Control driveway access for safe, efficient roads

PROPERTY OWNERS are entitled to reasonable access, and all citizens benefit from efficient, safe roadways. But as areas develop these two rights can be in conflict. Roadway safety is threatened by accesses that are too close together, hidden from drivers’ view, or create hazards in the right of way. Average speeds go down, making the system less efficient.

Local road agencies can serve both property owners and the driving public with an effective, up-to-date access ordinance. Good communication with land developers, buyers and owners is essential, along with consistent fair enforcement. It is also important to work closely with planning and zoning departments and have strong support from elected officials.

Winnebago County adopted a comprehensive access control policy about six years ago soon after John Haese began working for the highway department. “Developers were requesting a number of different accesses to county highways in rural areas,” says Haese, Winnebago County Highway Commissioner. “These added traffic conflict points would increase the potential for accidents. As a consequence, residents and local citizens would be asking for lower speed limits.”

It took more than a year to develop and implement an access control ordinance. “I tell the board and committee members to this day that one of the best things they ever were involved with and supported was the controlled access ordinance,” says Haese. He worked on it with Bob Braun from Zoning and Planning, Corporation Counsel John Bodnar, and staff member Mark Frank, and got help from the Highway Committee and the County Board.

Reviews of property access must consider medians, intersections, traffic signals, and left turn lanes, but the biggest concern is driveways, especially those entering collector and arterial highways and roads. Studies show that large numbers of driveways increase congestion, reduce traffic flow, and increase crash rates. An ordinance should specify the maximum number of access points per mile and set minimum spacing requirements for each functional classification of road.

“We have a non-proliferation policy for access points,” says Jeff Durkee, P.E., Highway Engineer for St. Croix County. “Access requests are at a record pace here.” St. Croix, probably the fastest growing county in the state, just did a comprehensive update to its access and land development ordinance, effective January 1, 2006.

Slower growing communities and rural areas may not see this as a problem. However, no ordinance means no guidelines and no framework for solving problems that occur later.

“The key is to get a good uniform ordinance in effect. It should spell out access policy and inform the public how rules will be administered. Then the ordinance will protect local roads from public requests for lower speed limits, and you will continue to have 55 MPH speed zones not 45 or 25,” says Haese.

Manage driveway spacing, numbers, locations, and construction with an effective access control ordinance.

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Gravel saver for grader blades

OUR COLLEAGUES in South Dakota have developed a simple, inexpensive device to keep gravel on the road during maintenance. Blading spreads gravel and smooths the surface, but material can easily slip around the toe or leading edge of the moldboard. Dry weather or lack of fines in the gravel can make the problem worse. In time less gravel is on the roadway surface where it belongs and there is a build-up on the shoulder that can block drainage.

Jeff Hargens, a motorgrader operator from Hand County at Miller, SD, experimented with different ways to mount a disk blade to a grader's moldboard. Eventually he devised an effective method which the county has been using for three years.

Working with a salvaged bearing and housing bracket from a farm plow's rolling coulter, Hargens experimented with different blades and different methods of mounting. They got the best performance by putting a single disk blade on the coulter housing bracket and mounting it directly to the grader's moldboard. The blade turns as the grader moves forward. It recovers gravel and pushes it in front of the moldboard again. The moldboard's end bit needs to be modified slightly, but the original strength is not affected.

Operators using the device need to make a small change in the pitch and angle of the moldboard. With that adjustment it works well and is easy to use. "Jeff demonstrated this to us on the road last summer," says Ken Skorseth, Field Services Manager of the South Dakota LTAP Center. Skorseth taught at TIC pavement maintenance workshops in northern Wisconsin earlier this year.

“We are pleased to recognize another local employee who has done something innovative to help his department,” says Skorseth. “It took some real persistence on Jeff’s part to continue to make modifications until he got the design perfected. But, it is very rewarding when you finally have a product that works effectively.”

Web ratings entry easier, quicker

WORD IS that WEB WISLR works “slick as a whistle” for entering pavement ratings. “It was really easy to do,” says Marilyn Bhend, Clerk for the Town of Johnson in rural Marathon County. “The hardest part was to have somebody go out and actually rate the roads.”

