

# Crossroads

Spring 1995



TRANSPORTATION Information Center

University of Wisconsin-Madison

## Good managers get a better job done

"Working with people is not a skill most people have. And, in general, nobody cares how you supervise as long as you get the job done," says Donald Huffmire, PhD, associate professor of management at the University of Connecticut. Yet, when Ford Motor Company made quality, teamwork and employee involvement priorities—three essentials of good management according to Huffmire—it turned the company around and they began taking market share from General Motors.

You can measure good management, Huffmire says, in increased productivity and better performance.

**Huffmire will be teaching management for local road supervisors at the spring T.I.C. workshops April 19–May 19 around the state.** His program and handbook, *Successful Supervision for Local Road Supervisors*, focus on the specific problems and techniques of managing road crews and local road systems. His presentations in Michigan, Massachusetts, Alabama and other states have received high praise from local officials.

**Make quality and service top priorities.** The top job of a manager is to prioritize quality and service to the public. "When you go out to fix a pothole or repair a fence, do it right the first time or you'll waste time going out and working on it again," Huffmire says. You should also make sure you interact favorably with the public and provide them with quality service.

**Involve everybody and develop teamwork.** Autocratic management, where decisions are made in isolation and dictated from the top, causes problems. These include poor morale, lower productivity, absenteeism, lower job satisfaction, tardiness, arguing, and conflict. When you emphasize teamwork and involve the rank and file in setting priorities, developing objectives, solving problems, and making decisions, many of those problems disappear. People also want, and can handle, more authority for making decisions on their own.

Cross-training helps improve performance, Huffmire says. It motivates workers because they like to do different jobs and improves productivity because you can cover jobs when someone takes time off or leaves.

**Recognize and reward performance.** Most supervi-



sors don't give nearly enough recognition for good performance, according to Huffmire, partly because appraising performance is difficult. To do it, you and the worker need to agree on clear, short-term, achievable performance objectives and on how they'll be measured. You need to check on how the work is going. And the supervisor needs to help the worker do the job well—by providing training, proper equipment and supplies,

*Continued on page 3*

### ► T.I.C. updates *Crossroads* list

We mail *Crossroads* and workshop announcements to over 4000 people. Some of you may no longer want to receive our mailings. When we send you our mailing list inquiry, please let us know if we should take your name off the list. Thank you.

## Inside

<b>Idea Exchange: Free poster sign;</b>	
<b>Computerized sign systems</b> .....	2
<b>Interactive video, new training tool</b> .....	3
<b>Bad drainage can kill your roads</b> .....	4
<b>Roadware has varied uses, benefits</b> .....	6
<b>How's your Metric-Q?</b> .....	8

## Idea Exchange

### Computerized sign systems

Tracking your signs for inventory, condition, and repair can be a challenge. Municipalities are responsible for hundreds and thousands of signs, and any one damaged or missing sign can potentially contribute to a crash or become part of a liability suit.

Buffalo County recently received a state DOT Highway Safety Grant which paid for about half of the cost of establishing a computerized sign inventory. They hired a commercial vendor to set up the software and used highway employees to create the initial inventory.

The sign worker can now get a computer print out of all the signs along a stretch of road. He uses the listing to stock his truck with each sign in order according to the direction he will take. As each sign is checked or replaced, the sign worker marks a check-off inventory and service form. The data is entered later by a clerical worker, keeping the county's sign inventory up to date.

"All I was looking for was something we could keep current," says Highway Commissioner Dave Brevick, "and we got so much more."

The text-based system runs on an IBM-PC-type 486 computer and the software cost about \$1500 installed. The vendor also fixed some program bugs and provided some updates. It took two highway department employees a total of 50 work days to do a physical inventory of the county's 6120 signs. Data entry took one office employee 35 work days to complete.

