Work zone traffic control and the real world

by Jim Schneider and Don Gordon
Work Zone Safety Instructors

FOLLOWING are some questions and comments from the January 2005 Work Zone and Flagger Safety TIC workshops.

• I am a flagger and our work sometimes involves a moving work operation. Where should I park my truck?

The flagger stands alone. Parking the truck nearby may block the escape route if he/she has to jump out of harm’s way. It also clutters the scene, making the flagger less visible to vehicle drivers.

• I am the only person in the town who does minor work on town roads. If I had to flag traffic while I closed one lane for my work, I’d have to do it myself. Sometimes my wife acts as a flagger while I work.

First, if your wife is not a town employee she is taking a big risk. She is not covered by the town’s liability or accident insurance. Second, you can’t safely do both flagging and road work alone; doing it that way creates a liability risk situation for yourself and the town. Besides, there are other options. The Work Zone Safety handbook has setups that don’t require a flagger for traffic control on two lane, low speed, low volume roads with good sight distance. For conditions with higher speeds, higher volumes, or limited sight distance, the town may have to hire someone to do flagging, or you could ask for help from the county.

• We usually sealcoat one lane of a two lane road at 15 mph. Since the flagger can not walk that fast, he follows in his truck and controls traffic from inside it.

This is not an appropriate use of flagging. Flagging operations are designed to function at the walking speed of a person, about 3 mph. You can use different mobile operation setups described in the Work Zone Safety handbook (pp. 44-52) for this situation.

• I’m often the only worker on site. I like to position my truck in the roadway as a barrier between traffic and me.

Many people wrongly believe that they can protect themselves by parking a truck between them and traffic. You can use different mobile operation setups described in the Work Zone Safety handbook (pp. 44-52) for this situation.
New “super tanker” truck works hard all year

WHEN Tim Barnick started as Winnebago County’s Highway Equipment Superintendent last April, he had a couple different problems. The existing 750 gallon anti-icing tanks were too small for the increased number of lane miles they must cover. Trucks returned to fill up 3-4 times a night. At the same time, the 20-year-old equipment for thawing and clearing culverts was decrepit.

“I sat down with the patrol superintendents and we did some brainstorming,” Barnick says. “We came up with the idea of a 4000 gallon truck that could be used for many different kinds of jobs.” With the help of their vendor, Casper Truck in Appleton, they designed a “super tanker.” The truck arrived in September and they have kept it busy ever since.

Starting with a 2000 Sterling Chassis tri-axle truck from their plow fleet, they removed the winter equipment and outfitted it with the tank, a hot water pressure system, and a Flink 3-lane anti-ice system. It also includes an equipment hitch and a gravity-feed water bar for dust control and compaction on gravel. The total cost was $38,000.

“It’s worked great this winter,” says Barnick. “It goes out and does the anti-icing and can stay out until it’s done. Also we can use it to fill the pre-wetting tanks on our plow trucks.” The tanker drives to each truck so they don’t have to wait in line, and the high pressure pump fills the tanks fast.

In addition they have ordered for 2005 a “jetter” for cleaning out catch basins and culverts as well as pressure washing bridge decks. “With 3000 psi at 40 gallons a minute, that thing will clean culverts in 30 minutes,” says Barnick. Come summer, if it’s dry the anti-ice system can water newly planted seed and vegetation after ditching projects.

“Instead of having expensive equipment sitting idle a lot of the time, we can use this truck 12 months out of the year,” says Barnick. When Winnebago isn’t keeping it busy, they will make it available to nearby communities.

Stop signs upgraded in Portage County

STOP SIGNS are probably the most important sign for driver safety. Making sure they are visible, especially at night, should be a top priority for local streets and highway crews. Portage County is nearly finished with a seven year program to convert all 900 of its Stop signs to High Intensity sheeting.

“You can definitely tell the difference,” says Dale Petersen, Portage County Highway Department state superintendent. “When you compare them, an old High Intensity sign seems to be brighter than a new Engineer Grade sign.” For many years the county used High Intensity sheeting on problem intersection stop signs. It worked well. By 1999 the durability was significantly improved.

