

Technology

Roads—Bridges—Transit—

Iowa Transportation Center

Iowa State University

News

April 1995

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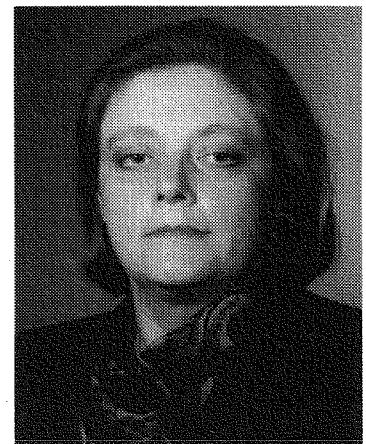
ITC welcomes Marilyn Kuntemeyer

Marilyn Kuntemeyer joined the Iowa Transportation Center staff in March as an Intelligent Transportation Systems (ITS) specialist and traffic engineer.

A native of Missouri, Kuntemeyer graduated from the University of Colorado at Boulder and received a master's degree in transportation engineering from the University of California at Berkeley. She is a registered engineer and brings 15 years of professional experience to the ITC.

During four years with the City of Sacramento, Kuntemeyer supervised traffic engineering operations and managed a wide variety of transportation planning studies. Prior to coming to the ITC, Kuntemeyer operated a transportation consulting firm in California.

One of Kuntemeyer's first projects at the ITC is a project for the Des Moines Area Metropolitan Planning Organization, the Iowa DOT, and the Federal Highway Administration developing concepts and plans for incorporating intelligent transportation systems into future transportation



Marilyn Kuntemeyer

improvements in the Des Moines metro area.

We are delighted to have Kuntemeyer at the center and anticipate that she will develop valuable working relationships with many of the users of ITC services. ■

Rubblized road prevents reflective cracking in Mills County

by Steve DeVries, Mills County
Engineer; and Shane Tymkowicz,
Secondary Road Research
Coordinator, Iowa DOT

Iowa counties are maintaining several thousand miles of portland cement concrete (PCC) pavement constructed during the past 30 years. Due to tight

budgets, many of these pavements are not being repaired at the most opportune time. Some of them have deteriorated to a condition where even the most effective methods of rehabilitation, like cracking and seating, are not successful, and cracks in the old pavement eventually reflect to the new surface.

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Rubblization continued from page 1



Rubblization is an alternative treatment for severely deteriorated PCC road, like this one in Mills County shown before rehabilitation in 1989.

Mills County, in cooperation with the Iowa Department of Transportation, has successfully experimented with an alternative to total reconstruction of these severely deteriorated PCC pavements: rubblization. In the rubblization process, the existing PCC is broken into small pieces to create a dense, drainable base and to give structure to the roadway. An asphaltic cement concrete (ACC) overlay is then placed on the rubblized road.

Five years after it was rubblized and overlaid, the rubblized sections of the Mills County test road show almost no signs of reflective cracking from the original PCC.

Project description

The test road consisted of almost two miles of severely deteriorated PCC pavement in Mills County. When the project began in 1989, joints exhibited D-cracking and, in many cases, complete failure. The pavement had failed to such an extent that it had pushed out onto the

shoulders in some areas (see photo above left).

The test road was divided into 16 sections with different drainage ratings. Some control sections were not rubblized.

The rubblized sections were broken with a resonate frequency vibration pavement breaker into approximately 50-mm (2-inch) particles. Particle size generally increased somewhat with pavement depth. After rubblization, the roadway was compacted with a vibratory steel drum roller.

A layer of chokestone was placed on the rubblized base and compacted to establish a final grade and to fill depressions created by the rubblization process, making a smooth, uniform surface for placement of the asphalt concrete overlay.

The desired result is a flexible, interlocked, stonelike base that supports and drains the structure of the roadway and prevents reflective cracking.

After the base was prepared, ACC overlays from 75 mm to 125 mm (3 to 5 inches) were placed on different sections of the test road.

Test results

Detailed crack surveys were conducted on the test road immediately after road work was completed in 1989 and each subsequent year through the fall of 1994. All rubblized sections of the road show almost no reflective cracking. Some rubblized sections were completely free of cracks after five years.

Some load-related alligator cracking has occurred in the outside wheelpath, primarily in test sections with softer soil, poorer drainage, and/or thinner ACC overlays.

All nonrubblized test sections have reflective cracks, which started in the first winter and increased each year.

Researchers draw the following conclusions from the study:

- The rubblization process can prevent reflective cracking.
- An ACC overlay of 125 mm (5 inches) on the Mills County rubblized base provided an excellent roadway regardless of soil and drainage conditions.
- An ACC overlay of 75 mm (3 inches) on a rubblized base can provide a good roadway if the soil structure below the rubblized base is stable and drained.

Steve DeVries, Mills County engineer, says, "We learned a couple lessons with

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The preparation of this newsletter was financed through the Technology Transfer (T²) Program. The T² Program is a nationwide effort financed jointly 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.

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.

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Rubblization continued from page 2

this test. First, if you're going to rubblize a road, the base has to be well drained. Install edge drains in the embankment at least one year in advance.