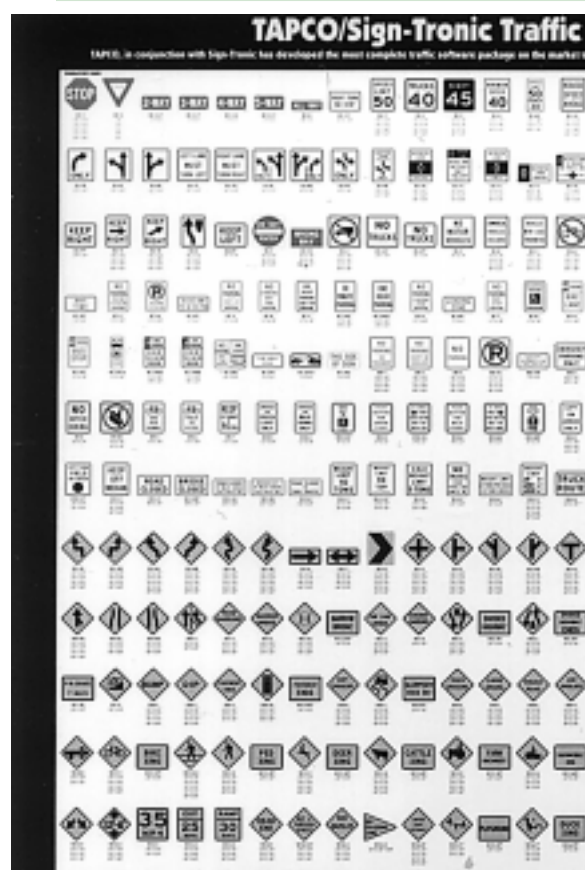
"It took more time than I thought it would to do the input and set up the information," says Brevick, "but revision and updates have been a lot easier. Sign department workers have received the system very well." They hope to use data from the system next year to try to reduce sign vandalism by publicizing the costs to the county.

*For information about the Buffalo County computer-based sign system, contact David Brevick at 608/685-6226.*

*The **McTrans** catalog lists three computer programs for sign inventories: Sign Inventory System, SIGNS^3, and Traffic Operations System Software (TOSS), a "total traffic operations management systems tool" of 10 modules one of which is Sign Inventory. Other paper-based and video-based systems are also available.*

***McTrans** is a software distribution and user support center established by the FHWA at the University of Florida Transportation Research Center. You can reach them by phone: 800/226-1013 (24-hour message hotline) or 904/392-0378; by FAX at 904/392-3224; or on their 24-hour electronic bulletin board 904/392-3225. A quarterly newsletter and annual print catalog are available free.*

### Free MUTCD sign poster



*Upper quadrant of poster.*

*A full-color poster showing every sign in the MUTCD is available free from TAPCO, Traffic & Parking Control Company, in Wauwatosa. The 30 x 48 inch poster was created as a quick reference guide to illustrate all the traffic signs included in their Sign-Perfect Traffic Signmaking system. You can receive a poster by writing to SIGN-PERFECT™, Traffic & Parking Control Company, Inc., 120 North 120th St., Wauwatosa, WI 53226-3994, or call 800/236-0112.*

### Crossroads

A newsletter providing information on roads and bridges to local officials, published quarterly by the Transportation Information Center, located at the UW-Madison, Dept. of Engineering Professional Development, 432 N. Lake St., Madison, WI 53706. Phone: 800/442-4615. Fax: 608/263-3160.

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# Interactive video, new training tool

People have said it for years: why not use video game technology for teaching? Well, it has finally arrived. Streets and highway workers can learn about construction zone signing and about controlling snow and ice through interactive video. The T.I.C. now has interactive compact disk (CD-I) players and disks available to loan to Wisconsin municipalities.

"Other states have given these courses excellent reviews," says Steve Pudloski of the T.I.C. "We are inviting local streets and highway agencies to try them out."

There are two courses now available on CD-I: Traffic Control in Construction Work Zones and Snow and Ice Control. The Traffic Control course has three teaching modules, two instructional ones and a self test. The first, Highway 101, presents a plan view and photo simulation of closing one lane of a two-lane highway. The student uses a hand held controller like a simple TV remote control to point to each sign emplacement on the road. A voice and words on the screen explain what is needed and why.

