

# TECHNOLOGY NEWS

*Transportation technology transfer for Iowa's local governments*

*roads / bridges / transit*

August–September

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## Wetlands and road construction: Like oil and water?

By working with people knowledgeable about the environment, transportation professionals can build necessary public works while preserving natural resources.



"I STILL THINK IT'S SAD to build a road through a marsh," says Polk County Conservation Board Director Ben

Van Gundy. With 20 years of experience in conservation in Iowa, including seven years as the director of the Wetlands for Iowa Program, Van Gundy's opinion carries weight.

He and the Iowa Department of Transportation (Iowa DOT) have been at the center of a controversial road construction project through Engeldinger Marsh that would widen Highway 65 to four lanes between Des Moines and Marshalltown.

Van Gundy has given his conditional recommendation to the Polk County Conservation Board to accept the Iowa DOT's plan to widen Highway 65 along its existing alignment. His recommendation is contingent on the results of a hydrologic survey.

There are several more state and federal requirements the project must meet before construction may begin (see the article on page 2).

### Mitigation package

The Iowa DOT is offering a mitigation package that Van Gundy believes will help protect the marsh in the long term.

Erosion in the watershed and the resulting sedimentation in the marsh has been the marsh's number one enemy, Van Gundy says, and would do more damage than the road construction in the long run.

The major part of the Iowa DOT's mitigation will be the purchase of at least 150 acres of watershed north of the marsh, says Ron Ridnour, an environmental specialist with the Iowa DOT. The Iowa DOT will transplant two acres of sedge meadow, coarse grass that grows in wet ground, to a degraded part of the marsh that's been filled in from soil

erosion farther up in the watershed. If the transplant is successful, there will be no net loss of sedge meadow.

Van Gundy says some people think the 10-acre sedge meadow is irreplaceable. Eighty percent of it will not be disturbed.

"At this point I believe it is a good trade-off," Van Gundy says. He is concerned that realigning the highway to curve along the edge of the marsh, an alternative proposal, would be more dangerous to the marsh in the long run than widening the existing road. The planned expansion "won't destroy as much as I thought," Van Gundy says.



Highway 65 passes the northwest edge of the pond in Engeldinger Marsh.

### Tricky environmental issues

Van Gundy has been criticized for his recommendation. He thinks people are just tired of losing environmental resources. He points out that Iowa has lost 98 percent of its wetlands.

The loss of wetlands has occurred over the last 160 years and is due mainly to agricultural draining but also to commercial and residential draining and road construction.

**WETLANDS . . . continued on page 2**

The preparation of this newsletter was financed through the Local Technical Assistance Program (LTAP). LTAP is a nationwide effort financed jointly in Iowa by the Federal Highway Administration and the Iowa Department of Transportation. Its purpose is to translate into understandable terms the latest state-of-the-art technologies in the areas of roads, bridges, and public transportation.

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## **WETLANDS . . . continued from page 1**

Wetlands are not thoroughly understood. Scientists know that wetlands can reduce flooding, control erosion, and improve water quality. They also provide habitat, often to endangered species.

Ridnour believes most people are conservationists to some extent, particularly about areas with obvious significance like Engeldinger Marsh.

Wetlands smaller than a couple of acres may seem insignificant. Yet considering that small wetlands, in addition to larger areas like the 12-acre wetland in Engeldinger Marsh, make up the remaining two percent of Iowa's total wetlands, insignificant becomes a relative term.

Good public works, Ridnour says, benefit the general public without undue harm to a natural resource. ■

## **Why you can't just build your road through wetlands: the approval process**

 THE POLK COUNTY Conservation Board's approval of the Highway 65 expansion project through Engeldinger Marsh is just the first step in a careful process designed to protect U.S. waters.

The U.S. Army Corps of Engineers (ACE) will eventually become involved with the Highway 65 project because part of the proposal includes dredging or filling waters of the United States, which the ACE protects.

The Iowa Department of Transportation (Iowa DOT) will submit an application for a permit to ACE and the Iowa Department of Natural Resources (DNR). ACE must evaluate the application under Section 404 of the Clean Water Act. The DNR checks for compliance with water quality and flood plain requirements under Section 401 of the Clean Water Act and with state flood plain regulations. If the DNR denies the application, the process stops.

If the Engeldinger Marsh segment of the Highway 65 project were minor enough, the ACE could

authorize it under a nationwide permit. Nationwide permits are for smaller projects and are designed to reduce the paper load and processing time.

