

# Technology

Roads—Bridges—Transit—

Iowa Transportation Center

Iowa State University

# News

February 1995

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## Iowa's local governments gain access to cyberspace!

**The ITC's bulletin board service (ITCBBS) now offers Internet electronic mail service.**

### Cyberspace?

Cyberspace is the computer world's buzzword for the Internet. You may have heard of the Internet, or at least of electronic mail (e-mail), the Internet's most popular feature.

Cyberspace, Internet, e-mail—to the uninitiated, these terms can be intimidating. Let us try to help you sort out just what the Internet is, why you might want to use Internet e-mail, and how the ITCBBS can help you access it.

### What is the Internet?

When two or more computers are connected to each other so they can exchange data, they make up a "network." Computer networks can also be connected to each other, increasing the number of computers that can exchange data.

The largest and most all-encompassing network is the Internet. Comprised of literally thousands of networks around the world, the

Internet is like a giant party-line that allows networks (and, in turn, computers) to "talk" to each other, or exchange information. Because of the abundance of data available through the Internet, it's often called the "Information Superhighway."

The Internet originated as a research project for the U.S. military through the National Science Foundation. A few years ago it was made available to uni-

## Microtechnology

By Marcia Brink, Editor  
with  
Mike Bugenhagen, Systems Analyst

versities, government agencies, private businesses, and even individuals—anyone who wants access—as a free information service.

There are many ways to hook up to the Internet, including via bulletin board services like the ITCBBS that act as interfaces to the Internet.

The Internet offers a variety of services, like e-mail, news groups (on everything from classical music to travel to geographic information systems), and

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**Internet e-mail allows you to exchange messages with anyone who has an e-mail address—anywhere in the world. For free.**

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databases (want to browse a university library's on-line index for studies of bloodborne pathogens?).

Through the ITCBBS, you can now access the most widely used of these services: Internet electronic mail, or e-mail.

### What's e-mail good for?

Like the message capability of the ITCBBS, Internet e-mail allows you to

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# Cyberspace

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send and receive electronic messages. Internet e-mail allows you to exchange messages with anyone who has an e-mail address—anywhere in the world. For free.

That means you can send an e-mail message to Robert Skinner, Jr., the director of the Transportation Research Board. Or to your professional counterpart in Oslo, Norway or Cascade, Colorado—assuming, of course, they have e-mail addresses.

E-mail is often better than the telephone: No playing telephone tag, no problem with time zones.

Suggested uses for e-mail include the following:

- **To access government agencies.** Many government agencies like the Federal Highway Administration and the U.S. Department of Transportation can be reached directly via Internet e-mail.
- **To get technical support for software.** Many software companies offer free support for their software through Internet e-mail. Look in your manual for an e-mail address, or call the technical support number and ask for an address.
- **To make yourself more available.** Add your e-mail address to your letterhead, business cards, and fax transmissions. (See the related article on page 10, **Know your own e-mail address!**)

## How does the ITCBBS allow me to access the Internet?

Users with direct access to the Internet can send and receive e-mail 24 hours a day. ITCBBS users do not have direct access. The ITCBBS acts as an interface between them and the Internet.

When you use e-mail through the ITCBBS, you can compose e-mail any time, but the ITCBBS sends your e-mail messages to the Internet (and receives incoming messages) only at certain times.

Twice a day (6 a.m. and 5:30 p.m.) and at midnight on weekends the ITCBBS sends e-mail messages stored in the Internet e-mail conference (Conference #1) to an Internet e-mail "hub," from which your e-mail messages are routed, or distributed.

At the same time the ITCBBS sends e-mail messages, it also receives e-mail messages addressed to ITCBBS clients. So, you may want to check the system for incoming e-mail first thing in the morning and early in the evening.

## Jump in and try it!

Now that you have a little background, give Internet e-mail a try. Accompanying articles give specific directions for sending and receiving e-mail messages via the ITCBBS, explain how to get e-mail addresses, describe your own e-mail address on the ITCBBS, and give directions for using the ITCBBS if you've never done so.

Pages 3 and 4 of this issue contain related articles to help you with the logistics of Internet e-mail:

- **Internet e-mail addresses**
- **Using e-mail**
- **Know your own e-mail address**
- **If you want to use e-mail but you haven't used the ITCBBS**

Pull these pages out of the newsletter for a handy reference guide.

For more information on using the ITCBBS and/or Internet e-mail, contact Mike Bugenhagen, systems analyst for the Iowa Transportation Center, at 515/294-8103.

*Editor's notes: Internet access is another service provided by the ITCBBS, a joint project of the Iowa Transportation Center and the Computer Program and Information Coordinating Committee of the Iowa County Engineers Association. The ITCBBS is supported by the Iowa Highway Research Board (HR-345).*

*Thanks to the Hawaii Technology Transfer Project for its straightforward description of the Internet in Tropical Transfer, summer 1994.*

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The opinions, findings, or recommendations expressed here are those of the Iowa Transportation Center and do not necessarily reflect the views of the Federal Highway Administration or the Iowa Department of Transportation.