The second module, Highway 201, uses similar techniques to introduce a four-lane divided highway with two lanes closed and a crossover. The third module is a self test. Right answers are reinforced and incorrect answers are explained by a voice and visuals. The whole course takes about 45 minutes on average to complete.

Over 1000 users at ten T<sup>2</sup> centers around the country have evaluated these courses. Tests showed that CD-I is an effective training method and users rated them positively. Reasons for liking the method involved being able to go at their own pace, getting immediate feedback and being able to interact with the program. Users appreciated the explanations given by the program and found the CD-I easy to use. Research reports from Wyoming and Pennsylvania found the programs most effective in introducing new employees to the topics or as a refresher for current employees.

"We're inviting people to help us pilot test CD-I in Wisconsin in the next six months," says Pudloski. If the pilot program is successful, the CD-I disks and players will become part of the T.I.C. Video Library. If you are interested in the pilot testing program, the T.I.C. asks you to be responsible for:

1. Pretesting employees
2. Providing a site, a TV screen or video monitor, and enough time for the training
3. Administering a post test and evaluation form to employees
4. Paying the return shipping costs
5. Your management evaluation of the CD-I training experience



**Steve Pudloski demonstrates the T.I.C.'s new Compact Disk-Interactive video training course.**

"Training in general promotes increased efficiency, greater safety, and a more satisfied workforce. This exciting new tool makes training easier," says Pudloski.

*To find out more about being a pilot test site for CD-I training, contact Steve Pudloski at 608/262-8707. A video tape of the satellite course demonstrating CD-I is also available.*

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## Good managers

*continued from page 1*

for example. "The supervisor should be trying to help people do a better job," says Huffmire.

Supervisors' performance should also be reviewed. "Upward appraisals are very useful," he says. Managers should be recognized for doing a good job and told when they are not, and who better to do that than the people they manage.

**Manage conflict effectively.** Ignoring conflict is no good, according to Huffmire, yet most managers don't know how to resolve problems between workers. "You have to get them together, get all parties listening to each other, and help them work out an acceptable solution."

**Plan for the short and long range.** Planning reduces costs. Every hour spent in planning will save 3-4 hours in getting the job done, Huffmire says. Instead of letting crises or politics dictate what you do, decide in advance what is to be done, how, by whom, where, and when. Include all employees in setting objectives, developing a budget, and determining schedules.

Other topics include responding to complaints from employees and the public; handling alcohol, drug and emotional problems; and working with elected officials.

*These are just some of the basics Huffmire will cover in his T.I.C. workshops. Look for the flyer coming in mid-March. If you aren't a Crossroads recipient, use the form on page 7 to request one or call 800/442-4615.*

## Bad drainage can kill your roads



*This road looked fine, but there was trouble brewing underground. Water travelling outside the culvert opened a six-foot high cave under the pavement that the soil had bridged until this last pass.*

**E**ngineers estimate that at least 90 percent of a road's problems are caused by water. The top three ways to preserve your roads' strength and extend their life are:

1. Drainage
2. *Drainage*
3. **Drainage**

**Why?** Water weakens base materials. They shift under loads, causing damage to the surface. Water in pavement causes cracking and potholes. Yet, because most drainage systems are underground, they are often neglected. Make sure you are getting water away from the road by inspecting and maintaining your culverts, ditches and storm sewers.

**When?** Inspect culverts and open drainage systems every spring and fall. Inspect and clean catch basins every year and inspect storm sewers before any road work. You can use the WisDOT inventory form for culverts. Most communities will have to hire a contractor with a camera setup to inspect storm sewers.

