roads bridges transit
technology news
Local Transportation Information Center
Iowa State University Engineering Extension Service
December 1984

Snow removal policy can reduce liability

A discussion of new Iowa legislation concerning snow and ice removal was one of the highlights of the APWA Iowa Snow Conference held October 2 in Ames.

One of the provisions of the new law states that political subdivisions will not be held responsible for failing to remove snow or ice, or for not applying enough salt or sand, if the subdivision can establish that it complied with its own policy (section 10, subsection 2 of House File 2487). In other words, if a political subdivision has a **clear** snow and ice policy, and they follow it, they should not be able to be sued successfully.

Most administrators in state, county, and municipal work are aware that the provisions on fault and liability are based on a policy or level of service requirement. As a result, they are working to create official policies.

A paper addressing considerations in the development of snow and ice policies was presented by Dave Long of the League of Iowa Municipalities as a guide to constructing a model policy.

Long emphasized the need to be realistic when constructing a policy, and the desirability of maintaining a large degree of flexibility. He also stressed the importance of broad participation, advising the inclusion of the mayor, city council, police chief, public works department, and municipal attorney in devising the plan.

The snow control equipment display was a popular feature of the APWA Iowa Snow Conference.

Other considerations discussed included whether or not the policy should be a written one, and if it is written, whether it should take the form of a resolution or an ordinance. The pros and cons of both arguments were given.

Another feature of the conference was the equipment display in the courtyard. It was the first time for the displays, and evaluation reports showed a desire to expand the exhibits in the future.

Interest was also demonstrated for starting a snow "rodeo" in which operators would bring their own snow removal equipment and compete in driving ability contests. The planning committee will look into this possibility for next year's conference.

Copies of Long's paper entitled, "Considerations in Developing a Snow and Ice Removal Policy," are available by calling the Info-Line.

We've moved

During Ocober, the offices of the Engineering Extension Service and the Local Transportation Information Center moved to Haber Road between 6th and 13th streets on the ISU campus. The new phone number is 515/294-8815. The toll-free Info-Line number remains the same.

The preparation of this newsletter was financed in part through federal funds provided by the Federal Highway Administration. 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 those of the Iowa Department of Transportation.

Inventories are better than memories

The vast majority of lawsuits filed against cities, counties, and the state as a result of highway accidents, allege deficiencies in the use of signs. Although in many cases there is general agreement that an appropriate sign was in place at some time in the past, a common point of disagreement is whether the sign in question was in place at the time of an accident.

When this disagreement occurs, the defendant is often forced to rely upon the memory of some maintenance worker who seems to remember that the sign was there when he or she passed by the location a few days (or weeks) before the accident. The vagueness of this kind of recollection affords a plaintiff's attorney considerable opportunity to do what attorneys do best—discredit the testimony of the witness. Further, the plaintiff will often have the advantage of photographs taken at the scene shortly after the accident. These photographs will have been taken for the purpose of supporting subsequent litigation, and may or may not accurately portray the situation at the time of the accident.

There are two ways, at least in part, to overcome this problem. One is for the highway authority to conduct its own investigation following an accident that might reasonably be expected to result in a claim. This necessitates some procedures for notification of the highway agency by law enforcement officers when a serious accident occurs.

In order to preclude a response to a minor property-damage accident, yet ensure that the highway agency investigates serious accidents, guidelines are necessary. It is far better to waste the time investigating a few accidents that did not result in claims than to have failed to investigate an accident that results in a multimillion dollar lawsuit.

The other need is for an inventory of traffic control devices so that there can be a definitive answer concerning whether a particular sign was ever in place. An inventory used as evidence cannot always answer a question concerning whether a particular sign was in place at a particular time, but it can demonstrate a good-faith effort to install and maintain signs that are needed. Perhaps most important, maintaining a sign inventory means that, on occasion, someone from the highway authority looks at the signs in place, and observes their condition and the circumstances of their placement. This activity may not prevent accidents, but it will undoubtedly have a payoff in defending tort claims.

