POSTED SPEEDS that are right for the roads they control help make drivers and passengers safe on Wisconsin’s roadways. Studies show that artificially low speed limits, in particular, tend to increase crash risk due to more variability in travel speeds on the road. The closer all drivers adhere to what is generally termed a rational speed, the lower the risk.

Current statewide Speed Management Guidelines give local governments a template for establishing speed zones that reflect conditions and typical travel speeds on local streets and highways. Ongoing research on how rational and irrational speed limits affect safety on Wisconsin roads also provides local road officials with useful safety data to support improvements.

Halverson says a preliminary review he did of specific roadways on the list showed a mix of posted limits set through informal agreements, some of which made no sense and others that simply did not meet state guidelines. Road safety was an issue but not the only one motivating the county to act.

“We really needed to reconsider many of these speed zones to decide if they were legitimate and appropriate for the flow of traffic and road uses,” he explains.

The data-driven approach examined roads across the entire county to give the County Highway Department a complete picture of speed zone inconsistencies. Halverson emphasizes that “I had a good idea what some existing limits should be, based on what I know about these locations, especially those with limits that were too low for no good reason,” he notes. “But we needed someone with expertise to survey and analyze everything with an objective eye.”

Continues on page 8
TIC connects with webinars

REACHING OUT to local government officials and public agencies responsible for local roads requires the Wisconsin Transportation Information Center (TIC) connect and communicate in many different ways. That is one reason TIC is adding more webinars to its training portfolio this year.

The online offerings start in October with two winter maintenance webinars that feature presentations from road superintendents who are using innovative ice control techniques and snow removal equipment to improve service, reduce costs or both. Read more about these programs on page 6.

In February, TIC focuses one webinar program on funding issues for local road improvement projects and another on the new Wisconsin Department of Natural Resources general permit currently in the public hearing stage. The new permit, which replaces Trans 207, covers drainage projects, and the drainage and erosion control aspects of road projects.

PASER and WISLR will be the subject of several July and August webinars. Participants will learn to rate the condition of their pavements more accurately and use WISLR tools to plan maintenance and improvement projects. The programs will prepare local road officials to submit their pavement condition ratings to the Wisconsin Department of Transportation by the December 15, 2013 deadline.

More webinars

Another opportunity for staying current with industry issues is the Every Day Counts innovation campaign sponsored by the Federal Highway Administration. FHWA recently announced a second round of the Every Day Counts (EDC2) and will present several webinars to discuss the initiatives. TIC will help organize, promote and host the Wisconsin download sites for these EDC2 webinars.

Beginning this fall, the initial phase of EDC2 will explore project streamlining techniques DOTs and local agencies can adopt to reduce the time and cost of designing and implementing road projects. A second phase next spring will highlight several new technologies similar to the safety edge and GRS-IBS technology introduced this past year.

Learn more about the entire list of 13 initiatives the FHWA plans to address in EDC2 at www.fhwa.dot.gov/edc2/index.cfm.

Train more people

A major advantage of webinars is that it allows local agencies to provide more staff members and elected officials with a training opportunity close to home. Up to 80 sites can connect live to these TIC webinars and each site pays one registration fee to cover all participants at that location. Fees for the 90-minute or two-hour webinars are $40 per site, per session for an unlimited number of participants or $60 per site for two sessions. As with all workshops, TIC now charges $25 in advance for any attendee requesting a certificate of attendance.

TIC also plans to record each program and make it available in a new webinar library. Email tic@epd.engr.wisc.edu or call 800-442-4615 to learn more.

Get on the e-list for Crossroads

Receive a link to the full-color eVersion of this newsletter every issue. And help TIC save printing and mailing costs at the same time. Write TIC at tic@epd.engr.wisc.edu to get on the email alert list.
Among rules with firm but extended deadlines is the requirement that agencies implement an assessment or management method to help monitor minimum retroreflectivity for regulatory and warning signs. The new deadline for establishing a method is June 2014.

Twelve compliance deadlines remain in force but with extensions. Forty-six rules no longer have deadline dates attached. For those rules, the FHWA advises road agencies to replace the signs in question when they reach the end of their useful life, including unsafe retroreflectivity levels.