**Iowa Transportation Center**

IOWA STATE UNIVERSITY

## Internet e-mail addresses for you to use NOW!

To send an e-mail message, you need the correct e-mail address. There are many ways to get e-mail addresses. E-mail you receive will show the address of the sender. University telephone books generally list e-mail addresses for staff who have them. Many agencies and businesses include their e-mail address on their letterhead. Software manuals often include e-mail addresses with their support information. Here are a few addresses to get you started:

### Federal Highway Administration

Rodney Slater, Administrator  
 Bob Kelly, National LTAP Coordinator  
 Roger Port, Research and Technology Transfer Engineer for Region VII  
 Mary Stringfellow, Asst. Research & Tech Transfer Engineer for Region VII  
 Larry Forney, Planning and Research Engineer for FHWA in Iowa

e-mail addresses:  
 reslater@intergate.dot.gov  
 rkelly@intergate.dot.gov  
 rport@intergate.dot.gov  
 mstringfellow@intergate.dot.gov  
 lforney@intergate.dot.gov

### U.S. Department of Transportation

The e-mail address formula for USDOT personnel is

firstname\_lastname@postmaster2.dot.gov

### American Public Works Association

Lisa Pogue, Director of Technology Exchange and Training, Washington, D.C.  
 Sarah Layton, Washington Representative

lhogue@aol.com  
 iswlayton@aol.com

### National Association of County Engineers

Tony Giancola, Executive Director

tonyg@spaceworks.com

### Transportation Research Board

Robert Skinner, Jr., Director

bskinner@nas.edu

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tmaze@iastate.edu  
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 kannel@cclab.iastate.edu  
 waggoner@cclab.iastate.edu  
 dkwall@iastate.edu

### President Clinton

president@whitehouse.gov

*Editor's note: Technology News will publish Iowa DOT e-mail addresses as soon as they are available.* ■

## Using e-mail

To send or receive e-mail through the ITCBBS, follow these steps:

### Sending e-mail

1. After logging on to the ITCBBS, go to the message menu (select **m** from the main menu) as you normally would to send a message.

2. Select **e** to enter a message.

The ITCBBS will ask you which conference to place the message in.

3. Select **Conference #1**. This is the Internet e-mail conference.

The ITCBBS will ask for the recipient's e-mail address.

4. Enter the recipient's e-mail address.

Any valid Internet address will work,

whether it's in Cedar Falls or Japan. Just be sure to type it correctly, including spaces, periods ("dots"), and symbols. Pay particular attention to capital and lower case letters; Internet is case sensitive.

5. Type your message.

The rest of the message screen is the same as the one for normal ITCBBS message. You can attach text files only to your message.

6. Save the message by hitting the escape [**esc**] key and the **s** for save.

Your message will be held until the next e-mail transfer, at which time it will be exported and sent.

### Receiving e-mail

Twice a day when the ITCBBS receives e-mail, it splits the receiver's name to match the ITCBBS user

database. For example, an e-mail message to

**mike.bugenhagen@itcbbs.edu** becomes a BBS message to **mike bugenhagen**.

The ITCBBS will flag you to read the message when you log on. As with ordinary BBS messages, you'll have the option to read it, list all your messages, or ignore it until later.

**Only e-mail placed in Conference #1 will be sent.**

**A word about privacy: Internet e-mail is not entirely private. System administrators can and do look through messages from time to time.**

Internet info continued on page 10

## Know your own e-mail address!

Your e-mail address on the ITCBBS is the following:

**firstname.lastname@itcbbs.edu**

Note that all the letters in an ITCBBS e-mail address are lower case. For example, one ITCBBS user is Mike Bugenhagen, the system operator. Mike's Internet e-mail address through the ITCBBS is

**mike.bugenhagen@itcbbs.edu**

The **firstname** and **lastname** in your e-mail address are the same as those you use when you log on to the ITCBBS. If you use an alias to log on to the ITCBBS, your e-mail address will also use the alias. If you use a group log-on name, your Internet e-mail will be available to the entire group.

Before you print your e-mail address on letterhead or business cards, check it by having someone use it to send you an e-mail message. When you log onto the ITCBBS the next day, the ITCBBS should flag you about an incoming message. If it doesn't, contact the system operator (sysop) Mike Bugenhagen (select **c** from the main menu, or call him at 515/294-8103).

## Tips and reminders

- ✓ Internet e-mail is case-sensitive. Be sure to type upper and lower case letters correctly.
- ✓ Your Internet e-mail address through the ITCBBS is lower case. Be sure to print your address correctly on business cards, etc.
- ✓ For maximum e-mail privacy, log on to the ITCBBS with your own name, not a group name or an alias.
- ✓ To send e-mail via the ITCBBS, you must place it in Conference #1.
- ✓ If you run into difficulties, call the sysop (Mike Bugenhagen, 515/294-8103)—and be patient. Internet access can literally put the world at your fingertips. We think you'll find that access to "the Net" is worth a few growing pains!

## If you want to use e-mail but you haven't used the ITCBBS . . .

The lure of Internet e-mail may inspire some of you to log on to the ITCBBS for the first time. We're always glad to have newcomers. In addition to Internet e-mail, the ITCBBS offers a transportation events calendar, free AutoCad drawings, templates of transportation agency files like job descriptions, and shareware files, as well as an electronic mail system for ITCBBS users only.

### What is the ITCBBS?

An electronic bulletin board service (BBS) is an on-line information resource accessed from distant locations via dial-up modems. A BBS offers services like file sharing and electronic messages for both PC and Macintosh users. The ITCBBS is a free bulletin board service especially for transportation professionals.

### How do I access the ITCBBS?

You need a computer with communications software installed. Mike Bugenhagen, the system operator (sysop), likes Procom Plus (the latest version even includes fax software), but

almost any communications software will work. You also need a modem connected to your computer and a telephone line.