The town was among the 45% of local municipalities that submitted their 2005 pavement ratings by entering them directly into WISLR. An equal number sent their ratings on paper, and the remaining 10% used electronic spreadsheets, according to Susie Forde, Chief of WisDOT’s Data Management Section.

Overall completion rate was 94%, about the same as 2003. “Some locals asked for extensions due to weather,” says Forde. “Others are working directly with WisDOT to build a better interface between their local system and WISLR to load a higher percentage of pavement rating data.”

Each new user has to complete a training program first. A computer-based tutorial is available for local officials or staff who want to submit annual physical roadway changes through WISLR anytime during the year. It simulates WISLR entry screens and gives step by step instructions. The user can practice and repeat until she or he is comfortable with the process. Instructions are also printed in pamphlets you can refer to while in WISLR.

“It’s laid out simple enough, if you follow the instructions,” says Bhend. “If you have questions there are people you can call and talk to.”

The entry process is fairly quick. You only put in new or changed information, and ratings stay the same on many segments. Using a paper printout from WISLR to write down your ratings in the field makes it easier; the road segments are in the same order.
Direct entry puts all your road information in one place, under your control, and at your fingertips. You can update and certify your inventory with WisDOT online while entering ratings or any time during the year. Entering physical changes online takes the place of submitting them on the Construction Report Form. WISLR automatically updates transportation aids so you always have a current report.

“You can have a better handle on your local system,” Bhend says. “You put the information in as it happens instead of waiting a year and then trying to remember when that road had gone from gravel to blacktopping. I would really recommend to locals to get certified.”

To gain first-time access to WEB-WISLR, follow the instructions under the heading “How to access and get started using WISLR” at the following Web location: www.dot.wisconsin.gov/localgov/wislr/index.htm

Only people affiliated with the municipality, like the clerk or chair, will be authorized for Pavement Entry Access. If you contract for pavement rating and submission you can grant permission to a consultant firm. Pavement ratings are submitted every other year. The next deadline is in December 2007.

“It was really easy to do. I would recommend that locals get certified.”
– Marilyn Bhend, Clerk Town of Johnson

Questions regarding 2005 Pavement Rating Submittal?
Contact Corissa Engel, Corissa.Engel@dot.state.wi.us (608) 266-7139

WISLR data study validates department’s work

ROADWAY BUDGETS are big, so administrators ask tough questions. Is the budget too high? Is a backlog of capital improvement projects building up? How do we compare to similar counties or other municipalities?

In La Crosse County a new administrator and the County Board recently got answers to those kinds of questions using county road data in WISLR. A consultant analyzed the Highway Department’s 5-year plan using current ratings along with historic ratings stored in PASERWARE.

“Basically they confirmed that were doing the best we could with our budget,” says Keith Back, Assistant Commissioner, La Crosse County Highway Department. “As a department we felt pretty good that we weren’t where we want to be but we are not way behind either.”

The results showed that roadway funding was being allocated appropriately and there was no serious backlog. The study also compared county reconstruction and maintenance costs to WISLR default unit costs, showing that they were in line with costs reported by other local government units.

“The graphical maps and some of the figures that can be produced from WISLR are very helpful,” says Brandon Bourdon, Project Engineer with Kimley-Horn and Associates of St. Paul which completed the study. “We used the maps to recommend grouping projects by geographic areas to minimize mobilization costs.”

The Highway Department will use current condition data and WISLR reports to develop the five-year plan for 2007–2012. They will also be keeping the database current by entering summer maintenance results each fall, as the consultant recommended.

Regular data entry spreads the workload and provides a current picture of the road system. Using WISLR printouts to record data helps make the entry process easier; the numbers and segments are identical to what is on the WISLR screen.

In summary, WISLR works for La Crosse County. “I would totally recommend using WISLR,” says Back. “It’s a good way to know for sure where you are. And if you haven’t been keeping good records it’s a good way to get caught back up and feel confident about your data.”

“...you can have a better handle on your local system,” Bhend says. “You put the information in as it happens instead of waiting a year and then trying to remember when that road had gone from gravel to blacktopping. I would really recommend to locals to get certified.”