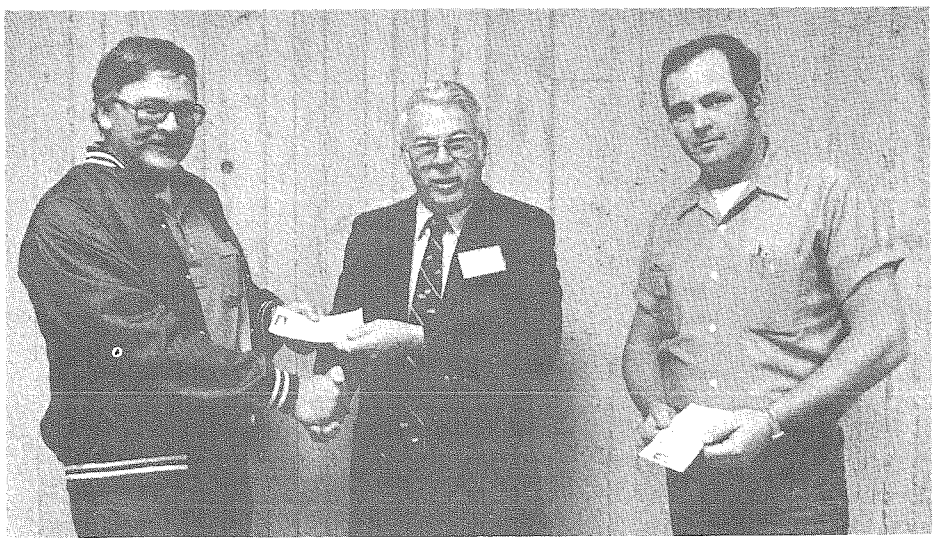
R. L. Carstens, professor of civil engineering, ISU.

Exhibit tells the Brooklyn Bridge story

The Smithsonian Institution's Building Brooklyn Bridge traveling exhibition will be at the Brunnier Gallery, Scheman Building, ISU, December 1-January 13. The exhibit consists of approximately 300 engravings, photographs, models, and original drawings that tell the story of the design and construction of one of the most outstanding achievements in the history of American engineering.

The exhibit explores in detail the bridge's engineering and the series of steps by which John A. Roebling's plan was transformed into the present structure.

The Brunnier is located on the top floor of the Scheman building. It is open Tuesday through Sunday from 11 a.m. to 4 p.m.



Continuing education grant recipients Robert Mikes, West Bend Street Department superintendent, and John Arndt, Le Claire Public Works Department Maintenance foreman, accept their cash awards from Program Manager Stan Ring. The grants covered their registration fees and travel expenses for the APWA Snow Conference held October 2 at ISU.

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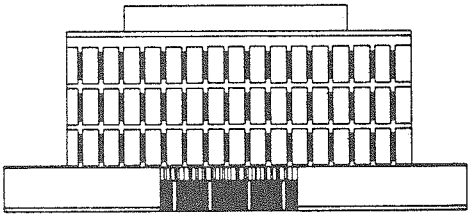


Water blasting use spreads

New water blasting equipment, described in the January 1984 issue of *Technology News,* is currently being used by a construction firm in Ohio to clear away deteriorating concrete from bridge decks prior to resurfacing.

With permission from the Ohio Department of Transportation, the Great Lakes Construction Company (Cleveland) used a high-pressure water blaster on their recent bridge deck resurfacing projects. Known as "Bandit," the equipment is manufactured by HI-TEC, Inc. of Milbank, South Dakota.