**Have a method**

Among rules with firm but extended deadlines is the requirement that agencies implement an assessment or management method to help monitor minimum retroreflectivity for regulatory and warning signs. In use, the method will help ensure these signs meet the federal standards or get replaced. The new deadline for establishing a method is June 2014.

The fact that having a method in place to make sure safety-critical signs are visible at night remains a deadline-driven requirement indicates how important it is. Wisconsin Department of Transportation Signing Engineer Matt Rauch says the new compliance date gives agencies extra time to set up a tool he describes as indispensable for keeping track of reductions in retroreflectivity levels and other factors that signal loss of sign effectiveness.

WisDOT manages and maintains its traffic control devices with a combination of the three management methods defined in the MUTCD: expected sign life, control signs and, to some extent, blanket replacement. The approach does not require inspecting the retroreflectivity of each sign in the state highway system. Instead it uses information on sign age and sheeting life cycle to track and replace signs systematically.

Assessment methods, the other approach outlined in the MUTCD, require visual inspections or taking optical measurements with a retroreflectometer. Rauch notes that all methods benefit from having a sign inventory system. WisDOT uses a computerized inventory system but simpler, paper-based systems also work as long as agencies keep them up to date with information on the number and types of signs, where they are and what condition they are in.

Continues on page 4
Test signs
WisDOT opened a sign-life test site in 2008 as part of its sign management program. Rauch and his group use the program to gather data on the year-by-year performance of different sheeting types and sign colors. They compare this data to information from manufacturers. The study examines a range of signs and includes a group that face south or west for the greatest ultraviolet exposure.

Rauch says after only four years, it is too early to see much difference in reduced retroreflectivity between the two main test materials, newer prismatic sheeting and the traditional Engineer grade sheeting. In fact, results so far match industry claims on retroreflectivity degrading slowly for the first few years. Rauch expects levels to drop off faster once deterioration starts.

Fading a concern
More of a concern right now is the degree of color fading in many test signs, especially those exposed to intense sun. Rauch says STOP signs can show the greatest alteration in color. Some of the familiar red signs fade so much, their distinctive shape is the only way to tell in daylight what they say. Ironically, even signs that are faded completely continue to pass the retroreflectivity test after dark.

Rauch notes that expected sign life for the newer materials is 12 years, something his retroreflectivity tests might achieve. But he is starting to see that the life span of signs with sun exposure can be less from a color standpoint. “Which means that faster color deterioration could affect the replacement cycle for signs.”

For this reason, Rauch is adding color intensity (based on ASTM standards) as a quantifiable measure of sign life to WisDOT’s testing program. “Color is an important visual attribute of an effective traffic sign, along with retroreflectivity. I encourage local road officials to consider both when they monitor their signs.”

Avoid liability
The FHWA’s decision to modify deadlines for compliance with the new MUTCD standards gives road agencies the chance to develop a sound plan for reviewing and prioritizing their traffic sign replacement. Rauch notes that having a documented and active method in place also helps if a public agency is challenged in court on a road safety issue.

Samuel Hall, Jr., an attorney with Milwaukee law firm Crivello Carlson, S.C., has experience defending counties and towns in cases of alleged negligence involving traffic controls. He explains that requirements in the MUTCD may establish a duty for public agencies. When they can document compliance with those rules, it strengthens their position.

“The first defense is to reduce an agency’s risk by timely replacement of worn out or faulty signs, which avoids the chance their condition is cited as the cause for damage or injury,” Hall says. “Creating written policies, in addition, that define how the

Signs fade and lose their impact with age as in the example on the left. Sun fading on the blue sign reduces it to an unreadable message for road users traveling at highway speeds.
Useful life of signs

FHWA eliminated deadline dates for 46 sign changes earlier this year, recommending road agencies replace or update them in a reasonable and cost-effective way. The rules allow previous versions of a sign to remain in place until the end of its useful life, which includes falling below minimum retroreflectivity levels. Examples include:

- **School Crossing Assembly** eliminates crosswalk lines from crossing signs and requires use of diagonal downward pointing arrow (W16-7P) supplemental plaque. *Original replacement deadline January 17, 2011. No deadline as of May 2012.*