“By then we felt comfortable that we would get the projected 12 year life span out of it, compared to the 7 years for Engineer Grade,” says Petersen. They also tried Diamond Grade sheeting for a year but decided that the difference in reflectivity wasn’t worth the extra $10 per sign face. “The lifespan was the same, and it was so bright that the words tended to blur.” High Intensity sheeting is pricey: nearly $27 per sign face on the last bid, compared to just over $11 for Engineer Grade. With the different life spans, the cost works out to about $2 per year for either sheeting. Once the changeover is complete, the county expects to save money.

“We expect to save on labor and machinery charges by replacing the signs less often,” Petersen says. “More importantly, we’re providing a better service to the public. The brilliance of the High Intensity signs really highlights an intersection.”

The county has signs on 430 miles of roadway. It tracks them by township on paper gas tax maps. Crews inspect all the signs every year, recording the location, type, and size of bad signs on the maps. Every other year they inspect at night.

“For us it’s probably a two week process a year,” says Petersen. “It’s time consuming, but we’re looking not only at liability but the general safety of the public.” The annual inspection and replacement lets them keep the costs more or less steady from year to year. “We do it on a maintenance basis so we don’t get caught with high costs in one year which you’d really feel with these tight budgets,” he says.

For more information contact Dale Petersen at 715-345-5230.
Curb ramps and detectable warnings, Round 3

**BITHER TRAFFIC** volumes, right turns on red, and the trend toward aggressive driving have made it harder for visually impaired persons to cross a street safely. To assist them, the US Access Board determined that curb ramps need to have a contrasting color and a rough surface which is detectable with a cane. Truncated warning domes are now the national standard for surfaces, and WisDOT has made white or yellow the standard color in Wisconsin.

“Unfortunately the people who wrote the specs lived in a warm climate and had no product in mind when they did it,” says Mark Chandler. “It’s a difficult engineering problem and nothing works all over the country. Hot sun destroys the materials in the southwest; up north the snowplows rip them up.” Chandler is Technology Transfer and Quality Engineer with FHWA Wisconsin Division. His overview article “Testing Truncated Domes” appeared in the Sept/Oct 2004 FHWA newsletter Public Roads. (See online link at right.)

Wisconsin’s DOT has been testing products as they become available. A product that looked promising after one winter was showing damage after the second year. “ArmorTile is a good product, but not one that is going to take a lot of abuse from snow removal operations,” says Peter Kemp, New Products/New Methods Engineer in the WisDOT Bureau of Highway Construction. A newer product, MetaDome, is now in production and seems to be holding up reasonably well, Kemp reports. It is a metal inset panel with a bright yellow coating. “We’ve seen some of the non-slip coating come loose on the top of the domes,” he says. “That’s easily fixed with a repair kit from the manufacturer.”

A recent change in the material is expected to eliminate peeling of the coating. This has isolated coating damage to only areas with direct damage from snow removal operations, Kemp notes.

MetaDome, produced by MetaPanel, is now the only truncated warning dome approved for use on WisDOT projects. “We’re continuing to look for products that will give us the durability and performance that we require,” Kemp says. Several DOTs around the country are also doing field evaluations. A summary report by the National Cooperative Highway Research Program (NCHRP) is due out this spring.

Unfortunately, local governments will be doing sidewalk construction this summer. They have to build curb ramps before the final report comes out. “Right now the best approach is to use the product that Pete Kemp is recommending,” says Mark Chandler. “Where the project involves federal money they are required to use the approved product.”

Even without federal money, local governments should probably use approved products off WisDOT’s Approved Product List. They are required to meet specifications under the Americans With Disabilities Act (ADA) to provide a truncated warning surface on curb ramps, he advises.

“MetaDome is currently the only approved warning dome for WisDOT projects.”

MetaDome is currently the only approved warning dome for WisDOT projects.
ignores the signs. You may see this as a waste of time, but it is an important safety and liability issue.

