problems they encountered, the impact those problems had on operations and ideas for corrective measures. Distribute questions beforehand to help participants focus their evaluation on the wide variety of areas that relate to winter maintenance.

**Questions to ask**

A thorough post-season maintenance evaluation explores many critical areas. Here are examples of questions worth asking.

**Performance**

- Did the department meet or exceed its winter maintenance performance goals?
- How did performance compare to neighboring winter maintenance operations?
- What feedback did the department receive from the public and local public officials?

**Personnel**

- Were there enough people on the job to accomplish operational goals?
- How well did scheduling work?
- Was storm response timely and did emergency call-out procedures work?
- What communication snags affected performance?
- In what areas would more training improve performance?

**Materials**

- Were there any quality issues?
- Were there issues with ordering, availability or vendor delivery?
- Were alternative materials or suppliers used? How did they perform?

**Trucks and equipment**

- Were there any significant maintenance issues?
- What equipment needs replacement or rebuilding?
- How can the operation use existing equipment more effectively?
- What new types of equipment should the department consider purchasing?

**Weather forecasting**

- Was forecast information and accuracy acceptable?
- How effective is communication from forecasters and within the department?
- Does the department use forecasts to adjust its winter maintenance operation on a storm-by-storm basis?

**Work with other departments and agencies**

- Did issues arise working with other departments that affected the operation?
- How well did cooperative agreements with other agencies work?

**Contracts**

- If the department activated contractors, how well did it manage them and check quality of work?
- What other contracts should the department consider?

**Media and public information**

- How well did the department communicate with the public and/or use the media to publicize critical information?
- How did the public communicate with the department?

**Road design or road condition**

- Are there design or maintenance problems with roads, drainage or utilities that had an adverse effect on snow and ice operations?

**Budget**

- Was the budget adequate to perform winter maintenance operations?
- What changes are needed for the next budget request?

**Take action**

For every answer that suggests the operation fell short of expectations, explore what actions will improve department response next year. Listen to what people with different responsibilities in the winter maintenance operation have to say about why things happened the way they did. Pay attention to a variety of ideas. Be open to innovative solutions. Weigh both the challenges and possibilities of implementing the ideas that emerge.

Critical to any post-season review is following up on concerns raised and ideas for addressing those concerns. The effort is wasted otherwise.

Prioritize issues and determine the changes to make and when. For each change, identify who is in charge of implementation, how best to accomplish it and set a timeline for completion. Keep everyone informed of progress. Making the post-season review a regular part of winter maintenance operations enlists the entire department to identify problems and asks all employees to find and apply effective solutions.
Spring maintenance checklist: where to begin

ACCUMULATED SNOW and ice, the spring thaw and seasonal rains combine right about now to cause problems for our roads. As we recover from the winter of 2007–08 and prepare for spring, maintenance is in the air. Here are some things that may need attention.

Sign damage
Check for signs damaged during the winter by vehicle accidents and snow plowing operations. Repair or replace signs and signposts missing, broken or bent.

Shoulder drop-offs
Check for places where plowing operations and vehicle traffic removed material from gravel shoulders. Check for drop-offs between pavement and shoulder. Anything more than two inches is a safety hazard. A driver who weaves onto the shoulder may catch a tire on the drop-off and run off the road or overcorrect and steer into oncoming traffic.

Faded pavement markings
Check for markings that need repainting and schedule the job when the weather improves.

Potholes
Many Wisconsin communities have a bumper crop of potholes this year. Make temporary patching repairs as soon as possible and plan for permanent repairs.

Guardrail damage
Repair or replace guardrails that fell victim to winter driving and plowing operations.

Mailbox damage
It is likely Public Works heard right away from residents when plowing operations damaged their mailbox. Catch up on any remaining mailbox repair or replacement. And prepare a written mailbox damage policy to have in place for next winter if you do not have one now.

Road maintenance activities
Review and revise plans for ongoing road maintenance based on your spring inspection and available resources.

Blocked culverts ditches, catch basins and inlets
Clear the debris blocking culverts and storm sewers and inlets to help avoid flooding on roads and the deterioration of road structure that comes from water saturation.

Curb and landscape damage
Compile a list of curb and landscape damage and carry out these repairs as the weather improves.
Training programs build skills, add value
continued from page 5

and street improvements. For the fast growing community east of Madison, it is a valuable tool for managing critical resources and informing the Village Board in advance of needs and costs.

Training to fit professional lives
The WCPM program makes it easy to incorporate the training schedule into a professional work life. The program requires participants to make progress each year, but they can take classes at a manageable pace that accommodates both work and life.

