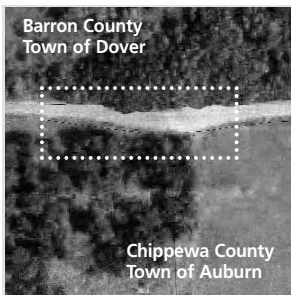




CROSSROADS

<http://tic.engr.wisc.edu>

WISCONSIN TRANSPORTATION INFORMATION CENTER – LTAP



The hazardous section of road at the top of a hill had a history of fatalities and numerous run-offs due to a blind curve. It also straddles the border between two towns and two counties.

CIRCUIT RIDER CASE STUDY

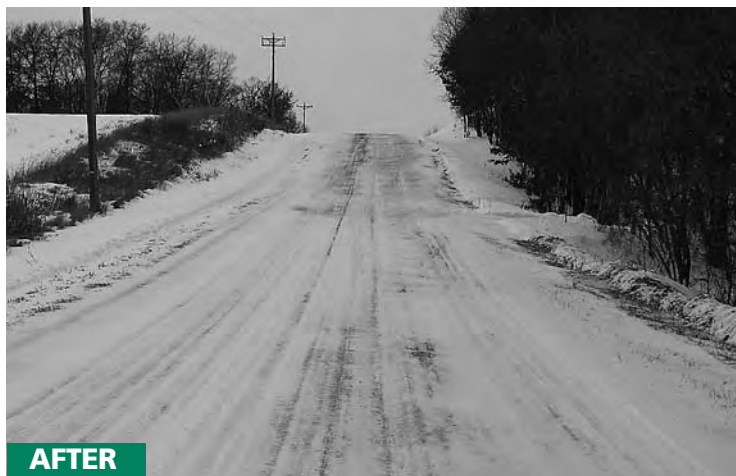
Local cooperation achieves needed road makeover

A stretch of bad road in the Town of Auburn got a much-needed makeover last fall thanks to local leadership, cost sharing and input from Safety Circuit Rider Jack Gerlach. Chippewa County Highway Commissioner Bruce Stelzner put Gerlach in touch with Town Chair Leo Zeman in April 2008. Zeman asked Gerlach to survey two sites that posed safety problems and help the Town explore low-cost solutions. One location was a short but hazardous section of road with a compound curve at the top of a hill with poor visibility. This situation and its outcome are a good case study of how Safety Circuit Riders work with local governments to resolve specific road safety issues swiftly and cost effectively.



BEFORE

Looking west toward top of hill, curve in road is not visible on approach.



AFTER

Looking west after reconstruction, road runs straight.

Advancing a solution

Gerlach learned the 720-foot length of winding pavement had been a concern for more than 10 years. It was the scene of a collision with multiple fatalities in 1996 and numerous run-offs due to the blind curve. The road section also straddles the border between Auburn and the Town of Dover in Barron County. Advancing a solution meant getting the cooperation of both towns, both counties and at least two landowners whose properties abut the right of way.

Assessing the road itself, Gerlach identified grades of 7 to 10 percent in both directions with an offset centerline of 15 to 20 feet at the top of the hill that created a double curve of less than 150 feet. As Zeman recalls, "When you got to the top, you'd

expect to go one way and you'd go another."

Besides poor visibility, Gerlach noted erosion on the face of the hill. The back slope to the north rose about 20 feet from the edge of the shoulder. "It helped that I could examine the site with a

Continues on page 8

INSIDE

- 2 [Fresh take on pothole patching and prevention](#)
- 4 [When large loads travel local roads](#)
- 6 [Recovery Act dollars move into local projects](#)
- 6 [Considering local speed limits](#)
- 7 [Summit/workshops planned on speed management guidelines](#)
- 10 [Crossroads Article Index](#)
- 11 [RESOURCES](#)
- 12 [CALENDAR](#)

Fresh take on pothole patching and prevention



Timely crack sealing and other surface treatments early in the life of a pavement help prevent moisture from seeping beneath the surface and undermining pavement strength.

WHEN WINTER MELTS into spring, it leaves behind rough roads and needed repairs. This year is no exception as local highway and public works departments face another bumper crop of potholes.

The pothole-patching season raises a few questions. What is it about severe cold and snow that produces potholes? What basic fixes do local “patching patrols” follow and what newer options are they using for long-lasting repairs—especially in tight-budget times? Finally, what does it take to keep potholes from forming in the first place?

Pothole pathology

Motorists tend to label any pavement distress as a pothole when, in fact, a genuine pothole is a bowl-shaped hole of broken pavement caused by fatigue at and beneath the surface.

Inadequate pavement structure often is behind chronic pothole problems. Low-quality materials, poor compaction, water-saturated underlying soils or inadequate pavement thickness can result in substandard pavement easily affected by conditions.

Good road or bad, severe winter weather and the spring thaw push pavements to their limits. Drainage, moisture seeping through fatigue cracks, freeze-thaw cycles and damage from loaded trucks all accelerate pothole formation. The harsher the winter, the heavier the snowfall, the more cycles a road endures.

The life cycle of asphalt pavement materials also plays a part. As asphalt ages, it becomes brittle. Cracks form more readily from the combined forces of traffic, nature and maintenance. Now less flexible, the pavement allows moisture to permeate its surface and speed deterioration.