- All of our warning lights flash. Can we still use them for isolated hazards and in tapers?
- We only have steady burn warning lights. Can’t we use them for isolated hazards anyway?

No. The MUTCD is very specific on when to use the different light modes. Flashing lights should be used for isolated hazards and not in a series. Steady burn lights are used in tapers, separations, and delineation. The principle here is that a driver can follow the path defined by a line of steady burn lights but will likely be confused by a bunch of flashing lights. You can buy lights which switch from steady to flashing. Go order some.

- I was never given a copy of the MUTCD and do not have access to one. Do I really have to follow it? Who enforces it?
- When I started this job four years ago my predecessor pulled out his copy of the 1988 MUTCD. That is all I have.

Ignorance is not an excuse. The state has adopted the current MUTCD. It’s the law of the land, and you have no excuse for not following it. As far as enforcement, there are no MUTCD police. Enforcement is the responsibility of the roadway authorities who often don’t do it. Usually the legal system ends up enforcing it through liability lawsuits. The TIC has resources to help you understand and use the MUTCD. (See margin page 5).

- Our company does crack sealing. We use a truck with a hand-held wand to clean the cracks, followed by a truck that fills them. This operation is followed by a flagger who maintains a line of cones across the roadway. As the filler sets-up, the flagger (with his back to traffic) moves the cones to the next filled crack while maintaining the one way traffic operation.

Cones are for a stationary operation. It’s not appropriate to use cones to close a traffic lane for a mobile flagging operation. Also, the flagger’s duty is to watch traffic. If his back is turned and he’s doing something else, he is no longer controlling traffic.

For this type of situation, you should follow the guidelines for a mobile operation on a two lane road (Work Zone Safety handbook page 49). Always use the required advance warning signs and reposition them periodically as the operation moves. Two flaggers are recommended. However, you might manage with one flagger if the work area is short, the road is straight and low volume, and the flagger is visible from both directions of traffic. The single flagger should be on the shoulder opposite the active area of the work, not behind the truck.

These signs cannot be used interchangeably.
I understand that the Work Zone Safety handbook applies to any roadway open to public travel, but don’t the MUTCD and the Wisconsin Supplement only apply to state highways and Interstates?

This is a mistaken idea that keeps circulating. People think that because the MUTCD is a federal document it only applies to Interstates, and that the state supplement only applies to state roads. Wrong.

The MUTCD applies to any road open to public travel; the Supplement makes it stronger and more specific to Wisconsin. State adoption makes them both the law everywhere in the state. Also, TIC publications like Work Zone Safety are intended to help local agencies understand and use the federal and state manuals. They do not replace them!

What is the proper use of an advisory speed plaque? What process is required to post them? In particular, is an engineering study required?

A work zone should be designed to inhibit traffic as little as possible, preferably so that motorists do not have to reduce their speed more than 10 mph. When you do post an advisory speed plaque, you need an engineering study and approval from the agency responsible for the roadway (except in an emergency). You don’t need a special consultant for an “engineering study,” just someone who is knowledgeable in work zone requirements, and the construction project and work site. If approved, reduce speed in 10 mph increments. Never post a black on orange speed plaque alone. Always post it below a warning sign.

Editorial

Snow removal (and other work that closes a traffic lane)

by Don Gordon, Work Zone Safety Instructor

Often during Work Zone training sessions someone will describe what they do to pick up snow and how they do it now, followed by “how should we be doing this?” What they are really looking for is someone to tell them that there is a way to close a traffic lane without following the Standards and Guidance in the MUTCD. Often the methods that are described do not come close to meeting the requirements for Temporary Traffic Control.

Regardless of the type of work to be done the Standards are the same. A half road closure is a half road closure; if you are removing snow, building a sewer, paving a road, or whatever, it doesn’t matter.

There are Options depending on many varying circumstances. Can the street be closed completely? Can one direction be diverted to a different route? Can the work be done as a “mobile operation” or should it be done as a flagging operation? If there are traffic signals will drivers still be able to recognize a red or green indication when they are in a part of the road that the signals are not focused for?

