

roads bridges transit

technology

news

Local Transportation Information Center
ISU Extension--Business and Engineering

June 1988

600 snowfighters attend Des Moines conference

More than 600 snowfighters from the United States and Canada gathered in Des Moines in April to discuss current technology during the APWA North American Snow Conference.

Traditionally a New England event, the Des Moines conference site was the furthest west in the program's 28-year history. It also was the largest conference yet, breaking previous attendance records, according to Lonnie Hawbaker, West Des Moines City Engineer.

Planning for the annual event started more than a year ago, according to Hawbaker, who served on the conference steering committee. "There are very strict rules for the operation of the conference. Once the location is determined, the local APWA chapter plans the program with national staff. We're proud that Des Moines was selected from among several cities and we're very pleased with the program and the turn out."

The two-and-a-half-day program included sessions on weather predicting, bridge deck cathodic protection, calcium chloride applications, safety tips, equipment tips, environmental policies, liability, computers, and management practices.

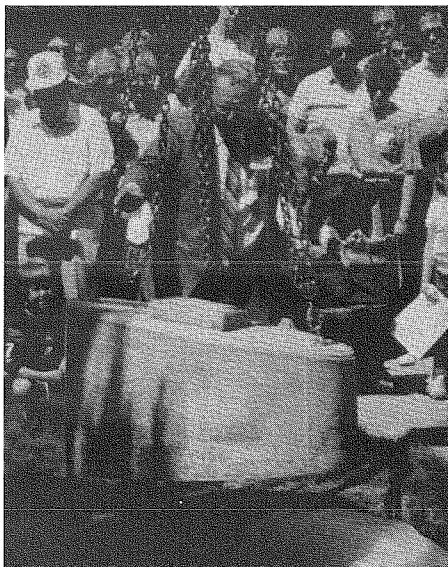


More than 52 exhibitors displayed state-of-the-art technology during APWA's North American Snow Conference.



The conference was a triumph for the year-long national/local planning partnership. Left to right: Harold Smith, City Engineer, Des Moines ; Lonnie Hawbaker, City Engineer, West Des Moines; Stephen Pudloski, Associate Executive Director, APWA.

DOT celebrates 75th anniversary



The Iowa DOT held its 75th anniversary celebration May 14 at its headquarters in Ames. Events included an open house, softball, a dunk tank, dixieland music, rides on a seat belt convincer, antique cars, and races for children. A time capsule to be opened in the year 2013 was buried on the DOT grounds. The capsule contained more than 100 artifacts from the past and present including a personalized license plate, a motor vehicle law handbook, a cancelled 1913 road bond, pictures of current maintenance equipment, and a sample of paint beads for pavement markings. More than 850 people attended the celebration. Lowering the capsule is George Calvert, retired Deputy Highway Director, and a member of the planning committee

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Street inspections can save embarrassment and may preclude liability

By R.L. Carstens, Professor Emeritus of Civil Engineering

Transafety, Inc., publishers of a popular newsletter relating to highway liability problems, surveyed states and local governments in 1983 concerning their experience with tort claims. Responses were received from 30 states, 45 counties, and 43 cities. State and county respondents reported that the most prevalent problem leading to claims was pavement/shoulder defects. The same area ranked second among cities behind traffic control devices.

The writer has encountered a number of cases in which alleged surface

irregularities were the basis for a lawsuit. In one case, differential settlement of adjacent pavement slabs on a city street caused a difference in elevation of 1 1/4 inches along a longitudinal joint. This allegedly caused a motorcyclist to lose control and led to a suit against the city. (Fig. 1) This case was settled without a trial.

The pavement spall portrayed in Fig. 3 had an area of 0.8 square feet and a volume of 0.03 cubic feet with a maximum depth of 1 1/4 inches. This defect allegedly caused a pedestrian entering her parked car to slip and fall. The case was tried in court in April, 1988, and is awaiting the judge's decision as this is being written.

