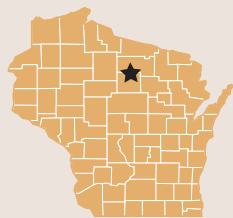


CROSSROADS

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

WISCONSIN TRANSPORTATION INFORMATION CENTER – LTAP



“With the cost of asphalt, pulverizing would be cheaper than wedging and you end up with a better road.”

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Managing local roads—10 ideas from the Town of Bradley

LIKE SCORES of towns around the state, Bradley had a problem. Many years of too much patching and no rebuilding had left the roads a mess. Then second home development around the lakes started booming, and so did summer traffic.

Fortunately, one resident had the know-how to guide essential improvements: former Town Board member Byron Lange who had

worked 37 years with the Lincoln County Highway Department. He agreed to be the town’s part time construction and planning consultant. Now, a decade later, the worst roads are rebuilt and the rest are in line for upgrades, without breaking the bank.

How did they do it? The system boils down to planning, financial commitment, footwork, and communication, along with some

specific insider’s tricks. Here are 10 town road management tactics that Lange used.

1) **Never do just an overlay.** “An overlay looks pretty for about six months and then the old cracks come through,” says Lange. First repair distressed areas and strengthen weak base. Then take advantage of pulverizing or milling to prepare the road for overlay. “With the cost of asphalt, pulverizing would be cheaper than wedging and you end up with a better road,” he says.

Town of Bradley has many former gravel roads with a thin asphalt surface. To improve these roads they spread the surface with a minimum 4” of new gravel then pulverize. In one pass the pulverizer breaks up the old asphalt and mixes in the gravel. The thicker, stronger base is then graded and paved with an overlay.

“A lot of times look I’ll look at the PASER ratings for an area with worse cracking or see where a road going across the swamp has rutted, and give it a little extra base,” Lange says. They also add extra material—base and surface—on the insides of curves. This protects the pavement edge where drivers cut the corner and keeps shoulder gravel off the road.

2) **Pay by the ton on the road.** After years of working with contractors, Lange doesn’t like total project bids. “We bid per ton on the road because that way



BEFORE This narrow (17 ft), urban road had no drainage and many trees needed to be removed.



AFTER Now 22 ft wide, it has a new drainage ditch and improved curve. The town repaired lawns after the trees were cleared.

10 Tactics for town road managers

Never do just an overlay.

Pay by the ton on the road.

Do your legwork.

Work ahead.

Use smart timing to cut costs.

Collaborate with abutting landowners.

Send certified letters.

Pay yourself in advance.

Find outside money.

Get to know the people who know.

Continues on page 4

Between the storms — Tasks for no-snow days



Sidewalk grinding



Culvert maintenance

WHEN THE BIG SNOWS blow in, plow drivers are plenty busy, but it doesn't snow all the time — not even Up North. During these quiet periods crews can tackle a variety of other projects. This Idea Exchange lists some projects that staff can start between snowstorms, then set aside to do plowing.

What others are on your list?

Write or e-mail your ideas by November 1st and we will include them in the Winter issue.

- Remove brush and trees
- Maintain buildings — cleaning, painting
- Grind uneven sidewalks
- Inspect and clean storm sewers
- Repair fences
- Stockpile materials like gravel
- Maintain off-season vehicles; e.g. rebuild lawn mowers
- Fill pavement cracks— weather permitting
- Inventory signs and replace as needed
- Update road inventory — do condition ratings when pavements are clear
- Inspect culverts — rainy fall weather is ideal
- Select new equipment — have users help evaluate, test, and set up
- Train staff — safety and other
- Arrange cross training in your shop and with other departments
- Work on projects for other departments — parks, water, sewer — in exchange for their staff plowing snow



Maintain off-season vehicles

New diesel fuel is in the pipeline

Most existing diesel engines should be able to burn ULSD fuel without modifications.



ULTRA LOW Sulfur Diesel (ULSD), the new fuel to help reduce particulate emissions from

diesel-powered engines, is now being produced and distributed. Under a federal EPA requirement, refiners and importers have one year from June 1, 2006, to ensure that ULSD averages 80% of the on-road diesel fuel they sell. Production start-up is slow, but by early 2007 most refiners are expected to produce only ULSD.

The target date for retail outlets to begin selling ULSD is October 15, 2006. They are not required to offer the new fuel, but those with just one diesel tank will likely sell it exclusively. Older types of on-road diesel fuel should be gone from the marketplace by late 2010.

Most existing diesel engines should be able to burn the ULSD without modifications. At first, equipment owners may want or need to replace fuel filters sooner

than normal. Since ULSD can act as a solvent, filters may clog with sediment from fuel tanks. However this problem has not been documented as a common occurrence, according to the US-EPA Web site. A few engines built before 1993 may need different seals in engines and fuel systems.

Beginning with 2007 models, all new on-road diesel equipment will require ULSD. These vehicles will have advanced emission control devices that could be damaged by higher sulfur diesel. Running them on older fuel types may also invalidate the manufacturer's warranty.

The new diesel fuel has lower lubricity, meaning it does not adequately lubricate fuel injection system parts. To compensate, suppliers will add lubricating agents before delivery. They should follow an ASTM lubricity standard.