Once the method that best fits the needs and requirements is selected, it is a matter of applying the appropriate traffic control procedures, the same way it should be done for any type of work requiring a road, street or highway closure.

With significant differences between village, town and city; vehicle mix, traffic volume, bicycle, and pedestrian traffic; and the time of day the work is to be done, it is impossible to give any answer other than to follow the suggested Typical Application Diagrams based on the Standards, Guidance and Options in the MUTCD, the Wisconsin MUTCD Supplement and the Wisconsin Work Zone Safety handbook.

There are no cookie-cutter answers!

“A half road closure is a half road closure; if you are removing snow, building a sewer, paving a road, or whatever, it doesn’t matter.”

The Flagger’s Handbook and Work Zone Safety pocket guide are free on request and given out in TIC Work Zone Safety and Flagger Training workshops. These programs can be presented at your site and on your schedule. Contact the TIC for more information.

National Work Zone Awareness Week, April 3-9
Sponsored by the American Traffic Safety Services Association (ATSSA).

Training videos The following are just three of 34 tapes in the TIC Videotape Library under the topic of Safety: Work Zone:
Flagging Operations and Procedures, #18610
A Traffic Plan to Live By (series of 13 topics) #17904 – #17916
What’s Wrong With This Work Zone?, #18410

TIC publications to help with signing/marking questions:
Signing for Local Roads, No. 7
Pavement Markings, No. 9
Setting Speed Limits on Local Roads, No. 21
Weeds and culverts timeline

Mid March to mid May
Inspect larger culverts due to be replaced. Look for signs of bird nesting. Replace culvert or cover end with net.

Mid June to mid July
Mow for Wild Parsnip

May and June
Make map of Leafy Spurge. Mow before seed set to cut seed production by 80%.

Second week of May through mid June
Spray for Wild Parsnip (2-4D or Escort™). Spray for Spotted Knapweed and Canada Thistle when plants are 6-10” tall until flower appears (TransLine™).

Invasive Species Month in Wisconsin

Sources: Weed control information courtesy of Jerry Doll, UW–Extension Weed Scientist. See “Invasive weeds a spreading roadside problem,”
Highway Watch® seeks observers

HIGHWAY WATCH® is a nationwide safety and security program for the highway sector. It uses the skills, experiences and “road smarts” of transportation workers to watch for threats to critical infrastructure. All kinds of people who are out on the road regularly are already involved in Highway Watch® including over the road truck drivers, utility workers, and district sales representatives.

The program is recruiting Wisconsin’s highway and street maintenance workers, public works staff members, and public safety officials to join in. Being experts in their service areas, these workers are likely to notice immediately that something is out of the norm. The program provides training on what to look for and how to share what you have seen with the proper authorities.

“Highway Watch® works much like the storm spotter network,” says Bob Young. “We train interested people who then keep a vigilant eye for suspicious activity. The more people watching the better. Homeland security is everyone’s responsibility.” Young works on Highway Watch® for the Wisconsin Motor Carriers Association (WMCA) in Wisconsin.

Invitations and training announcements are being distributed through city, village, county and town associations. Highway Watch® is offering train the trainer classes so a municipal representative can go back and train local workers when it best fits into their schedules.

Highway Watch® training normally takes about two hours. Train the trainer class take three to four hours and are offered at no cost. If you don’t want your own trainer, you can ask for a class from the WMCA, also at no cost.

Instructors cover safety topics and traffic issues like disabled vehicles, major debris on the roadway, reckless driving, road rage, erratic driving, and especially crashes. Potential terrorist targets, like bridges, tunnels, and hazardous materials locations are also covered, along with awareness of potential threats to local facilities.

It’s also important to include local law enforcement in the training so they know how to respond if a Highway Watch® call comes in, Young says.

“In a recent situation, people reported that someone was taking pictures of an anhydrous ammonia tank,” Young says. “Local law enforcement wasn’t concerned, but when the same person called the FBI, they were very concerned.” A truck bomb made with fertilizer was the vehicle that destroyed the Federal building in Oklahoma City.