- **Narrow Bridge Sign** (W5-2) eliminates symbol sign (2003 MUTCD Section 2C.16). *Original replacement deadline December 22, 2013. No deadline as of May 2012.*

- **Lane Ends Signs** includes new design of W4-2 sign (2003 MUTCD Section 2C.33). *Original replacement deadline December 22, 2013. No deadline as of May 2012.*

Requirements contained in the MUTCD may establish a duty for public agencies. When they can document compliance with those rules, it strengthens their position.

agency manages traffic signs according to the federal standards helps minimize the risk a judgment will go against them.”

Hall suggests local governments keep these sign assessment or management policies flexible so they can adjust to shifting priorities and available resources.

Continued implementation

Standards in the MUTCD regulate traffic control devices for all public roads. It also provides valuable guidance to agencies on strategies for keeping those devices in safe, effective order. Amended deadlines for complying with the changes in the standards take some pressure off local governments budgeting the resources needed to upgrade the signs they manage. But as street and highway departments continue to plan and implement sign replacement programs, they should do what they can to maintain momentum for meeting the MUTCD and reducing their liability.

Local road officials responsible for maintaining traffic controls can explore how the 2012 revisions to the MUTCD compliance deadlines affect their operations at [http://mutcd.fhwa.dot.gov/](http://mutcd.fhwa.dot.gov/).

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Resource

[http://mutcd.fhwa.dot.gov/kno_2009r1r2.htm](http://mutcd.fhwa.dot.gov/kno_2009r1r2.htm)

Link on FHWA website to the 2009 edition of the MUTCD containing May 2012 deadline revisions.

Cracks affect a sign’s finish and reduce the quality of retroreflectivity.

“Color is an important visual attribute of an effective traffic sign, along with retroreflectivity. I encourage local road officials to consider both when they monitor their signs.”
Webinars refresh winter maintenance techniques

**SNOWY ROADS** will change the Wisconsin landscape by the end of the year and dominate highway and street maintenance operations across the state. As local road agencies prepare equipment and update seasonal policies, this is the time to consider best practices in winter maintenance.

The Wisconsin Transportation Information Center (TIC) offers two 90-minute webinars this fall that give supervisors and workers a chance to refresh or refine their use of winter maintenance techniques. The programs explore anti-icing and plowing, methods that keep costs in check and have a low impact on the environment.

**Faster clearing**

Anti-icing is a good choice for agencies that want to provide bare pavement after a winter storm. The technique involves application of liquid salt brine, calcium chloride brine, magnesium chloride brine or a blend of brines that prevents snow and ice from bonding to the pavement. Reports from agencies around the country indicate that anti-icing allows them to clear roads faster, decrease their salt use, minimize damage to roadside plantings and nearby waterways, reduce the risk of accidents and control costs.

Many cities, counties, villages and towns across Wisconsin now incorporate anti-icing in their winter maintenance programs but others still have not adopted the approach.

On October 9, TIC welcomes local road officials from around the state to discuss their anti-icing programs. The webinar will explore how to justify and implement an anti-icing program. Presenters will highlight improvements and cost savings they achieved through anti-icing.

**Better plowing**

Mechanical removal of snow remains the most cost-effective and environmentally friendly winter maintenance method out there. Yet it gets less attention and sees less innovation than other methods. Plowing equipment designs do not change much year-to-year so it is easy for agencies to get stuck in a rut of always specifying the same equipment. But it pays to consider newer solutions that maximize results from mechanical removal.

Past issues of Crossroads have informed local road officials about the latest equipment in winter plowing operations, including new blade materials and snowplow designs. Coming up October 30, TIC hosts a webinar discussion of the experience local governments have with a variety of equipment for mechanical removal.

The webinar features Mark Devries from McHenry County, Illinois, and John Klostermann from Dubuque, Iowa. They join TIC and webinar participants to discuss the use of plow-edge materials, implementation of multi-edge plows and other new plow technologies in their specific winter operations.