Biodiesel from soybeans or corn, in amounts of up to 2% of the volume, can supply lubricity. It has the added benefit of being a lower-polluting, local and renewable fuel. Owners may be

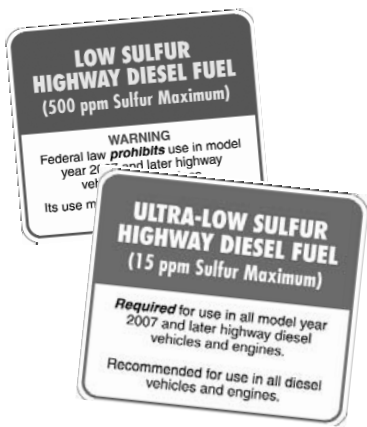
concerned about the effects of bio-diesel on their equipment, but engine manufacturers say that using up to 5% biodiesel "should not adversely impact operability" if ASTM standards are followed. However, some fleet operators have been using blends of 20% biodiesel since early 2005 with no problems. (See story on page 3.)

Signs and paperwork

Central refueling facility dispensers must have labels with the sulfur content of the diesel fuel being dispensed. The requirement took effect June 1, 2006. As ULSD reaches retailers on or after October 15, they also are required to label their dispensers. If the type of fuel in the tank is switched, the signs must be changed too.

There are different labels for highway and non-highway diesel fuels, with "Low Sulfur" or "Ultra Low Sulfur" labels for each. Labels must meet US EPA specifications for wording, visibility, size, etc. Correct labels may be downloaded from the American Petroleum Institute Web site (see next page).





Sometimes ULSD with 15 ppm of sulfur may be contaminated with higher sulfur fuel (up to 500 ppm) due to tank residues or mixing because of supply problems. In that case, the fuel must be “downgraded” —labeled and sold as “Low Sulfur Diesel.” The EPA limits downgrading to a maximum of 20% of the facility’s annual fuel volume.

The EPA also requires central fueling operators to save invoices or other transfer documents for five years. These must show vendor and purchaser name and address, fuel volume, designation (highway or non-highway), and sulfur content of the fuel.

Using the new fuel will require some adjustments, but the expected benefits in improved air quality and reduced health effects will be substantial.

For more information on regulations, benefits, and voluntary retrofits go to the US EPA Web site:
www.epa.gov/otaq/

To download fuel dispenser labels go to: <http://api-ep.api.org/publications/index.cfm> and click on the “API Suggested Diesel Pump Labels” link.

Biodiesel B20 works fine for UW–Madison

IN FEBRUARY 2005, the University of Wisconsin–Madison began stocking their on-campus bulk fuel tank with B20, a blend of 80% ultra-low sulfur diesel and 20% soybean-based biodiesel. All campus-based diesel equipment gets fuel from this tank. Last year they used nearly 50,000 gallons.

“Anything that needs to use diesel and visits that tank gets the biodiesel blend. No one has complained about it or at least no complaining has reached my ears,” says James Bogan, the campus’ Fleet Program Officer.

When asked, one driver hadn’t noticed any difference, while another said he has changed the way he operates a loader to compensate for lower power. “Do I think it’s worth it?” he volunteered. “Yes, I do. I have kids.”

Overall fuel economy does not seem to have changed with the B20, but it is hard to know definitively without following scientific measurement standards. “Different load characteristics probably have a much greater effect on fuel economy than the fuel type,” Bogan says. “Different drivers, traffic conditions, and weather also have an impact.”

Cold temperatures affect blended fuel. Biodiesel turns to gel sooner than petroleum diesel, so it is important to watch the thermometer and put winter fuel additives in the tank a bit sooner.

The campus tank is supplied through a state bid contract. The jobber delivers B20 that is “splash blended” by adding biodiesel to ULSD in the truck. As with many

other state contracts, local governments can choose to purchase their fuel at the state’s bid price by piggy-backing on the state’s contract.

While biodiesel prices are still higher than petroleum diesel, the annual cost is a very small part of the UW-Madison fleet budget. “Our thinking was: let’s be leaders in



being environmentally responsible,” says Bogan. “We can afford this to help purchase cleaner air, and use our experience to help other folks. We can reassure people that they won’t have operational difficulties with this fuel.”

As prices for crude oil and refined fuels keep spiraling upward, the arguments for using biofuels are more persuasive. At the same time, prices for biodiesel are likely to be more stable, especially in Wisconsin which is a major soybean producer. Biodiesel production is growing fast—75 million gallons in 2005 up from 2 million gallons in 2000. One biodiesel manufacturing facility is already operating in Manitowoc, a second in DeForest is expanding, and construction is expected to start soon on a third in the south central region.

“The logistics make sense when you have a large enough bulk tank,” says Bogan. “If you’re buying in amounts less than the size of a semi, then it becomes more difficult to deal with.” Those difficulties are likely to diminish as biodiesel production, distribution, and use go up.

Are you paying too much for fuel?

Compare your rates to the state’s by checking Vendornet: <http://vendornet.state.wi.us>. On the home page click “General Procurement Information” then select “Weekly Oil Pricing.”

Save by piggy backing. The state’s “Municipal Cooperative Purchasing Service” can save local municipalities 20%-60% off retail prices, and reduce staff time to research and bid contracts. Information is available from Vendornet at: <http://vendornet.state.wi.us>

“We use a 5% soybean bio-fuel blend and buy 21,000 gallons a month. The cost is about 2 cents a gallon more, but the trucks smoke less and have better response.”