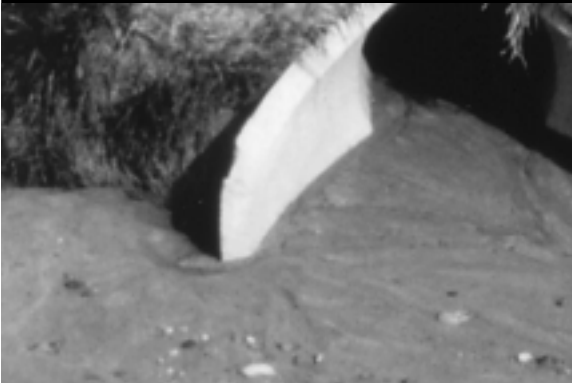
Inspect drainage systems one to two years before any road or utility improvements are planned. This allows you to correct drainage problems as part of the work and ensures that new work won't be ruined by old water problems.

**What?** Look at the road, the waterway, the ends, and the barrel. Keep an inventory with ID number, location, type, age, description, and repair history. With closed systems also look at inlets, manholes, catch basins, and outfalls. Water running through storm sewers during dry weather can mean an illegal sanitary sewer connection or a nearby water main or service leak.





*The road has been patched, but the real problem is a failing culvert.*



*Erosion has half-filled this culvert end with soil and is scouring away supporting soil alongside.*



*Water running outside a culvert washed away soil, weakening support for the culvert and the road.*



*Poor support on the sides of this culvert allowed overhead loads to crack it.*

**Road.** Any change at all?  
A sag? Transverse or other cracks?  
Sideslope failure? Excessive patching?

**Waterway.** Any scouring at the end of the pipe? In-filling in the pipe or at its end? Catching of debris? Is the culvert still lined up right? What about high water marks and changes in the drainage area? Is the culvert still the right size? Is there standing water in the culvert or ditches?

**Ends.** Have they moved? Settled? Cracked? Has the water undermined them? Scoured into the streambed? Seeped along the outside? Created holes by removing soil? Are headwalls sound?

**Barrel.** Flexible pipe: Has the shape changed? (Measure and replace if it has deformed more than allowed by WisDOT or manufacturer standards.) Rigid pipe: Are joints and seams sealed? Is there pitting? Cracking? Spalling?

*Culvert inspection was covered in the T.I.C.*

**Drainage Maintenance** workshops held last December. A few copies of the workshop materials, including the WisDOT culvert inspection form, are still available. Call the T.I.C. at 800/442-4615, or write or fax using the form on page 7.

Some of this information comes from **How to Inspect Your Culverts**, published by the **Vermont Local Roads News**, June 1993.

#### **METRIC ANSWERS**

*(From page 8)*

- 1) kilogram, kg
- 2) hectare, ha
- 3) newton, N
- 4) pascal, Pa

- 1) 115.2 mm
- 2) 2.65 L
- 3) 10 000 kg

(Because other countries use a comma where we use a decimal point, the new standard is to use spaces to separate groups of three digits in large numbers.)

- 4) 0.4525 m or 452.5 mm

(The WisDOT standard is to use meters and millimeters, not centimeters.)

## Roadware has varied uses, benefits

Local streets and highway officials, from County Highway Commissioners to newly elected town supervisors, find *Roadware* and the *PASER* Pavement Surface Evaluation and Rating system very helpful. Over 450 people learned about them at the one-day October–November T.I.C. workshops on **Managing Local Road Pavements**, and there are 150 new users who have adopted the systems.

### Getting started

Installing *Roadware* and reading in WisDOT's basic highway inventory files is pretty easy, says Craig Galhouse, Town Supervisor, Town of New Glarus. "The training class was very helpful," he says. "Anybody who can do data entry could load it and get the data on the computer. That's worth having the software by itself."

Rating the roads using *PASER* took a little more time. Galhouse, the road patrolman and another supervisor rated a mile stretch of road and then compared notes. "Our road patrolman had a better eye for the individual defects," he says. (Doing a visual survey of road conditions and entering the data into the program are key components.)

They are modifying the files to work better for them, says Galhouse. For example, some road problem areas didn't line up with the WisDOT sections, so they have divided some sections and combined others. Galhouse has also added maps by scanning each road from township maps into a WordPerfect file, then copying the *Roadware* information into the file. "Having the image is really nice," he says.