If you are interested in the Highway Watch® training or in additional information call Bob Young or Sue Webb at the WMCA: 608-833-8200, ext. 18. Also, check with the Wisconsin Towns Association, Wisconsin League of Municipalities, or Wisconsin Counties Association who have received letters and brochures. Go to www.highwaywatch.com for general information.

Highway Watch®
works much like the storm spotter network. It uses the skills, experiences and “road smarts” of transportation workers to watch for threats to critical infrastructure.

Crossroads, Summer 2004, and “Culverts—Proper Use and Installation,” TIC factsheet No. 15—available in print and on the TIC Web site.
If you have a bridge that is in poor condition, narrow or unsafe, contact your county highway commissioner this spring about matching funds. WisDOT is currently soliciting proposals.

Spring checkup for local bridges

**STREET AND HIGHWAY BRIDGES** are vital to the local economy and costly to replace, even with financial help from the state. As the owner, you are responsible for keeping bridges strong and safe, and you don’t have to be a bridge engineer to do it. Here are some basics of maintenance and inspection provided by Bob Kleinschmidt, retired Bridge Project Maintenance manager for Minnesota DOT.

**Do spring cleaning** Just like your plows, trucks and spreading equipment, bridges need to be cleaned of salt and sand. Flush decks, seats, caps, and salt-splash zones with water. Clean drainage systems and expansion joints. Clean and lubricate bearing assemblies. Seal cracks and joints in the deck and substructure elements if needed, to keep water from carrying chlorides into rebar and other steel structures.

**Organize** Start a file folder for each bridge. Put reports, photos and completed work orders in it. Plan a visual inspection as you do for pavement surface condition ratings. If an outsider does your safety inspections, go along and ask questions about items needing maintenance. Make a list of work that’s needed, set priorities, and schedule repairs.

**Request funding** If you have a bridge that is in poor condition, narrow or unsafe, contact your county highway commissioner soon. WisDOT is now soliciting proposals for matching money to upgrade or replace “functionally obsolete” and “structurally deficient” bridges. County highway commissioners will review applications and rank projects to be funded for 2007–2009 and must turn in their lists to the WisDOT District office by July 1.

**Get down** Go under the bridge and look up at critical structures. Watch for corrosion on beams, remove piles of sand and debris around seats, caps and bearing structures. Remove brush and woody debris from under timber bridges to reduce the risk of fire damage. Look down the slope; check that rock is adequate to protect the embankment. Remove loose rock from the stream to prevent constriction and restore normal flow.

**Check waterline for junk** Debris around piers can change water flow patterns letting the water scour away rock and soil. It can undermine piers and weaken the bridge. Check out even a little debris to make sure it’s not a sign of much more under the surface.

**Get the “shorties”** Bridges less than 20 feet long are not in the state/federal bridge safety inspection program. You’re responsible for inspecting them and completing a basic condition form.

**Look at loads** Gravel surfacing and bituminous overlays sometimes get carried over the bridge deck to improve the ride. The weight of these “dead load” materials can reduce the bridge’s capacity to carry live loads — vehicles and people. These materials are porous and can let water through to damage the bridge deck underneath. Consider removing the extra surface material to improve the bridge’s durability and load carrying ability.

**High water – higher alert** Monitor all bridges and culverts during and after high water conditions. Look for signs of scour and erosion and correct the problem.

**Emergency phone list** Don’t wait for flood season to discover you have an old phone number for a critical person. Organize or update an emergency response plan with names, home phone numbers and cell phone numbers, and a sequence of who to contact in an emergency. Distribute the plan to employees and emergency services in your area so they have appropriate contacts.

Guidelines for local federal program funding are on the Web at [www.dot.wisconsin.gov](http://www.dot.wisconsin.gov). Click “Programs for Local Governments.” The 2007-2009 guidelines are the first item under the Highways and Bridges heading.
Tires are tougher than ever these days, so it’s easy to forget about them. Remembering a few basics can save you money, and may keep you safer, according to Larry Lampe, a trainer for Pomp’s Tire Service in Green Bay. “There’s a direct relationship between proper air pressure and tire life,” says Lampe. “It’s the most basic and the most overlooked factor.”