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Maintaining gravel roads

**GRAVEL ROADS** need regular maintenance. Heavy rains and local heavy traffic can change surface condition literally overnight. Fortunately, one pass of a motor grader can usually restore the surface.

Restoring the proper crown and using good quality gravel are critical, says Ken Skorseth, a national expert on gravel roads. "Operators also need good technique. Improper maintenance can lead to very quick deterioration, especially in wet weather," he says. Skorseth, who is Field Services Director for the South Dakota LTAP Center, offered his expertise at four gravel-focused TIC pavement maintenance workshops held last March.

**Roadway shape**

Every road needs a center crown and a cross slope that directs water off the pavement. On asphalt pavements the shape is laid out once, during construction, and stays in place. On gravel roads, the grader operator must re-form the shape every time he maintains the surface.

A proper crown keeps the gravel road safe, maintains the strength of its base, and helps preserve the surface condition. The slope on a gravel road needs to be at or near 4% or ½" per foot. On a 24'-wide road this equals a 6" drop in elevation from centerline to edge of the road.

Too little crown lets water stand on the road, causing damage. Too much crown and drivers will drive down the road's center because they are worried about sliding off the side of the road. This increases the potential for a head-on collision. "If you only see two wheel paths on your gravel road, the problem may be excess crown," says Skorseth.

Along the road the slope will need adjustments. At approaches to curves, provide a transition from a crown to a super-elevation — a banked section of roadway. At railroad crossings, bridge decks and intersections, match the slope to existing elevations.

The road surface should transition smoothly to the shoulder and ditch foreslope. Over time, though, secondary ditches can form. Traffic action, snow plowing, settlement, and improper maintenance will cause surface gravel to build up at the edges. This windrow or berm holds back water which softens the surface and forms secondary ditches.

"More than half of the problems with gravel roads result from poor surface gravel, so make sure you use the right gravel."
Good gravel

“More than half of the problems with gravel roads result from poor surface gravel, so make sure you use the right gravel,” Skorseth says.

Gravel that makes a good base course under asphalt produces a bad surface on a gravel road. It is too coarse and porous for use on the surface. Surface gravel needs to form a stable, water-shedding crust on the road. To achieve this, the mix must include 8%-15% fine material. The fines should be clay or a similar material that is both sticky and flexible. This will bind the aggregate together. Also, the stones are smaller — ¾” and under — and at least half should be crushed so the sharp, fractured faces can lock together.

“When you squeeze a handful of moist surface gravel it will mostly stick together in a ball and your hand will be dirty,” says Skorseth.

Grading tips

Good grading techniques are essential. Berm material needs to be brought back into the road in the grading operation and the correct cross slope needs to be reestablished. To get a good surface, operators need to manage speed, moldboard angle, moldboard pitch, and equipment stability.

Too much operating speed in blading has caused problems on many roads. When the machine begins to “lope” or bounce, it will cut depressions and leave ridges in the road surface. “It is virtually impossible to do good work above a top speed of 3 to 5 MPH,” says Skorseth.

Keep the moldboard at an angle of 30-45° to recover gravel from the shoulder without spilling it off the toe. Operating without enough angle is a primary cause of this spilling.

Adjust the tilt or pitch of the moldboard depending on what you are trying to accomplish. The right pitch ranges from having the top of the blade tilted back for aggressive cutting, to a nearly vertical blade for spreading, to having the top of the blade tilted forward for light blading or dragging. For routine maintenance you want the cutting edge close to vertical. This will produce a light trimming action. Gravel will fall forward, mix, and move across the moldboard to the discharge end.

It can sometimes be hard to keep a machine stable while grading. Too much speed can cause bounce, while having the angle of the blade too similar to the angle of the rear tandems causes “duck walking” — rocking from side to side. “It takes experience to recognize the cause and find the right stability adjustments,” says Skorseth.