In the freeze-thaw cycle, water in the pavement structure expands



as it freezes and, as temperatures fluctuate, the water thaws and freezes again. Through repeated cycles, the pavement heaves and cracks. Many winter maintenance activities, such as sanding and salting operations that keep roads open during and after storms, contribute more stress to this sequence of events.

Distinguish one hole from another

The classic pothole carries through all pavement layers, from the pavement surface to the sub-base and soil. It can grow to several feet wide and several inches deep.

Other distresses that resemble potholes occur when there is delamination (also called debonding) of the top pavement layer(s) due to a poor bond between layers. When localized, this condition produces a pothole-like hole, but it penetrates only as deep as the layer where pavement lifts did not bond. Inadequate sweeping and cleaning of the surface before overlay, an inadequate tack coat, moisture on the pavement at the time of paving or poor compaction in the surface layer also causes delamination.

A fresh look at typical fixes for potholes demonstrates the options available to local road maintenance operations and how to make those fixes last.

Better performance from temporary patches

Many potholes require an immediate fix to make the roadways safe to drive and prevent vehicle damage. Temporary patching is the general rule when repairs are necessary in cold and snowy weather or during spring melt-off and rain. Highway departments often use a cold-patch asphalt mixture for temporary fixes because hot-mix asphalt is not available in the winter season.

Even if the patch is temporary, it pays to follow patching procedures designed to get as much life as possible out of the patch. Patches made using the “throw and go” method do not perform well. Where road crews place loose cold mix in an unprepared pothole and rely on vehicle traffic to compact the material, they can measure patch life expectancy in hours or days rather than months or years.

Studies show the performance of a temporary patch improves significantly with a “throw and roll” approach. Throw and roll calls for placing cold-mix material in a hole (even one filled with water and debris) and compacting the patch by four to eight passes of the road crew’s truck tires. If the center of the patch remains depressed after compacting, the crew adds more patching material and re-rolls it so the patch is

slightly crowned from center to edge; traffic then supplies added compaction. Removing water and loose debris from the hole before patching is a simple added step that further increases patch life.

Effective semi-permanent patching

A semi-permanent patch is a more complicated method for repairing potholes on roads or streets. This approach is similar to a full-depth hot-mix asphalt patch except it uses cold-mix material. When installing this kind of patch, maintenance crews generally:

- remove water and loose material from the pothole
- cut pothole sides so they are vertical and square with sound pavement on all sides
- place the patching material, using a lift if the asphalt is more than three-inches deep
- compact the patch with a vibratory plate compactor or roller.

Another patching choice that produces a long-lasting fix in adverse conditions is spray injection patching. This involves a specialized truck- or trailer-mounted system that includes an emulsion tank, aggregate hopper and air compressor. The process first uses compressed air to blow water and debris out of the pothole. Then operators spray an asphalt emulsion mixed with aggregate into the pothole in layers, placing a layer of aggregate on top of the patch to keep the material from tracking under traffic. In practice, this process produces “temporary patches” that last three to five years.



Spray injection patching works well under adverse conditions and produces long-lasting temporary patches.

A good cold patch

As with road construction, good materials contribute to performance of the patch or surface treatment. Since most pothole repairs depend on cold-patch materials, what is the basis for a good cold patch?

- workable in low temperatures
- stays workable in a stockpile over a period of several months
- stable under traffic, does not shove or rut
- sticks in wet potholes without tack coat
- remains on the aggregate, does not “strip” from the action of water
- compatible with hot-mix asphalt when paved over at a later time

Experts recommend using clean crushed aggregate with less than 2 percent fines (passing through a No. 200 sieve) and a maximum size of three-eighths to half-inch for a successful cold-mix material. Use anti-stripping additives and polymer-modified asphalt to improve performance further. Some proprietary cold-patch products have proven effective, but a non-proprietary mix using the right materials also works well.

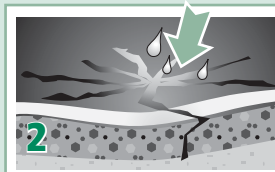
Preventing potholes an ongoing effort

Pavements deteriorate at different rates for many environmental and structural reasons. Close attention and regular inspections serve as a check on potential pothole problems. It gives officials responsible

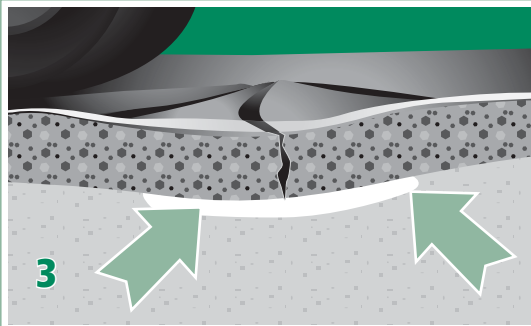
How a pothole forms



1
Vehicle weight causes pavement to bend slightly.



2
Small cracks form on the underside of the asphalt first then on the surface where rain and melted snow seep in. The moisture expands when it freezes, creating deeper, wider cracks.



3
Multiple freeze/thaw cycles and constant vehicle loading cause cracks to penetrate the pavement, letting moisture seep below the surface. As this moisture expands with freezing, it pushes the pavement up and weakens it further. After melting, the ice leaves a cavity.



4
Vehicle traffic eventually compresses the weakened pavement over the cavity and the crack becomes a pothole.

Adapted from Minnesota Local Road Research Board video.

for local roads the data they need to take appropriate preventive measures. Timely crack sealing and other surface treatments early in the life of a pavement help prevent moisture from seeping beneath the surface and undermining pavement strength.