One message that came through clearly while these cases were being litigated was the importance of a systematic program of street inspection. While it is not clear that better inspections would have led to a repair of these specific defects, each city was forced to defend their street inspection program. Some were embarrassed. How does your street or road inspection program measure up?



Fig. 1 Cold mix was used to reduce the dropoff after adjacent pavement slabs settled along a longitudinal joint.

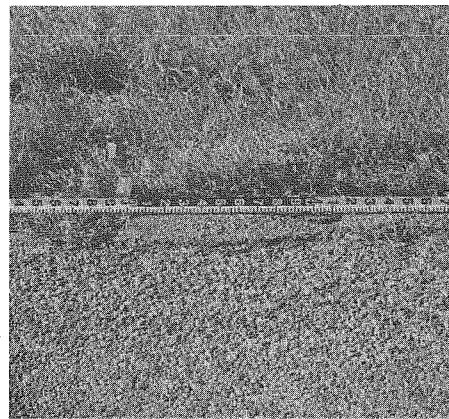


Fig. 2 Raveling allegedly contributed to an accident.

The raveling at the edge of the asphalt street (Fig. 2) allegedly contributed to the loss of control of a Volkswagen van that ran off the road injuring its six occupants. The total amount of material lost in this defect was 0.02 cubic feet with an area of 0.2 square feet. This case also was settled without a trial.

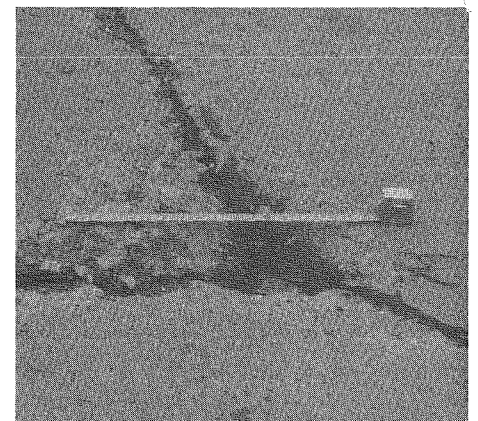


Fig. 3 This pavement spall allegedly caused a pedestrian accident.

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Program manager--Tom Maze; Coordinator--John Moody; Editor--Teddi Barron; Editorial assistant--Brenda Stine; Computer programmer--Deborah Faul

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 individual state departments 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 personnel.

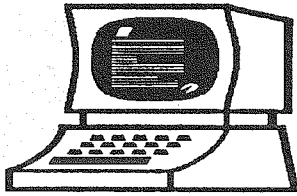
The opinions, findings, or recommendations expressed here are those of the Local Transportation Information Center and do not necessarily reflect the views of the Federal Highway Administration or the Iowa Department of Transportation.



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Federal Highway Administration



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micro technology

First marketed widely in the mid-70s, microcomputers were restricted by their capacity and limited software. This promoted the notions that these desktop machines were for the hobbyist and that important computing required a mainframe computer. In the past 10 years, however, microcomputers have come of age. They are a powerful force in the automation of office functions, assuming many activities previously reserved for expensive, temperamental mainframes.

With their rampant popularity, microcomputers have popped-up in almost every facet of business and industry. Even the smallest retail stores use micros to track inventory, organize accounting functions, process purchasing records, process text, and complete countless other daily tasks. However, governmental agencies generally have been slower than the private sector to integrate microcomputers into the everyday flow of managing equipment, paperwork, materials, roadways, and other services.

No one questions the need to computerize the management of most governmental functions. The eventual movement to computerize most management activities is virtually inevitable.

I recently helped teach a workshop for public works fleet managers. Less than one-third of the 40 participants had a computerized equipment - management information system. When I asked who anticipated the purchase or development of such a system in the next few years, almost everyone raised a hand.

Future issues of *Technology News* will include a column devoted to

microcomputers, microcomputer applications, and/or software. It is our hope that this regular feature will provide you with practical information on the use of computers in transportation system management, design, and administration.