– Dave Lyga
Shop Superintendent
Trempealeau County
Highway Department

BIODIESEL FACTS

- Biodiesel is biodegradable, nontoxic and free of sulfur and aromatics.
- Biodiesel is the only alternative fuel to have successfully completed the Environmental Protection Agency (EPA)-required Tier 1 and Tier 2 health effects testing under the Clean Air Act.
- Research on biodiesel performance in engines is based on 50 million miles of use.
- Production of biodiesel is local not international, and will help increase local farm incomes.
- The use of biodiesel does not void parts and material workmanship warranties of any major US engine manufacturer.

Source: National Biodiesel Board, www.biodiesel.org



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LTAP

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3

Managing local roads

continued from page 1

we are paying for what we're getting," he says. When something on the job takes more asphalt than expected, the contractor is compensated and doesn't have to skimp on asphalt in another spot, says Lange.

To make this approach work requires a good tonnage estimate and collecting the weight tickets from asphalt trucks as they deliver. "Before we let out a project we measure the width and length, and consult a table to get a tonnage estimate," Lange says.



Get better paving bids by using smart timing and detailed specs.

"He gives details [in the specs] like the tonnage they want, length of road, width of road, and exactly what they want done in the projects. I wish other townships would copy his practices."

3) **Do your legwork.** Putting in time and effort up front really pays off, whether in developing a five year road plan, writing a grant proposal, or preparing bid specs. For example, with a multi-year plan already approved by the Town Board Lange can save money on contracts and easily meet application deadlines for LRIP and other grants. He can spread road improvement projects over two years. This helps even out the budget and avoids last minute surprises and costly delays.

Written bid specs also take legwork. The reward is a tight bid based on accurate estimates instead of one with some padding so the contractor can cover unknowns and extras.

"Byron is really good at putting a spec together," says Randy Scholz, Lincoln County Highway Commissioner, who often bids

on projects for the town. "He gives details like the tonnage they want, length of road, width of road, and exactly what they want done in the projects. Also, he doesn't expand the project after it's started and suddenly you're scrambling for people or you're a week behind."

Often, in Scholz's experience, a town will seek bids with a brief newspaper ad like: wanted 2000 tons of gravel. Then bidders must call for essential information like quality, delivery location, and deadlines. Confusion and inconsistency are common. "I wish other townships would copy his practices," says Scholz.

4) **Work ahead.** Are utilities in the path of a planned ditch improvement? The companies need lead time to fit your project into their budget and construction schedule. "Every year in the early spring I write to the utilities and tell them what roads we expect to work on," Lange says. "I do the same with the County Surveyor in January so they can move their monuments." Contacting DNR reps in November for the next year's work lets them inspect sites during slower winter months.

5) **Use smart timing to cut costs.** Offer a contractor work in the slow season and you'll generally get a lower bid. For example, Lange puts out bid requests in October for clearing trees from right-of-ways. "We have a number of smaller operators up here. If it's the right time of year they are looking for work. We got really good competitive bids on grubbing and stumping," he says. Similarly, in February paving contractors with gaps in their work schedules are likely to bid lower than in already-busy May.

Help a contractor be more efficient and he'll probably pass some savings on to you. Lange's bid specs have a 90-day period for starting the project, giving the contractor flexibility to arrange jobs and stage equipment at less cost. It's the same idea as paying lower electric rates for interruptible service.

"We give them a big enough window to work the job in when they have slack time. But once they start, they only have so much time to complete the job," says Lange. If they don't finish on time, there are penalties of around \$100 per day.

6) **Collaborate with landowners.** Cutting trees for road improvements can cause an uproar among landowners, especially in developed areas where every tree is on somebody's lawn. A variety of tactics are helpful, depending on the situation. "On some projects we call a town hall meeting," says Lange. "We walk the road together and show what trees have to go and why you have to do it. Probably 90% of the time it works out."

On heavily wooded roads, the landowner can actually make money from the cutting. A letter tells them they are entitled to the wood and gives dates, deadlines, and details. "For some it's enough to pay their taxes for a year or two," Lange says.

The town also accommodates landowners by making sure that driveways flow smoothly into rebuilt roads, even when that means more cutting and extra asphalt, and by making lawn repairs part of the project contract.

"People are sensitive. Granted it's the right-of-way, but they are trying to keep their yards decent. You don't want to go and screw it up for them," says Lange.

7) **Send certified letters.** With so many non-resident landowners, it is important that they are properly notified, especially for big projects with heavy cutting. "We send a certified letter to the address where they get their tax

"People are sensitive. Granted it's the right-of-way, but they are trying to keep their yards decent. You don't want to go and screw it up for them."

bills," Lange says. "They have to sign for it, so we know they got the letter."

8) Pay yourself in advance.

The price of replacing a grader or a truck with plows and sanders equals almost half the Town's annual road budget. You could raise taxes for one year, but people get upset, so equipment purchases tend to get put off. "When I got involved we had an 18-year-old truck. It needed to be replaced," says Lange.

A machinery fund makes buying equipment a lot easier and lets you do it sooner. It's like buying on time, but ahead of time. The fund grows as the annual budget pays depreciation for each piece of equipment. Depreciation amounts are calculated by dividing the purchase price by the useful life (from a schedule like WisDOT's for machinery equipment rental). Money stays in a separate account, invested through a local bank, until it is needed.

"We just got a new grader, and we had money in the pot to pay for it," says Lange. "We are able to replace the equipment before it starts to nickel and dime us." Dependable equipment is important because the town does its own winter maintenance.