Set the communications software parameters as follows:

**Emulation:** Use "VT100" with ANSI. If your software does not offer ANSI, add the following line to your config.sys file and re-boot:  
**DEVICE=C:\DOS\ANSI.SYS**

**Data bits:** Set to "8"

**Stop Bits:** Set to "1"

**Parity:** Set to "none" or "n"

**Baud rate:** The ITCBBS will self-adjust to your rate, from 300 to 57.6 K Baud. Set at "full" if requested by your program. (Note: By the end of March, the ITCBBS will be capable of self-adjusting up to 115 K Baud.)

To call the ITCBBS, using your computer and modem, dial 1-515/294-9784.

Two phone lines are available seven days a week, 24 hours a day. If the lines are busy, try again later. (A wats line is available to local governments.)

You will have to type in your first and last name and a password of your choosing. (Remember your password; you will need it each time you call.) The system will ask you to verify the spelling of your name and to complete a brief questionnaire.

The ITCBBS main menu will appear, and you can begin exploring the service.

### How do I use the ITCBBS?

A user guide is available for downloading. From the main menu, select "View Bulletin." Then select "Bulletin 1."

The sysop contacts all new users to assign them to one of six user groups, or access levels. New users will be in the public group, which has limited access to ITCBBS options, until the sysop reassigns them.

# New dust control material proves itself

**Study results: One application of bentonite, a natural clay, controls dust on unpaved limestone roads for two or three years.**

Springlike days in January reminded us that warmer weather is just around the corner, soon to be followed by the hot dog days of summer. Road maintenance crews fighting clouds of snow today will, in just a few short months, be battling clouds of dust on Iowa's unpaved secondary roads.

Dust control is the number-one summer maintenance problem on unpaved roads, according to a survey of county and highway engineers published in *Better Roads*, April 1992. To address this problem, researchers and highway maintenance practitioners are working to find innovative and affordable ways to control dust.

One promising product being tested is bentonite, a naturally occurring sodium montmorillonite clay. Ken Bergeson, associate professor of civil engineering at Iowa State University, recently completed a two-year study, *Bentonite Treatment for Economical Dust Reduction on Limestone Surfaced Secondary Roads*, HR-351.

Test results indicate that for long-term treatment (two to three years), bentonite is an effective and less expensive alternative to chemical treatments on limestone roads.

In cooperation with Tama, Appanoose, and Hancock counties and the Iowa Department of Transportation secondary road staff, Bergeson selected one-mile sections of limestone-surfaced road for testing. Test sections were prepared by blading and windrowing loose surface material to one side. Bentonite was then spread along the windrow and bladed several times to blend it into the surface material. At the same time, a 0.4 percent soda ash solution was sprayed on the surface as a dispersing agent, and the surface was

wet-mixed by motor graders to a consistency of two- to three-inch slump concrete. Two graders worked in tandem to provide rapid mixing, preventing the agglomerations that form when bentonite is mixed with water.

Each test section was divided into five subsections. The first section was a control section, and the other four sections were treated with bentonite in amounts ranging from three to 12 percent (by weight of aggregate).

All four treated sections showed a significant reduction in dust. Final results show that from a cost/benefit standpoint, an optimum level of treatment is about eight percent (by weight of aggregate).

Bergeson says the results of the study indicate that bentonite has several benefits over the most commonly used dust control products, calcium chloride and lignin sulfonate.

One drawback with both calcium chloride and lignin sulfonate is that they are effective only while they remain directly on the road surface. When potholes develop and/or washboarding problems develop after either of these products is applied,

blading the surface to correct these problems minimizes the effectiveness of the dust control materials.

Unlike calcium chloride and lignin sulfonate, bentonite is blended with road surface material when it is applied and adheres to pieces of surface material like an "electrochemical glue." Bentonite's effectiveness is not reduced by grading or other maintenance activities, such as applying another layer of limestone, says Bergeson.

A second benefit of bentonite is its environmental friendliness, Bergeson says. Iowans are increasingly concerned about possible environmental damage associated with chemical dust control materials such as calcium chloride. Bergeson says that bentonite is a naturally occurring mineral containing no salt and poses no danger to the environment. And it does not contribute to vehicle rusting, as calcium chloride does.

In addition, bentonite is more cost effective than other dust control materials. Researchers estimate the cost of

**continued on page 6**



**Now's the time to plan your summer dust control program for unpaved roads. An Iowa State University study says bentonite clay is one effective treatment.**

## Bentonite for dust control

continued from page 5

bentonite treatment at half the cost of calcium chloride treatment. Not only are initial application costs lower, but bentonite has a much longer effectiveness period, reducing costs even more.

Because bentonite's bonding properties survive alternating wet and dry periods and even Iowa's long winter freeze, its term of effectiveness is not months but years. One application, according to Bergeson, reduces dust by 60 to 70 percent the first year, 50 to 60 percent the second year, and 30 to 40 percent the third year. These results compare very favorably to the normal three-month total period of effectiveness for calcium chloride.

Bergeson says that, depending on the desired amount of dust control, maintenance supervisors may want to apply bentonite to limestone roads every two to three years.

Bergeson's research also addresses possible problems associated with using bentonite as a dust control measure. Researchers had been concerned that moisture might make bentonite-treated roads slippery, but braking distances and braking handling on bentonite treated sections of road were comparable to braking results on dry control sections.

One disadvantage of bentonite is its inability to bind with the gravel used on some secondary roads. Made of igneous rock, gravel (like bentonite) has a negative electric surface charge, so bentonite won't adhere to it.