Potholes happen. Local officials need effective patching methods in their arsenal to restore winter-weathered roads. But an ongoing effort to maintain good roads in good condition goes a long way to minimizing the impact of pothole season. ■

PHONE
800.442.4615

FAX
608.263.3160

EMAIL
tic@epd.engr.wisc.edu

WEBSITE
http://tic.engr.wisc.edu



SPRING 2009

3

When large loads travel local roads: tips for managing big projects



Crane hoisting turbine blades into position.

“It took a while to develop a better way to handle permitting on such a scale without sacrificing normal operations.”

PICTURE A FLATBED SEMI

170 feet long maneuvering along rural roads hauling a 120-foot turbine blade. Imagine a truck loaded with a huge generator and weighing in excess of 170,000 pounds covering the same route—a class B highway where the maximum weight limit without permit is 48,000-pound.

Multiply trips like these hundreds of times over consecutive months and you have a large-scale construction project that puts stress on the transportation infrastructure and strains local resources.

Dodge County Highway Commissioner Brian Field understands this challenge firsthand. He explains how officials in the southeastern Wisconsin county handled an onslaught of large projects last year requiring permits to move lots of oversized and overweight loads. Two wind farm developments and a major natural gas pipeline construction project, all happening in close succession, prompted them to develop a better way to process requests.

With the future potential for other energy-related projects on tracts of open land, local officials throughout the state can learn from the proactive approach Dodge County adopted, after a rocky start, for managing the safe transport of large loads along its roads. Towns affected by the project did their own permitting but generally followed the county’s lead.

First project overwhelms the system

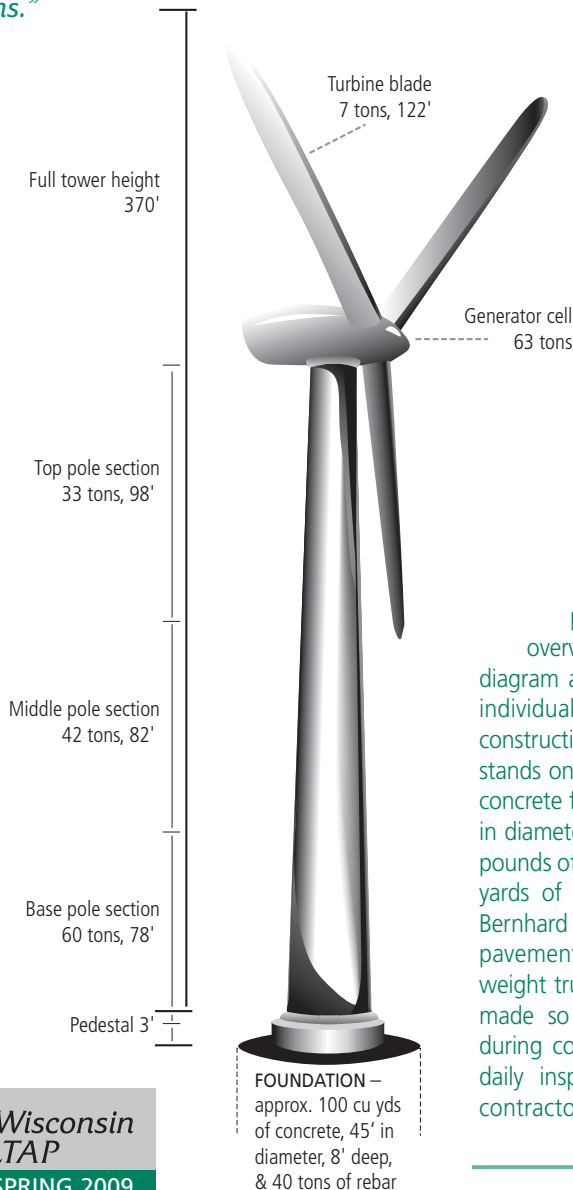
Once the initial wind farm project began, Field says the county realized the implications of having so many oversized and heavy loads traveling on its roads. Contractors and trucking firms from all over the country inundated East Side Patrol Superintendent Chuck Bernhard, the county contact for the project, almost daily with individual requests for what amounted to hundreds of permits.

The project had 48 tower sites in Dodge County (another 18 in neighboring Fond du Lac County) that needed access permits and authorization for six or seven oversized/overweight loads coming into each site. They also requested multiple utility permits. Demand soon threatened to overwhelm the system.

“It took a while to develop a better way to handle permitting on such a scale without sacrificing normal operations,” notes Field. It was “learn as you go,” but it prepared local officials to rethink how to handle the projects that followed.

BREAKING DOWN THE LOADS

Each of the wind turbine towers erected for the first Dodge County wind farm project arrived onsite in seven overweight and/or oversized loads. The diagram at left illustrates the dimensions of individual tower elements and the final construction height. The tower additionally stands on a 3-foot-high pedestal bolted to a concrete foundation 8 feet deep and 45 feet in diameter. The foundation contains 80,000 pounds of rebar and approximately 100 cubic yards of concrete. Patrol Supervisor Chuck Bernhard says he recorded some of the worst pavement damage from the regulation-weight trucks hauling concrete because they made so many trips over the local roads during construction. Thanks to the county’s daily inspections and record-keeping, the contractor covered all costs of repair.