"Second, with rubblization, the structural capacity of the old pavement is lost."

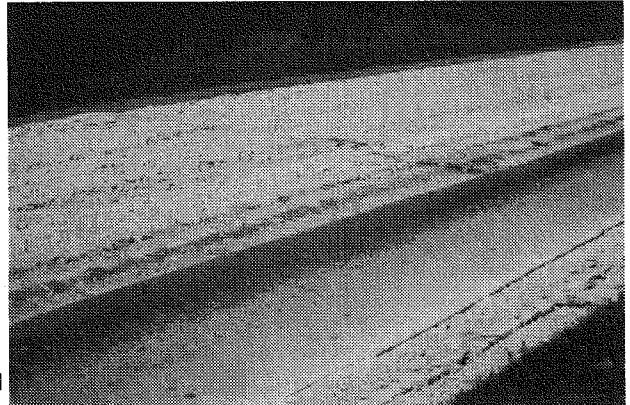
Shane Tymkowicz, secondary road research coordinator for the Iowa DOT, adds, "The jury is still out on the cost effectiveness of rubblizing compared to crack and seating or reconstruction." Tymkowicz says that tests will continue for the next few years on the Mills County test road to determine life cycle costs of the rubblized sections.

For more information about the Mills County study, contact Tymkowicz, 515/239-1382.

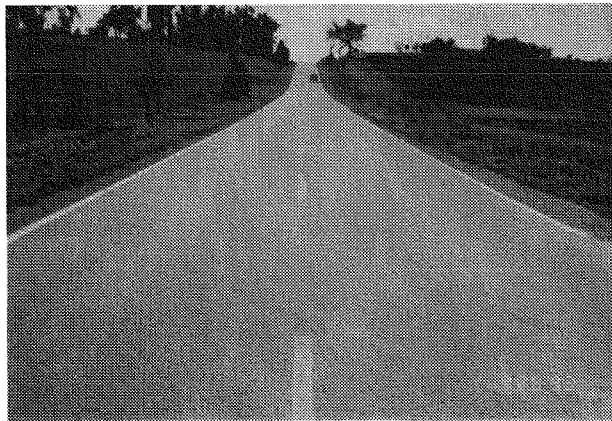
The final report on the Mills County Project, *Iowa Development of Rubblized Concrete Pavement Base: Mills County* (January 1995; HR-315), is available through the Iowa Transportation Center library. The library also has a National Asphalt Pavement Association (NAPA) report, *Guidelines for Use of HMA Overlays to Rehabilitate PCC Pavements* (September 1994). This report is national in scope and gives detailed insights and specifications for rubblization. To borrow either publication, or to learn about other resources regarding rubblization, contact

Stan Ring, librarian, 515/294-9481.

To receive a complimentary copy of the NAPA report (and/or a related, 1991 NAPA report, *Guidelines and Methodologies for the Rehabilitation of Rigid Highway Pavements Using Asphalt Concrete Overlays*), contact Don Jordison at the Iowa Asphalt Paving Association, 515/222-0015. ■



In Mills County, rubblized sections of test road were broken into approximately 50-mm (2-inch) particles.



Rubblization works best where the soil structure below the rubblized base is stable and drained. This section of road in Mills County showed virtually no cracking in 1993, four years after it was rubblized and overlaid with asphalt cement concrete.

Rubblization photos courtesy of the Iowa DOT.

Transportation law annotation available

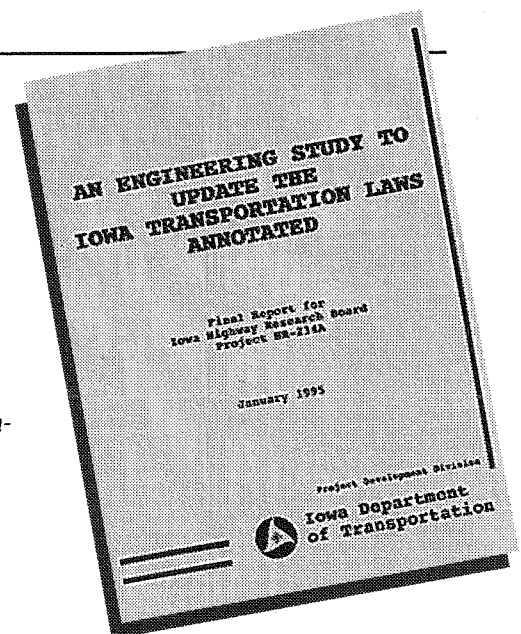
An updated annotation to Iowa transportation laws has been completed by the Iowa Department of Transportation and is available through the Iowa Transportation Center library.

The compilation includes those sections of the *Iowa Code Annotated* and the *Iowa Digest* to which transportation professionals—city, county, and state—must frequently refer. The document should be helpful to anyone who establishes, con-

structs, maintains, and/or administers a highway or street program.

To review the publication, *An Engineering Study to Update the Iowa Transportation Laws Annotated* (January 1995; HR-234A), contact Stan Ring, librarian, 515/294-9481.