1 Under-inflation costs money
Operating on soft tires means they wear faster and the truck burns more fuel. At normal speeds, you’ll cut tire life by 16% and increase fuel use by 2% by running tires at 20% under recommended pressure.

2 Explosion is possible
Any radial tire that has been driven at less than 80% of its recommended pressure has the potential to “zipper rupture” when it’s re-inflated. A zipper rupture is when the side of a radial tire explodes during inflation. You can learn to recognize hazardous tires and how to re-inflate them safely from videos or in training programs.

5 Know the proper pressure
Tires are designed to run at specific pressures based on the total load. Gather information on each truck’s actual axle load, then use standard load charts to calculate the correct tire pressure. Ask your tire supplier for help and training. (Also, see load charts at www.goodyear.com/truck)

6 Calibrate gauges monthly
Even with regular checking tires could be at the wrong pressure due to faulty gauges. “On average, about 15% of gauges in a facility are not properly calibrated,” says Lampe. You should invest in a master gauge (about $100) and calibrate all the gauges in the shop monthly, he advises.

3 Expect tires to lose air
Rubber tires are made of a porous material; they lose air continuously. A truck tire is expected to lose up to two pounds a month according to industry standards. In addition, air can leak through valve caps or small punctures.

7 Check pressure every season or before use
You should check tire pressure every season at a bare minimum, and more often is better. For infrequently used or seasonal equipment — like motor graders, for example — check tire pressure before using it. To get an accurate reading, be sure the tire is cold; at least three hours after last use.

4 Think about outside temperature
A tire will gain or lose a pound of pressure with every 10 degree difference in outdoor temperature. “You could check truck tires in August and put in 100 pounds of pressure and it could have lost 15 pounds of air by the time you are plowing snow in November or December,” says Lampe. “You could be plowing with an under-inflated tire and it isn’t due for regular preventive maintenance.”

8 “Read” tires regularly
Check for signs of wear before tires sustain serious damage. Regularly look at tire walls for signs of zipper; inspect for cuts, cracks, blisters, or bulges. Measure tread depth. (It should be no less than \(\frac{4}{32}\)” on the steer axle and no less than \(\frac{2}{32}\)” on all others.) Run your hand over the tread and feel for abnormalities like rib edge feathering or cupping. Feathering is an early sign of misalignment or could be caused by improper pressure. Take the tire/wheel assembly off and look at the face of the tire for any type of irregular wear pattern. For example, drive tires may develop heel and toe wear.

9 Rotate tire position for longer life
Any rotation schedule is better than no rotation, Lampe says. How often it’s needed depends on truck usage. “If it rolls very little, you may only need to rotate every other year.”

10 Repair correctly
The only proper way to fix a tire is to put a patch on the inside and a plug through the injured area. Any repair from the outside will void the tire warranty, even if it is properly fixed afterwards. “Twenty-five to forty percent of all tires repaired out there today are probably not repaired properly. Besides voiding the warranty it’s a safety issue,” says Lampe.

April 24-30 is National Tire Safety Week
Use the opportunity to gather materials, schedule training, and review your tire program. Ask your tire supplier about inflation guides and training programs.
CROSSROADS INDEX

Spring 2003 – Winter 2005

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Adjust mirrors to eliminate blind zones

Most of us have had the experience of trying to change lanes and being startled by a horn blast. After the adrenaline surge and quick reversal, you ask yourself, “What happened? Why didn’t I see that car?”

Many people make that mistake, sometimes with serious consequences. According to a 2003 study, the National Highway Traffic Safety Administration identified about 539,000 lane change crashes in its crash database for 1999. Of these, more than 200,000 were “typical lane changes” like the scene just described. The majority involved drivers who did not see the other vehicle.