Multi-edge plows allow the operator to select a conventional plow-cutting edge, a rubber blade, an ice blade or combination of blades for effective removal of snow and ice. Operators base blade selection on the type of precipitation coming down and how much the snow or ice has bonded to the road.

Both communities experienced some initial problems with the new technology. Among other details, Devries and Klostermann will describe how they resolved...
many of these issues by working with the manufacturers. The input helped them improve productivity and service, and the effectiveness of their multi-edge plows.

**Join the discussions**

TIC’s winter maintenance webinars provide highway and street departments with easy access to firsthand information on how other departments get the most out of current anti-icing and mechanical removal strategies. The discussions also serve as a forum for all participants to share their experiences and ask questions.

Webinar fees are $40 per site, per session for an unlimited number of participants, or $60 per site for two sessions. TIC also charges $25 in advance for any attendee requesting a certificate of attendance.

See the [Calendar](#) on page 12 for details on registering or go to [http://tic.engr.wisc.edu](http://tic.engr.wisc.edu).

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**Snow solution saves resources**

SOMETIMES IT TAKES A “lane change” in thinking to find an effective solution. That describes how the Village of Almond solved winter maintenance challenges in recent years. The central Wisconsin community of 500 faced the same downtown snow removal issues as other municipalities: a lack of snow storage areas on streets in the business district, and the need to keep on-street parking and sidewalks clear so businesses can get back to business quickly after a snowstorm.

For business district winter operations in many communities, maintenance crews typically load dump trucks with snow using a wheel loader or snow blower and then haul it away. For Almond and other small communities, the cost of owning the equipment for such an operation is prohibitive. They need another approach.

Dan Folan, Maintenance Supervisor for the village and his department’s only full-time employee, looked for another solution because, like his counterparts in street departments across the state, he has to keep costs down and service up. Folan says agreements with the owners of several vacant lots downtown and access to a section of schoolyard and nearby park solved the snow storage problem. Then he considered the best tool for the job of moving snow into the lots and other spaces.

Familiar with containment plows, or “snow pushers” used for clearing large commercial parking lots, Folan thought it had potential. The snow pusher has a wide straight blade with end plates on each side that keep snow from rolling off the end of the blade. Attached to a loader or tractor, the blade pushes accumulated snow along the pavement without leaving windrows of snow.

The village purchased two snow pusher blades, but could not justify purchasing an additional loader. Instead, Folan rents a construction loader for his winter operations at a favorable off-season rate. He uses this to run his 14-foot containment plow and rents a tractor to handle a 10-foot pusher. “It’s a win-win on many fronts,” Folan explains. “We don’t need to maintain the extra equipment year-round, and I can manage winter operations with just two part-timers and the most basic of tools.”

He adds that besides handling snow efficiently, the pushers scrape the pavement so clean, there is less need for sanding and salting the roads, which saves on materials and the cost of spring clean up. The pushers, equipped with rubber edges, require minimal maintenance.

**Tools for the job**

Folan says agreements with the owners of several vacant lots downtown and access to a section of schoolyard and nearby park solved the snow storage problem. Then he considered the best tool for the job of moving snow into the lots and other spaces.

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Containment plows, like this one, use a wide straight blade to move accumulated snow without leaving windrows behind.

**Control costs**

Comparing costs overall, Folan says the new approach cut his annual winter maintenance costs by about $8,000, a significant portion of a tight budget. The combination of efficient snow pushers, reasonable equipment rentals and local storage-site agreements gives him more control over expenditures and greater flexibility for achieving his maintenance goals, which include providing excellent winter maintenance service for Village of Almond businesses and residents.

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“It’s a win-win on many fronts. We don’t need to maintain the extra equipment year-round, and I can manage winter operations with just two part-timers and the most basic of tools.”
Basing decisions to modify speed zones on information from the engineering study helps ensure the new statutory limits are enforceable and defensible.

Identify 85th percentile

Tony Kemnitz provided the objectivity. The traffic engineer led the Douglas County speed study for Jewell Associates. He and company President Greg Jewell describe it as an effective way of taking into account all factors, including speed limits, that keep traffic flowing freely and without conflicts or problems.