In this issue, national distribution points for transportation applications and microcomputer software are introduced. Of the three common sources of information, two are sponsored by the U.S. DOT and provide free newsletters.

1. *McTrans* (published by the Transportation Research Center, University of Florida, 512 Weil Hall, Gainesville, FLA 32611) features computer software application in traffic engineering, roadway maintenance management, roadway design, transportation planning, and other highway transportation subjects.

2. *The Time Capsule* (published by the TIME Support Center, Department of Civil and Environmental Engineering, Vanderbilt University, P.O. Box 1563, Station B, Nashville, TN 37325) features software and computer application in public transportation.

3. *PC-Trans* (published by the University of Kansas Transportation Center, 2011 Learned, Lawrence, KS 66045) provides information on microcomputer applications. There is an annual subscription fee for this newsletter. For an additional fee, the Kansas Transportation Center distributes software and provides an electronic bulletin board and limited consulting services.

Tom Maze, program manager, Local Transportation Information Center

Center offers two new reprints

"We're doing more work with less equipment and fewer people," says Dick Clelland, senior street maintenance supervisor for the Riverside, California Public Works Department. Clelland's experience using a pavement cutter wheel attached to the backside of a loader's bucket is discussed in an excellent article in the May, 1987, issue of *Roads and Bridges* magazine.

"Cutter on Wheel Loader Does Job on Aged Asphalt" describes a new 'fast, precise, and quiet' way of removing and repairing old asphalt pavement. According to the article, with the attached cutter wheel, Clelland's paving crew can cut out and replace as much as 10,000 square feet of asphalt in one day, using only the wheel loader, supporting dump trucks, and the paving spread for equipment. The article also examines the operation of the cutter wheel and the need for a multi-purpose bucket.

Cross training, specialized courses, on-the-job training, training inspectors, awards, and extra pay, all are ideas suggested in "How DOTs Train and Motivate Bridge Crews." The article in the March issue of *Better Roads* discusses different approaches used by DOTs in 11 states and the District of Columbia to improve the operation of their bridge crews. Their suggestions include the Quality Circles Program, public recognition, formal training, computerized maintenance systems, and annual seminars.

For a copy of either article or more information, contact John Moody, Iowa State University, Local Transportation Information Center, EES Building, Haber Road, Ames, Iowa 50011; phone (515) 294-8817.

Advisory committee gives guidance to center's programs

The Local Transportation Information Center Advisory Committee met recently to provide feedback and discuss programming. According to committee member Lon Hawbaker, "The purpose of the advisory committee is to provide information from a variety of backgrounds to help guide the Center toward meeting the needs of its constituency."

Members of the committee planned and discussed future workshop and conference offerings. They also made suggestions for the newsletter. Two changes--promoting the availability of publication lists and adding a column on microcomputers--occur in this issue of *Technology News*.

As to changes in center programming, program manager Tom Maze says, "The committee has an interest in orienting toward communities with smaller staffs." These communities have tended to be less involved in the programming in the past.

The advisory committee consists of state, county, and municipal representatives. Current members are Richard King and Lon Hawbaker, Iowa Chapter APWA; Steve Holcomb and Gene Hardy, Iowa County Engineers Association; David Long, League of Iowa Municipalities; Larry Stevens, City Engineers/Public Works Directors; Elena Aguilar and Ed Finn, FHWA; and William McCall, Lowell Richardson, Peter Hallock, J.P. Golinvaux, Larry Jesse, John Whited, and Eileen Primer, Iowa DOT.