The U.S. Army Corps of Engineers announced this year that some projects within wetlands that were previously authorized under the nationwide permits will require individual public interest reviews. Now to meet conditions of the most commonly used nationwide permit in Iowa (number 26), impacts to wetlands and other U.S. waters must be less than three acres and not adjacent to a stream flowing greater than five cubic feet per second.

Since the Engeldinger Marsh segment does not qualify for a nationwide permit, the ACE must conduct an individual public interest review for the project. A public notice describing the project will be sent to the media, adjacent landowners, and other concerned parties.

The public will have 30 days to comment on the proposed project. The public's comments will be sent to the applicant, the Iowa DOT. The applicant must then respond to the comments.

If the DNR approves the application for water quality and flood plain requirements, the ACE must ultimately decide if the project is in the public's best interest and allow it to go forward or deny the application. ■



An aerial view of Engeldinger Marsh. The light colored lines show the approximate "footprint" of the proposed expansion of Highway 65.

## Media and the environment



THE ENVIRONMENT can be a touchy subject, especially when the public thinks a governmental agency isn't protecting Iowa's precious natural resources. Making yourself available to the media to explain your agency's position in detail can help clarify misunderstandings.

It might also keep to a minimum editorials like this one in the *Ames Daily Tribune* about scrapped plans to build a state highway through the Loess Hills: "The new road was a dumb idea to begin with. . . . It's too bad the [Iowa Transportation C]ommission hasn't shown such good sense about widening a two-lane road to four lanes through the Engeldinger Marsh in northern Polk County."

The proposed expansion of Highway 65 through Engeldinger Marsh has received considerable attention from the news media. *The Des Moines Register* ran an editorial urging the Iowa Department of Transportation (Iowa DOT) to revise the expansion plans and skirt the edge of the marsh, which would double the cost of the project to \$2 million. According to the editorial, "It's worth it. Highway projects we can move. Marshes we can't."

That editorial appeared in the December 9, 1996 issue. Since early this year when Polk County Conservation Board Director Ben Van Gundy made his conditional recommendation to accept the Iowa DOT's proposed construction along the existing alignment, *The Register's* editorial board has remained silent on the issue.

Despite the bad press, Van Gundy continued to keep the media abreast of the facts. He was interviewed by a *Register* reporter about his recommendation on the Highway 65 expansion project, and a reporter was present when he made the recommendation to the Polk County Conservation Board in February. Van Gundy was satisfied with the reporter's account.

"Because this project is so controversial," Van Gundy says, "a press release [alone] wouldn't do any good." He uses press releases regularly, and summaries of board meetings are routinely sent to *The Register*.

Although you can't control what kind of news stories or editorials the media will publish or air, you can keep the media and the public informed through press releases and interviews. ■■■

## Summer is the time for ISTEA



THE INTERMODAL SURFACE TRANSPORTATION AND EFFICIENCY ACT (ISTEA) of 1991, which helped define the federal government's role in transportation in the post-interstate era, will expire on September 30, 1997. Congress is currently in the heat of negotiating the law's reauthorization package. Some changes sought in the proposed National Economic Crossroads Transportation Efficiency Act ("NEXTEA") include increasing the number of activities eligible for funding, revising the procedures for administering funds, and implementing new programs in transportation finance.

"America has reorganized itself in the past 20 years . . . to make our country more competitive. That doesn't work if you don't have a first-class transportation infrastructure," said Representative Thomas E. Petri (R-WI) in a May 1997 address to transportation scholars at Iowa State University. Petri chairs the House subcommittee on surface transportation and is a key player in the reauthorization debate.

Various interests are providing input for reauthorization via congressional hearings and committee meetings. The Iowa Department of Transportation (Iowa DOT) and the American Association of State Highway and Transportation Officials (AASHTO) are watching the bill's progress and offering input and feedback in its development.

The Iowa DOT's primary goals for the bill include investing the full amount of the fuel tax (that can be supported by the Highway Trust Fund) plus the 4.3 cents now going toward deficit reduction, streamlining ISTEA's delegation procedures by making it less prescriptive and allowing more state and local authority in addressing transportation needs, and retaining collaboration at the state and local level.

Iowa DOT Director and AASHTO President Darrel Rensink says that funding for transportation should be viewed as "an investment rather than a cost or expense. The general approach [to ISTEA] this time around should be how we can improve on what we have."

There is increasing awareness of the critical part transportation plays in economic efficiency and growth. With this bill, Rensink hopes to "gain more

**ISTA . . . continued on page 4**

### LTAP Advisory Committee

The people listed below help guide and direct the policies and activities of the Center for Transportation Research and Education's Local Technical Assistance Program (LTAP).