They considered safety but because the county had no real crash issues on the roads studied, Kemnitz says the primary focus remained on travel speeds. He found many roads in the study with little traffic where posted limits seemed random. On roads with lower limits, most vehicles traveled about 20 to 30 mph above the posted limit. On those with higher limits of 45 and 55 mph, drivers tended to travel closer to the posted speed.

Profiling travel speeds in this way on all sections, Kemnitz identified the 85th percentile speed, or the speed at or below which 85 percent of observed traffic travels. In one case, on a remote highway with only two driveway access points, few drivers observed the posted 25 mph limit but traveled at 40 mph or more. “They naturally adjusted to the speed the majority of motorists are comfortable driving on that road,” Kemnitz says. The new limit, modified by ordinance, is 45 mph.

Kemnitz then documented secondary factors that define a roadway and affect travel speeds. “People see speed limits as the issue and want to lower them as a way to make roads safer,” Kemnitz says. “But other factors often matter just as much or more.”

He analyzed things like roadway design and the number of driveways and side roads that intersect the roadway. Land use along study corridors, proximity to schools, density of traffic controls and other features also helped determine speed zone recommendations. Kemnitz says when secondary factors rather than the 85th percentile speed influenced a change, he recommended the county increase law enforcement on those roads to help modify driving behaviors.

Running the study

Commissioner Halverson drove every location on the list with Kemnitz at the start of the study to share key facts about each road and any specific concerns.

Kemnitz used a laser speed gun and traffic data recorders to measure the actual travel speeds at study sections. To document results on secondary factors, he analyzed five years of crash data for the entire county. He did a field survey to establish roadway alignments and record safe travel speeds based upon existing roadway features. A closer study of driveway spacing, and land use and zoning along the test corridors provided more data to support potential changes.

After noting that traffic at the study locations typically traveled above posted speeds, Jewell Associates final report noted that 12 of the 27 speed zones met statewide guidelines but recommended raising limits on the other 15 locations. Kemnitz based 60 percent of the suggested increases on factors like the number intersecting access points and roadway geometrics rather than travel speeds.

Role of speed variability

In a separate but related study released by the Wisconsin Department of Transportation in June 2011, Senior Traffic Engineer John Campbell of Traffic Analysis and Design, Inc. (TADI) compared the safety impacts of rational and irrational speed limits on five pairs of rural and urban corridors across the state.

The terms rational and irrational describe posted speed limits that affect the free flow of traffic on a roadway. Engineers generally base rational speed limits on observed
travel speeds, the geometry of a road and the type of traffic it carries. As the Douglas County speed study found, these are the speeds most drivers feel safe driving on a given stretch of road. Irrational limits appear unreasonable based on engineering standards or are remnants of a time when the road had different uses.

When rational travel speed meets irrational posted limit, traffic can move at varying rates of speed, creating more potential for conflicts and crashes. The TADI study showed that this “speed variability,” common on irrational corridors, creates a greater risk of crashes. It also found that more drivers comply with posted speeds on highways with rational limits.

The safety study compared crash histories of the five corridor pairs. Each pair featured one rational and one irrational corridor based on observed travel speeds and results from USLIMITS, a web-based software available free from the Federal Highway Administration website http://safety.fhwa.dot.gov/USLIMITS/. Campbell also analyzed speed variability on an additional 32 rational and 23 irrational corridors.

He explains a goal of the study was to collect evidence specific to Wisconsin that reinforces other studies indicating lower limits do not guarantee a safer road. Lowering a limit without data to justify the change does not have much impact on the speeds most drivers travel, notes Campbell. They will decide instead what feels right and rational based on experience, road features and the surrounding environment. Roadways with irrational speed limits tend to have greater differences in travel speeds and a higher collision risk because more vehicles are passing and changing lanes.

**Beyond the limits**

Campbell suggests public agencies consider safety countermeasures as part of a road safety assessment, that they go beyond modifying speed limits. In matching corridors for the WisDOT study, he looked at additional factors that influence the relationship between speed limits and safety: roadway alignment, transition zones, pedestrian and bicycle activity, the amount of on-street parking and other characteristics.