9) Find outside money. Don't be afraid to borrow money. Some projects are just too big and too urgent to wait until the annual budget can cover them. Instead of putting the projects off or

canceling all other road work to get them done, it's better to borrow money.

Two through roads were unsafe and in bad shape. They needed fixing now, so the town decided to borrow \$500,000 from the state fund. "It wasn't an extra burden on the taxpayers. The payments came out of the highway budget, and the people have had a good road for seven years," says Lange. When the loan is paid off next year, the money can go to other road improvements.

Apply for grant funding. Lange got grant money from the statewide TRIP Discretionary program — twice. It paid half the cost of rebuilding the two worst roads. "We would not have been able to fix those roads without the TRIP-D money," Lange says. "There is money out there but you have to do your homework. You might as well try to get it because somebody else will if you don't, and you'll never get it if you don't try."

"There is money out there but you have to do your homework. You might as well try to get it because somebody else will if you don't."

10) Get to know the people who know.

Over the years, Lange has learned a lot from attending TIC workshops and telephone network programs. He also met many people at the regional WisDOT office and at the state level. When he had questions, they would get him answers or tell him who else to contact.

"A lot of people have the idea that people working for the county or the state are just



BEFORE Crass Road has many steep hills with very dangerous slopes, no drainage, and no place for snow removal.



AFTER Slopes now meet modern design requirements. Utilities are moved, trees cut, and ditches built. To pay for these improvements, including purchase of more right-of-way, the Town of Bradley applied for and got a statewide TRIP discretionary grant from WisDOT and used part of the \$500,000 it borrowed.

'leeches on the taxpayer and they won't help,'" says Lange. "But if they don't help it's because you don't ask. It's a shame."

The most important element needed to improve town roads is the town board, Lange says. "We have a town board that listens and understands. If you don't have a town board that decides they want to do something, you can pull the hair out of your head and get nothing done."

Contact TIC for material estimating tables. Sample bid documents are also available, on CD or in hard copy.



With a machinery fund you can replace expensive equipment as needed without raising taxes.

Winter is on the way —Get ready now

By Don Walker, Director



See Calendar on page 12 for the **Winter Maintenance Workshop** date and location nearest you or to find out how to schedule **on site training**.

As you prepare, it is helpful to review last winter's operations. What, if any, problems did you have?

SEPTEMBER IS THE TIME to complete summer construction work and begin preparing for winter road maintenance. While we all hope for several months of good weather before winter storms begin, experience tells us that "early" storms can hit within a few weeks. Best to start preparing now.

Salt bid prices are up significantly this year. Tom Martinelli, WisDOT Winter Maintenance Engineer, says that the statewide average increase was about 15%, at \$39.25 a ton. Bid prices in the central part of the state were considerably more; going as high as \$55.25 a ton. The lowest bid price was about \$31 near Lake Michigan ports.

Transportation issues are behind the increases. Delivery expenses are up at every stage due to sky-high fuel prices. A shortage of trucks in southeastern Wisconsin and around Green Bay, near the Lake Michigan ports, has driven up truck transport costs. Salt coming up the Mississippi River costs even more because many barges travel downriver empty. Corn is going to ethanol plants instead of overseas. Rail shipping is not an option. Railroads have cut back on cars and diverted what they have to another commodity.

It is always advisable to have your salt delivered early. If there are any problems with quality, such as wet salt, then you will have time to reject material that is out of spec before it is needed. If you buy your salt or treated sand from a local source, be sure to get the current prices and delivery schedules.

Salt must be stored under cover, as must sand treated with more than 5% salt. Good housekeeping around storage facilities is the most effective way to avoid salt contamination problems.

A good general checklist for winter preparation will include:

- Inspect equipment and install plows and spreaders (See articles in *Crossroads* Winter 2005 and 2004)
- Calibrate spreaders
- Review and update plow routes
- Review and update staff rosters and call-out procedures
- Install snow fence
- Complete final mowing, tree and brush removal
- Repair drainage to prevent local flooding as snow melts
- Update contact list for local schools, fire, police, media, and adjacent highway departments

As you prepare, it is helpful to review last winter's operations. What, if any, problems did you have? Can you make changes now to avoid these this year?

What has changed with your road system? Are there any new roads, bridges, culverts, or driveways? Can your plows turn around in the same locations? Do you need to mark any hazards such as bridges, culverts, guard-rail, or manholes?

Finally, don't forget about notifying the public. Reminders should include changes in regulations or your agency procedures. Empha-

size problem areas such as parking restrictions, mail boxes, and safe driving when your plows are on the road. Seek out opportunities to publicize your agency policies and ask for cooperation. Local media are often willing to do a story if you have an interesting and important message.

The TIC Winter Maintenance Workshops are a good way to refresh the crew's skills. This year's agenda includes updates on chemical and material use, liability, planning, and equipment developments. You can send your crew and supervisors to one of the scheduled public workshops being held October 2-11.

It may work better to schedule your own on site program. Then all your staff can attend, and you can invite private snow plowing contractors and drivers borrowed from other departments. Costs for the on site session depend on the session length and number of speakers. The program cost may be less than fees for scheduled workshops if you have a group over 30. You also save on travel time and expenses. Since available dates before winter are limited, be sure to call the TIC soon if you are considering an on site session.