Regroup around new approach

After struggling to manage the chaos of permit requests and inspections on that first big project, Dodge County regrouped. Local officials put together a plan that simplified communication and successfully streamlined the process. Field describes their step-by-step approach as one that primarily protects local interests, but also helps project owners meet their objectives. The steps Dodge County follows now on all large permitting projects are outlined on the next page.

Public interest meets innovation

A range of large-scale permitting projects—logging operations, industrial agriculture, traditional power plants—regularly place demands on roads and local resources. Now a growing interest in alternative energy sources presents a fresh challenge to local officials. Field says the companies

building wind farms in Dodge County work all over the United States on similar projects. He was not surprised to learn that every county they go to manages the permitting/damage assessment process differently. The companies encouraged Dodge County's effort to take a uniform approach.

Finally, Field notes that while the county supports such innova-

tive projects that represent a new approach to producing energy and protecting the environment, he says their commitment to protecting the public interest comes first. Establishing an effective working relationship between local officials and the decision makers on large-load projects was an important step in doing so. ■



Wind farm tower construction.

Dodge County's step-by-step approach on large permitting projects

1 – Schedule early planning session

All groups with a stake in the outcome of the second wind farm project and the pipeline project assembled for early planning sessions. Before the trucks started to roll, Field and Bernhard called a meeting of individuals representing the general contractor, the utility coordinator, a trucking coordinator, the Wisconsin Department of Transportation and law enforcement officials. Together, they reviewed all aspects of the project and came up with strategies for minimizing disruptions and damage, and keeping things on schedule.

2 – Identify local concerns

Dodge County officials outlined their own issues of concern at the meeting, like public safety and establishing the condition of roads before, during and after the project. They explored a workable approach to damage assessments, restoration and cost recovery, and reviewed liability coverage limits and certificates of insurance requirements. The county also distributed its policies covering construction access and utility accommodation.

3 – Establish single point of contact

Insisting the general contractor name a key contact person was the change with the biggest positive impact on the process. Field says that having a single point of contact authorized to manage routes, update schedules and make damage assessments improved communication on the project tenfold. If there were problems, Bernhard knew whom to call to get action.

4 – Designate all staging areas and routes

Representatives on both sides surveyed project needs to designate best transportation routes and staging areas. For example, they reviewed how the contractor planned to prepare the route for huge cranes to cross county or town roads between tower sites. Bernhard says this involved putting down steel plates, a layer of stones and then wooden beams to carry the load and protect the roadbed. The county made a videotape record of the routes to log pre-existing conditions before the project commenced. They inspected every route with the project contact to identify hazards,

obstacles or other concerns, and determined who was responsible for addressing each one.

5 – Issue permits for all access points

Part of simplifying the process, the county worked with the project contact to identify permanent and temporary driveway entrances, and issued permits in compliance with access policy.

6 – Issue blanket permit for oversized and overweight loads

Aware of the permitting demands of a project that needs to move hundreds of large loads over many months, the county arranged to issue a blanket oversized and overweight permit to the general contractor and trucking firms. They billed the project monthly for related costs, including inspections, traffic sign removal and replacement, intersection modifications, right-of-way restoration and pavement repairs. They required the project managers to keep a daily log of the oversized/overweight loads, recording the route, the date and time, and the hauler.

7 – Conduct daily inspections

Bernhard, or someone he designated, inspected all routes used for the project every day to assess any new damage and determine responsibility. Gathering this information in a timely manner meant less confusion later over who pays for damages.

8 – Inspect all routes after project completion

The county's orderly approach to managing large-scale projects was in place by completion of the first wind farm. Bernhard retraced the construction truck routes to record the post-project condition of pavements, shoulders, ditches and access points. He used a previously shot video log for comparison. The process worked. Field says the contractor met with the county to review findings from this final inspection and paid off minor damages right away. Where it appeared stress from the loads and the volume of truck traffic shortened the expected life cycle of a pavement, the county developed a formula for compensation to offset future costs of resurfacing and billed the contractor.

Having a single point of contact to manage routes, update schedules and make damage assessments improved communication on the project tenfold.

Contact

Brian Field
Dodge County Highway
Commission
920-386-3653
bfield@co.dodge.wi.us

Resources

<http://www.dot.wisconsin.gov/business/carriers/osow-permits.htm>

Link to facts and figures on Wisconsin permitting guidelines.



Recovery Act dollars move into local road and bridge projects

The WisDOT website is a central source for current information on the Recovery Act program.



Resources

<http://www.dot.wisconsin.gov/projects/recovery/index.htm>

Link to information, resources and help related to the federal economic recovery projects program on the WisDOT site, including Functional Classification Maps.

<http://www.recovery.wisconsin.gov/index.asp?locid=164>

New Wisconsin Office of Recovery and Reinvestment site serves as a portal to information about funding timelines, eligibility and resources at the state and federal levels. Go to Program Search tab and choose Transportation category.

<http://www.fhwa.dot.gov/economicrecovery/>

Federal Highway Administration website contains array of information about transportation funds allocated for state and local governments through the American Recovery and Reinvestment Act.

<http://www.recovery.gov/>

Federal website contains information on how the ARRA works, updates on progress in the states and links to agency resources.