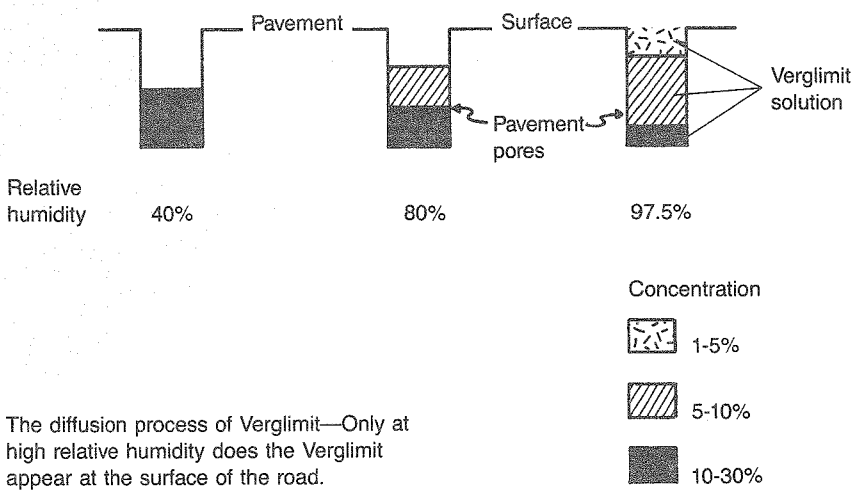
Using four specially designed tungsten-carbide nozzles, "Bandit" pumps 43 gallons of water per minute onto the surface at pressures of up to 12,000 psi. At those pressures, old asphalt patches, deteriorated concrete, and corrosion on the reinforcement seem to explode off the surface without creating a dust problem.

The four nozzles are mounted on a horizontally rotating head. The speed of the head rotation coupled with the water pressure and volume are used to control the depth at which the water cuts and removes the concrete. Following cleanup, the result is a clean, deeply-textured surface with gray reinforcing steel completely free of rust and visible corrosion. Resurfacing may then be applied.

In addition to its use in Ohio, the machine has been demonstrated during the past two years in Michigan, Minnesota, and North Dakota, and has proven itself to be an effective time and money saver.

Pavement deicer explained at conference

The pavement deicing chemical Verglimit® (see May 1984 *Technology News)* was discussed in-depth during a session of the ASCE Transportation Conference held recently at ISU.



The diffusion process of Verglimit—Only at high relative humidity does the Verglimit appear at the surface of the road.

When mixed into asphalt pavement, Verglimit creates a nonstick surface that prevents ice formation at temperatures as low as 27°F. It retards ice at much lower temperatures, and, although it doesn't melt heavy snow, the chemical will prevent snow from bonding to the pavement.

"The primary use for Verglimit is on dangerous problem areas. It's a solution to ice formation on bridges, steep grades, sharp curves, ramps, and complicated intersections," said retired Massachusetts state highway engineer James Kelley, P.E., who serves as Verglimit's New England representative.

Manufactured in Germany and distributed from Ontario, Verglimit is composed of calcium chloride with 5 percent caustic soda and impregnated with linseed oil. Flakes of the solution are imbedded in the pavement. When exposed to humidity, Veglimit expands and works up to the pavement surface where it absorbs moisture until it dissolves. Normal traffic-induced abrasion releases small quantities of Verglimit so that new particles can be exposed and activated.

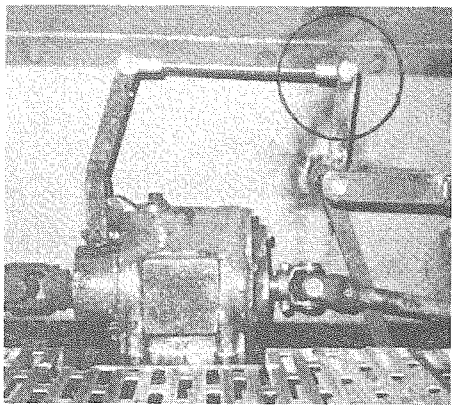
Because portland cement concrete doesn't wear sufficiently to constantly expose the particles at the surface, Verglimit works only on asphaltic cement pavements.