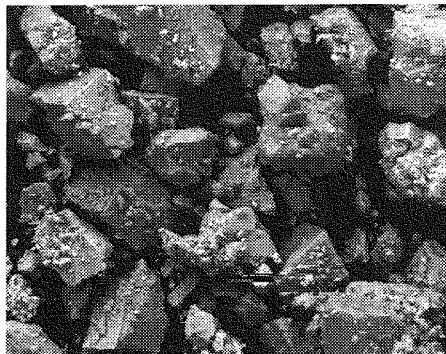
Limestone, however, has a positive charge, which allows bentonite to form a bond and adhere to it. For this reason, bentonite works best on crushed limestone. Bergeson estimates that limestone comprises the majority of Iowa's unpaved road surfaces.

Although Bergeson believes bentonite is an excellent dust control material, he says maintenance supervisors will still prefer other materials for gravel roads and for short-term treatments where maximum dust control is desired. For

example, calcium chloride may still be the preferred spot treatment in front of houses.

"Bentonite is not a cure-all. There are still some applications for calcium chloride."

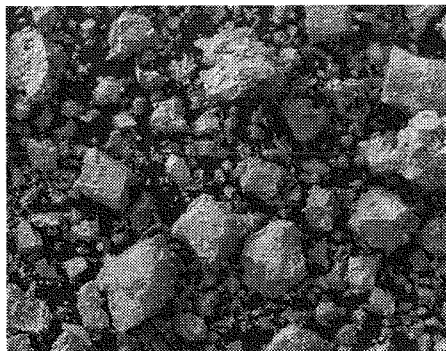
For more information or for a copy of Dr. Bergeson's report, contact him at 515/294-9470. ■



**The top micrograph shows a sample obtained from an untreated control section of road. Very few small particulates are adhering to the larger particle surfaces, and few agglomerates of smaller particles are present.**

**The bottom micrograph shows a sample from the seven percent bentonite treated section. Notice the abundance of small particles attached to larger particle surfaces, and agglomerates of smaller particulates.**

**Both samples were obtained from a test road in Tama County in August 1992.**



## Speaking of dust control

Jasper County has developed a dust control program that doesn't strain the county budget. Chuck Cabalka, Jasper County engineer, describes the program:

"The county functions as a middleman between residents and chemical contractors. We don't actually apply the dust control treatment."

Jasper County collects bids from local contractors and selects the two best bids, one for calcium chloride treatment and one for lignin sulfonate treatment. The county then notifies residents, through local media, of the two choices and the prices for each.

"By limiting the number of contractors, we can provide residents with effective dust control at a reasonable cost," Cabalka says.

Residents enroll in the program through the county engineer's office, designating whether they want calcium chloride or lignin sulfonate, and the county forwards the names and locations of participating residents to the two contractors. The county blades the affected road surfaces before the dust control materials are applied.

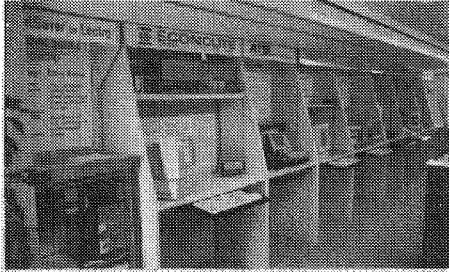
The county requires that participants have a minimum of 300 feet of roadway treated, but encourages neighbors to split costs. Participants pay the county only a small fee to cover administrative costs. Participants pay the contractors directly for the treatment itself. The price includes two treatments, one in May and one in early July.

Lower prices and increased publicity efforts have made the program popular among county residents. About 240 residences signed up for the program in Jasper County in 1994.

Spring is the season to advertise the program, take bids from local contractors, and enroll participants. Cabalka has sample news releases and sign-up sheets.

For further information, call Chuck Cabalka at 515/792-5862.

# Advanced traffic control technology workshops come to the Midwest



## FHWA's mobile exhibit vehicle allows hands-on demonstrations of equipment and software.

In May and June, Iowa, Nebraska, Kansas, and Missouri will be sites for workshops and hands-on exhibits demonstrating advanced traffic control products. The Iowa workshop will be **May 16 and 17 in Ames**, and is sponsored by the Federal Highway Administration and the Iowa Transportation Center.

To help traffic control engineers choose among rapidly changing electronic, computer, and software products, the FHWA is taking a traveling workshop and exhibit around the country. The two-day workshop and hands-on demonstration allows users to operate and evaluate most of the electronic traffic control technology and equipment for signalized intersections now on the market.

The classroom workshop consists of several modules, including an optional one-hour executive summary for top management. The full session of the workshop is for traffic control systems engineers and senior-level technicians.

Tentative dates, locations, and FHWA contacts for the other regional workshops follow. Refer to FHWA demonstration project no. 93.

**May 23-25**      **Omaha/Lincoln, Nebraska**  
Frank Doland 402/437-5521

**June 6-8**      **Wichita, Kansas**  
Bob Alva 913/267-7286

**June 13-15**      **St. Louis, Missouri**  
Kevin Kelly 314/636-7104

For more information about the workshop in Ames, contact Duane Smith, the ITC's associate director for outreach, at 515/294-8103. ■

## The LTAP lending library

*Editor's note: Several respondents to the survey in our last issue indicated they didn't know about our lending library. Read the following brief overview of library services; then give us a call at 515/294-9481!*

### Mission of the library

The Iowa Transportation Center is Iowa's technical transfer (T<sup>2</sup>) center for transportation technology. The ITC is funded primarily by the Federal Highway Administration's Local Technical Assistance Program (LTAP), and by the Iowa Department of Transportation and the Iowa Highway Research Board.