The committee meets at least annually. Representatives of rural and urban agencies and individuals concerned with the transfer of transportation technology in Iowa are welcome to attend advisory committee meetings.

Contact any of the advisory committee members to comment, make suggestions, or ask questions about any aspect of LTAP.

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**Iowa Department of Transportation**



Center for Transportation  
Research and Education

## Snow plowing goes high tech



A LOT OF SNOW PLOW OPERATORS are talking to themselves these days—because they're all alone in the cab.

With tight staffing budgets in many local transportation agencies, an increasing number of operators drive solo. And, as anyone who has done it knows, singlehandedly maneuvering a 25-ton truck and all its ancillary equipment in a snowstorm on snow-packed or ice-slicked roads is challenging, to say the least.

One way to ease the burden on operators while helping them work more efficiently and safely is to modify the snow plow truck itself. Last year the Iowa, Michigan, and Minnesota state departments of transportation sat down with people who operate and maintain snow plow trucks and asked them what would make their work easier and more effective. Then, based on the recommendations they heard, the DOTs embarked on a project to design, assemble, and test an advanced-technology highway maintenance vehicle.

Innovative approaches in design, construction, and even public and private collaboration have made this project one that promises significant benefits for road maintenance programs and their operators.

### Special technologies

For the prototype vehicle, each of the three DOTs provided a new, 25-ton snow plow truck equipped with underbody blade, front and wing plows, box for salt/sand, and state-of-the-art material application systems. Then the project team added some off-the-shelf technologies. A friction meter from Norway was added under the box and special temperature sensors from Oregon attached to the driver-side rearview mirror. These instruments collect detailed information about the roadway's friction and the air and pavement temperatures. On-board global positioning systems (GPS) equipment from Iowa was installed on the back of the cab to collect position data.

### ISTEA . . . continued from page 3

public input into system planning and programming." Often, public feedback adds a practicality to the technicality of transportation engineering.

Some World Wide Web sites devoted to ISTEA include:

- The U.S. Department of Transportation's page at <http://www.dot.gov/ost/govtaffairs/istea/>
- The Federal Highway Administration's page at <http://www.fhwa.dot.gov/reauthorization>
- The Congressional Record of the bill's proceedings at <http://thomas.loc.gov/home/r105query.html>

In addition, the Office of the Assistant Secretary for Policy can be contacted c/o Elizabeth Parker, Office of the Secretary, U.S. Department of Transportation, Washington, DC 20590. ■■■



It started as a wish list: the advanced technology maintenance vehicle. Photo courtesy of the Iowa DOT.

For this first phase of the project these data are relayed to the truck operator, via an on-board computer. This real-time information will take much of the guesswork out of operators' road maintenance decisions. In later phases the truck computer will automatically fine-tune the application of sand, salt brine, and chemicals according to the current road and weather conditions. Eventually the data collected by the on-board technologies will be relayed to the truck's base station, allowing agencies to respond quickly to weather changes, stranded vehicles, and other emergencies. When all the technology is in place, the real-time road condition data may also be made available to the public so travelers can make informed decisions about changing routes or postponing trips.

High-tech safety features have also been added to the prototype vehicles. Heavy, slow-moving snow plow trucks themselves can present a hazard to motorists in a snowstorm, but each prototype truck is specially equipped to reduce the danger.

High intensity, fiber optic warning lights, distributed in Iowa and installed above the cab, will penetrate a greater distance in blowing snow and fog. A unique engine power booster using an alcohol-based fuel system, manufactured in Iowa and tucked into free space behind the truck cab, will give the truck extra horsepower for accelerating quickly into traffic, reducing the need for motorists to brake on slippery roads. A 900-gallon brine tank (compared to 100 gallons or less on older plows) will allow operators to cover more miles before stopping to reload. And three special sensors, manufactured in Canada, will warn the operator and automatically apply the brakes if the truck is backing up when a car or other object is behind the truck (see photos on page 6).

### Designing with the user in mind

A unique aspect of this project has been the active involvement in the vehicle's design of the eventual "consumers"—a bottom-up approach. At five focus group meetings in the three states, snow plow operators, mechanics, and highway maintenance supervisors—the vehicle end users—identified approximately 600

features they would like in the ideal snow plow truck. Participants were encouraged to dream, and their wishes ranged from hovercraft units that don't touch the roadway, to systems for monitoring operators' vital signs, to automatic washing systems to prevent vehicle corrosion.

The features identified at the five meetings were later incorporated into a database and categorized (administrative, pre-operative, post-operative, and at-rest features; features pertaining to infrastructure and roadway systems). Similar features were combined and then prioritized. Then the private sector was called on to provide existing, off-the-shelf technologies—as is or modified for the snow plow truck—that match features the users asked for.

