

roads bridges transit technology news

Local Transportation Information Center
Iowa State University Engineering Extension Service

November 1983

Continuing education grants offered to city, county employees

Employees of small towns usually do not have funding to attend relevant workshops and trainings. For this reason, the Local Transportation Information Center is offering three continuing education grants for each of two upcoming conferences at Iowa State University.

In addition to a cash award for travel expenses, the grants will cover registration fees. The cash award will be \$50 for those living less than 100 miles from Ames and \$100 for those more than 100 miles from Ames.

The grants will be given for the Asphalt Paving Conference and the APWA Public Works Conference. The Asphalt Paving Conference (January 24) will provide updated information on the design, construction, and maintenance of asphalt pavements.

The APWA Public Works Conference (March 7-8) brings together agency officials, consultants, suppliers, and manufacturers to discuss technical aspects of public works and topics of current interest.

To be eligible, an applicant must be an employee of a city or town with a population of less than 5,000, or a county roads employee other than the county engineer or assistant county engineer. Two city employees and one county employee will receive a grant for each conference.

Deadline for application is December 15. Selection will be made by a drawing and winners will be notified by mail. To apply, complete the form on this page and return it to our office by December 15.

Roofing compound works as crack patch

When asphalt roofing shingles blew off a lumber truck, stuck to the pavement, and could not be pulled up, Texas road officials took notice.

In the summer of 1977, they began two years of crack maintenance tests using standard 90# asphalt roll roofing. Their findings—it works.

According to a 1979 FHWA report, asphalt roll roofing patches do not bleed through hot mix overlays and pot holes do not develop as quickly as with other methods. No special skills are needed to place the patches, the report says, and, more cracks can be patched by this method than can be poured (1,050 yd²/day versus 350 yd²/day of premix patches). Furthermore, the material costs about 37¢ per square foot less than premix patches.

The primary use of the material has been for temporary maintenance on asphalt pavements where serious alligator cracking has occurred in the wheel paths. If not maintained, these cracks develop chuck holes and pot holes. For these applica-

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Transportation continuing education grant application

Name _____ Title _____

Department _____ Town _____

State _____ Zip _____ Phone _____

I would like to attend: _____ Asphalt Paving Conference (January 24)

_____ Public Works Conference (March 7-8)

_____ Either conference

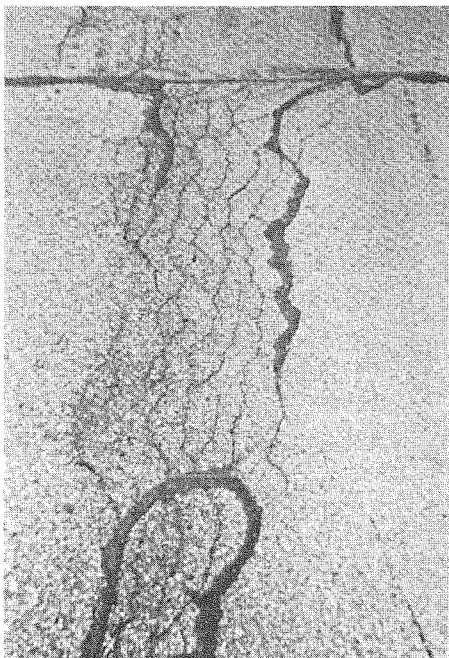
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ISU, Ames, Iowa 50011

tions, Texas officials estimate the life of roll roofing patches to be one year, although some may serve two to three years when placed over small cracks.

The procedure found most effective in Texas should be done in the summer. The first step is tacking the area to be patched with emulsion (EA-11M) at the rate of one-tenth gallon per square yard. After the water is out, the material is rolled out by hand, then walked down. A truck is used to "bull-wheel" it in place. After the patches are placed, the material should "cure" for one to two hours before opening to traffic. Following a short period of use, the material cannot be pulled up.

With wide cracks, the roofing compound is spread in the crack before the roll roofing is applied, thus providing a seal. For patches wider than the roll width of 36 inches, only 2 inches of overlap are needed.

It appears that Texas has developed a temporary maintenance tool that has merit. If you have experience with this technique or would like a copy of the FHWA report, call our toll-free number.

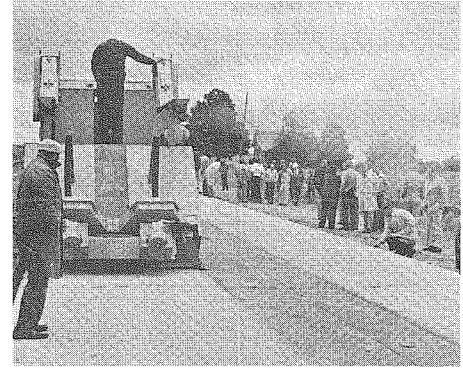


Asphalt roll roofing works well for temporary patches on alligator cracking.