To order your own copy, contact Vernon Marks, materials research engineer at the Iowa DOT, 515/239-1447. ■



Iowa DOT reorganization: spotlight on new Field Services Division

When the Iowa Department of Transportation reorganized last year, a high priority for Director Darrel Rensink was to open up the lines of communication between local government agencies and local citizens and the Iowa DOT. The new Field Services Division provides that communication link. A field services coordinator has been assigned to each of the six state transportation regions to act as the department's "ambassador" to that region.

Michael Audino, director of the new Field Services Division, has himself worked with the Iowa DOT as an outsider. Having served as the director of the Southwest Iowa Planning Council and as the business retention manager for the Greater Des Moines Chamber of Commerce Federation, he understands that local agencies sometimes view the department "as intimidating, powerful, and bureaucratic."

"Part of what Field Services is all about," he says, "is helping those

external customers feel more comfortable dealing with the DOT."

Just what the Field Services Division will mean to Iowa's local transportation professionals is still being worked out. Duane Smith, the Iowa Transportation Center's director of outreach, is working closely with Audino to determine how the ITC and the new division will complement each other.

For transportation technology transfer (training, information, etc.), the ITC will still be the primary resource for local governments.

The Field Services Division, on the other hand, is primarily a vehicle for enhanced communication between the Iowa DOT and its customers. Field services coordinators will perform several functions that relate directly to local transportation personnel. For example, coordinators will

- serve as departmental representatives at non-project meetings with

city councils and county boards of supervisors.

- maintain regular contact with all major Iowa DOT units so they can help local agencies engage appropriate departmental resources.
- coordinate planning efforts with local chambers of commerce, metropolitan planning organizations, regional planning affiliations, and appropriate DOT personnel to establish annual transportation conferences.

The Iowa DOT's Field Services Division is committed to serving its local customers. "We will work closely with the other divisions and with other members of our transportation center management teams to continue building an organization that prides itself in customer service," says Audino.

If you haven't yet met the field services coordinator in your area, give him or her a call and introduce yourself. ■

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Field services coordinators serve in each of Iowa's transportation center offices.

Photos courtesy of the Iowa DOT.

On-line clearinghouse: up-to-date SHRP information

Microtechnology

This article was adapted from SHRP Focus, July 1994, FHWA, with permission.

The Federal Highway Administration has shifted into high gear to implement products resulting from the Strategic Highway Research Program (SHRP) (see the sidebar on this page). Now you can tap directly into the SHRP Information Clearinghouse, a computer-based, user-friendly depository of facts and news for on-line information about the status of SHRP products and implementation activities.

Developed by Tonya Inc. under contract to the FHWA, the SHRP clearinghouse can be accessed from anywhere in the world. State and local highway departments, suppliers, contractors, universities, and others can dial the clearinghouse host computer, using a computer with a high-speed modem.

Once connected, users can quickly and easily get up-to-date information about what the FHWA is doing to encourage the adoption of the test methods, specifications, and equipment developed under SHRP.

Clearinghouse description

The clearinghouse is actually a set of five databases stored on an IBM-compatible personal computer at the FHWA headquarters. A free, customized software program links the databases and provides a graphic user interface. The menu-driven program makes it easy to navigate through the various options.

After logging on to the system, you'll be presented with a choice of options:

F—About this Clearinghouse

Here you'll find a summary of the background, purpose, and operation of the clearinghouse.

A—Implementation Status

The FHWA's SHRP Implementation Status Report is a timely, comprehensive

digest of information tracking the progress of SHRP's products from research to field application. The clearinghouse allows you to scroll through the full text of the most recent version of the report.

B—Product Information

Choose this option to gain access to historical and current information on SHRP products, as well as news of related showcase contracts, workshops, standards-setting activities, reports, and test and evaluation projects. Detailed information on the products being actively promoted by the FHWA is provided in a series of screens, or pages.

C—Calendar

The calendar lists all SHRP-related exhibits, workshops, training programs, and meetings. Each listing contains information on the meeting date and location, as well as a contact person.

D—Directories

The directory simplifies finding names and addresses of FHWA contractors; members of technical working groups and expert task groups; technical assistance sources; state, federal, and local technical assistance program coordinators; and others involved in implementation activities.

E—Report Abstracts

Concise abstracts for each of the more than 200 SHRP publications help you pin down the reports you need. Reports are listed alphabetically and by program area. Ordering information is also included.

Hardware and software requirements

The clearinghouse runs in a Windows environment (but you do not need to be running Windows on your computer). You should have an AT-compatible or faster computer with at least 640K of random-access memory and a VGA monitor. You'll also need a high-speed (9600 baud or faster) modem connected to your computer. A mouse is not required but is recommended.

For a free copy of the self-installing software that you need to dial in to the clearinghouse, contact Tonya Inc., 202/289-8108. ■

Strategic Highway Research Program: reaping the benefits

The Strategic Highway Research Program was established by Congress in 1987 as a five-year, \$150 million program to improve roads and make them safer. The program has resulted in hundreds of SHRP-generated products: reports, videotapes, and devices.