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**Percent of gravel passing through sieve by weight**

<table>
<thead>
<tr>
<th>Sieve size</th>
<th>3-inch</th>
<th>1¼-inch</th>
<th>¾-inch</th>
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</thead>
<tbody>
<tr>
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<td>90-100</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>1½ inch</td>
<td>60-85</td>
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<td>—</td>
</tr>
<tr>
<td>1¼ inch</td>
<td>—</td>
<td>95-100</td>
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</tr>
<tr>
<td>1 inch</td>
<td>—</td>
<td>—</td>
<td>100</td>
</tr>
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<td>¾ inch</td>
<td>40-65</td>
<td>70-93</td>
<td>95-100</td>
</tr>
<tr>
<td>⅜ inch</td>
<td>—</td>
<td>42-80</td>
<td>50-90</td>
</tr>
<tr>
<td>No. 4 (4.75 mm)</td>
<td>15-40</td>
<td>25-63</td>
<td>35-70</td>
</tr>
<tr>
<td>No. 10 (2 mm)</td>
<td>10-30</td>
<td>16-48</td>
<td>15-55</td>
</tr>
<tr>
<td>No. 40 (425 µm)</td>
<td>5-20</td>
<td>8-28</td>
<td>10-35</td>
</tr>
<tr>
<td>No. 200 (75 µm)</td>
<td>2-12</td>
<td>2-12</td>
<td>5-15</td>
</tr>
</tbody>
</table>

In general, use the “⅜-inch” specification for aggregate material in the upper three inches of a gravel roadway; use the “1¼-inch” specification for material for lower layers. The ¾-inch material is easier to shape and will provide a more tightly bonded surface. Although the “1¼-inch” material will give better load distribution, the coarser-sized particles are more prone to raveling.

On any depth less than 5½ inches, WisDOT would call for all ¾-inch material since a minimum depth for a layer is twice the maximum particle size.

**Sources** WisDOT Facilities Development Manual, Section 305.2.2.1, and Bruce Pfister, Chief Geotechnical Engineer, WisDOT Technology Advancement Unit.
**Effective signing and marking are lower cost improvements that can significantly improve safety.**

**IMPROVING SAFETY** is one of the key reasons for applying good signing and marking practice. When signing and markings are used effectively they help drivers keep their focus on other traffic and the road. The result is fewer crashes. Also, adding or replacing signs is relatively inexpensive compared to making physical safety changes. Here are some specific situations and signs that you can use to help make your roads safer, economically.

**Guidance signs**

*Street names signs* are often given low priority, but they can help reduce crashes. A driver approaching an intersection has to think about controlling the vehicle, guiding it smoothly, and finding the way. Providing guide signs at an intersection lets the driver focus on the essentials of control and guidance.

Rural intersections often have few identifying landmarks. When drivers are trying to avoid getting lost, their attention is distracted from other vehicles, obstacles on the road, pedestrians, and roadway alignment changes. Installing street name signs reduces confusion and lets them concentrate on driving.

*Overhead* street name signs at intersections enhance safety, particularly at signalized intersections. More visible and readable at a distance, they reduce crashes from last minute lane changes. The driver can determine which lane to be in and make a change well ahead of the intersection.

*Larger letter size* Using larger letter sizes on street name and other guidance signs makes them easier to read, so drivers can make navigational decisions quickly. Letters for ground mounted signs should be a minimum of 6” UPPER CASE, 4½” lower case; for overhead signing: 8” UPPER CASE, 6” lower case.

*Advanced* crossroad name signs for complex intersections on higher speed roadways provide the driver even more advanced guidance. These should be considered especially for speeds of 45 MPH or higher.

**Placement** Drivers tend to look to the right the majority of the time when driving, so they expect signs to be on the right shoulder or curb. Therefore, it is important to position signs properly on the right side and to use proper mounting heights (5’ rural, 7’ urban). One exception is signs that are specific to left turning maneuvers.

**Spread information out** It takes drivers 0.5 to 1.0 second to read each major word, so make sure your signs are at least 50’ apart for low speed and 100’ apart for higher speed roadways. Placing a sign just over a hill does not give drivers time to read and react.

**Warning signs**

On curves several types of improvements can increase safety. Physical enhancements include: wider shoulders, paved shoulders, repairing edge drops of 3” or more, and flattening side slopes.

Edgeline pavement markings and improved warning signs also help.