The goal of LTAP is to share information about the latest transportation-related technology in ways that are useful to the daily operations of local transportation professionals. The ITC's LTAP lending library is one of our most effective means for sharing this information.

### Library holdings

Our LTAP library boasts nearly 1,000 publications, 400 video tapes, and 16 sets of slide presentations, ranging from training materials to compliance manuals to research reports. A new library catalog has just been published; call the library to get your copy!

Recently, the library added computer-aided transportation training (CATT) to its lending inventory. CATT materials allow you to conduct one-on-one interactive training programs right in your own office or shop.

Most LTAP library materials are produced by the FHWA. Others are produced by associations like the American Traffic and Safety Association, the Concrete Paving Association, the Asphalt Paving Association, and the National Association of County Engineers. The library also carries many Iowa Highway Research Board publications, AASHTO manuals, and a collection of Strategic Highway Research Program (SHRP) publications.

### Cost

Most library materials are available for two weeks' loan at no cost to users. A few publications are sold at cost.

### Other services

The library also provides a free referral service. For help finding information on specific transportation-related subjects, call our librarian, Stan Ring, at 515/294-9481.

### Location

The library is located in our office in Ames at 2521 Elwood Drive, Suite 125 (just south of the Gateway Holiday Inn off Highway 30). Come in when you're in town and browse through the training materials and publications, preview video tapes, or experiment with CATT. ■



### Meet our librarian

As the former director of the Iowa Transportation Center, Stan Ring is well qualified to serve you. Thanks to his efforts, Iowa's LTAP library is one of the most well stocked and up-to-date in the nation.

To order materials or get help finding transportation-related materials, call Stan at 515/294-9481.

# Iowa DOT reorganizes

Six months into a major reorganization, staff at the Iowa Department of Transportation are adjusting to new divisions and, in some cases, changes in office locations and work mates. The next few issues of *Technology News* will highlight the organizational structure of the new Iowa DOT.

Of course, this isn't the first time the department has undergone an overhaul. Through the years it has had to stretch, grow, and adjust to meet Iowa's changing transportation needs.

In 1904 the Iowa legislature recognized the need for a statewide highway advisory agency and designated Iowa State College (today's Iowa State University) as the first acting Highway Commission. ISC was already doing some of the country's earliest road research, and Anson Marston, dean of engineering, and Charles F. Curtiss, dean of agriculture, became Iowa's first highway commissioners.

Soon the state required a stronger commission, and in 1913 the legislature established the Iowa State Highway Commission as an agency separate from ISC. The commission

continued to be housed on campus until 1920, when it moved to a new building on Lincoln Way in Ames.

By 1929 a growing commission was streamlined into seven major departments: executive, construction, administration, design, maintenance, materials and tests, and purchases and accounts. That basic organizational structure held until 1974, when the governor and the legislature brought all state transportation administration, including highways, into one department, the Iowa Department of Transportation. The department was organized by mode: aeronautics, highway, motor vehicle, river, public transit, railroad, administration, general counsel, planning and research, and the Transportation Regulation Board.

The department's most recent reorganization began in 1992 when Governor Branstad and the legislature directed all state agencies to become more efficient. Working closely with employee teams, Director Rensink devised the new organizational structure. In July 1994 the following nine divisions were officially established:

The **Deputy Director** helps implement the director's programs and acts in the director's place when the director is unavailable.

The **Director's Staff** works with internal and external public affairs and also provides federal and state policy development.

The **Engineering Division** works to ensure consistency with professional engineering practices and serves as the engineering consultant for the director and the other work units. It also acts as a liaison with the professional sector and the U.S. DOT.

The **Field Services Division** coordinates the director's field liaisons around the state.

The **Project Development Division** involves project design and construction, contracts, consultation, and technical assistance.

The **Maintenance Division** works with non-programmed preservation projects and activities while also maintaining the present transportation system.

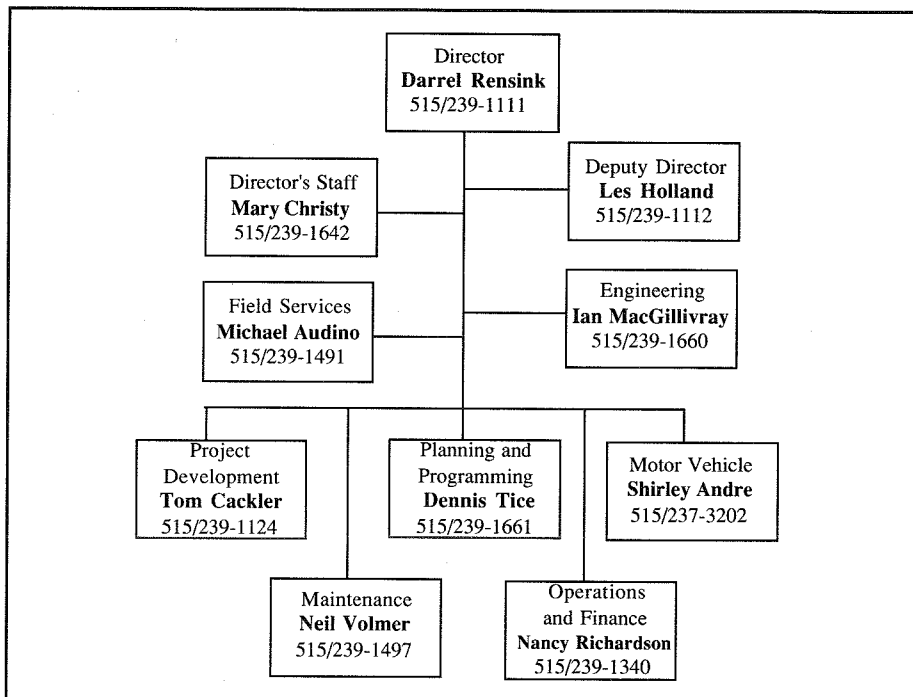
**Planning and Programming** is responsible for project planning, advance planning, and both long-range and short-range system plans.