Travel the road to knowledge and bridge the gap of ignorance with a free subscription

Roads & Bridges magazine is for public officials and contractors involved in planning, administering, contracting, and engineering for the maintenance and construction of roads, bridges, highways, and tunnels.

tips from the field

Stinger/squeegee head

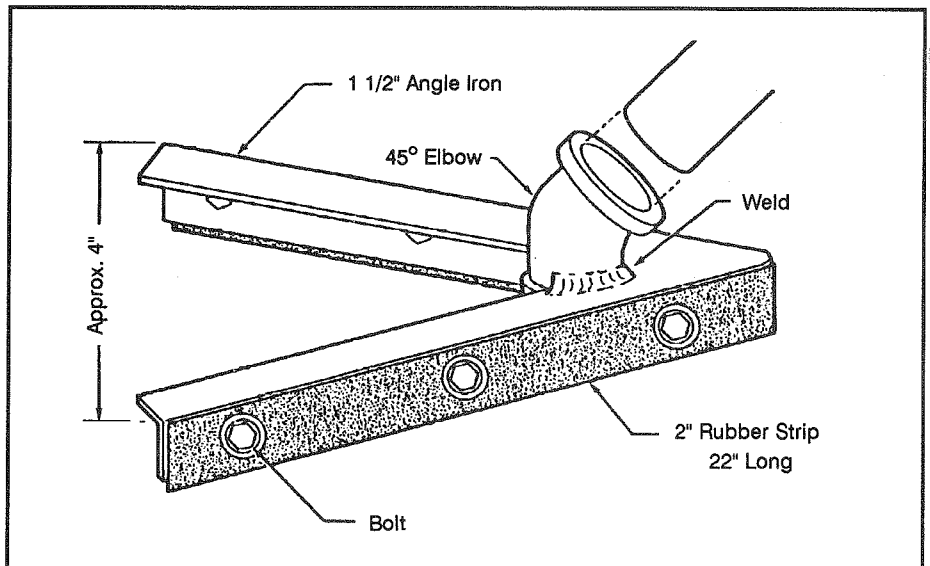
The Iowa DOT maintenance department has developed a stinger/squeegee head to deliver heated asphalt emulsion into concrete pavement cracks. By carefully guiding the V-shaped tool mounted at the end of a wand, the process of injecting asphalt into a pavement crack can be cleaned up. The name "stinger" is used because the wand resembles a bee stinger that is capable of projecting into tiny cracks.

Heated asphalt emulsion is delivered to the pavement crack through the

hollow wand connected to the emulsion's source on the truck.

The tool is about 10 inches long with an opening approximately 4 inches across the top of the "V." It is constructed of 1 1/2-inch by 1 1/2-inch angle iron. A 2-inch rubber strip is fitted around and bolted onto the 2 closed sides.

A 45-degree pipe elbow is welded near the vertex of the tool, the point where asphalt emulsion is delivered to the damaged area. The rubber strip serves as a squeegee to contain the emulsion and wipe it into the crack.



Injecting heated asphalt emulsion into tiny pavement cracks is simplified with a stinger/squeegee head. The DOT's maintenance department developed the tool which resembles a bee's stinger.

The magazine is published monthly and includes excellent information on the restoration, rehabilitation, renovation, and reconstruction of the soft wheel infrastructure.

Free subscriptions to *Roads & Bridges* are available to readers of this newsletter. If interested, write or call Tom Kuennen, Editor, *Roads & Bridges Magazine*, 380 Northwest Highway, Des Plaines, Illinois 60016; phone (312) 298-6622.

Help us serve you better

We want to continue improving the practical value of our newsletter, conferences, and workshops. We are very interested in your input. Please take a few minutes to answer the following questions, and fold and staple this page with the return address facing out. The postage is prepaid. Thank you for your help!

**1. What type of agency do you work for?
(Check one)**

- Municipality
- County
- State Agency
- Association
- Other: _____
- Consultant
- Contractor
- Supplier
- University/
College

2. What is your job title?

3. How do you rate *Technology News*?

- Very useful
- Useful
- Somewhat useful
- Not very useful

4. Which regular features are of the most interest to you? (Check each one that you like to read)

- Highway research reports
- Transportation history articles
- Tort liability articles
- Tips from the field
- For more information
- Conference calendar

**5. Which subjects are of the most interest to you?
(Check each subject that you like to read about)**

- Transit
- Bridge maintenance and rehabilitation
- Roadway maintenance
- Equipment maintenance
- Management (con't in next column)