*Chevrons* improve the driver’s perception of the angle on a curve. They are most effective on sharper curves (> 7°).

*Advanced curve and turn* signs give the driver time to react to the curve. Install advisory speed plaques under the diamond warning sign when drivers must reduce their speed by 10 MPH or more to negotiate the curve.

*De-clutter* Improve intersection safety by reducing visual clutter in the area approaching the intersection. Remove overhanging branches that block vision; reduce the number of signs; and remove unnecessary advertising signs.

*Two-way stop intersections* with safety concerns. Where drivers are not seeing the Stop condition and are failing to stop, consider double-marking the STOP AHEADS and STOP signs and adding flags or beacons. Where crashes are a result of failure to yield (the driver stops and proceeds before it is clear), install CROSS TRAFFIC DOES NOT STOP signs below the STOP sign.

Overhead street name signs help reduce crashes from last minute lane changes.
Regulatory signs

Regulatory signs also improve safety.

**Speed limits** Drivers will drive closer to the speed limit where speed limits have been established properly based on speed studies. Reinforce the speed limit by using larger speed limit signs, especially where speed zones change.

Provide proper signs at intersections: DO NOT ENTER signs for divided roadways and one ways. Make sure that mandatory turn lanes are signed in advance with LEFT/RIGHT LANE MUST TURN LEFT/RIGHT, or use the R 3-8 lane sign.

Pavement marking

Use markings to improve guidance, especially at intersections. Add turn lane markings, edge-lines, stop bars, crosswalk markings, and other special markings. For example, if there is a turn lane on a curve, add dotted extension lines. Provide stop bars where there are pedestrians or where it is not clear where to stop for good sight lines.

Most of these sign and marking changes are lower cost improvements, but they still can significantly improve safety for drivers.

Curb ramp warning fields: check design and installation

**DETECTABLE WARNING FIELDS** are required on all new and rebuilt curb ramps. These bumpy patches of flat-topped domes are installed at curb cuts so blind pedestrians can tell when they are about to enter a street. The fields are required under the 1991 Americans with Disabilities Act (ADA).

With guidelines relatively new and still evolving, installation mistakes are fairly common. Construction supervisors should carefully check direction, setback, elevation, and cross slope.

“I see a lot of misalignment and faulty installations. One of the big failures is the cross slope of the ramp exceeding 2%,“ says Peter Kemp, New products/New methods Engineer with WisDOT’s Bureau of Technical Services.

**Warning fields should align to the direction of pedestrian travel on the curb ramp.**

Warning fields should align to the direction of pedestrian travel on the curb ramp. This placement takes precedence, even when the crosswalk has a different direction. Skewed placement can make it hard for wheel chairs to get across the grid of domes. The dome pattern has to line up directly with the ramp opening so wheels run smoothly up and down the ramp.

Blind pedestrians do not use grid pattern alignment for wayfinding. They are trained to use the location of the curb cut and other cues on or around the ramp for wayfinding. They use the bumpy surface of detectable warning fields as a cue that a transition from a pedestrian area to a vehicular area is imminent.

continues on page 8
Setback is also a problem. Warning fields are to be installed 6-8" inches from the face of the curb or the flowline, generally at the back of curb. Ramps on a radius can be confusing. Align the field with travel direction, place its leading edge within the required offset. The field’s other curb-side corner will have a variable offset distance depending on the radius of the curb.

Do not place utility covers in the ramp and make sure the full width is protected, as ADA Guidelines require. WisDOT specifies that cuts wider than five feet need a detectable warning field that is wider than the standard four foot insert.

Keep the base of the warning fields at the same elevation as the surrounding concrete. Fields need to be set flush to allow for drainage and to prevent a tripping hazard or an obstacle to wheel chairs and walkers. The maximum allowable change in elevation without either a taper or a ramp for a pedestrian walkway is 1/4" under the ADA Guidelines.

Cross slopes of more than 2% are also common. Ramp cross slope is ultimately determined in construction by the curb installation, so the string line setter and the finisher making the curb cut are responsible for preserving the 2% slope.

On hills where the road grade is changing, it might be hard to meet the 2% requirement during construction. It should be addressed when the intersection is designed. Layout can be modified to compensate for the grade.