#### Private sector partners

The involvement of vendors from the private sector was a critical aspect of this project. The contributions of vendors not only made the prototype vehicles possible but also opened avenues for eventual private production of additional vehicles.

To solicit the involvement of private enterprise, over 200 potential partners, including maintenance engineers and research engineers from all the Snowbelt state DOTs, were invited to a workshop in which the project was introduced, progress to date described, and commitments for technology, equipment, and vehicle assembly solicited.

Initially 10 vendors committed to provide technology for the prototype vehicles, and more have since asked to participate. Add-on technologies are being provided by companies in Canada, Norway, and several states, including Iowa.

#### Testing the power booster

The Iowa prototype truck was tested in Des Moines on June 23 and 24, 1997. The tests focused on the engine power booster and increasing power on demand.

"When we were in the focus groups, one of the things operators said they needed was extra power, but only at certain times," says Lee Smithson, deputy director of maintenance at the Iowa DOT. "One of the Iowa manufacturers said they could provide that capability through a new type of injector and manifold and with a booster fuel mixture of alcohol and water."

The prototype truck was placed on a dynamometer and tested at three stages: first without any alteration to the truck, second with the installation of the new supplemental injectors and manifold but using only diesel fuel, and finally with the new parts and the alcohol/water mixture. The tests with the new parts and fuel mixture resulted in not only an

increase in engine horsepower but a drop in the exhaust gas temperature as well.

Smithson says similar testing is anticipated for the other two prototype vehicles. The tests that will show the most significant potential for the trucks, however, will be those conducted on their wheel horsepower. This is power as it is processed throughout a running vehicle, beginning with the engine and concluding at the wheels: the true, useable measure of how a truck moves. It is predicted that wheel horsepower of the specially-equipped trucks will demonstrate a 10 percent increase from a vehicle with a standard injector and fuel system.

"When you apply the gas, you don't expect the vehicle to jump out from under you like a muscle car," Smithson says. "So measuring the wheel horsepower on the dynamometer is the real test."

In the winter of 1997–98, the prototype vehicles (with some modifications) will be thoroughly tested and evaluated. Some of the new technologies have never been subjected to the harsh environment of snow and ice removal. One goal of the prototypes is to identify technology or equipment failures caused by the environment and make modifications to ensure future reliability.

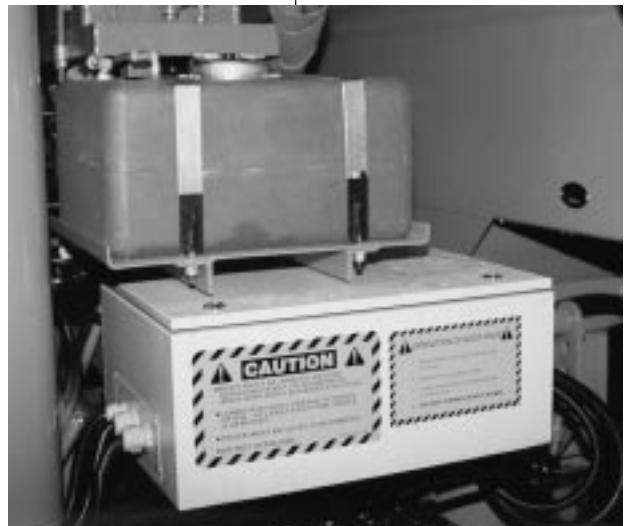
A report covering the testing and evaluation of the prototype vehicles will be issued in 1998.

#### Bottom line

The initial design phase of the project was funded by the three state DOTs, and the project partners are securing funds for the second phase of the project: developing, testing, and evaluating the prototype vehicles. A lump sum has been secured from the Federal Highway Administration's regional and national Priority Technology Program; the balance will be covered under a pooled-fund study. Invitations to participate in the pooled-fund study are being forwarded to all Snowbelt DOTs this year.

For more information about the project, contact Duane Smith, CTRE's associate director of outreach, 515-294-8103 (e-mail: desmith@iastate.edu).