Finding grants to stretch budgets

GETTING GRANTS for local projects means more money without more taxes. It takes time to find the sources, more time to write the proposal, and still more time to report afterwards. Is it worth the effort?

"That depends on the project," says John Edlebeck, Public Works Director for the City of Waupaca. "I've been very aggressive with trying to get grant monies for various projects. I feel we owe that to the community."

Recent grants from sources other than WisDOT have helped pay for:

- chain saw safety training (part of a DNR Urban Forestry Grant)
- relamping traffic signals with LEDs (Focus on Energy), and
- buying energy efficient well motors and air conditioners, and even a device to cut energy use in vending machines (Focus on Energy)

They also save money on electric bills by being in an air conditioner power shed program. The city pays a lower rate and in return the local utility can turn off their air conditioners when power use peaks.

"You're talking tens of thousands of dollars for projects that you may need to do ultimately anyway," says Edlebeck. "For some, like Focus on Energy, the paperwork is pretty minimal."

How do you find grant programs? Start with the WisDOT Web page Programs for Local Governments. Also, watch your mail. WisDOT and DNR routinely send letters announcing funding programs and time-tables. These are also posted on agency Web sites and promoted through association newsletters.

Word of mouth is a common method: talking to other public works and streets department people, asking locally-based agency staff, listening at seminars and conferences. "For a lot of them, you have to seek them out: call someone or work through a Web page," says Edlebeck. "I think it's a mindset."

A new Web site—**WIGrants**—offers "one-stop shopping." It is operated by the state Department of Administration and replaces the print booklet: *Wisconsin Catalog of Community Assistance*.

The site has direct links to program descriptions on other state and federal agency Web sites. These give information on the most recent grant cycle, which may be completed. If a program seems to fit your needs, call the listed contact person to get details and dates for the next cycle.

Not finding what you need? Call or e-mail Dawn Vick, DOA Intergovernmental Liaison.

"We can help local officials look for grants, both state and federal," she says, "though I have to say that roads is one area where we have not found alternative sources [to DOT]."

"It's a lot easier not to apply for grants," says Edlebeck. "To take a half a day off from your normal work a couple times to get a grant written is very difficult. But, getting a grant, like the Urban Forestry grant which was a 50:50 match, allowed us to double the budget for needed services and improvements."

For ideas on grants and sources, contact the TIC for a list of grants secured by John Edlebeck for Waupaca.



A DNR grant provided thousands of dollars toward dam removal and streambank renovation.

Where to start looking for grants

Programs for Local Governments, on the WisDOT home page: <http://www.dot.state.wi.us>

WI-Grants, at: <http://wigrants.wi.gov> or from a link on <http://wisconsinpartnership.wi.gov>

You can contact Dawn Vick through this page. The best approach is to browse the listing. The keyword search doesn't work particularly well.

Wisconsin's Focus on Energy Government Program serves village, town, city, and county government facilities with "information, training, and resources to make informed decisions about energy use and management options to decrease your energy costs." Call 1-800-762-7077

On the Web: <http://www.focusonenergy.com>

Click on: *where you work* > *school & government programs* > *programs* > *government program*

Teaming up for better transportation

TWO RELATIVELY NEW PROGRAMS based in the UW–Madison College of Engineering are helping prove that “two heads are better than one.” The head count in these cases, though, is dozens or more, with local, state and regional transportation systems reaping the benefits.

The profiles that follow tell just a fraction of what these programs are doing. Together they represent a major investment in practical transportation research and education, and are examples of how connections between WisDOT and the University have grown and strengthened in recent years.

we’re opening data to a larger community,” says Steven Parker, Information Technology Project Manager.

Local officials can now submit a crash data request to the TOPS Lab and expect to receive a report within one to three weeks. Request forms should be on-line this fall. Ongoing improvements will later add mapping capabilities and interactive access to data. For now a data set is provided as a text file in a format (CSV–comma separated value) that easily imports into a spreadsheet program. Using spreadsheet tools the user can freely sort, select, and aggregate the data.

All reported crash records in Wisconsin from 1994 to 2005 are currently in the TOPS Lab crash

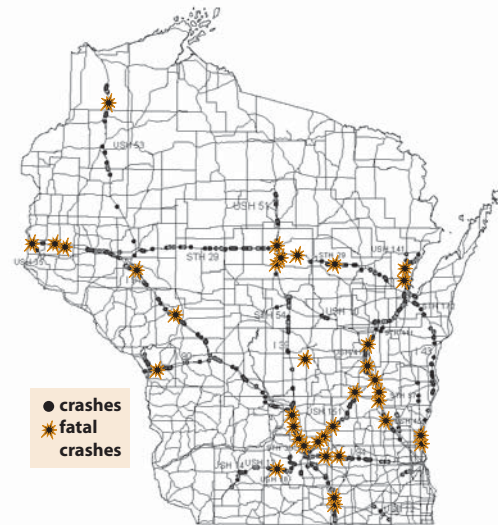
Crash data and more from TOPS Lab

“We’re evolving into a large data warehouse,”

TOPS Lab Web site
www.topslab.wisc.edu

Making local roads safer is a priority for most communities. But where should they put their resources? Which changes will make a road or intersection safer? Looking at crash data can provide some answers, and now the process is easier, thanks to the Wisconsin Traffic Operations and Safety (TOPS) Laboratory.