Total cost is about $3,400 and includes courses in three consecutive phases taught by UW faculty or experienced public managers and trainers on skills assessment, strategic planning, productivity and quality improvement, organizational/resource management, ethics, personnel management and public policy.

The UW Department of Professional Development and Applied Studies offers WCPM classes statewide and online.

Better managers, better workplaces
WCPM and another program, the Public Works Supervisory Academy, both provide a unique continuing education outlet for key government managers. Local officials and boards increasingly see the benefits of encouraging managers to improve their skills via training and, in the process, create a better workplace.

Susan Paddock sees the payback in the many people who complete certification in either or both programs, who find their strengths in the process and a new commitment to excellence.

“Any of us lucky enough to work for an outstanding mentor learn from them how to be a good manager,” she observes. “In truth, few of us have such a mentor but, even when we do, in these fast-changing times, nothing substitutes for a good training program.”

Publications

Websites


FHWA — Information on revisions in Manual on Uniform Traffic Control Devices (MUTCD) related to sign retroreflectivity.

http://safety.fhwa.dot.gov/roadwaydept/retro/mutcd_revision2.htm


http://safety.fhwa.dot.gov/roadwaydept/retro/hr08026/index.htm

FHWA — Table identifying the reflective sheeting types available.


UW–Madison Public Works Supervisory Academy link.

www.dcs.wisc.edu/pda/academy.htm

WisDOT — Information on WISLR (Wisconsin Information System for Local Roads), a data management tool for road rating and planning.

www.dot.wisconsin.gov/localgov/wislr/

Link to the Wisconsin Traffic Operations and Safety (TOPS) Laboratory and WisTransportal login to access crash data.

http://www.topslab.wisc.edu/

New OSHA rule on protective equipment. Link to information on OSHA rule requiring employers to pay for personal protective equipment (PPE) for employees in most instances. Intended to clarify who should bear the cost of PPE, the rule does not change the types of PPE required.

http://www.osha.gov/briefing.html

The announcement explaining this rule available at:


Federal Register with the rule:


DVD/VHS/Multimedia
Timely resources new to the TIC collection or related to topics in this newsletter.

Night Lights, American Traffic Safety Services Association (ATSSA), 2000, 13 min., CD. Explains how retroreflectivity improves signs and pavement marking using a range of driving scenarios to show the need for reflective features. Useful for the public, law enforcement officers and elected officials. VHS version also available.

Safe Winter Driving Considerations, Coaching Systems, LLC, 2001, 2006, 21 min., DVD. Basic winter driving advice for cars and light trucks on preparation and typical road hazards, and how drivers should react to winter conditions such as low visibility, slippery roads, snowplow operations and sight obstructions. Good for new auto drivers or a refresher. Does not cover snowplow operations.
TIC Workshops
Details, locations and registration forms are sent to all CROSSROADS recipients prior to each workshop. Additional workshop information and online registration available at http://tic.engr.wisc.edu/workshops/listing.lasso

On-Site Workshops
Save time and travel costs by bringing instruction to your shop or office. Schedule training that is convenient and tailored to your specific needs. On-site workshops let you train more people for the same cost or less, including staff from other municipal departments, nearby communities, and businesses you contract with. Contact TIC early to book the program and date you want. On-site workshops include:

• Basic Surveying for Local Highway Departments
• Basic Work Zone Traffic Control
• Flagger Training

Wisconsin Transportation Information Center
University of Wisconsin–Madison
432 N. Lake Street Room 805
Madison, WI 53706

UW–Madison Seminars
Local government officials are eligible for a limited number of scholarships for these Engineering Professional Development courses held in Madison. Go to http://epd.engr.wisc.edu or 800-462-0876 for details.

APRIL 2008
7-8 Municipal Engineering Fundamentals for Non-Engineers
7-8 Geosynthetics: Current Practices in Design and Construction
14-15 Mastering the Fundamentals of Culvert Hydraulic Design
16-17 Implementing Effective Culvert Maintenance
17-18 Drainage Engineering Fundamentals for Non-Engineers
28-30 Effective Roadway Lighting

MAY 2008
8-9 Preparing an Effective Municipal Capital Improvements Plan
12-13 Introductory Principles of Engineering Project Management
12-13 Soil Engineering for Roads and Pavements
14-15 Management Skills for Engineering Capital Projects
16 Computer Tools for Engineering Project Management

JUNE 2008
2-3 Comprehensive Practices for Effective Construction Project Management
4 Principles and Practices of Construction Project Scheduling
5-6 Principles and Practices of Estimating for Construction and Design Professionals

2007 record year for TIC training
More than 5,200 local officials participated in 83 workshops statewide last year, setting a record for annual outreach and training activity by the Transportation Information Center. Programs included targeted training sessions for newly elected town, village and city officials.