“You’re allowed some leeway in mid-block crossings, but at an intersection the slope should not exceed 2%, especially in new construction. That guideline has been in effect for years,” says Kemp.

Detectable warning fields on curb ramps help blind pedestrians, but a bad installation can mislead them, create a tripping hazard for all pedestrians, and get in the way of wheel chairs. Help everybody out. Take time during construction to prevent these common problems.


Standard specifications for curb ramps and warning fields are in the WisDOT Facilities Development Manual, section 11-25-30.

Manuals are accessible at www.dot.wisconsin.gov/library/publications/format/manuals.htm

Approved vendors and types of warning fields are on the Product Acceptability List at: www.infosite4u.com

Copies of the ADA and proposed Public ROW Guidelines are available at www.access-board.gov
Permits, requirements, and pressure

An access ordinance should define permits; set criteria for spacing, location, design, and construction; and establish penalties and enforcement powers. Permits are an early warning system. They help you prevent a problem before it gets built. Requiring changes later is costly and difficult. Also, work with other departments to ensure that you review access when the maps or zoning requests first come in.

The permit process lets you check the site and talk with the owner about potential problems. It is important to do this quickly. In St. Croix County the highway department staff try to make a personal visit within 48 hours of getting the permit request.

“People requesting a driveway permit often don’t know what they really want or need,” says Jeff Durkee, P.E., St. Croix County Highway Engineer. “A site visit is imperative, and talking with the owner we can say: ‘You’ll have lots of troubles if you put the driveway here.’” He can explain sight distances and other safety concerns and point out problems like low spots in the driveway path.

Design and construction specs in the ordinance help keep the right of ways safe, assure emergency vehicle access to the buildings, and manage drainage. The Winnebago County ordinance, for example, prohibits concrete or rock piles around culverts and requires driveway side slopes to be 4:1 with vegetation only. Driveway surfaces must be at least 24’ wide, and the approach at the road must slope to direct runoff away from the roadway.

Permit requirements and specs also help manage existing driveways. Under the Winnebago County ordinance, any upgrade, even blacktopping, must conform. Unsafe changes, like piling rock around the culvert ends, are prohibited. If the landowner doesn’t remove the hazard, the highway department will do it and bill the owner.

Political pressure can be a problem when a landowner is unhappy. The antidote is a comprehensive access ordinance and strong, informed support from the elected officials.

“The ordinance puts the decision into the administrative staff’s realm,” says Haese. “It benefits the entire community instead of one or two individuals. After all, that’s what government is all about.”

Looking at current access ordinances used by other municipalities can help in preparing your own. For copies of county ordinances you can contact Winnebago County at: 920-232-1700 or St. Croix County Highway Department at 715-796-2227.

There is an ordinance example for towns with village powers online at: www.legis.state.wi.us/rsb/townlaw/townlaw_forms/66.0425%2086.07%20driveway.htm


Reduced roadway speeds

A research synthesis found that roadway speeds were reduced an average of 2.5 MPH for every 10 access points per mile, up to a maximum of a 10 MPH reduction (at 40 access points per mile), according to Benefits of Access Management, a brochure by the FHWA Office of Operations—Office of Travel Management. http://ops.fhwa.dot.gov/access_mgmt/docs/benefits_am_trifold.htm
IN A RULING announced this spring, the state Court of Appeals agreed that the Town of Pittsfield rightfully rejected the lowest bid on a repair project. DMK Inc., the low bidder at $538,600, had sued the town for damages of $216,000 for lost profits.

At the bid review meeting, Town Board members discussed their concerns about DMK’s poor performance on prior contracts. They decided to award the contract to others.

“The case reinforces what I think was the law,” says Rick Stadelman, Executive Director of the Wis. Towns Association. “The trial court and Court of Appeals upheld that the town has a right to make a finding that DMK was not a responsible bidder.”

Good bid documents, which helped the town in this lawsuit, are very useful. They eliminate confusion, make it easier to compare bids after they are opened, help ensure you get the lowest prices, and protect your right to ensure quality work.