The Federal Highway Administration has mounted a comprehensive program to help state and local highway agencies implement these SHRP products.

Local transportation personnel can borrow SHRP reports and videotapes through local technical assistance programs like the Iowa Transportation Center. They can also purchase these publications through the Transportation Research Board.

Devices developed under SHRP have been intensively field tested and can also be borrowed through local technical assistance centers in each state.

Many devices have been enhanced and are being marketed by private industry.

For more information about SHRP products, and how the ITC can help you use these valuable new transportation resources, turn the page.

ITC has SHRP products for YOU!



The Strategic Highway Research Program has resulted in dozens of useful products—publications, videotapes, and devices—for local transportation professionals. Many of these products are available through the Iowa Transportation Center.

Stan Ring is on a mission: Spread the word about SHRP publications and videotapes.

Ring, the Iowa Transportation Center's librarian and former director, has seen nearly every SHRP-produced report and videotape. He emphasizes that, far from being merely academic research, many of these publications are practical and useful for local transportation professionals.

"Our local people should be using these publications," Ring says. "They're extremely practical in that they give information that local transportation personnel can put right to use on their own projects."

He lists the following examples:

- *Asphalt Pavement Repair Manuals of Practice* (SHRP-H-348)
- *Concrete Pavement Repair Manuals of Practice* (SHRP-H-349)
- *Concrete Bridge Protection, Repair, and Rehabilitation Relative to Reinforcement Corrosion: A Methods Application Manual* (SHRP-S-360)
- *Plows of the Future* (videotape) (SHRP-021)
- *Quality Control of Concrete on Site* (4 volumes) (SHRP-023-026)
- *Superpave Mix Design System: Specifications, Test Methods, and Practices* (SHRP-A-379)
- *Superpave Mix Design Manual for New Construction and Overlays* (SHRP-A-407)

SHRP reports and videotapes are available through the ITC's lending library. For users who want to buy their own copies, Ring can provide ordering information through the Transportation Research Board. Call Ring, 515/294-9481.



Duane Smith, the ITC's director of outreach, displays part of his collection of SHRP devices available on loan to local transportation personnel. Smith and Stan Ring, the ITC's librarian, have catalogs of SHRP devices and publications for purchase or for loan.

Duane Smith has a mission, too: Distribute the sample SHRP products that have taken over his office.

Smith, the ITC's director for outreach, has accumulated a lending inventory of nearly a dozen SHRP products, primarily innovative devices for safer work zones. These products include

- direction indicator barricades
- opposing traffic lane dividers (three models from three manufacturers)
- intrusion alarms
- flashing stop/slow paddles (five models from three manufacturers)

Smith also has bulk samples of five varieties of SHRP snow fence.

"These products incorporate a lot of innovations," Smith says. "For example, the direction indicator barricades are made from recycled plastic milk containers that give them sufficient weight and durability. The barricades fold flat for convenient storage, they have effective skid resistors, and they're reversible."

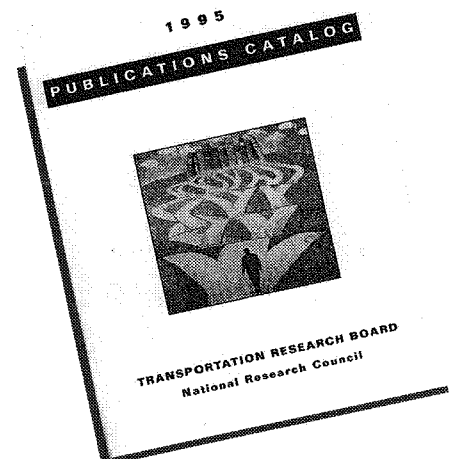
The intrusion alarms monitor the critical buffer area between vehicles and work crews. If a vehicle enters the buffer area, the alarm emits a piercing warning siren, giving workers a few life-saving seconds to clear out of the vehicle's path.

One model of the opposing traffic lane dividers is mounted on a flexible support designed to recover automatically to a vertical position if struck by a vehicle.

"These products are available on loan to anyone who'd like to try them out," Smith says. "We'd like to get feedback from local agencies on these devices."

Smith can send you a catalog describing the products and models in detail. If you decide to purchase something, he can also provide private vendor ordering information.

To borrow SHRP devices or to get ordering information, contact Smith, 515/294-8103. And help him clean out his office. ■



Just released: 1994 Highway Capacity Manual (HCM) Update

Seven chapters in the 1985 Highway Capacity Manual (Transportation Research Board Special Report 209) have been updated and/or replaced in the newly released 1994 HCM update.

New procedures, new capacity values, and other major changes have occurred since the 1985 HCM was compiled. Because computational results will vary significantly between the 1985 manual and the 1994 update, transportation professionals should begin using the 1994 update immediately.

It will be the last major update for several years.

The 1994 update was prepared by the Transportation Research Board in conjunction with the Federal Highway Administration and the National Cooperative Highway Research Program.

The 1994 HCM update retains the three-ring binder format and comes with a new index. You can purchase your own copy for \$80 (\$60 for affiliates of the TRB). To order, call the TRB publications sales office, 202/334-3213.