Countermeasures like dynamic speed signs, adequate warning signs, turn lanes, consolidated driveways, clearly marked pedestrian crossings and other applications combine with rational speed limits to improve road safety. Campbell recommends local governments make the USLIMITS program a starting point for determining appropriate speed zones on local roads and streets.

**Serving the public good**

Speed limits are set by facts, not personal opinion, observes Douglas County’s Halverson. For his department, conducting the countywide speed management study was essential to tackling long-standing speed zone issues. The data it produced gave him justification for modifying existing limits and made it easier for the County Board to support the changes. Since making the changes last year, he says most community feedback is positive.

“Results from the engineering study gave us a good status report on our highway speed zones and a factual basis for enforcement,” Halverson says. “But it also shows residents and visitors that we pay attention to serving the public good.”

**Which speed is the rational speed?** Two versions of the same photo illustrate road characteristics, like four travel lanes divided by medians on a mostly commercial roadway, that factor into deciding the answer to that question on this corridor is 40 mph. Taken from a statewide study comparing the safety impacts of rational and irrational speed limits that analyzed the difference between posted speeds and actual speeds on a variety of roads across Wisconsin.

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**Countermeasures like**

**dynamic speed signs,**

**adequate warning signs,**

**turn lanes, consolidated**

**driveways, clearly**

**marked pedestrian**

**crossings and other**

**applications combine**

**with rational speed**

**limits to improve road safety.**

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**Resources**

http://safety.fhwa.dot.gov/USLIMITS/  
Federal Highway Administration linking to working with the web-based system for setting reasonable, safe and consistent speed limits for specific segments of roads.

http://transportal.cee.wisc.edu/  
Managed by the Wisconsin TOPS Laboratory, this site gives local road agencies access to timely crash data.
Tight budgets tend to result in fewer training opportunities for local road agencies. But the video lending library managed by TIC is one solution that provides a rich resource at a low cost. Agencies can conduct on-site training on a schedule that fits their operations and staff needs. The pre-recorded and timely programs cover topics from equipment maintenance and erosion control to patching unpaved roads.

Among 25 new DVDs TIC has added to its lending library in the past two years are many that focus on worker safety. The DVD format is ideal for worker safety training since experience shows it is best to present these topics on site so employees, lead workers and supervisors can view the program material together and discuss how they can implement the strategies explored in their own operation. Most programs are less than 15 minutes long, but each has a wealth of information with direct bearing on the health and safety of a public works or highway workforce.

Borrowing made easy

Local road officials can review the video lending catalog at the TIC website http://tic.engr.wisc.edu/Videos, and search for a topic using key words or browse topic categories for programs of interest. Borrowers then contact a nearby county extension office to request their video or DVD selection and TIC mails it free of charge. The only cost to borrowers is the return postage.

Records indicate that local road agencies in Wisconsin borrow about 120 videos and DVDs from the library each year. This is a small number compared to the nearly 2,000 local governments who maintain the state’s road system. TIC encourages more public agencies to explore the resources available through the information center outlets and recommend other training topics the center can add to the library.

Public Works Supervisory Academy moves to TIC

The nine-course program provides first- and second-line supervisors with the tools to be effective managers. Knowledgeable and experienced instructors provide up-to-date information along with the chance to practice skills and problem-solve with other course participants. Course topics include:

- Basic Management Skills
- Citizen/Customer Service
- Equipment Use & Workplace Safety
- Fundamentals of Government/Ethics
- Improving Communication Skills
- Leadership Skills (formerly Work Planning & Goal Setting)
- Nuts & Bolts of Personnel Management
- Management Assessment
- Purchasing & Inventory Control

PWSA offers all nine courses each calendar year. Participants can take classes in any order and enroll in individual sessions without enrolling in the entire series. Completing the entire program fulfills 54 hours of the Wisconsin Certified Public Manager® Program.

The UW-Madison offers PWSA in cooperation with the American Public Works Association Wisconsin Chapter and encourages graduates to continue their professional development by enrolling in the Public Works Management Institute, a five course series that focuses on building management skills. Contact TIC via email tic@epd.engr.wisc.edu or call 800-442-4615 to learn more.
RESOURCES

Publications

Setting Speed Limits on Local Roads, TIC Bulletin #21, 6 pp., 2009. Good overview for local governments provides background on speed studies, information on statutory limits and statewide guidelines. It also details the process for changing limits.