The TOPS Lab is a joint program of the UW–Madison and WisDOT that started in 2003. Earlier this year it began providing crash summary reports as a service to the WisDOT Bureau of Highway Operations after a long-time employee retired. “We’re attempting to emulate a portion of work that he did, and in the process



Five hotspots were identified

I-39/I-90/I-94
Columbia & Dane Counties

I-94
Dunn County

USH 41
Fond du Lac, Winnebago and Brown Counties

USH 53
La Crosse County

USH 151
Dane & Dodge Counties

TOP What happened—exactly?

This crash photo and related story appeared in the *Wisconsin Traffic Safety Reporter*, v.8 n.3 (2005).

ABOVE & RIGHT Work being done by the TOPS Laboratory in conjunction with Wis-DOT is helping identify “hot-spots” where median crossover accidents are occurring.

Source: *The Wisconsin Traffic Safety Reporter*, v.9 n.1 (2006).

database. Information is available on the location of the crash, vehicles involved, and general crash attributes. To use the data effectively users need to be familiar with the crash locations they are interested in.

"Some local roads have alternate names — like Hwy 100 in Milwaukee County which is also Mayfair Road, Ryan Road, et cetera," says Parker. "If you don't know this you could miss data recorded under a different name." Slight differences in spelling or abbreviations also produce separate groupings. "Eyeballing it is the only way to deal with it," Parker says.

Crash data can help in several ways: understanding safety issues in the community, using engineering and enforcement resources more effectively, and possibly to support a funding application to improve highly hazardous locations. "We're evolving into a large data warehouse," says Todd Szymkowski, Program Manager of the TOPS Lab. "As needs emerge and funding becomes available, we develop software applications to access it."

The Lab has a broad mission to manage traffic and transportation data and build safety analysis tools. Located in the Engineering Building, it also provides student education and offers a variety of traffic operations and safety engineering services.

One recent project investigated 15,000 crash reports to categorize and verify median cross-over crashes in the state. Some others evaluated centerline rumble strips, assessed bridge approach guardrails on low-volume roads, analyzed crashes during snow-storms events, and synthesized ways to measure the quality of highway maintenance.

For more information on the TOPS Lab, go to their Web site. To request a crash report, visit the "Data Clearinghouse Services" page on the TOPS Lab WisTrans Portal Web site: <http://transportal.cee.wisc.edu/services/>

Midwest Regional University Transportation Center (MRUTC)

The MRUTC was created in 1999 when a consortium of leading Midwest universities, led by the UW–Madison, won a grant from the US Department of Transportation. The consortium's mission is "optimizing transportation investment and operations" through research, outreach, and education. State transportation agencies in Wisconsin, Minnesota, Illinois, Indiana, Michigan, and Ohio are active partners and supply most of the required financial match.

"The UTC pulls together the people and organizations across this region who are doing transportation related activities," says Center Director Teresa M. Adams, a professor in Civil and Environmental Engineering at UW–Madison. "We look for opportunities to work together on transportation needs unique to this region, and to leverage our resources to make things happen."

One such project, sponsored and housed by the Center, is the Deer-Vehicle Crash Information Clearinghouse. Deer-vehicle crashes are a huge regional problem — 130,000 reported in 2002, with 45 deaths, 4984 injuries, and over \$200 million in vehicle damage costs. The Clearinghouse collects information and data on the crashes and has analyzed countermeasures. It created a "toolbox"

of countermeasures for decision-makers attempting to reduce these crashes.

Among the three dozen other past and current projects are:

- a study of the impact on pavements and maintenance costs when railroads close spur lines and freight shifts to trucks.
- an investigation of improving road safety by increasing surface friction. New asphalt pavement mix designs with greater skid resistance are being developed.
- a review of how local road agencies use road data. It is documenting best practices in decision-making, and evaluating WISLR and other management systems.

"Much of our focus is on regional issues and the needs of state DOTs, but we also try to benefit local road agencies," says Jason Bittner, Deputy Director of the Center. "We traditionally involve local government representatives and local practitioners in project advisory committees, and we look for projects that partner with local municipalities." The MRUTC cooperates with the TIC and other LTAP centers, gives scholarships to locals, and involves them in Center conferences and outreach activities.

"We look for opportunities to work together on transportation needs unique to this region, and to leverage our resources to make things happen."



MRUTC Web site
<http://www.mrutc.org/>



This deer jumped off an overpass. The driver was okay. A project on deer-vehicle crashes is one of many programs in the Midwest Regional University Transportation Center.

For more information on the MRUTC, see their Web site. The Center is entering its final year under funding from TEA-21, the previous federal transportation act. They have applied for continued support under the current federal authorization for transportation.

RESOURCES

Print copies of publications are available free from the TIC while supplies last. Electronic copies may be downloaded from the TIC Web site.

Videos and DVDs are loaned free through county UW-Extension offices.

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 and we will get a print version to you.

TIC Web site

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

Publications

Gravel Road Maintenance: Meeting the Challenge, University of Minnesota Center for Transportation Studies, 2005. DVD and CD #188802.

The TIC has a limited supply of this gravel road training DVD and CD. Video modules cover correct roadway shape, shaping the roadway, good surface gravel, and dust control. The CD has the instructor's guide and the FHWA *Gravel Roads Maintenance and Design Manual*.

Resources for town road improvements prepared by TIC:

Sample Bid Documents
Available on CD or in hard copy

Material Estimating Tables for estimating tons of material required for paving.