WISCONSIN'S SHARE of transportation funding from the American Recovery and Reinvestment Act (ARRA) will start to flow into improvement projects as soon as this spring. The state received a total allocation of \$529 million for state and local road, bridge and transportation enhancement projects. The State Legislature and Governor Jim Doyle committed an initial \$300 million for "shovel ready" highway and bridge projects around the state.

Another \$158 million is available for local projects. Of that amount, \$48 million is earmarked for three urbanized Transportation Management Areas (Milwaukee, Madison, Kenosha area) and approximately \$109 million is available for use on local projects statewide.

Website an up-to-date resource

The WisDOT website is a central source for current information on the Recovery Act program. Local officials can find pertinent content under *Programs for Local Government* where department officials plan to post frequent updates with program details and contact information. Regional Planning Commissions are another resource for local officials with questions.

Another source with facts and background on the state's allocation of federal stimulus dollars is the new Wisconsin Office of Recovery and Reinvestment site.

Along with the links listed here for state resources, *Crossroads* includes web directions to the Federal Highway Administration's online resources related to the topic and a new federal site dedicated to the overall recovery initiative. ■



Enforcement influences travel speeds.

Considering local speed limits, speed and safety

SPEED LIMITS are set by state statute in Wisconsin, but state and local governments do have administrative power to modify speed limits on specific roadways under their jurisdiction. Knowledge of changing road conditions and traffic patterns help influence decisions about what limits are both safe and appropriate. The Wisconsin Department of Transportation has authority to modify speed limits on state trunk highways and it holds authority over some speed limit modifications proposed for local roads.

Speed is a significant factor in the severity of crashes. In 2007, Wisconsin counted 251 deaths and 10,984 injuries as a result of speed-related crashes. Speed accounted for 35 percent of all fatal crashes. It also is the major factor in the injury and death of pedestrians and bicyclists.

Studies show that drivers tend to drive at a speed they feel is comfortable and safe, regardless of the posted speed. That means posted limits rarely determine actual travel speeds unless enforcement is present. Several research studies modified existing speeds to a lower limit and found the change did little to reduce actual travel speeds. In some cases, the lower speed made a road less safe.



Radar signs educate drivers.

Another finding from these and other studies is that the difference in speeds between vehicles on a roadway has a major negative impact on safety. Called the speed differential, it shows that the greater the difference in speeds between vehicles, the greater the chance of a severe crash that results in injuries and significant property damage.

Researchers know driver behavior in response to road conditions determines actual travel speed. So traffic

engineers developed a study method that considers prevailing speeds along with other details like site distance, traffic volume, conflicts, road geometry and enforcement to define a "rational" speed limit.

Summit planned on speed management guidelines

THE WISCONSIN Department of Transportation will introduce speed management guidelines in 2009 that promote a uniform approach to setting and changing speed limits on local and state roads. The guideline authors plan a statewide Speed Management Summit in mid-April to gather feedback on the proposed guidelines from local officials and others responsible for managing speed limit issues in Wisconsin.

WisDOT State Traffic Safety Engineer and Guidelines Project Manager Rebecca Yao says the initiative responds in part to provisions in Wisconsin's 2006-2008 *Strategic Highway Safety Plan* addressing road safety issues throughout the state.

"We looked for efforts at safety-improvement that would have a real impact in Wisconsin," Yao explains. "Exploring and imple-

menting effective strategies to **reduce** speed-related crashes meets the criteria."

The fact Wisconsin does not have a single document outlining an orderly process for managing speed limits persuaded Yao, working with Derek Hungness, Project Manager and Transportation Planner with SRF Consulting Group, to launch the speed management guidelines project.

Yao says the department frequently fields calls from local agencies asking how to conduct a speed study and what factors to measure when considering a change. "It was time to create something consistent and complete to offer as a resource."

Setting rational speed zones

Researching the guidelines, Yao and Hungness surveyed a group of local officials last year to learn how counties, cities and towns in Wisconsin handle speed management. Some officials collect speed data; some do not. And constituent complaints often overrule clear evidence for setting rational roadway speeds, like how officials expect a section of road to function in the road system, crash record, road geometry or traffic volume.

Hungness says they recognize that local officials look to WisDOT for guidance on policies to sell back home. "On the topic of

speed limits, the conversation goes quickly from engineering to a range of local issues that end up influencing the decision—for better or worse," he notes. "Our goal with these guidelines was to offer a step-by-step process for establishing rational speed zones."

The group also studied efforts in other states for ideas that applied in Wisconsin. Based on their findings, Yao says WisDOT agreed it made sense to develop a comprehensive overview of speed management that captures all useful information in one place.

The preliminary guidelines define the value of a speed study and describe various methods for conducting a study. They cover how to analyze study data and other factors that affect speed, including access points, crash statistics, land use and enforcement resources.

WisDOT plans to finalize the guidelines after getting input from the April 16 Summit, a forum Hungness says is central to producing speed management guidelines that give decision makers a reasonable, evidence-based approach to setting and changing speed limits. Yao adds, "We want this to be a Wisconsin document, not a DOT document, a resource local officials find truly helpful."

Participants will receive a draft of the guidelines to review several weeks before the Summit, which takes place April 16 in Stevens Point.