Meeting Minimum Sign Retroreflectivity Standards, TIC Bulletin #23, 4 pp., 2012. Up-to-date bulletin covers facts and implementation steps for complying with federal requirements.


Web Sources

Link to USLIMITS web-based system for determining reasonable, safe and consistent speed limits for specific road segments. Applies to all road types. http://safety.fhwa.dot.gov/uslimits/

DVD/Video/Multi-media

Night Lights, American Traffic Safety Services Association, 2000, #18786, 13 minutes CD. Uses range of driving scenarios to explain how retroreflectivity improves signs and pavement marking. Useful for law enforcement officers and elected officials.

Anti-icing/RWIS Training, American Association of State Highway and Transportation Officials, 2003, #18790, self-paced CD. Hands-on learning about the use of anti-icing liquids. Lessons cover topics from weather forecasting to application of anti-icing chemicals.

A Snowplow Operator’s Guide to Snow and Ice Equipment, Idaho Technology Transfer Center, 2006, #18172 to #18175, self-paced DVD. Training on plowing techniques and preparation and operation of equipment. Short video segments are combined with interactive tests.

Pre-Trip Inspection: A Circle of Safety, Wumbus Corporation, 2008, #19011, 15 minutes DVD. Comprehensive review of checklist drivers should cover in pre-trip walk around.

Drive Safe!, Glatfelter Insurance Group, 2008, #19011, 15 minutes DVD. Information on vehicle inspection for municipal operations and facts about driver alertness, defensive driving and safe vehicle backing. Useful for new and experienced drivers of cars and light trucks.

FEEDBACK

CONTACT US VIA EMAIL, PHONE, FAX OR MAIL ➤

NAME ___________________________ TITLE/AGENCY ___________________________

ADDRESS ___________________________ CITY ________ STATE ____ ZIP ____________

PHONE ___________________________ FAX __________________ EMAIL __________________

☐ Mailing list change/addition ☐ Information/resource request ☐ Idea/comment ☐ Email delivery only

Print copies of listed publications available free from TIC. Download or request items at Publications on TIC website. Video, CDs and DVDs loaned free at county UW-Extension offices. Also see Video Catalog on TIC website.

TIC website http://tic.engr.wisc.edu/
Summer 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

Winter Road Maintenance WEBINARS

Fee per site, per session is $40, or $60 per site for two sessions.

- OCTOBER 9 Using Anti-icing to Improve Performance and Reduce Cost
  Local agencies discuss how they justified and implemented anti-icing programs. Highlights service improvements and cost savings achieved.

- OCTOBER 30 New Plows Now: A Look at Innovations Being Used by Local Agencies
  Features use of new plow technologies in local street and highway departments. Examples include plow blade materials, multi-edge plows and other snow removal technologies.

UW-Madison Seminars

Wisconsin local government officials are eligible for a limited number of scholarships for these EPD courses held in Madison. Find out more at http://epd.engr.wisc.edu or 800-462-0876.

- SEPTEMBER 17-18 Soil Engineering for Non-Soils Engineers and Technicians N237
- OCTOBER 2-4 Essentials of Hydraulics for Civil Engineers and Designers N164
- OCTOBER 10-12 Unsteady Flow Modeling Using HEC-RAS N418
- OCTOBER 16-18 Roundabouts: Calculating Capacity L948
- OCTOBER 18-19 Managing Snow and Ice Control Operations N561
- OCTOBER 29-30 Introductory Principles of Engineering Project Management N249

- NOVEMBER 5-9 Structural Design for Non-Structural Engineers N253

Independent Study

- SEPTEMBER 19 APWA Snowplow Roadeo and Exposition
  At Lambeau Field in Green Bay. Call 262-521-5021. Email jweyandt@waukeshacounty.gov, or visit http://wisconsin.apwa.net/events/9379/.

... it also shows residents and visitors that we pay attention to serving the public good.

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