By changing the way you adjust your rear view and side mirrors, you can easily shrink the size of the blind zone so a vehicle can’t hide there. This simple approach was devised by George Platzer, a specialist in rear-view mirror design.

Drawing A shows what a driver can see when outside mirrors are set so that the sides of the car are just visible, as many of us were taught to do. The blind zones are big enough to hide a vehicle and the driver must turn and look into the blind zones when changing lanes.

Rotating the two outside mirrors outward about 15 degrees lets the driver glance briefly into the mirror to look into the blind zones instead of turning the head (Drawing B). There are now four mini blind zones, all too small to hide a vehicle. This keeps the forward scene in your peripheral view. Turning your head completely will eliminate the forward view, and the driver must turn and look into the blind zones when changing lanes.

Setting mirrors

For the driver’s side mirror, place your head against the side window (Drawing C) then set the mirror to just see the side of the car. Do the same with the passenger’s side mirror, but position your head at the middle of the car.

You should check to see that the blind zones are truly eliminated. From the normal driving position, watch a car as it passes you. It should appear in the outside mirror before it leaves the inside mirror, and it should appear in your peripheral vision before leaving the outside mirror. This is your proof that the blind zones have been eliminated and that your mirrors are correctly set.

When changing lanes with the new setting, first look in the inside mirror for vehicles approaching from the rear, then glance at the outside mirror to see if a vehicle is in the blind zone. It is safe to change lanes when you can see the entire front of the vehicle in the inside mirror, and that vehicle is not gaining on you. You may need to use the older, blind zone, setting if the rear window is blocked by cargo, or in heavy stop-and-go traffic when a car on your bumper blocks your rear view to adjacent lanes.

It may take a while to adjust to the new settings. Don’t give up. The confusion will go away. Remember that the inside mirror is truly your primary mirror. Use the outside mirrors only to check the blind zones. “Perseverance will reward you with a new dimension in driving which will enhance your safety and comfort,” say Platzer.

Adapted from an article in the Oct/Dec 2003 issue of The Bridge, newsletter of the Michigan LTAP center. That story was produced by the Society of Automotive Engineers ©1995 SAE International and reprinted in The Bridge with permission.
TIC Workshops
Specific details, locations and registra-
tion forms are sent to everyone on the
CROSSROADS mailing list before each
workshop. You can also get additional
workshop information and register by
calling 800-462-0876 or going online at
http://tic.engr.wisc.edu/enroll.html

Road Maintenance This
workshop presents what you
should be doing this spring to
maintain your roads and discusses
repair and reconstruction options
for local roads and streets. The
workshop stresses best practices
for extending pavement life
including crack sealing, proper
drainage adequate pavement
thickness and shoulder support.
Fee: $45

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March 22 Menomonie Falls
March 23 DePere
March 24 Rhinelander

On-site Workshops
Save time and travel costs by
bringing instruction to your shop
or office. Schedule training for the
time and place most convenient
for you and ask the instructors to
tailor content to your specific needs.
On-site workshops let you train
more people for the same or less
cost — including staff from other
municipal departments, from nearby
communities, and from businesses
you contract with. Some workshops
the TIC can offer at your location
include:
• Basic Surveying for Local
Highway Departments
• Basic Work Zone Traffic Control
• Flagger Training
Contact the TIC early to ensure you
get the program you need on the
date you want.

UW–Madison seminars
Local government officials can request
a scholarship for the following Engineering
Professional Development courses.
Descriptions are available at http://epd.
engr.wisc.edu or call 800-462-0876.
All courses are held in Madison.

MARCH 2005
14-15 Implementing a Sidewalk Management System
14-15 Solving Neighborhood Traffic Problems

APRIL 2005
12-14 Repair of Concrete
18-19 Open Channel Design
20-22 Mastering the Hydraulic Design of Culverts
25-26 Designing and Implementing Roundabouts
25-27 Effective Roadway Lighting
27-28 Bicycle and Pedestrian Facilities

MAY 2005
9-10 Fleet Maintenance Management