Guidelines outreach continues later this year when WisDOT conducts training programs about the speed management guidelines in conjunction with the Transportation Information Center (TIC). See adjacent article and the *Crossroads* calendar for more information. ■



Speed Management Summit

Thursday
April 16, 2009

Holiday Inn
Stevens Point

For more information:
608-266-9381 or
rebecca.yao@dot.state.wi.us

Workshops planned on speed guidelines

Local governments that want to modify a statutory speed limit or change an existing speed zone must conduct an engineering and traffic study. The Wisconsin Speed Management Guidelines give local officials a handbook to follow as they prepare their proposals. TIC is conducting a May workshop series about the new guidelines and encourages all local officials involved in speed zoning—including engineers, street supervisors, law enforcement officers and elected officials—to attend one of the five sessions.

May 19 in DePere

May 20 in Waukesha

May 21 in Barneveld

May 27 in Eau Claire

May 28 in Weston



Enforcing limits is critical to speed management.

Topic Contacts

Rebecca Yao
WisDOT
608-266-9381
rebecca.yao@dot.state.wi.us

Derek Hungness
SRF Consulting Group
608-829-0010
dhungness@srfconsulting.com

Resource

Traffic Guidelines Manual, Chapter 13, Sec. 5, Subject 1, "Traffic Regulations, Speed Limits, Statutory Authority and the Approval Process," Wisconsin Department of Transportation, July 2008.

Local cooperation achieves road makeover

continued from page 1

The momentum of exemplary intergovernmental cooperation carried the day.

practiced eye and quickly grasp the design flaws of the existing road," says Gerlach, an engineer and retired highway commissioner.

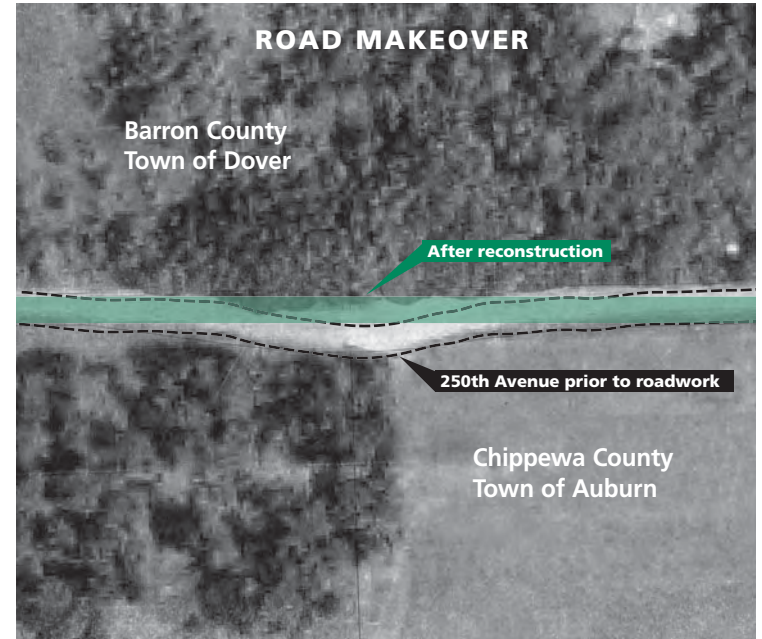
"I knew it could be done and we came to agree on first steps and workable improvements."

The goal of the Transportation Information Center's Safety Circuit Rider program is to explore easy-to-implement safety upgrades. Gerlach outlined a straightforward plan that involved realigning the road at the hillcrest, flattening the back slope to the north and restriping the centerline. He also began to research funding options from state and federal sources to help pay for the changes.

At his recommendation, the town took immediate action to reduce traffic speeds on the road. They installed advisory 35 mph speed limit signs at both approaches to replace the standard 55 mph.

Cooperation carries the day

The push was on, according to Zeman. Chippewa County prepared estimates of approximately \$40,000 for the project. Zeman contacted Dover officials to



An aerial view of original road shows the compound curve that made it unsafe. Reconstruction eliminated the curve and flattened the back slope to the north, improving visibility and safety.

discuss sharing costs and labor. They asked the property owners for easements to correct the back slope.

It turned out the project did not qualify for safety improvement funds because the most severe crash on the road did not

Total construction cost
Just over \$33,000

New road
A much straighter 620 feet of pavement with flatter slopes and good sight lines



BEFORE

Looking west on 250th Avenue from the center of the hilltop curve.

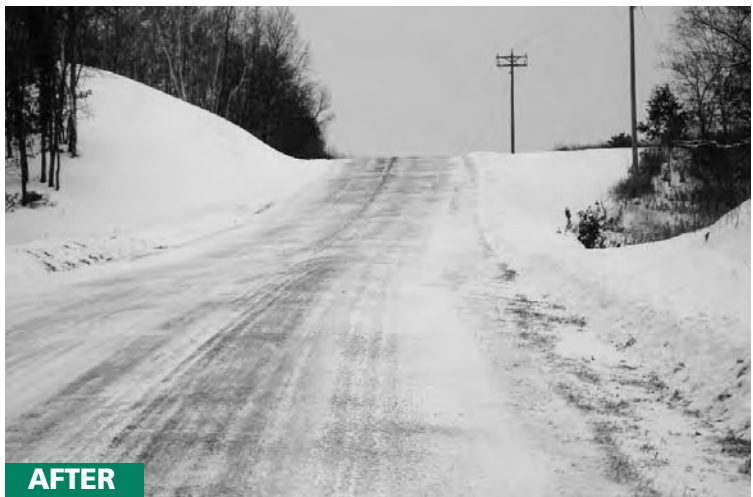


AFTER

Looking west after realigning the road at the hillcrest and leveling the back slope.