Grants list, City of Waupaca. Request this list to use for inspiration and ideas about where to get outside money.

Transportation Information Center publications helpful for managing roads, inspecting culverts, and winter maintenance include:

Drainage Manual: Local Road Assessment and Improvement Using Salt and Sand for Winter Road Maintenance, #6

Culverts-Proper Use & Installation, #15

The Basics of a Good Road, #19

Websites

Ultra Low Sulfur Diesel (ULSD)—additional information is available online at: <http://www.cleandiesel.org/highway.html> and at <http://epa.gov/otaq/diesel/>

Wisconsin Traffic Operations and Safety Laboratory (TOPS)
Information on current projects and links to publications. Provides crash data reports in electronic format that are convenient for local data investigations.
<http://www.topslab.wisc.edu>

Midwest Regional University Transportation Center (MRUTC) — The Web site has information on research and education in transportation in the Midwest region.

<http://www.mrutc.org/>

Search for grant opportunities with help from the Wisconsin Department of Administration.
<http://doa.wi.gov/dir/wcca.asp>
Search by the function "Transportation" to see transportation related grant opportunities. (See story on page 9).

Videotapes/Multimedia

Videos, CDs, DVDs and other media are loaned free at county UW-Extension offices.

Lending Library Catalog. Print copies of the current TIC catalog were distributed in July. Contact us for additional copies. Items are also listed on the TIC Web site. Browse a category or search by key word.

Consider the following as you get ready for winter maintenance:

Winter Operations Training Program, Iowa DOT.

This set of 5 training videos by Iowa DOT covers a wide range of winter operations:

Introduction and types of plow equipment, 11 min. #18172

Pre-season preparation, 30 min. #18173

Equipment Operation (includes radio procedure and winter clothing), 10 min. #18174

Plowing techniques, 30 min. #18175

Anti-icing/deicing, 30 min. #18176

Surviving the Cold, American Red Cross, 16 min. #18562

Techniques for surviving cold weather conditions.

Why Skid? Winter Driving Techniques, Bridgestone Tire, 18 min. #18519

Reviews basic winter driving skills for cars.

CALENDAR

continued from page 12

UW- Madison seminars

Local government officials can request a scholarship for the following Engineering Professional Development courses. See details at <http://epd.engr.wisc.edu> or call 800-462-0876. Courses are held in Madison unless otherwise noted.

SEPTEMBER 2006

- 11-12 Introductory Principles of Engineering Project Management
- 12-13 Traffic Engineering Fundamentals
- 13-14 Management Skills for Engineering Capital Projects
- 14-15 Solving Neighborhood Traffic Problems
- 25-26 Managing Snow and Ice Control Operations

OCTOBER 2006

- 9-10 Storm Sewer System Design
- 11-12 Storm Water Detention Basin Design
- 16-18 The Engineer in Transition to Management

NOVEMBER 2006

- 1-2 Introduction to Right-of-Way for Utility Engineers, Technicians and Managers
- 3 Land Surveying for Non-Surveyors
- 8-9 Soil Engineering for Non-Soils Engineers and Technicians
- 13-17 Structural Design for Non-Structural Engineers

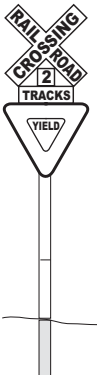
DECEMBER 2006

- 4-6 Principles and Practices of Estimating for Construction and Design Professionals
- 4-7 Highway Bridge Design
- 6-8 Comprehensive Practices for Effective Construction Project Management

Signing Q&A

By Tom Heydel
Traffic Operation Engineer
WisDOT District 2

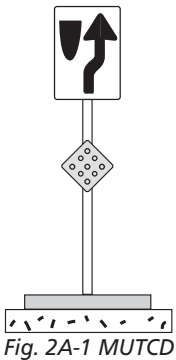
Q Are yield signs required at crossbucks for highway rail crossing?



Recent legislation now requires railroads to install Yield signs at *passive* crossings by July 2, 2007, except when Stop signs are determined to be appropriate by engineering study. Passive crossings are those without warning lights or gates. The purpose

is to reinforce to drivers that a RR crossing is a Yield condition. Research has shown that road users do not understand and do not comply with the regulatory requirement of the crossbuck sign at passive crossings.

Q Can I use a W5-52L (yellow/black) clearance marker sign or object marker (W5-54D) below a KEEP RIGHT sign in the median?



The MUTCD (3C.02) says that the striped markers (clearance markers) are intended for obstructions in the roadway. Section 2B.33 of the MUTCD says The KEEP RIGHT (LEFT) regulatory sign

may be used at locations where it is necessary for traffic to pass to the right (left) of a roadway feature or obstruction. Therefore, it is not necessary to have both. You want to avoid having regulatory and warning signs together. However, for cases where the obstacle is more severe or not readily apparent both may be

needed. Figure 2A-1 of the MUTCD depicts a KEEP RIGHT sign with an object marker.

Q Is a crosswalk pavement marking required when I use the pedestrian diamond warning sign at the crossing?

No. The MUTCD says it may be defined with crosswalk markings (3B.17). It certainly is beneficial to provide additional warning to the driver. At school crossings, the marking is required whenever the school crossing warning sign assembly is used per 7B.09 MUTCD.

Q If there is no centerline on a local road (rural) is 45 MPH the speed limit by default?