Proper mixing of the chemical is important, Kelley said. "Batch plants will need to add a screen to ensure that the flakes of Verglimit are not touching. They must be encapsulated by asphalt. If mixed wrong, the pavement may ravel," he said.

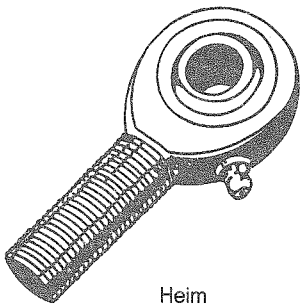
Aside from the need for a screen at the plant, Verglimit is mixed the same as any bituminous concrete pavement. And, according to Kelley, when the pavement is put down, "it's just another resurfacing job."

Kelley reported to conference attendees that Verglimit was recently installed for demonstration purposes by the Sioux Falls Public Works Department. Although Des Moines has expressed interest, there are no applications of Verglimit in Iowa. It has been used effectively in Europe for more than 10 years and was tested by New York's D.O.T. over a 5-year period. The product's effectiveness has been proven at 200 sites in Europe, the U.S., and Canada, Kelley said.

tips from the field



A heim can be used to help linkages pivot more easily.



Heim

Maintenance personnel may find the heim a useful device for simplifying the operation of equipment that contains linkage with pivot points. Examples of where the heim has been applied include control levers and linkages for snow plow pumps, hoist operation levers, and sander clutch box control linkage.

It consists of a ball bearing encased by a head and joined to a shank. The steel ball can be adjusted to fit varying angles, allowing the linkages to pivot more readily. It has proven to be very versatile due to its spherical construction.

This item is available in sizes ranging from ¼ inch to ¾ inch (by 1/16 inch increments), and in both male and female threads.

It can be found in speed shops or go cart parts houses.

Charles L. Fisher, assistant superintendent, Spencer Department of Public Works

FHWA offers fellowships for graduate study

Through its Highway Safety Fellowship program for 1984-85, the Federal Highway Administration (FHWA) awards up to $12,000 for graduate study. The awards are for educational expenses and salary loss supplement for full-time study. Awards of $5,000 are available for part-time graduate study.

Only full-time permanent employees of state or local highway transportation agencies or state highway safety agencies are eligible. Also, applicants must be guaranteed a job position upon completion of their program of study.

For more information on this program call Roger Port, FHWA, Ames, 515/233-1664. State D.O.T. employees can call Wayne Wilson at 515/239-1619.

Brick-patterned concrete paves Ohio development

A ready mix producer in Tiffin, Ohio, has found a new type of concrete street to include in his repertoire, reports *ACPA Newletter* (Vol. 20, No. 1). Working with a local contractor, he created a 500-foot long paving "brick" street for a new and exclusive residential development. The street was constructed with a conventional concrete curb and gutter, using red paving brick-patterned concrete in the middle.

To minimize the cost of the integrally colored concrete, the street was paved with a four-inch layer of regular concrete and a three-inch surface of paving brick red concrete. A retarder was used in the colored surface course because of the extremely high temperatures in the summer. Integral color was used because the supplier felt that entrained air could be maintained in the concrete more easily than it could if a dust-on color treatment had been used.

After the surface was placed and leveled, it was covered with plastic and stamped with aluminum patterned tools. The plastic was removed, then each individual "brick" was brushed to smooth out any wrinkles left by the plastic and the surface was cured with a compound containing color.

Not only was the idea innovative, it also provided the ready mix supplier with an opportunity to promote his product, and a new way to sell concrete streets.

Workshop for rural transit providers offered in Wisconsin

A workshop on Specialized/Rural Transit Management for Rural Transit Providers will be offered by the University of Wisconsin-Milwaukee, April 29-May 3, 1985.

The workshop will provide training on the improvement of management skills. It is designed for managers, assistant managers, supervisors, local adminstrators, and financial staff who provide services to the elderly, disabled, and the public in urban or rural areas.

The fee for the workshop is $980. Fellowships are available. For additional information write to UMEX, DUO, Statewide Transportation Program, P.O. Box 413, Milwaukee, Wisconsin 53201.