BEFORE



AFTER

Looking east on 250th Avenue toward the top of the hill. The view is deceptive as the road seems to curve left when in fact it curves right.

Looking east after road realignment with back slope to the north flattened and stabilized.

take place within the required three-to five-year window. But the momentum of exemplary intergovernmental cooperation carried the day. As far as Auburn was concerned, the 250th Avenue project was underway.

Town crews started to clear trees, haul dirt and grade the incline. They hauled excess fill to an adjacent farm field for future use and cut up cleared trees for firewood. A local paving contractor ground up the old blacktop to use as part of the

12-inch base course then finished the newly straightened roadbed with 2.5 inches of compacted hot mix asphalt. Crews from Baron County did the striping.

Zeman says after working with Gerlach, Auburn was prepared to do the project on its own just to make it happen right away. But the Town of Dover came through and paid their share. Now residents of both communities and visitors to the area share the benefit of a better, safer road. ■

Learn more about the Safety Circuit Riders program by contacting TIC at tic@epd.engr.wisc.edu or 800-442-4615.



Jack Gerlach has worked on local transportation issues throughout his career. He managed the City of Eau Claire Streets Division and served as Marinette County Highway Commissioner before joining the TIC Safety Circuit Rider program. Gerlach's engineering and management experience includes addressing traffic safety issues all levels of government.



Fellow Safety Circuit Rider **Pete Rusch** has wide experience developing and presenting safety programs on topics like intersection safety, the impact of geometric design features on rural two-lane highways, low-cost safety improvements and comprehensive safety planning. He provided technical expertise on highway safety and traffic engineering for federal, state and local agencies for the FHWA Resource Center in Illinois and served as Traffic Engineer for the State of Wisconsin before joining the TIC program.

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.



This index features articles that appeared in the past eight issues of *Crossroads*, listed by topic and title. Look for these issues and previous indexes online at <http://tic.engr.wisc.edu/> or call the Transportation Information Center at 800-442-4615 to request copies.

Administration/Budget Planning

After the storm: emergency cost-recovery easier with planning	F08
A (not so) secret formula for enlarging street budgets	SP07
Careful process prepares way for action on weight limits	F07
Estimating road and street improvements	F07
LRIP funding cycle coming up	SU07
QMP now part of hot-mix asphalt bid price	SU08

Bridges/Culverts

Bridge ratings review prompts postings	W08
Culvert replacement Q&A	SU07
Inside bridge sufficiency ratings	W08

Equipment/Facilities

Brine-making facility speeds process	F07
Illuminating improvement for equipment garages	W09
Rut-filling sled handles repairs	SU07
Truck-mounted edge rut blade	SP07

Pavement Maintenance

Chip seal inspection checklist	SU08
Crack sealing: smart investment in tight times	W09
Hot-mix overlay inspection checklist	SU08
Fog-seal treatments show promise	SU08
Pervious pavements have potential	SP07
Pulverization gains traction on local roads	W08
Roadwork: what to look for as it happens	SU08

Pavement Management/Ratings

Pavement analysis tools sharpen planning	SU07
Plan for road ratings and workshops	W09
Ratings review: WEB-WISLR use up	SP08
Time to rate your roads	SU07
WISLR relies on users	SU07

Policies

Early alert key to working with utility relocations	F07
Permits and poles: local roads, local rules	F07

Regulations

Rules recap on H endorsement	SU07
------------------------------	------

Resources/Training

Additional scholarships for EPD courses	F08
Diggers Hotline reminder	F07
Easier web access to WisDOT reference docs	SP07

TIC work-zone training program marks 10 years	F08
Training programs build skills, add value	SP08
Web Soil Survey provides access to soil data	SU08

Roadsides

Defining the 100-year rain	F08
Keep roadsides in check and in flower	SU07
Spring maintenance checklist: where to begin	SP08

Safety/Highway

Legal rights and responsibilities on local roads	F07
Make roadways safer	W09
Manage railroad vision corners for safety	W08
Safety Circuit Riders on the move	SP08
University laboratory important source of crash data	SP08

Safety/Pedestrian

Safe Routes program starts strong	F07
-----------------------------------	-----

Safety/Workers

Comparing high-visibility apparel	SU08
New edition of Flagger's Handbook available	SU07
Plan ahead to reduce work-zone impact	SU08
Quality standards for traffic control devices in work zones	F08
Use "talking points" to send safe work zone message	SU08
Worker-visibility rule in effect	F08

Sidewalks

Sidewalk policies walk the line	F07
Sidewalks made of rubber offer tree-saving option	F08

Signs/Markings

Meeting sign retroreflectivity levels	SU08
MUTCD comment period closes	SU08
Sign-tracking systems	SP07
Sign retroreflectivity in spotlight	SP08
Stop signs not mandated on private roads	F07
Q&A from signing workshop	SP07

Winter roads

Add communication plan to pre-winter checklist	F08
Beloit plans for winter year round	SP08
Impact of deicers on concrete	W09
Now is the best time to evaluate winter operations	SP08
Winter equipment roundup	W08
Winter roads: juggling salt supplies and alternatives	W09
Why not a sand/salt mix?	W09

RESOURCES

Print copies of publications available free from the TIC while supplies last. Download electronic copies of some items from the TIC.