The engine power booster and alternative tank automatically introduces a water/alcohol lubricant blend fuel additive into the engine injectors for extra horsepower when needed.  
*Photo courtesy the Iowa DOT.*





high intensity warning lights  
Tri-State Signing  
Ontario, Canada



reverse obstacle sensors  
Global Sensor Systems  
Ontario Canada



global positioning system  
Rockwell International  
Cedar Rapids, Iowa



Iowa's prototype truck  
O'Halloran International Inc.,  
Des Moines, Iowa (truck vendor);  
Bristol Company, Broomfield,  
Colorado (material applicator)

Photos courtesy the Iowa DOT.



high-intensity warning lights  
Tri-State Signing  
New Hampton, Iowa



pavement friction measuring device  
Roadware Corporation  
Ontario Canada  
and  
Norsemeter Company  
Rud, Norway



air/pavement temperature  
sensor  
Sprague Company  
Canby, Oregon



engine power booster  
and alternative tank  
Fosseeen Manufacturing  
Radcliffe, Iowa

## Fired up for prevention

A COMMERCIAL for an insurance company shows a once-beautiful house razed by fire; a matter-of-fact narrator warns that "these things happen." Not the most reassuring message, but an important one. Even more important than saving a building from a fire is saving yourself. The video, "Fire Safety: There's No Second Chance," offers crucial advice for preventing and escaping from fires in the workplace.

According to the U.S. Fire Administration, in 1995 over 26,000 people died from fires and over 10,000 suffered fire-related injuries in the United States. Simple, preventive techniques can ensure that these numbers decrease; the basic rule is common sense.

The first step in fire safety awareness involves identifying a fire's four basic elements: fuel (any combustible material); heat, which turns a fuel into flammable vapor; oxygen; and the chemical combination of the first three elements. It is important to be aware of the presence of these elements in the workplace and their capacity to interact.

A fire is classified by the type of fuel it burns. Class A fires burn ordinary combustibles like wood, paper, and cloth. Class B fires consume flammable gases and liquids. Class C and D fires consist of energized electrical equipment and combustible metals such as sodium and magnesium, respectively.

Monitoring potential combustibles is crucial for workplace safety.

Start with simple housekeeping habits by keeping work areas free of clutter. Keep oily rags in covered containers that are emptied on a daily basis.

Be sure to use flammable materials in a well ventilated and spark-free area (put out that cigarette!); store flammable liquids in tightly closed containers holding no more than 25 gallons of liquid per unit.

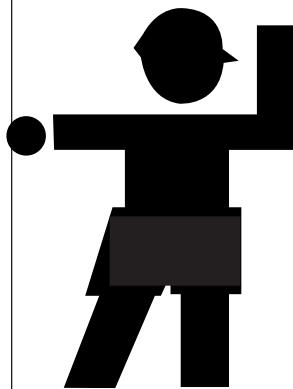
The *number one cause of fires in the workplace* is the mishandling of electrical equipment. Poorly maintained electrical equipment is a fire waiting to happen. Check the equipment regularly for wear and damage. Built-up dirt and dust can easily ignite. And for you java lovers, coffee makers start a surprising number of electrical fires. Your workplace should operate an industrial coffee maker designed for heavy use.

Finally, use combustible metals with extra care and follow handling instructions to the letter. Class D fires are especially difficult to put out and react

violently to water-based extinguishers.

It's crucial that your workplace establish an Emergency Action Plan (EAP) in case of fire. Clearly map out primary and secondary escape routes and designate specific EAP leaders in each work area. By practicing awareness, however, you won't have to use the plan. An ounce of prevention is worth a pound of fire extinguisher any day. ■

## safety shorts



### New flagger safety vests tested

THE IOWA DEPARTMENT OF TRANSPORTATION (IOWA DOT) is experimenting with new flagger safety clothing this construction season. The new vests are a bright yellow green with orange markings and reflective stripes. A soft cap is yellow green with a reflective stripe. The hard hat is still an acceptable alternative to the soft cap. Pants are a new option this year and are particularly suitable for nighttime flagging.

Two years ago the Iowa DOT experimented with yellow green open-mesh vests. The mesh material lost its daytime color when light-colored clothing was worn underneath. The public said the yellow green color blended in with cornfields. Plain orange vests were also hard to see because they blended in with equipment.

The combination of orange and yellow green was first adopted by the Minnesota Department of Transportation (MnDOT). The Iowa DOT is conducting its own field tests of the MnDOT safety vests and caps.

"I think we're on the right track, but we want to confirm this with the motoring public," says Fred Walker, transportation safety engineer with the Iowa DOT.

If the Iowa DOT decides to adopt the new safety clothing, Iowa and Minnesota may be the vanguard of a regional initiative to have uniform safety clothing for flaggers. The uniformity would benefit the public and highway workers because drivers would know what to expect when they see those yellow green and orange vests.

After surveying the public and employees about the effectiveness of the new colors and style, the Iowa DOT will make a final decision this fall about adopting the new safety clothing. For more information, contact Walker, 515-239-1184. ■



A flagger in the I-35 work zone sports the new safety vest and hat the Iowa DOT is experimenting with this year.