The **Operations and Finance Division** manages the department's finances and provides internal support service.

The **Motor Vehicle Division** administers regulation of motor vehicles, vehicle dealerships, driver licensing, and safety of vehicle movements.

Mary Christy, head of the director's staff, says the Iowa DOT has shifted to an intermodal organization to align the department by function. Any question concerning maintenance, for example, will now be directed to the maintenance division, whether the question deals with road maintenance or the maintenance of an airport runway.

The reorganization should be easy for most customers. "Our hope is that the reorganization will be fairly transparent to our customers," Christy says. "The only change for customers may be the person they contact." ■



The Iowa Department of Transportation is now organized into nine divisions. Future issues of *Technology News* will take a closer look at the new divisions.



# Upcoming T<sup>2</sup> conference highlights

## Pavement Markings Conference

April 19, 1995  
Ames, Iowa

This one-day workshop is for city, county, and state street and highway administrators, as well as pavement marking contractors, crew chiefs, and traffic safety engineers. The workshop will focus on paint specifications for the Midwest climate, bead markings for reflectivity, equipment for waterborne paints, environmental concerns, and reflectivity testing equipment.

For more information, contact Safety Circuit Rider Ed Bigelow, at 515/294-8103.

## Gearing Up for Bicycle Transportation

April 5, 1995  
Ames, Iowa

April 6, 1995  
Council Bluffs, Iowa

April 26, 1995  
Iowa City, Iowa

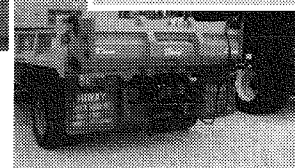
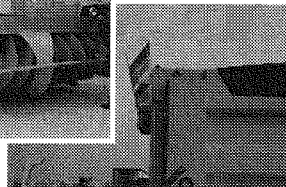
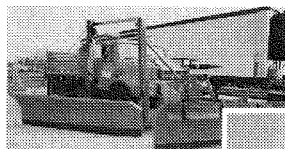
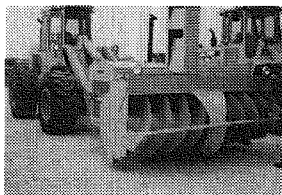
This workshop is for federal, state, county, and city representatives, as well as interested members of the private sector, who are involved in policy decisions, planning, design, construction, and maintenance for the bicycle element of a transportation plan.

Designed to help transportation professionals comply with the requirements of the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA), the workshop provides an overview of the process of developing a bicycle component in a transportation plan.

For more information about the course, call Duane Smith, associate director for outreach at the ITC, at 515/294-8103. For registration information, call Carole Seifert at 515/294-1400.

## Equipment Operations and Safety: Trucks and Loaders

Series of workshops will be held at several Iowa locations beginning in May 1995.



A pilot workshop in 1994 included a display of the latest trucks, loaders, and other equipment.

Participants will learn about equipment specifications and selection, engine and transmission updates, and drug and alcohol testing requirements. In addition, they will have an opportunity to view an equipment display that includes the newest trucks and loaders being used by counties and the Iowa Department of Transportation and being offered by dealers.

A pilot workshop in Fort Dodge in

November 1994 drew a crowd of nearly 60 truck drivers, loader operators, and supervisors. Several other training opportunities involving equipment operations and safety are being planned, including a workshop dealing with excavation equipment and one dealing with small tools and equipment.

For more information, contact Duane Smith, ITC's associate director for outreach, at 515/294-8103.

## Pavement Maintenance Seminar

For the first time ever, the National Association of County Engineers is teaming up with the Iowa Transportation Center to offer an in-depth seminar on pavement maintenance in conjunction with the NACE 1995 annual conference. The seminar will be held on Saturday, April 22 (the day before the NACE conference opens) in Davenport, Iowa.

The seminar is a great opportunity to learn how technological developments are changing the way we manage pavement maintenance. Participants will learn strategies for extending pavement life, will understand the principles of proper patching with asphalt or

April 22, 1995  
Davenport, Iowa

concrete products, and will learn from industry experts how to analyze pavement problems and consider alternative solutions.

You can register for the seminar at the same time you register for the NACE conference. You do not have to attend the NACE conference to participate in the pavement maintenance seminar.

For questions about seminar content, contact Duane Smith, ITC's associate director for outreach, at 515/294-8103. For information about registration for the seminar and/or the NACE conference, contact the NACE office at 202/393-5041.

# Shield improves visibility for snow plow operators

**European design passes muster in Iowa.**

"When can we have more of these?"

This is the reaction of Chuck Mann, snow plow operator at the state maintenance garage in Cherokee, to a new snow plow shield.

Poor visibility is a snow plow operator's enemy, and not just during a storm. Even when skies are blue, operators often have to squint through "whiteouts" of snow stirred up by their own blades.

The Iowa Department of Transportation is testing a prototype snow plow shield designed to eliminate or greatly reduce the cloud of snow from coming over the plow and onto the truck windshield. Based on a design used in Austria and Germany, the innovative shield creates an air foil that draws snow spray away from the cab and under the wheels of the plow.