Videos and DVDs loaned free through county UW- Extension offices. Print copies of the current TIC Lending Library Catalog were distributed in July 2007. Also look for titles on the TIC website.

The Web addresses listed here and elsewhere in this newsletter are live in the electronic version of *Crossroads* on the TIC Web page. Clicking them should take you directly to the indicated page. If you are not able to retrieve a document, contact us for a print version.

Publications



Using Weight Limits to Protect Local Roads, TIC Bulletin #8, 8 pp., 2003. Available from TIC. Discussion

of strategies local officials use to establish weight limits and protect vulnerable roads.

How Vehicle Loads Affect Pavement Performance, TIC Bulletin #2, 4 pp., Available from TIC Examines facts about pavement fatigue and the effects of wheel loads.

Careful process prepares way for action on weight limits, lead story in Fall 2007 issue of *Crossroads* transportation newsletter, published by TIC, profiles the steps taken by the central Wisconsin Town of Hull to establish new local limits on heavy truck traffic. Available for download from TIC website.



Web Sources

Materials and Procedures for Repair of Potholes in Asphalt-Surfaced Pavements – Manual of Practice Report discusses pavement patching procedures and patching performance, and cost effectiveness. FHWA publication #RD-99-168.
http://www.fhwa.dot.gov/pavement/pub_details.cfm?id=139



Guidance for Improving Roadway Safety Understanding Minimum Reflectivity, website sponsored by highway engineering and safety groups provides information about assessing current sign inventory, developing a replacement plan, replacing non-compliant warning and regulatory signs, and guidance and street name signs to meet new MUTCD standards.
<http://www.minimumreflectivity.org/index.asp>



DVD/VHS/Multimedia

Timely resources new to the TIC collection or related to topics in this newsletter.

Safe Tree and Brush Removal, Illinois Department of Transportation, 2003, 19 min., #18668, now available in DVD. Reviews tree/brush removal practices, tool maintenance, and safe skills for tree cutting, stump removal and tree trimming.



Speed Management link on Federal Highway Administration site outlines a comprehensive, multidisciplinary approach to managing speed limits that examines relevant statistics, ongoing research, methods, systems and resources.
http://safety.fhwa.dot.gov/speed_manage/



CROSSROADS provides information on roads and bridges for local officials. Published quarterly by the Wisconsin Transportation Information Center (TIC)—part of the nationwide Local Technical Assistance Program (LTAP)—with assistance from the Federal Highway Administration, WisDOT, and the University of Wisconsin-Extension. For permission to reproduce articles or graphics, please contact us.

DIRECTOR
Steve Pudloski, pudloski@epd.engr.wisc.edu
STAFF ENGINEER
Ben Jordan, jordan@epd.engr.wisc.edu
PROGRAM ASSOCIATES
Susanna Fuerstenberg, tic@epd.engr.wisc.edu
Jane Sauer, tic@epd.engr.wisc.edu

WRITER/EDITOR
Mary Maher
WRITING & CREATIVE CONCEPTS
GRAPHIC DESIGNER
Susan Kummer
ARTIFAX

TIC website

<http://tic.engr.wisc.edu/>

PHONE
800.442.4615

FAX
608.263.3160

EMAIL
tic@epd.engr.wisc.edu

WEBSITE
<http://tic.engr.wisc.edu>

Wisconsin
LTAP

SPRING 2009

11

FEEDBACK

Please fill out this form and fax or mail (in separate envelope) with the mailing label below.

NAME _____ TITLE/AGENCY _____ Other

ADDRESS _____ CITY _____ STATE _____ ZIP _____

PHONE _____ FAX _____ EMAIL _____

Mailing list change/addition Information/resource request Idea/comment



CROSSROADS

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

Nonprofit Org
 U.S. Postage
P A I D
 Madison, WI
 Permit No. 658

CALENDAR

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>

Using Speed Management Guidelines

In-depth review of new guidelines designed to provide local officials with a handbook on how to prepare for modifying speed limits on local roads. A valuable session for engineers, street supervisors, law enforcement officers and local elected officials. Fee: \$45

May 19	DePere
May 20	Waukesha
May 21	Barneveld
May 27	Eau Claire
May 28	Weston

On-Site Workshops

Bring instruction to your shop or office and save time and travel costs. 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 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

UW-Madison Seminars

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

APRIL 2009

- 20-21** Drainage Engineering Fundamentals for Non-Engineers #K416
- 29-30** Fleet Management: Effective Practices for Public and Private Fleets #K326
- 29-5/1** Watershed Modeling Using the New HEC-HMS #J968

MAY 2009

- 4-6** Using HEC-RAS to Compute Water Surface Profiles for Floodplains, Bridge and Culvert Hydraulics #J969
- 6-7** Highway-Rail Grade Crossing Safety Course #K335

- 7-8** Preparing an Effective Municipal Capital Improvements Plan #K327
- 11-12** Introductory Principles of Engineering Project Management #K026
- 13-14** Successful Execution and Control of Engineering Projects #K853
- 15** Computer Tools for Engineering Project Management #K030

JUNE 2009

- 8-9** Comprehensive Practices for Effective Construction Project Management #K031
- 10** Principles and Practices of Construction Project Scheduling #K032
- 11-12** Principles and Practices of Estimating for Construction and Design Professionals #K033