## Grading roads takes skill and pride



MOTOR GRADING is one of the most visible ways the public sees its tax dollars at work day after day. Having well trained operators who take pride in their work can be a powerful public relations tool for departments responsible for gravel roads.

One way to provide training to motor grader operators is through the popular Motor Grader Operator (MoGO) training program sponsored by the Center for Transportation Research and Education (CTRE).

Fred Short, CTRE's MoGO program coordinator, arranges for experienced motor grader operators to work as instructors in the two-day course. Day one includes classroom presentations, videos, and discussions. Operators have time to talk with operators in other cities and counties. On day two the instructors go into the field to work with operators one-on-one on the operators' own equipment and roads.

### Example of a MoGO field day

On day two of a June MoGO course held in Ames, Joe Weber, an instructor for the MoGO course and a Delaware County employee with 25 years experience as a blade operator, explained the basics of motor grading.

You have to develop uniformity in the road's profile, Weber said. He steepled his fingers to demonstrate the A-frame crown that gets water off the road. A parabolic crown, he said, bending his fingers to show a smooth curve, doesn't work as well.

Weber, who's been an instructor with the MoGO course since it began nine years ago, received about

five minutes of training when he started operating a motor grader. The previous operator showed him the levers, but Weber didn't get a chance to practice right away because the roads were frozen.

Learning to be a good operator was a lot of trial and error, Weber said.

There were no set policies for how things were done, and that's often still true, he said.

Visiting counties all over the state allows Weber to see how other counties and operators deal with their unique problems. "I wish every motor grader operator in the state could do this," Weber said. "I have learned a lot."

Weber offers operators advice by explaining how he handles problems. He recognizes that conditions are different around the state. He said he never knows what kinds of questions the operators are going to ask him.

Weber arranged to meet Tim Herrstrom, a Boone County foreman, at the shop in Luther. Herrstrom drove Weber to motor grader operator Keith Eppert's territory first, describing the challenges Eppert faces. One curvy, heavily traveled road looked well maintained to Weber.

After Herrstrom introduced Weber to Eppert, Herrstrom got back in his truck and waited while the two men talked.

We try to encourage that, Weber said, so the guys feel more comfortable talking about their grading problems without their supervisors listening.

**Personal attention from an experienced operator**  
Weber, a friendly, easygoing man, praised Eppert for his good work on the curvy road. They discussed the difficulties that heavy vegetation presents on shoulders. They also talked about the slope of the blade on Eppert's machine and the importance of the correct angle.

"You have to have a good road profile," Weber said. If you keep a road in shape, he said, it doesn't take as much material to fix the rough spots, which saves money for the county.

After 30 or 40 minutes with Eppert, Herrstrom drove west to Bill Mulder's territory.

Herrstrom believes that one reason Mulder is doing such a good job after just a year of experience is that Mulder grew up in the area. The people know Mulder and he knows them and tries his best, Herrstrom said.

Making the job personal is important, Herrstrom said. Before becoming a foreman, he worked in the territory around Luther where he lives, grading roads his daughter's school bus drove on. He kept that fact

Keith Eppert, a Boone County motor grader, is hard at work.



in mind because he wanted the roads to be safe.

Bill Mulder had just graded a road up to a steel bridge when Herrstrom pulled up. Weber gave Mulder a tip about rolling his blade forward when working in front of a bridge so he won't have to work so many levers at once. Weber also talked about maintaining even wear on the blade.

Mulder nodded in agreement. "Anything you do, you've just got to try it," he said. "It does matter if you care what you're doing."

The quality of the motor grading is more important than getting so many miles graded per day or week, Weber said. He believes that operators who take pride in their machines and in their roads tend to be the best operators.

Training from people like Weber helps, too.

For more information about the MoGO course, contact Fred Short, MoGO coordinator, 712-563-2459. ■■■



Mix vegetation from shoulders in with the windrow.

## **Motor grading: not just for the guys**



SINDY DEMING, who recently attended a Motor Grader Operator (MoGO) class in Ames, is one of Story County's newest motor grader operators. She's also one of the few women operating motor graders at the county level in Iowa.

Deming has plenty of experience behind the controls of big machines. She drove a semi truck to California for 10 years. She worked for Armstrong Company, a construction company in Ames, for six years where she learned to operate motor graders, backhoes, and bulldozers.

Deming says she got tired of the feast and famine work cycle of road construction typical with contractors so she kept putting in her application with Story County. She was hired in September 1996.

She drove a snow plow truck last winter. She started motor grading in February. She maintains about 40 miles of roads from the Boone County line east to I-35 and south of Highway 30.