Wisconsin municipalities are required to use the bidding process and award to the lowest bidder for local road projects over $25,000. (The minimum was raised by the Legislature in May 2006.) While meeting this requirement does take time and effort, the benefits are substantial. To help out, the TIC has prepared sample bid documents for local road projects.

The TIC samples walk you through the decisions you need to make and use WisDOT specifications familiar to most local contractors. You need to describe your project and determine the details of where and when you want the work completed. Be sure the documents say that you reserve the right to reject the lowest bid if the bidder is not considered responsible.

Schedule enough time to handle potential issues that may arise. It is a good idea to leave at least two weeks after the bid opening before you must make the award. Put those dates in the bid documents before you send them out.

As a public road agency you have the right and obligation to select contractors who will provide quality work. You may also reject bids that are not “responsive”—that add or delete items from those you requested be bid. Using a different sealcoat than specified is an example.

After opening bids, be careful in your deliberations and decision. If you decide to change the project, based on an alternate bid, for example, then you should re-bid it so all bidders can provide prices on the revised project.

If you decide the lowest bidder is not responsible, you must formally

PICTURE: A public road agency you have the right and obligation to select contractors who will provide quality work.

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**Publications**

Gravel Roads Maintenance and Design Manual (FHWA/South Dakota LTAP April 2005) is available from TIC. This manual is a practical guide for building and maintaining gravel roads. You can view pages at www.ltapt2.org/gravel/gravelroads.htm or download from www.epa.gov/owow/gravel.pdf

How To Keep Beavers from Plugging Culverts (USDA Forest Service, November 2005, 0577-2830-MTDC) is available from TIC.

Trenching & Tunneling Near Trees—A Field Pocket Guide for Qualified Utility Workers, Dr. James R. Fazio, The National Arbor Day Foundation. A practical, pocket-sized guide that shows how to minimize tree damage for projects that involve trenching or boring. If you dig around trees you should have this guide in your pocket.

**TIC publications (in print or on web site)**

Gravel-PASER Manual, Pavement Surface Evaluation and Rating is intended to help you plan the maintenance and overall management of gravel roads. It discusses common problems and typical repairs and includes a simple system for evaluating conditions and rating roads.

**Dust Control on Unpaved Roads**, No. 13 discusses where and when to use dust control and provides information on materials for dust control and proper application procedures. Also on TIC web site.

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**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, CDs, DVDs and other media 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/
Court extends protection

An important new precedent in this case is what the court decided about the contractor's remedy. They rejected the demand for lost profits. They said that the contractor must first apply for an injunction to keep the town from awarding the contracts to other bidders. They also determined that the damages would be limited to the cost of doing the bidding.

“This is good for towns because it means they won't end up paying double — both to the contractor that does the work and to a rejected contractor that sues later for lost profits,” Stadelman says.

DMK petitioned the Wisconsin Supreme Court to review the case. On May 11, the Court denied the petition. This means that the Court of Appeals decision will stand as reported.
TIC Workshops
Details, locations and registration forms are sent to the CROSSROADS mailing list before each workshop. Or get additional workshop information and register by calling 800-462-0876 or going online at http://tic.engr.wisc.edu/enroll.html

Winter Road Maintenance
The Winter Road Maintenance workshop offers practical information and procedures for snow and ice control on local roads. Workshop 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

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, nearby communities, and businesses you contract with. The TIC offers the following on-site 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

Other opportunities
The APWA Wisconsin 2006 Snow Plow Rodeo and related events will be held September 19-20 at Lambeau Field in Green Bay. Send your best team to compete against the top drivers from around the state. For applications and registration contact:
Mark Hochschild, 414-761-5372
Email: mark_h@ci.greenfield.wi.us

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

AUGUST 2006
8-9 Soil Engineering for Roads and Pavements

SEPTEMBER 2006
11-12 Introductory Principles of Engineering Project Management
12-13 Solving Neighborhood Traffic Problems
13-14 Management Skills for Engineering Capital Projects
14-15 Traffic Engineering Fundamentals
25-26 Managing Snow and Ice Control Operations

NOVEMBER 2006
8-9 Soil Engineering for Non-Soils Engineers and Technicians