Leland Smithson, deputy director of the maintenance division at the Iowa DOT, brought pictures of the shield back to Iowa after participating in the International Winter Scanning Program in March 1994. The program was a cooperative effort with the Federal Highway Administration's Office of International Outreach Programs.

Smithson showed the pictures to Rex Brown, a fabrication welder for the state services and maintenance shop in Ames. Together, they discussed specifications for the design. Working mostly from the pictures and Smithson's description, and after discussing the concept with several snow plow operators, Brown designed a similar shield.

Using a bracket welded to the main frame of the snow plow, the shield's basic, universal mounting can be installed on different kinds of blades. The shield's angle is adjustable to allow operators to fine-tune the air foil for maximum effectiveness.

"These shields are inexpensive [about \$260] and should make snow plow

operators' jobs a lot easier and safer," says Smithson.

Prototype shields are being tested by Iowa DOT snow plow operators in Williams, Latimer, Forest City, Leon, Cherokee, Rock Rapids, Urbana, Avoca, Atlantic, Ames, and DeWitt. Operators are documenting the shield's effectiveness under various situations:

- changing the degree of shield angle,
- testing the most effective length of the shield's "tail" (some tails are 12 inches, some are 22 inches),
- sliding the shield to the right or left,
- testing plows with and without the shield under identical conditions,
- checking visibility in front of and behind the plow, and
- checking motorists' visibility.

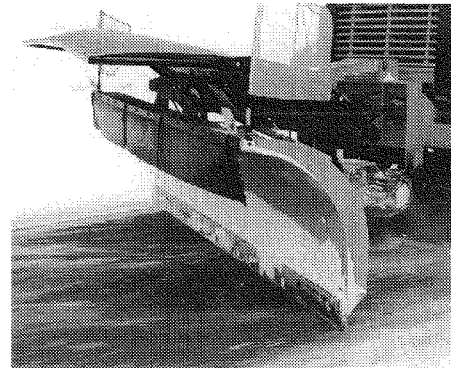
So far the prototype shields have undergone some pretty rigorous conditions, and preliminary feedback from operators has been positive. "Snow over the cab is diminished," says Mark Wright, resident maintenance engineer in Rock Rapids.

In fact, the shield has resulted in at least one unanticipated benefit: less wear on the windshield.

"The biggest benefit comes from eliminating most of the sand spray that usually gets on the windshield," says Steve Botos, highway maintenance supervisor in Avoca. He has traditionally had to replace snow plow windshields every three or four years because sand under the windshield wipers scratches the glass so severely.

Richard Johnson, highway maintenance supervisor in Williams, has had a similar experience. "It keeps the wipers free of ice, which makes for a lot less use of wipers—which means less scratching on the windshield," he says.

Mounting the shield has not been difficult. "It was as easy as we were told,"



says Jack Olson, mechanic at Cherokee.

"It went on easy," agrees Ray Isom, maintenance supervisor in DeWitt. "It would be no major problem to move it to a different plow."

This year's snowfalls have been wet and mildly heavy, and operators are eager to test the shields against a light, fluffy snowfall when poor visibility is really a problem.

For information about shield specifications or for detailed test results, contact Leland Smithson at 515/239-1519. ■

## Salt chute saves money and effort

When a winter storm hits, maintenance trucks are on the road day and night, spending countless hours removing snow or spreading salt and sand. Paul Durham and the crew at the east Ames Iowa DOT maintenance garage are working to perfect a system to clean roads with less material, time, and effort, making them safe more quickly while saving the taxpayers money and helping the environment.

The Ames crew have modified their salt/sand spreaders by attaching a special chute to each spreader that lays material in a two- to three-foot wide concentrated strip in the inside wheel track near the center of the road. The

# Standing corn for snow fence

A natural snow fence comes up out of the Iowa dirt every year—corn. In several northern Iowa counties, farmers leave a few rows of corn standing at harvest time to catch snow in the coming winter.

Bob Hadacek, maintenance operations assistant working out of the Iowa Department of Transportation's Forest City office, has been managing the corn fence program in his area since 1978. The idea for the fence didn't seem unique to Hadacek; he grew up on a farm with a long lane, and his dad always left corn standing along the lane to help keep it clear of snow. In 1991, the Iowa DOT gave Hadacek a PROUD award for the corn fence program.

In late summer or early fall, maintenance operators contract with area farmers at 50 cents over market price to leave four to six rows of corn standing in areas where there are major problems with drifting snow on the highway. The standing corn also helps improve visibility during snowstorms. The corn stands about 110 feet (40 to 50 corn rows) outside the right-of-way, closer in flat areas and farther in hilly areas.

The standing corn remains in the field until April 1, when it is often picked by the Boy Scouts or other nonprofit groups. The farmers get a good deal: They get paid a fair price for the corn by the state and, if they give the corn away, they can deduct the value of the corn as a charitable donation.

The Iowa DOT gets a good deal, too. Hadacek believes his program is as effective as—and about 75 percent less expensive than—putting up snow fence. Plus, the program builds good will with participating farmers, who appreciate that maintenance crews are not packing the ground in their fields to install and remove snow fence.

This winter Hadacek has 20 to 25 miles of standing corn in Hancock, Winnebago, Kossuth, Emmet, and Humboldt counties, protecting primarily older sections of state highways with narrow right-of-ways and shallow



Where the standing corn begins, much less snow accumulates in the ditches and on the shoulders.

ditches. Other areas of the state, like Waterloo and Davenport, have picked up on the idea.