She grades her whole district each week, and goes over some highly traveled roads twice weekly. The work keeps her occupied because there's always something different that comes up, like new ruts and potholes.

"I love it," Deming says. She enjoys the days alone in the cab, and she gets along great with the guys from her shed. She's looking forward to plowing snow in the motor grader this winter.

The only troublesome part of the job for Deming is the lack of restroom facilities when she's out grading.

She really likes the steadiness of the work and the independence of being a motor grader operator who is responsible for her own roads.

"I've been real pleased with her performance," says Harold Jensen, Story County engineer. ■■■



Sindy Deming, one of Story County's newest motor grader operators, learned a lot at the MoGO training course.



## **ISRMSA conference: September 24-25**

THE IOWA SECONDARY ROAD MAINTENANCE SUPERVISORS ASSOCIATION (ISRMSA) annual conference will be September 24-25, 1997, at the Starlight Village Best Western in Ames, Iowa, following a workshop for supervisors on September 23 (see article at right).

The agenda includes old and new business as well as a round table discussion. Included in the business meeting are district elections and election of the new ISRMSA vice president.

The afternoon of the 24th is devoted to discussing the question, "How are you managing union employees?" This topic is intended to generate dialogue about holidays, contract language, vacations, and other issues pertinent to union employment. It may also be a springboard into other issues.

Several vendors are lined up for the conference, including John Deere, Navistar, and GMC. For more information, contact Duane Smith, CTRE's associate director for outreach:

515-294-8103  
(desmith@iastate.edu). ■■■

## **Supervisors workshop: September 23**



"SUPERVISORY SKILLS: WHEN PLANS FIND PURPOSE" is the theme for the upcoming management workshop to be held in conjunction with the 1997 Iowa Secondary Road Maintenance Supervisors Association Annual Conference. The workshop will be September 23, 1997 (the conference will follow on the 24th and 25th).

The workshop emphasizes applying management theory to real-world situations, both professional and personal. "We want to give participants at the workshop something they can walk away with and use," says Duane Smith, CTRE's associate director for outreach.

The workshop agenda is divided into four sections, including an introduction, "Goal Setting and

Decision Making," a collaboration activity, and "Turning Solutions into Action." Smith says the focus will be on teamwork and "building success, attitudes, and habits."

Carl Johnson, last year's supervisors workshop instructor, will be speaking again this year. Johnson is a management expert with his own consulting practice and extensive experience in management operations. He also has given numerous presentations on employee involvement and process improvement.

CTRE is sponsoring the workshop, which will be held at the Starlight Village Best Western in Ames, Iowa. For more information, contact Smith, 515-294-8103 (desmith@iastate.edu). ■■■

## **Snow Plow Roadeo: October 7 Iowa Winter Training Expo: October 8-9**



WITH ALL THE BUZZ about advances in snow plow vehicles (see "Snow plowing goes high tech," page 4), we can't forget the people whose opinions shaped the new technology. Maintenance vehicle operators can look forward to the Iowa Winter Training Expo's workshops, devoted to the latest equipment, materials, and techniques for keeping winter roads clean.

There's also the opportunity to rub elbows with manufacturers and suppliers of winter maintenance equipment, complete with hands-on product demonstrations.

It all kicks off on October 7 with the 8th Annual Iowa Snow Roadeo, to be held in Ames this year. The Expo follows on October 8-9 at the Iowa State Center (Scheman Building and Hilton Coliseum).

Sessions at the Expo will include:

- snow fence management
- harnessing the power of salt

- chemical management, anti-icing strategies
- plowing and winging operations
- roadway weather information systems
- equipment operator maintenance
- and more!

Vendors and their displays will be at the Expo to share the latest developments in maintenance technology.

Participants may attend either the one-day Roadeo or the two-day Expo or both. Registration materials and more detailed information are being mailed in August, but mark your calendar now.

The Roadeo and Expo are sponsored by the Iowa Department of Transportation, Iowa County Engineers Association, American Public Works Association, Iowa Secondary Road Maintenance Supervisors Association, and CTRE.

For more information about the Expo or Roadeo contact Bret Hodne, City of West Des Moines, 515-222-3480. ■■■

## **Publications**

Survey of Alternative Road Deicers  
(US DOT-FHWA, 1992) 252 pages

This research identifies all compounds considered for use as a roadway deicer. It evaluates the performance, operational criteria, roadway impacts, and cost-related issues and reviews the potentially adverse environmental effects of each compound.