No. The rural speed limit for local and county roads is 55 MPH per statute unless otherwise posted for a lower speed limit. Local units of government can reduce the speed limit by as much as 10 MPH without state approval for this situation. Some local jurisdictions may have an ordinance linking centerline marking and speed limits.

Q Why are roundabouts being considered?

Roundabouts have been shown to reduce crashes by 25% or more. The severity of crashes is also substantially reduced since the crash generally is a sideswipe versus the angle crash or rear end crash that occurs at a signalized intersection or 2 way stop. Roundabouts also provide good operational benefits. Drivers not familiar with driving roundabouts are often apprehensive driving through them, but over time will adjust.

Q Which is better for sign posts wood or steel?

Generally, in rural areas wood posts are more durable and withstand wind impacts better. Both are acceptable if they meet breakaway standards: 4" x 4" wood or 4" x 6" wood with holes drilled in them. A 2" x 2" tubular steel post meets breakaway standards but steel pipe does not. If you use steel posts, more posts are needed. For any sign over 9 square feet you'll need 2 steel posts. For 4" x 4" wood posts anything over 20 square feet needs 2 posts.

Q Is Strong Yellow Green (fluorescent yellow green) required for pedestrian, school or bicycle warning signs?

No, you can use standard yellow per the MUTCD. WISDOT uses the fluorescent yellow green for school signs by internal policy on state maintained roads.

Q How big of a tree is a hazard?

Anything over 4" is a hazard. However, you need to consider other factors:

- **What is the clear zone?** Maybe the tree is outside the clear zone.
- **What is the speed limit of the road?** The clear zone is smaller on a lower speed roadway.
- **What is the traffic volume of the road?** A lower volume roadway has a lesser clear zone.
- **Is the tree on the inside of a curve?** Run-off-the-road crashes are more likely to occur on the outside of a curve than on the inside.

“Research has shown that road users do not understand and do not comply with the regulatory requirement of the crossbuck sign at passive crossings.”

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.

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 Wisconsin
LTAP

FALL 2006

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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



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University of Wisconsin–Madison
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CALENDAR

TIC Workshops

Details, locations and registration forms are sent to all CROSSROADS recipients prior to each workshop. Registration begins after announcements are sent.

Winter Road Maintenance This workshop gives practical information and procedures for snow and ice control. Topics include winter road maintenance operations, deicing and anti-icing, chemicals and abrasives, and winter maintenance equipment. Come prepared to share your ideas and learn from others. Fee: \$45

- Oct 2 Rhinelander _____
- Oct 3 Cable _____
- Oct 4 Eau Claire _____
- Oct 5 Tomah _____
- Oct 9 DePere _____
- Oct 10 Waukesha _____
- Oct 11 Barneveld _____

Highway Safety Review signing and marking basics with emphasis on good sign installation and maintenance practices on local roads. The workshop will also help you identify roadside safety hazards and understand and use crash information to improve the safety of local roads.

Fee: \$45

- Nov 2 Barneveld _____
- Nov 3 Waukesha _____
- Nov 6 Tomah _____
- Nov 7 Eau Claire _____
- Nov 8 Cable _____
- Nov 9 Rhinelander _____
- Nov 10 Green Bay _____

Work Zone and Flagger Safety

For road supervisors and maintenance personnel who plan and set up work zones. Covers traffic control devices, the parts of a work zone, and a variety of set ups, including mobile operations and flagging operations. Participants will set up work zones using the *Wisconsin Pocket Guide to Workzone Safety and the Flagger's Handbook*. Fee: \$45

- Jan 23 Tomah _____
- Jan 24 Barneveld _____
- Jan 25 Waukesha _____
- Jan 30 Eau Claire _____
- Jan 31 Cable _____
- Feb 1 Rhinelander _____
- Feb 2 De Pere _____

Road Maintenance This workshop presents maintenance, repair and reconstruction options for your local roads and streets, along with best practices for maintaining and improving drainage and extending pavement life. Includes information to help you decide which maintenance techniques are best for particular pavement conditions. Fee: \$45

- Mar 12 Tomah _____
- Mar 13 Eau Claire _____
- Mar 14 Hayward _____
- Mar 15 Tomahawk _____
- Mar 16 De Pere _____
- Mar 22 Barneveld _____
- Mar 23 Pewaukee _____

On site Workshops

Bring TIC instruction to your location and save time and travel costs. Instructors will tailor content to your specific needs and present it on a schedule that's convenient for you. With on site workshops you can train more people for the same or less cost, so you can include staff from other municipal departments, nearby

communities, or from businesses you contract with. The TIC offers the following workshops. Contact us early to ensure you get the program you need on the date you want.

- Basic Surveying for Local Highway Departments
- Basic Work Zone Traffic Control
- Flagger Training
- Winter Road Maintenance

UW– Madison seminars

See page 10 for upcoming course listing.

Other opportunities

The APWA Wisconsin 2006 Snow Plow Rodeo and Equipment Show

Sep 19-20 at Lambeau Field in Green Bay. To compete, teams must register by Sep 1. See APWA Web site, <http://wisconsin.apwa.net/> or contact Mark Hochschild, 414-761-5372; mark_h@ci.greenfield.wi.us

Pesticide applicator training for right-of-ways

is generally held in January. For information or to pre-register go to <http://ipcm.wisc.edu/PAT/> or contact Rose Scott: 608-262-7588, PAT-program@facstaff.wisc.edu