The Iowa Transportation Center library has one loan copy of the 1994 HCM update. To borrow it call Stan Ring, librarian, 515/294-9481.

Highway capacity software (HCS)

The upgrade to the HCS is consistent with the 1994 HCM update. The software costs \$350 for new users. Currently registered users can pay a one-time upgrade fee of \$100, which entitles them to this upgrade and any future upgrades from release 1 to release 2.

Order the HCS software package from McTrans Center for Microcomputers in Transportation, University of Florida, 512 Weil Hall, Gainesville, FL 32611-6585; 904/392-0378.

HCM training course

An HCM training course will be available in May 1995. The course can be scheduled by calling Ron Giguere at the FHWA, 202/366-2203, or Michelle Thomas, 202/366-9692. ■

Summary of changes in the 1994 Highway Capacity Manual update

Chapter 1—Introduction, Concepts, and Applications

- Provides clearer focus on the principles of capacity and the use of the manual.
- Describes the importance of capacity and level-of-service (LOS) determination.
- Discusses various types of traffic models.

Chapter 2—Traffic Characteristics

- Includes a description of uninterrupted and interrupted flows and the factors affecting them.
- Identifies technology as an important factor influencing LOS.
- Updates traffic flow characteristics.

Chapter 3—Basic Freeway Sections

- Increases ideal capacity for a freeway to 2,200 passenger cars per hour per lane.
- Adds use of free-flow speed to select speed-flow curves for analysis.
- Revises LOS boundaries.
- Provides new truck and RV factors.
- Revises speed-flow-density relationships.

Chapter 5—Ramps and Ramp Junctions

- Changes methodology for analyzing ramp acceleration or deceleration areas.
- Changes level of service criteria, based on density.

Chapter 9—Signalized Intersections

- Requires worksheets, but the primary means of analysis will be software.
- Expands arrival type definitions.
- Computes the progression factor analytically.
- Provides model allowing shared lane left turns.
- Increases ideal saturation flow to 1,900 passenger cars per hour per lane.
- Provides new quantitative clarifications.
- Provides new planning application.
- Improves definitions and procedures for measuring saturation flow rate.

Chapter 10—Unsignalized Intersections

- Revises definition of conflicting volumes.
- Recalculates the impedance factor.
- Computes average stopped delay for minor street traffic using a delay equation.
- Better defines the delay boundary values for level of service.

Chapter 11—Urban and Suburban Arterials

- Modifies progression factors.
- Adds a planning application.
- Identifies traffic models as alternatives for computing level of service.
- Revises definitions for consistency.

This information regarding the 1994 HCM update is provided courtesy of the FHWA.

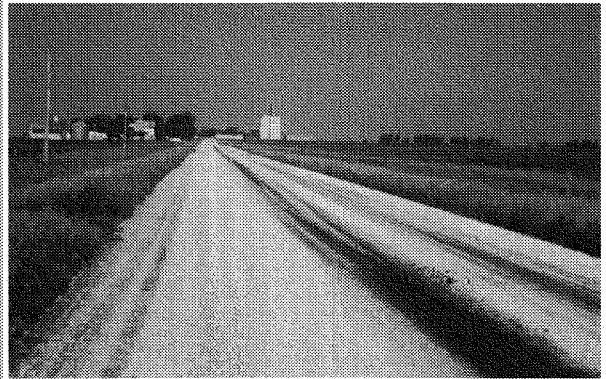
It's spring maintenance time! And here are some suggestions—

Problem: wet secondary roads

To dry spring's soggy secondary roads in a hurry, try treating wet spots with fly ash. Class C fly ash is a common by product of coal-fired electrical plants. It works more quickly on wet spots than do traditional lime treatments because of its rapid water absorbency and setting characteristics.

Treat wet spots by working class C fly ash into the area with a scarifier. The spots will usually be dry and passable in under an hour.

Class C fly ash can be a quick fix for wet roads like this one.



Problem: pavement markings—which paint to use?



Faded markings like these should be repainted. EPA regulations will soon affect the kind of paint you choose for street and highway markings.

A spring job that can last well into summer is repainting pavement markings. For Iowa cities and counties that mark their own streets and roads, this is the last year you can use oil-based paint for your markings.

Environmental Protection Agency regulations mandate that as of January 1, 1996, volatile organic compounds (VOC) in pavement markings must be limited to 150 grams per liter. This requirement effectively eliminates oil-based paints. Most private pavement marking companies and the Iowa Department of Transportation are already making the switch to waterborne, or water-based, paints.

If you order your pavement marking paint through the Iowa DOT, you can still get either oil-based or water-based paint this

year. After January 1, 1996, you will only be able to get water-based paint.

Using water-based paint presents some challenges, especially for local agencies. It must be used when fresh and can't be stored very long—two weeks is about the maximum before it starts to coagulate. Also, the Iowa DOT purchases it in 250-gallon totes, which may be too big for the needs of some local agencies that have traditionally bought their paint supplies through the state.

Finally, painting equipment must be converted for water-based paints. Tanks must be stainless steel, or lined with a polylining that eventually has to be replaced.