They started rating roads in October 1994, but the system has been useful already. *Roadware*'s "what if" scenarios helped convince the town board to require that all new roads must have a permanent surface before being accepted from a developer. "We looked at the cost of maintenance in five years for a double seal coated road versus a paved road. We showed that the town would start incurring yearly maintenance costs in five years, where if the developer paved it we wouldn't have to do any maintenance for 15 years."

Galhouse expects to use *Roadware* reports for presentations at the April Town Electors meeting, in making maintenance plans, in applying for grants, and in passing on information to newly elected supervisors.

*Continued on page 7*

## Resources

*All items are available from the T.I.C. unless otherwise noted. To get your copy, call 800/4424615 or use the form on page 7.*

### **A Summary of the FHWA Contract Administration Techniques for Quality Enhancement Study Tour (CATQUEST), FHWA-PL-95-019, June 1994, 36 pp.**

This booklet summarizes the observations, conclusions, and recommendations of the FHWA study team that toured Germany, France, Austria, and Spain in fall 1993. Key areas that resulted in high-quality roadways included contractor and owner commitments to quality and testing, excellent preventive maintenance, staged construction and a strong pavement base, use of life-cycle cost goals, and a sound level of highway investment.

### **Speed Humps Successfully Launch Gwinnett DOT Program, Georgia Roads, May 1994, 2 pp.**

This reprint of an article describes Gwinnett County's pilot test and subsequent use of speed humps to control speed on local streets. Also summarizes the Institute of Transportation Engineers (ITE) guidelines for using speed humps and the typical sections of those used by Gwinnett County.

### **Using Shredded Waste Tires as a Lightweight Fill Material for Road Subgrades, MinnDOT Report 94-10, April 1994, 26 pp.**

Minnesota began using shredded tires as a lightweight fill material in 1985 on logging roads through areas with weak soils. The main features of this study are the seven case

studies, that include a discussion of the cross section, construction methods, and a performance evaluation at each of the seven locations and the environmental studies that were done in Minnesota and Wisconsin on the use of shredded tires as lightweight fill.

### **A User's Guide to Guardrail Warrants for Low Volume Roads, Chapter 3, Warranting Process, from an unpublished report for NCHRP, 34 pp.**

This chapter helps you decide when to use roadside guardrail on low volume roads and what kind of guardrail to use. The decision process answers the questions: Is there a hazard? What are the alternatives to reduce the risk? What is the best alternative?

### **Video tapes**

The T.I.C. Videotape Lending Library has over 200 videotapes. You can borrow these tapes through your county Extension office. Your only cost is the postage to return the tape. Recent additions to the Library include:

#### **SI Metric For The Workplace (Workplace Training)**

**Lesson 1** (#17710, 15 min.) Gives brief history of the metric system and compares English and metric units. Emphasizes the simplicity of using metric measurement.

**Lesson 2** (#17711, 16 min.) Defines seven basic metric units. Describes and applies some and offers seven common conversion factors. **Lesson 3** (#17712, 18 min.) Introduces basic reading and writing in metric including proper use of upper and lower case letters in identifying metric units.

### Helping staff and elected officials

Rating roads helped bring Sun Prairie's public works and maintenance staffs together, while the rating results persuaded the Vernon County Board to invest in preserving their road system.

"It helped get their heads thinking in the same direction," says Sun Prairie Assistant City Engineer Dan Kaler, "and we ended up with a more well-rounded score for our roads." Kaler works with two departments: engineers who do designs and public works people who do treatments. When he started using PASER, Kaler sent them out to rate the roads independently. Then they compared notes and worked out a compromise on the rating. The Director of Public Works and the City Engineer randomly selected 10 percent of the rated roads to verify the ratings.

"Once we had the scores, we did a tour with the aldermen and showed them what we were going to do," says Kaler. "PASER is a good tool for educating the alders about the need for money for our roads," he says. One strategy he is using is to do maintenance, mostly sealcoats, on streets that are about to deteriorate into a condition that is more expensive to repair.