- Highway or bridge design
- Supervision
- Computers
- Others: _____

6. How often do you attend workshops or conferences on transportation at Iowa State University?

- 5 or more times per year
- 2 to 5 times per year
- 1 or 2 times per year
- Occasionally
- Never

7. How would you rate the transportation-related workshops or conferences that you have attended at ISU?

- Very useful
- Useful
- Programs presented by other organizations are more useful to me.
- I never go to workshops or conferences
- Somewhat useful
- Not useful

8. What is your preference for the length of a conference or workshop?

- 1/2 day
- 1 day
- 2 days
- 3 days
- 4 or more days

9. Which days of the week are the best for you to attend workshops or conferences?

- M T W Th F S



10. Your input will help us plan future programs. Please rate the following for potential workshop topics:

Very Interested	Interested	Not Interested	
_____	_____	_____	Traffic control and safety
_____	_____	_____	Safety features for local road
_____	_____	_____	Highway Capacity Manual
_____	_____	_____	Tort law
_____	_____	_____	Barriers and safety features design
_____	_____	_____	Traffic signal timing design
_____	_____	_____	Traffic signal maintenance management
_____	_____	_____	Traffic site impact analysis
_____	_____	_____	Regional transit service marketing
_____	_____	_____	Regional transit system management
_____	_____	_____	Risk management regional transit systems
_____	_____	_____	Transit vehicle maintenance management
_____	_____	_____	Work zone safety
_____	_____	_____	Construction inspector's workshop
_____	_____	_____	Culvert inspection workshop
_____	_____	_____	Soils and foundations workshop
_____	_____	_____	Road surface management
_____	_____	_____	Pavement crack sealing and patching
_____	_____	_____	Fundamental of pavement management
_____	_____	_____	Pavement rehabilitation techniques
_____	_____	_____	Pavement recycling
_____	_____	_____	Maintaining granular surface roads
_____	_____	_____	Bridge rehabilitation
_____	_____	_____	Equipment maintenance management
_____	_____	_____	Computer estimation of urban drainage
_____	_____	_____	Hazardous waste management
_____	_____	_____	Bridge painting inspection
_____	_____	_____	Construction contract claims
_____	_____	_____	Piling workshop
_____	_____	_____	Geotextile engineering
_____	_____	_____	Geotechnical engineering fundamentals

11. What important workshop topics have we forgotten? _____

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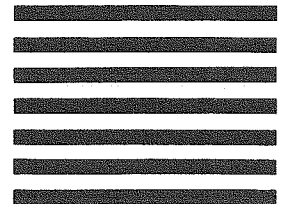


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for more information

The following publications are available on a loan only basis from the Transportation Information Center. To reserve your copy, complete the order form below and return it to our office.

Training Manual for Setting Street Maintenance Priorities #276

This manual seeks to train the city government staff in an inexpensive, fast, yet thorough method for setting street priorities. The method records and analyzes surface conditions that reflect street base failures. (For additional information on this method, contact Texas Innovative Group, Center for Urban Programs, Texas A&M University, College Station, Texas 77843; phone 713-845-4527.)

Guardrail and Impact Attenuator Repair (A Value Engineering Study) #305

This report summarizes the results of three Value Engineering meetings relating to the repair and maintenance of guardrail and impact attenuators. Recommendations in the report can be expected to reduce the unit cost of attenuator maintenance, reduce the cost of guardrail maintenance, reduce the number of impacts and the resultant costs of repair and replacement, and speed the repair/replacement process, thus reducing labor costs per incident.

Microcomputer Applications in Traffic Engineering Agencies #290

The U.S. DOT sponsored this document to promote information exchange. It includes chapters on these topics: the need for a microcomputer, developing a microcomputer system, approaches to system design, choosing and using software, a consultant's casebook, and projected microcomputer use of the future.