Jim Mott, purchasing agent for the Iowa DOT, says there are plenty of advantages to waterborne paints:

- They work with an airless application system, so you don't need a pressurized vessel.
- They are not only more environmentally friendly themselves, but they don't require the use of hazardous thinning and cleaning supplies.
- There are no drums to dispose of. The totes are recyclable, and the Iowa DOT's supplier cleans them.
- In the long term, water-based paints may actually be less expensive than oil-based paints.

These issues and more were discussed at the April 19 Pavement Markings Conference in Ames sponsored by the Iowa Transportation Center. If you missed the workshop and would like more information, contact Safety Circuit Rider Ed Bigelow, 515/294-8103. For more information about the Iowa DOT's waterborne paints, contact Jim Mott, 515/239-1285. ■

—regarding three common maintenance problems.

Be careful, though. If the percentage of fly ash in your mixture is too high, the road surface will become too hard and difficult to maintain. According to Ken Bergeson, associate professor of civil and construction engineering at Iowa State University, monitor the amount of fly ash carefully.

"If you use a mixture containing about 15–20 percent fly ash [based on the weight of soil in the mixture], you shouldn't have a problem," he says.

At \$7.00 to \$15.00 a ton, fly ash is a bargain, but hauling charges add to the expense. The cost effectiveness of this treatment may decrease as your distance from a source plant increases.

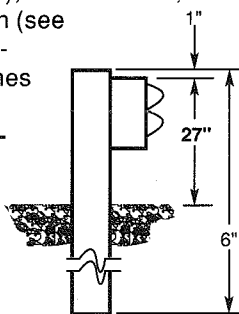
Several electrical plants in Iowa produce fly ash as a byproduct. For the names and addresses of commercial distributors, or for more information about using fly ash on wet roads, contact Bergeson, 515/294-9470.

Problem: obstructed or poorly maintained guardrails

Guardrails are used at bridge approaches and other areas where vehicles are especially vulnerable if they leave the road. If not properly maintained, guardrails not only become less effective but can actually contribute to an accident. For example, an excessive windrow next to a guardrail may act as a ramp, propelling a straying vehicle up and over the rail.

Although routine guardrail maintenance is important all year, spring is an excellent time to do some extra careful house-keeping. A manual developed by the Iowa Transportation Center, *Maintenance of Roadside Safety Features*, gives a checklist for guardrail maintenance:

- Check **guardrail height**. Cable rails should be 27–30 inches high (measured at the posts); W-beam rails, 25–29 inches high (see sketch); and thrie-beam, 30–34 inches high.
- Remove **obstructions** in front of the barrier (rough ground, vegetation, debris, excessive windrows, or, in the winter, hard-packed snow).
- Check **clearance** between the rail



and fixed objects like trees. Clearance for cable rails should be 11.5 feet; for a W-beam rail, 3 feet; and for thrie-beam, 2 feet.

- Repair **irregular curves or joints** where a vehicle could snag.
- Repair or replace **corroded or damaged rails, cables, or connections**.
- Repair or replace **corroded or damaged posts**.
- Tighten **loose connections** between the rail or cable and the post.
- Correct **loose posts** by making sure there is sufficient soil around them. Particularly, there should be a minimum of 2 feet of soil at a 10:1 slope behind the posts.
- Fix **incorrectly spaced posts** and replace **posts that are the wrong size**.
- Replace **rotting wood posts**.
- Correct **incorrectly spliced W-beam rails**. Splices should be overlapped in the direction the traffic is moving to prevent vehicles from snagging on the splices.
- Tighten **sagging cables**. Correct cable tension allows a maximum sag of 1 inch below the height at the posts (assuming 16-foot post spacing).
- Replace and stabilize **soil eroded** from the area around a cable rail end anchor.
- Secure **loose end anchors** on cable rails.

Safety Circuit Rider Ed Bigelow emphasizes the importance of routine guardrail maintenance, particularly to remove obstructions like vegetation and gravel and to maintain correct rail height. "It's easy to overlook guardrails," he says.

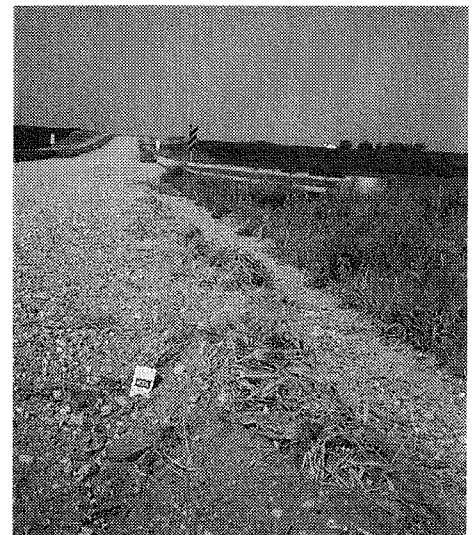
According to Bigelow, one solution to excess vegetation is to pave the guardrail area around and between posts. There may be a large initial expense, but future maintenance costs and hassles will be reduced.