Bill Stahl had been warning the Vernon County Board about their deteriorating road system for years — unsuccessfully. In 1992 he hired consultants to evaluate the county's 300 miles of roads, using the PASER system. That fall they reported that the county had 117 miles of road that were ranked 4 or below (needing structural improvement).



**Sealcoats are keeping some Sun Prairie streets from getting worse. Roadware helps select the streets and shows the payoffs.**

"It proved that we have troubles out there," says Stahl. "I got an additional half-million dollars for work in 1994." The highway department has installed *Roadware* and integrated the consultant's ratings into it. They have also updated the files to include the work done in 1993 and 1994. The files will be helpful to Vernon County's new Highway Commissioner since Stahl retired in January.

*For information about **Roadware** and copies of the **PASER** manuals, contact the T.I.C. Use the form on page 7, or call 800/442-4615. See also the article "Roadware helps with pavement management and planning" in the Fall 1994 issue of **Crossroads**.*

## Reader Response

If you have a comment on a **Crossroads** story, a question about roadways or equipment, an item for the *Idea Exchange*, a request for workshop information or resources, or a name for our mailing list, fill in this form and mail *in an envelope* to:

### Crossroads

Transportation Information Center  
University of Wisconsin-Madison FAX 608/263-3160  
432 North Lake Street  
Madison, WI 53706

- ☐ Please put me on your **Crossroads** mailing list.
- ☐ My idea, comment or question is \_\_\_\_\_

☐ Please send me information on \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Name \_\_\_\_\_

Title/Agency \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_

Zip \_\_\_\_\_ Phone ( ) \_\_\_\_\_

(We'll call you to get more details or answer your question.)

## How's your Metric-Q?

The move to metric in highway design and construction is going smoothly, says Ron Nohr, WisDOT Metric Coordinator. In 1996 the state will have four or five pilot projects with metric specs so some contractors can begin working in metric. "Things have settled down to pretty much routine," says Nohr.

The state is negotiating with FHWA to carry over some existing English projects into 1997-98. While sign conversion has been delayed, the federal requirements for moving to metric in other areas are all still in place. They apply also to local units of government if their projects use federal funds.

Designers and supervisors/managers are being trained in metric as WisDOT district offices start using it for project designs. "We have a workshop where they work through examples of metric problems," says Bill Bertrand of District 3. "The hands-on activities are the most well-received portion of the training." Three brief videos introduce the material, then participants work on engineering, real estate or administrative problems. A 9-page summary of important changes in the *Facilities Development Manual* is particularly well-received, Bertrand says.

The three metric training videos, *SI Metric for the Workplace*, can be borrowed from County Extension Offices (for descriptions, see **Resources** page 6). Copies of District 3's training packet are available from the T.I.C. Please use the form on page 7 or call 800/442-4615 to order. WisDOT has a listing of metric publications available. Call Shelly Carney at 608/267-0763. She can also put you on the mailing list for the department's quarterly **Metric Conversion Fact Sheet**.

So, how's your metric-Q? Try your hand at this selection from the managers problem sheet:

**Please write the corresponding metric unit and abbreviation. (example: feet = meter, m)**

- |                           |       |
|---------------------------|-------|
| 1) pound                  | _____ |
| 2) acre                   | _____ |
| 3) pound force            | _____ |
| 4) pounds per square inch | _____ |

**Locate the errors in these values. There may be more than one per line. (example: 75 kn should be 75 kN)**

- |              |       |
|--------------|-------|
| 1) 115.2mm   | _____ |
| 2) 2.65 l    | _____ |
| 3) 10000 kg  | _____ |
| 4) 45,250 cm | _____ |

**Look for the answers and explanations on page 5.**

Address incorrect?  
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the correct information


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Crossroads is produced with assistance from the Federal Highway Administration, the Wisconsin Department of Transportation and UW-Extension