Selection of Cost-Effective Countermeasures for Utility Pole Accidents #295

A cost-effectiveness procedure which utilizes graphs, charts, and tables was developed to compare accident benefits and project costs for such projects as undergrounding utility lines, pole relocation, breakaway poles, and reducing pole density. This user's manual also discusses user input variables and methods for establishing project priorities.

Utility Pole Accident Countermeasures Evaluation Program and Input Processor-A User's Manual #294

The UPACE computer program is a tool to facilitate the cost-effectiveness analysis of utility pole accident countermeasures. The program analyzes roadway sections relative to utility pole accident problems and treatments and provides the informa-

tion needed for decision making. Although originally developed for the mainframe (UPACE) computer, the program has been converted to the MS DOS operating system for IBM-PC and compatible microcomputers. An input processor was developed to assist users in creating and modifying input data files.

Retrofit Railings for Narrow Through Truss and Other Obsolete Bridge Structures #303

Complete collapse of truss structures has resulted from automobile impacts as well as heavy vehicle impacts. Two bridge railing retrofit systems were systematically designed and developed in this project. The high performance system is designed to contain and limit vehicle roll of 20,000-lb. buses impacting at 55 mph and a 15-degree angle. The low service retrofit system contains and redirects a 4500-lb. car impacting at 60 mph and a 15-degree angle without endangering the truss members behind the retrofit system.

And justice for all

Appointment, promotion, admission and programs of extension at Iowa State University are administered equally to all without regard to race, color, creed, sex, national origin, disability, or age. Call the Affirmative Action Office at (515) 294-7612 to report discrimination.

Publication order form

To obtain the materials listed as available from the Local Transportation Information Center, return this form to the Local Transportation Information Center, Iowa State University Extension, EES Building, Haber Road, Ames, IA 50011.

	Title	Index #	# of Copies
Name _____	_____	_____	_____
Address _____	_____	_____	_____
City/State/Zip _____	_____	_____	_____
Phone (____) _____	_____	_____	_____

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

conference 28 29 30 1 2 3 calendar 4 5 6

Community Transportation Expo 88
June 21-23
Nashville
Sponsored by Community Transportation Reporter. For more information, contact CTR (800) 527-8279.

Site Impact Traffic Evaluation Course

July 12-14

Iowa DOT, Ames

Designed for transportation professionals who are involved in assessing the traffic impact of site development. Participants will receive hands-on training on microcomputer packages used to measure the traffic impacts of new developments. Contact Tom Maze, (515) 294-5366

Water Analysis Laboratory Course

July 13-15

Town Engineering Bldg., ISU

Training on basic water analysis procedures for operators of water treatment and water distribution facilities. Contact Steve Jones, (515) 294-3957.

Maintenance Management Systems

July 26-27

Equipment Management Systems

July 27-28

Starlite Village Motel, Ames

Two hands-on workshops, each 1 1/2 days in length, will be offered together. The first will cover the implementation of a roadway maintenance management system; the second workshop will define the elements and organization of an equipment management system. Both courses will provide useful information for agencies that operate both computerized and paper-based management systems. contact Tom Maze, (515) 294-5366.

Midwest Timber Bridge Conference

Aug. 3-5

Telemark Lodge, Cable WI

Contact Lew McCreery, (715) 748-2008

APWA Iowa Chapter, Fall Meeting

Aug. 17-19

Des Moines

National Conference on Rural Intercity Passenger Transportation

Aug. 23-24

Omaha

Contact Eileen Stommes, Office of Transportation, USDA, (202) 653-6305.

APWA International Congress and Equipment Show

Sept. 24-29

Toronto

Contact APWA (312) 667-2200

Institute of Transportation Engineers 58th Annual Meeting

Sept. 25-29

Vancouver

Contact Tom Brahms (202) 554-8050.

Bridge Research in Progress

Sept. 26-27

University Park Holiday Inn, Des Moines

Overviews of major research areas presented by leading engineers as well as brief summaries of research in progress. Contact Wayne Klaiber, (515) 294-8763.

Technology News

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