The Audubon County crew uses weed-eaters to keep the area around guardrails free of vegetation. This summer the county will use EPA-approved soil sterilants for that purpose.

Doug Taggart, maintenance superintendent for Audubon County, cautions that motor grader operators need to be careful not to let excessive windrows build up around guardrails. Windrows in bridge areas not only are a safety hazard, but also cause drainage problems and pot-holes. End loaders can be used to remove excess gravel (and snow in the winter) that motor graders (or snow plows) can't remove.

"If kept properly," Taggart says, "windrows around guardrails shouldn't be much of a hassle."

The above guidelines are summarized from those listed in *Maintenance of Roadside Safety Features*, available on a loan basis through the ITC library. Contact Stan Ring, librarian, 515/294-9481. ■



The windrow and vegetation around this guardrail could be a safety hazard.

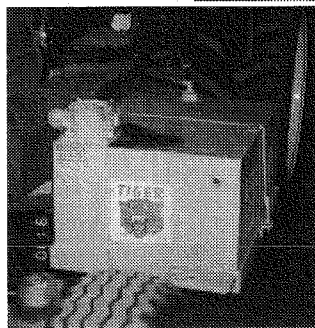
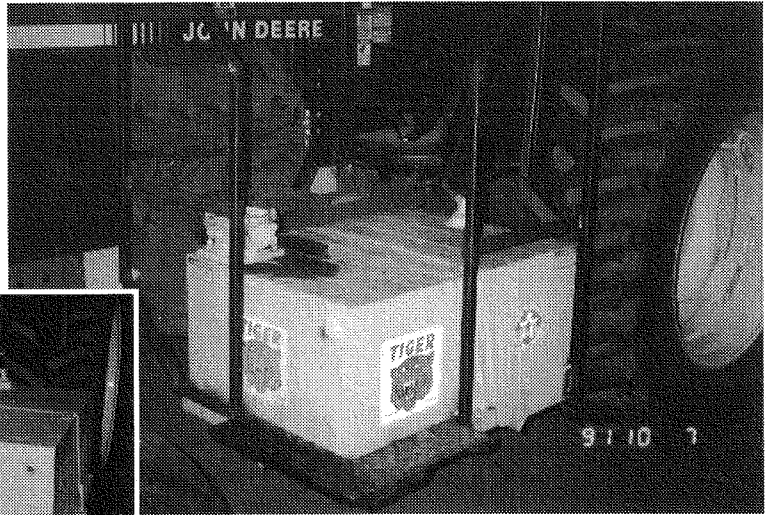
Tips from the field

Guard rail prevents accidents

by April Greenbeck,
Editorial Assistant

When a worker in Faribault County, Minnesota, broke his leg while dismounting a tractor, Don Halvorson, mechanic for the Faribault County Public Works Department, designed an instrument to prevent future accidents. Halvorson attached a guard rail and an extra wide step to the tank that runs the hydraulic mower. The rail encloses the tank to offer more protection and to ensure that the connection between the tank and rail is solid.

Faribault County in no way blames Tiger Mower Company for the incident in which the worker was injured. For more information, call David Hyink, shop foreman at the Faribault County Public Works Department, 507/526-3291. ■



The guard rail and extra wide step are attached to the tank that runs the hydraulic mower. Inset shows the tank before the rail was intalled.

Iowa and the Transportation Research Board celebrate 75 years

At the Transportation Research Board's annual conference in January in Washington, D.C., the Iowa Transportation Center co-hosted a reception commemorating the strategic role played by Iowa State College and the Iowa Highway Commission in forming the Highway Research Board (now the TRB) in 1920.

Hosted jointly with the Iowa Department of Transportation, Rockwell Interna-

tional, and the Department of Civil Engineering at Iowa State University, the reception was the first of many activities being planned to celebrate the TRB's 75th anniversary in 1995. More than 150 conference attendees visited the reception.

To commemorate the TRB's Iowa roots, the ITC and the Iowa DOT have also prepared a colorful booklet describing the nation's highway infrastructure in 1920, and the Iowans—Anson Marston, Thomas MacDonald, Thomas Agg, and Roy Crum—who led the movement for a nationally coordinated program of highway research.

The TRB is part of the National Research Council and is administered by the National Academy of Sciences. It serves as an advisory group to the federal government on transportation issues and is by far the country's largest transportation professional organization. The TRB is responsible for fostering many critical innovations in transportation, and the ITC is proud of the critical role Iowa played in its creation.

For a free copy of the historical booklet *Transportation Research Board 1920-1995: 75 Years of Excellence, and IOWA was there from the Beginning*, call Stan Ring, librarian, 515/294-9481. ■



Iowa DOT Director Darrel Rensink (center, background) greets some of the more than 150 transportation professionals who visited the Iowa DOT/ITC reception at the TRB conference in January 1995.



For more information

Following is a sampling of new or popular materials available from the Iowa Transportation Center library. To obtain materials or a catalog of library materials, contact Stan Ring, library coordinator, Monday, Wednesday, and Friday mornings, 515/294-9481. Or use the order form below.