Request #P1247

Investigation of Two Bridge Alternatives for Low Volume Roads—Volume 2  
(Iowa DOT-HRB, 1997) 138 pages

There are a large number of structurally deficient bridges on Iowa's secondary roads. This volume presents the results of research to use county work forces to fabricate precast steel beam units connected by a concrete slab.

Request #P1248

Selected Pavement Management Software for Local Transportation Agencies  
(US DOT-FHWA, 1997) 76 pages

This software catalog is based on the Pavement Management for Local Agencies course materials. It represents the results of a request to most known providers of both public and private domain pavement management software and data collection systems to provide copies of their software for review.

Request #P1249

The Lincoln Highway Iowa Map Pack  
(Lincoln Highway Association, 1997)  
36 pages

The Iowa Lincoln Highway Association has assembled this map pack, which identifies the entire route of the original Lincoln Highway in Iowa. It contains interesting photos and advertisements, as well as stories about construction of the highway.

Request #P1250

Excavation Safety (Jack Mickle, 1990)  
322 pages

This book is a collection of articles, regulations, sketches, figures, tables, and comments assembled by Jack Mickle for trench excavation workshops.

Request #P1252

Road Savers—Case Study  
(US DOT-FHWA, 1997)

These case studies were prepared and assembled to determine how the products developed and evaluated by SHRP are being used to improve the condition and safety of the nation's highway system. A 12:00 minute videotape entitled "From Research to Reality" is included.

Request #P1253

## **Videotapes**

Low Slump Dense Concrete for Bridge Deck Restoration and Protection (Iowa State Highway Commission) 19:10 minutes

This videotape was made from an old Iowa State Highway Commission film. It explains why bridge decks deteriorated from salt intrusion and corrosion of reinforcing, how to identify and remove problem areas, and the preparation and placement of low slump concrete.

Request #V514

Heads Up at the Wheel: Home Safe  
(NSF, 1997) 10:48 minutes

It has been estimated that 100,000 crashes and 1,500 fatalities each year are the result of drivers falling asleep. This videotape defines the high-risk group, the causes of fatigue, how to recognize the problem, and how to take measures to combat the problem.

Request #V515

Groundskeeping Safety - Be A Pro (Coastal, 1997) 17 minutes

This videotape provides safety training for anyone involved in maintaining lawns, trees, and shrubs. It reviews the personal protective equipment to use and discusses safety rules for these operations and safe practices when using equipment and chemicals.

Request #V516

Defensive Driving - Prepared for the Worst  
(Coastal, 1997) 16 minutes

This videotape defines the various conditions that create hazardous driving situations. It contains precautionary measures and preventative maintenance steps to prepare for the worst.

Request #V517

Name (first/last) \_\_\_\_\_  
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Please send me the new, updated, 1998 catalog of all publications and audiovisual materials available from CTRE's LTAP library.



## **library materials**

## **How to order materials**

LISTED AT LEFT are new or popular materials available from CTRE's library. To obtain materials or a catalog of library materials, check the box next to the materials you want and mail or fax the form to:

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2625 N. Loop Drive, Ste. 2100  
Ames, Iowa 50010-8615  
FAX 515-294-0467

Please limit your request to four items. ■■■■

## **1998 library catalog available**

CTRE'S NEW, UPDATED, 1998 CATALOG of library materials is now available. To get your FREE copy, complete the form at left and mail as directed above, or contact Stan Ring, 515-294-8103 (e-mail: stan@ctre.iastate.edu). ■■■■

**conference  
calendar**



**September 1997**

- 13-17 APWA Congress  
23 Supervisory Skills:  
When Plans Find Purpose  
23-24 PC-ALAS Training  
24-25 Iowa Secondary Road Main-  
tenance Supervisors Association  
Annual Conference

**Location**

Minneapolis  
Ames  
Ames  
Ames

**Contact**

Duane Smith, 515-294-8103  
Sharon Prochnow, 515-294-3781  
Mike Jorgensen, 515-294-6384  
Duane Smith, 515-294-8103

**October 1997**

- 6-7 3rd Annual Iowa Conference  
on Geographic Information Systems  
7 8th Annual Iowa Snow Plow Roadeo  
8-9 Iowa Winter Training Expo  
21-22 PC-ALAS Training  
23-24 Fall ITCSA Conference

Cedar Falls  
Ames  
Ames  
Ames  
Ames

Joyce Baker, 319-335-2371  
Duane Smith, 515-294-8103  
Duane Smith, 515-294-8103  
Mike Jorgensen, 515-294-6384  
Rusty James, 515-239-1494

**November 1997**

- 18-19 PC-ALAS Training

Ames

Mike Jorgensen, 515-294-6384

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**P486-0524**

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