Questionnaire

As the ISU Transportation Information Center nears the end of a two-year contract, an evaluation is underway to assess accomplishments and benefits. Your comments and suggestions will help us assess our performance and improve our programming in the future. Please take the time to respond to the following questionnaire and return it to our office. No postage is neccessary. Just fold and staple.

1. Which of the following services have you used? (check all that apply)

_____ Regularly read the newsletter

_____ Attended a workshop or conference

_____ Ordered a publication listed in the newsletter

_____ Called the Info-Line

2. How useful did you find these services?

	Very useful	Useful	Adequate	Of limited use	Not useful
Newsletters	_____	_____	_____	_____	_____
Workshops	_____	_____	_____	_____	_____
Publications	_____	_____	_____	_____	_____
Info-Line	_____	_____	_____	_____	_____

3. Which of the following subject areas covered in the newsletter have been helpful to you (check all that apply)?

_____ Pothole patching
_____ Pavement maintenance
_____ Bridge rehabilitation
_____ Tort liability cases
_____ New methods and materials
_____ Snow control
_____ Other: _____

_____ Government services, funding
_____ Transportation legislation
_____ Conference announcements
_____ Publications available
_____ Life cycle costing
_____ Equipment maintenance

4. Is the information in the newsletter:

_____ Too technical _____ Not technical enough _____ Appropriate level

5. In what subject areas do you need more information?

_____

_____

_____

6. How would you like to receive this information? Please rank in order of your preference:

_____ Newsletter article

_____ Workshop

_____ Factsheet (2-3 pages in length)

_____ Publication (more than 10 pages)

_____ Other: _____

7. Please comment on any additional suggestions you have for the newsletter or other services of the Local Transportation Information Center.

_____

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8. Is your address on the mailing label correct?

_____ Yes _____ No
If it is not, please attach the label here and make the necessary corrections.
Thank you for your assistance!

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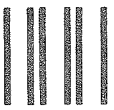

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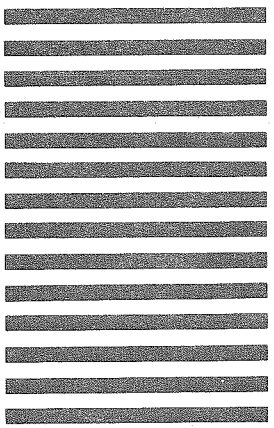

for more information

The following periodicals are offered free to qualified highway public works officials. For a free subscription, write a letter of request including signature and title to the address listed below.

American City and County—Published monthly, articles are concerned with urban development and street maintenance. American City and County, 6255 Barfield Road, Atlanta, Ga. 30328.

Better Roads—Published monthly, contains articles of national interest on rural road construction, maintenance, and innovation. Better Roads, P.O.Box 558, Park Ridge, Ill. 60068.

Public Works—Published monthly, carries topics of national interest, primarily involving urban public works. Public Works Journal Corp., Box 688, Ridgewood, N.J. 07451.

Rural and Urban Roads—Published bimonthly, features articles of interest on road construction and maintenance. Scranton Gillette Communications, Inc., 380 Northwest Highway, Des Plaines, Ill. 60016.

Highways and Heavy Construction—A nationally distributed publication. 875 3rd Avenue, New York, N.Y. 10022.

Airport Services Management—A nationally distributed monthly publication. Fulfillment Department, Airport Services Management, 731 Hennepin Ave., Minneapolis, Minn. 55403.

Metropolitan—A nationally published monthly magazine on mass transit subjects. Editorial Offices, Metropolitan, Bobit Publishing Co., 2500 Artesia Blvd., Redondo Beach, Calif. 90278.

ATSA Signal—This quarterly publication is designed for those interested in permanent signing, delineation, and/or traffic control in construction areas. American Traffic Services Association, Inc., Stafford Executive Building, Route 4, Box 18, Stafford, Virginia 22554.