If you want to try using standing corn for snow fence next winter, now is the time to start talking with local farmers about the program so they can plant their corn rows accordingly in the spring.

For detailed information about the corn fence program and contracting arrangements, call Bob Hadacek at 515/582-4298. ■

crown in the road then causes traffic and gravity to move the material to the edge of the road, cleaning the road as the material moves.

The chute works with equipment the garage already has on hand. "All we're doing is improving the process," Durham says.

He first decided he needed to change the traditional salt/sand spreading operation when he followed a spreader truck and "watched the material fly off the road." The spinner causes the material to bounce and land everywhere, including the side of the road, wasting a lot of salt and sand.

In contrast, the chute lays salt/sand in a concentrated area, so very little material is wasted. As a result, the east Ames garage saves about 30 percent on material costs.

In addition, this method reduces the number of trips trucks have to make,

reducing work hours and wear on the truck.

Most important, the Ames crew believe that using the chute brings the roads up to required traction levels more quickly. "By concentrating the material on the inside wheel track rather than spreading it all over the road, we can get that inside wheel track clean right away, giving vehicles a better driving surface much quicker," Durham says.

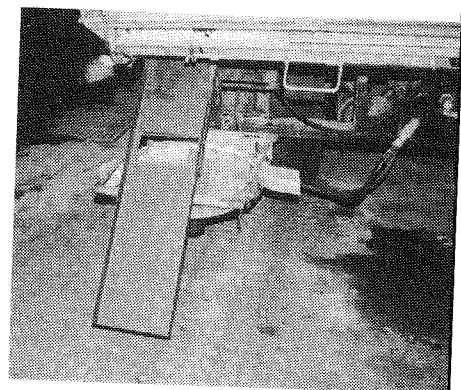
Variations of the chute include a trap door model and a round plastic chute. Jeff VanderZwaag, an equipment operator at the east Ames garage, prefers the trap door model because he believes they are easier to install and more convenient for the truck operator. This is because the trap door simply slides up to switch to the spinner and down to switch to the chute.

Still, the maintenance personnel at the east Ames maintenance garage have not yet decided which chute to

recommend because all models have shown about equal performance.

The chute helps the east Ames crew get the roads clean as efficiently as possible. "It [the chute] puts the money back in the people's pockets," says VanderZwaag.

For more information, contact Paul Durham at 515/232-8226.



Close-up view of the trap door model of a salt spreader chute.

# Conference calendar

## Iowa Work Zone Safety

**March 1** Mason City  
**March 14** Council Bluffs  
**March 15** Storm Lake

This conference, coordinated by the Office of Transportation Safety at the Iowa DOT, offers training in traffic control in construction, maintenance, and utility zones. Contact Jo Burt at 515/239-1557.

**Governor's Highway Safety Conference March 14-16—Des Moines** This conference is designed for individuals involved in promoting safety in Iowa. Its goal is to initiate a dialogue between local, state, federal, and private sector leaders to identify priorities to improve highway safety. Contact Greg Cameron at 515/294-8280.

**Iowa State Association of Counties Spring Conference March 15-17—Des Moines** This conference is for county engineers, supervisors, and other county officers. Safety management systems; ISTEIA enhancement project selection rules; and research, interpretation, and understanding of Iowa law will be discussed, along with current legal rights and responsibilities for highway drainage. Contact Ed Bigelow at 515/294-8103.

**American Public Works Association Spring Conference March 16-17—Scheman Building, Ames** This conference offers relevant and timely information regarding all aspects of civil engineering. Contact Steve Jones at 515/294-3957.

**Construction Inspection Workshop March 16** Ames  
**March 23** Council Bluffs

Designed for construction inspectors and employees, this workshop presents the current state of construction testing methodologies and techniques. Contact Sharon Prochnow at 515/294-3781.

**58th Annual Land Surveyors Conference March 30-31—Scheman Building, Ames** Contact Don Wall at 515/294-3811.

**Gearing Up for Bicycle Transportation April 5** Scheman-Ames  
**April 6** Council Bluffs  
**April 26** Iowa City

This workshop provides an overview of the process of developing a bicycle component in a transportation plan. Contact Duane Smith at 515/294-8103.

**Pavement Markings Conference April 19—Scheman Building, Ames** For contractors, pavement marking applicators, and city and county administrators who manage marking systems, this workshop covers retroreflectivity, waterborne paint specs, beads for marking, and environmental concerns. Contact Ed Bigelow at 515/294-8103.

**American Public Works Association Mid-America Conference April 19-20—Kansas City, MO** Contact Mike Wallner at 712/328-4634.

**Pavement Maintenance Seminar April 22—Davenport** This seminar

provides information on maintenance and rehabilitation methods. Contact Duane Smith at 515/294-8103.

**National Association of County Engineers Annual Meeting April 23-26—Davenport** Working with experts across the nation, county and highway public professionals will learn about the latest technologies in county road and bridge problems, along with money saving ideas. Contact Larry Mattusch at 319/326-8640.

**Institute of Transportation Engineers District IV Conference June 14-16—Kansas City, MO** This conference, designed for transportation engineers in District IV, will be a combination of an FHWA seminar on human factors and the aging road user, and a session containing technical tours of projects constructed in the Kansas City area. Contact Gary Wurdack at 913/492-8800.

**Sixth International Conference on Low Volume Roads June 25-29—University of Minnesota, Minneapolis** This conference covers the latest in planning, construction, materials, and technology transfer for low-volume roads, as well as difficulties encountered in cold weather. Contact G.P. Jayaprakash at the Transportation Research Board at 202/334-2956.

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