Publications

The Dimension of Parking—3rd Edition This Urban Land Institute report provides information dealing with parking studies, economic and financial aspects of parking, parking demand analysis, and detailed design considerations. Loan copy. **Request #P1038**

AASHTO—Provisional Standards—January 1994 Edition This publication contains a set of provisional specifications developed by SHRP. Loan copy. **Request #P1067**

Bentonite Treatment for Economical Dust Reduction This study by the Iowa Highway Research Board and the Iowa DOT deals with dust reduction on limestone surfaced roads in three Iowa counties. Loan copy. **Request #P1068**

A Different Perspective for Investigation of PCC Pavement Deterioration This report discusses a system of analyzing the early cracking of concrete pavement using a scanning electron mi-

croscope for the analysis. Loan copy. **Request #P1070**

Iowa in Motion, Parts I and II This Iowa DOT publication deals with plans for the development of transportation in Iowa in the next 25 years. Loan copy. **Request #P1074**

Bicycle Facilities Network Identification Handbook This Iowa DOT publication provides information on deciding when a bicycle facility is needed and information on locating a bicycle facility. Limited copies are available free! **Request #P1075**

Videotapes

Early Opening of Full-Depth Concrete Repairs This SHRP video explains how to make concrete repairs in as little as four hours. Loan copy. **Request #V371**

Water Structures This video discusses a commercially available flexible barrier composed of tubes that are pumped full of water. The barrier/wall adjusts to the terrain and forms a dam to confine water. Loan copy. **Request #V387**

Motorgrader Preventative Maintenance This New Mexico training video describes the regular preventative procedures, documentation, and schedules, including checks during prestart, warm-up, operation, and shutdown. Loan copy. **Request #V389**

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CATT materials allow you to conduct one-on-one interactive training programs right in your own office or shop, at your convenience. You may have seen them demonstrated at recent ITC-sponsored workshops. Available programs are "Traffic Control in Construction Work Areas" and "Snow and Ice Control."

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To obtain materials from the ITC library, return this form to the Iowa Transportation Center, Iowa State University, 2521 Elwood Drive, Suite 125, Ames, Iowa 50010-8263. (Please limit your request to four items. Thank you.)

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____ Please send a complete catalog of all publications and audio-visual materials available from your office.

Conference calendar

Pavement Maintenance Seminar
April 22—Davenport This seminar provides information on maintenance and rehabilitation methods. Contact Duane Smith, 515/294-8103.

National Association of County Engineers (NACE) Annual National Convention April 22-26—Davenport Meetings will address ISTEA; bridge, pavement, and safety management; predictions for future technological innovations in transportation; environmental considerations; pavement recycling; and liability, among other subjects. Contact Larry Mattusch, 319/326-8640.

Gearing Up for Bicycle Transportation
April 28—Iowa City This workshop is for anyone interested in policy making for a local component in the state transportation plan, along with those interested in planning, designing, constructing, and maintaining local bicycle systems. It will discuss the process of developing a local bicycle transportation system. Contact Duane Smith, 515/294-8103.

Motor Grader Operator (MoGO) Workshops

May 9	Atlantic, Iowa
May 23	Ottumwa, Iowa
June 13	Cherokee, Iowa
June 27	Cedar Rapids, Iowa
July 11	New Hampton, Iowa
July 18	Atlantic, Iowa
August 1	Ames, Iowa

Contact Sharon Prochnow,
 515/294-8103.

Equipment Operations and Safety
 Workshops will be held in various Iowa locations beginning mid-May. Contact Sharon Prochnow, 515/294-8103.

Iowa Traffic Control Safety Association (ITCSA) Spring Conference May 18—Ames This conference is designed to promote safe and efficient transportation on the streets and highways of Iowa. It is also a forum to address mutual concerns about achieving this goal through education, enforcement, and engineering, as well as emergency medical services. Contact Don Wall, 515/294-8311.

Institute of Transportation Engineers (ITE) District IV Conference June 14-16—Kansas City, MO This conference, designed for transportation engineers in District IV, combines an FHWA seminar on human factors and the aging road user with a session containing technical tours of projects constructed in the Kansas City area. Contact Gary Wurdack, 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, Transportation Research Board, 202/334-2956.

Midyear Iowa County Engineers Association (ICEA) Conference July 12-13—Ames The date is tentative. Contact Jerry Hare, 712/328-5608.

And the winners are...

The respondents to December's reader survey whose names were drawn to win Iowa Transportation Center mugs are the following:

Steven Botos, William C. Botos, Gil Bremicker, City of Hartford, Vic Dannenbrink, John Goode, Brian Gramentz, Michele Johnson, Pete Kaser, Neal R. Kuehl, Chad T. Lingenfelter, Scott Logan, Richard Richard, Gary Maver, Ronald Neal, Alan Palmer, Rick Rasmussen, Joe Shay, Roscoe E. Simmons, Bob Steffes, Tom Stoner, Robert D. Studer, Lee Waddington, Chong Qing Wu, and Tony Zelinskas

A big THANKS to everybody who responded to our reader survey!

Results are being compiled, and we'll let you know what we learned from the survey in the June issue of *Technology News*.

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