Pavement Newsletter
Available free of charge from FHWA, Pavement Branch, HNG-23, 400 Seventh St., S.W., Washington, D.C. 20590.
Distributed nationwide, this newsletter shares research information and practical experiences about materials and methods to construct, improve, and rehabilitate pavements. It is a clearinghouse for ideas shared by individuals and organizations involved with highway pavements.

The following publications are available free from the Technology Sharing Program, Office of the Assistant Secretary for Governmental Affiars, U.S. D.O.T., Washington, D.C. 20590. Enclose a self-addressed mailing label.

Case Studies in Rural Transportation Resource Management: A Guide for Local Elected Officials
Order # DOT-I-84-41
This 82-page report presents 21 case studies of practices to effectively manage funds, personnel, equipment, and facility resources used to provide transportation services to rural areas. The case studies were written as a guide to help rural elected officials increase productivity and reduce or control costs of their road, bridge, and public transportation programs. Topics discussed include contracting out street maintenance, use of precast materials in bridge replacement, personnel incentives, and cooperative purchasing.

Management Tools for Bus Maintenance: Current Practices and New Methods
Order # DOT-I-84-42
This 77-page report summarizes current potential uses of analytical techniques to support transit maintenance programs. It provides an overview of current recordkeeping practices, identifies a number of newly-emerging quantitative techniques, and outlines the role they might play in improving the reliability and cost-effectiveness of transit operations.

Financial Planning in Transit: Use of Commercially Available Microcomputer Software
Order # UMTA-MA-06-0039-83-1
This report can assist transit managers in determining the applicability of commercially available electronic worksheets or financial modeling packages to their need to analyze the effects of changes in fare and service policy, labor contracts, and revenue sources. An appendix summarizes the functions, source, approximate price, hardware configuration requirements, and program limits of each product.

More than 60 noncredit continuing education activities in civil engineering are offered each year by ISU's Engineering Extension Service. Call 1-800-262-8498 for a free catalog of programs.

Snow removal audiovisuals available

The Iowa Highway Research Board initiated an engineering study to develop a slide-type training aid for snow removal on secondary roads. The program is intended as a pre-season training aid for snowplow operators.

Preparation for winter, snow and ice control, and after storm cleanup are all described. For the new operator, this presentation should answer many questions about snow removal. For the experienced operator, this presentation should serve to reinforce proper procedures and techniques.

The program will be available in January for purchase or loan within Iowa. For more information contact Kevin Jones, secondary road research coordinator, Iowa D.O.T., 800 Lincoln Way, Ames, Iowa 50010; phone 515/239-1382.

Another audiovisual on snow removal is available for loan free of charge from the Local Transportation Information Center. *White Gold,* a video tape covering all aspects of snow control, was prepared by the North-eastern chapter of the American Public Works Association. It is available in ¾-inch, beta, or VHS formats. Interested groups or individuals can call the Info-Line 1-800-262-8498 to borrow the tape.

conference 1 2 3 calendar

For more information on these conferences, call the Info-Line at 1-800-262-8498.

Maintaining Granular Surfaced Roads
December 12, ISU
Directed to operators and supervisors concerned with granular surfaced roads, topics of this conference include specifications, materials, placing and maintaining, and dust control of gravel roads. An Iowa D.O.T. slide/tape will be shown.

Reducing Your Exposure to Tort Liability Through Better Traffic Control Procedures
December 14, ISU
This course is designed to help engineers and street foremen learn to analyze traffic and road conditions and to plan a program to minimize tort liability. Topics covered include recordkeeping and accident documentation, sight restriction, surface and shoulder maintenance, signing, and being a witness.

Fundamentals of Pavement Management
January 11, Waterloo
This workshop is the first of four to be offered at different locations around the state, and will provide an overview of pavement management concepts, techniques, and applications. It is appropriate for smaller jurisdictions.

Transportation Info-Line
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