Iowa's innovative pavement projects viewed by 400

A recent 1 day tour of 3 innovative Iowa pavement projects was attended by more than 400 people from Iowa, 25 other states, and Canada. The tour visited an interstate highway portland cement concrete overlay replacement, a primary road bonded widening with overlay, and a secondary road concrete resurfacing project.

The open house was sponsored by the Federal Highway Administration, the Iowa Department of Transportation, the American and Iowa Concrete Paving Associations, the Portland Cement Association, and the Local Transportation Information Center.



Visitors watch a shotblaster as it cleans and roughens the pavement in preparation for a bonded overlay. The machine removes all decayed materials and loose or broken particles while cleaning the surface. The new technique is faster and cleaner than sandblasting.

conference 1 2 3 calendar

Planning for Urban Drainage Nov. 7, ISU

Topics: master planning, primary and major systems, effects of urbanization, methodologies, frequencies, computer models, on-site watershed approach, storage requirements, detention basins, case studies. Speakers include Ron Rossmiller, ISU, Bruce Thorson, West Des Moines assistant city engineer, and Dale Tekippe of Brice, Petrides/Donohue, Des Moines. Fee is \$60. Call the Info-Line for information.

Geotextiles in Engineering Nov. 9, ISU Nov. 10, Bettendorf

Topics: design, analysis, and specifications for geotextile applications with emphasis on subsurface drainage, stabilization, sedimentation control, channel erosion protection, and asphalt overlays. Course notebook. Fee is \$20. Call the Info-Line for details.

37th Annual County Engineers Conference Dec. 6-8, ISU

Concurrent continuing education sessions specifically for county engineers. Manufacturer and supplier exhibit, updated association and

agency reports. Call the Info-Line for more information.

Design of Urban Streets Dec. 16, Community College, Bettendorf

Dec. 19, Community College, Mason City

For engineers, technicians, and others concerned with planning, design, and operation of urban streets. Based on FHWA-NHI's four and a half day workshop. Detailed course notes provided. Call the Info-Line for details.

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Engineering Extension Service

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Iowa State University

Ames, Iowa 50011

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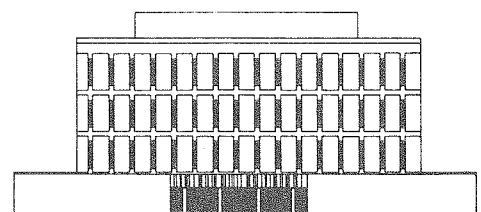
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civil engineering extension



Legislature faces transportation decisions

The state legislature will be reconvening soon. According to Dave Long of the League of Iowa Municipalities, transportation-related legislative proposals are pending action. Following is a summary of their status. For additional information contact Long at the League of Iowa Municipalities, Suite 100, 900 Des Moines St., Des Moines, Iowa 50316; phone 515-265-9961.

H.F. 359 Sidewalk Liability—Requires abutting property owners to remove natural accumulations of snow and ice from sidewalks. Passed both the House and Senate. The Senate insisted that the abutting property owner's liability be limited to "out of pocket expenses;" the House disagreed. The differences between the two houses were not resolved in a conference committee. The House has already appointed a second conference committee and, after the Senate appoints its second conference committee, the bill can be considered again.

S.F. 14 Exemption on Motor Fuel Taxes—Provides that cities are exempt from paying motor fuel taxes, if the gasoline is delivered into any size storage tank that is owned or used exclusively by the city, and the city provides a certificate of exemption issued by the Iowa Department of Revenue.

S.F. 202 Coordination of Public and Private Transportation Pilot Projects—Requires the Department of Transportation to establish two pilot

projects, one in an urban area and one in a rural area, to evaluate the feasibility of public/private cooperative efforts. For the purpose of these two pilot projects public school transportation may be included in efforts to coordinate and consolidate transportation efforts.

S.F. 531 Transportation Appropriations—Funds mass transit assistance at \$1.9 million level in FY 84, which is the same as FY 83. However, it also advances an additional \$1 million from the Road Use Tax (RUT) Fund to mass transit assistance, which will be repaid from the Federal Surface Transportation Act of 1982.

Other changes in RUT funds include: \$200,000 from RUT to the Highway Grade Crossing Fund to accommodate the new project cost ratio, which will require the state to pay 60 percent of the cost while the railroad and the political subdivision will each pay 20 percent; in FY 84 RUT will pay \$350,000 for wind erosion control barriers rather than the annual \$500,000 that has been paid for the last four years; RUT will lend, interest free, \$7.5 million FY 84 and FY 85 to a special railroad facility fund to supplement private investment capital in acquiring Rock Island trackage. While the money must be paid back to RUT, the payback rate is yet to be determined. With these changes in RUT, plus other statutory provisions such as gasohol adjustment and staggered registration fees, the best available per capital RUT estimate is approximately \$32 in FY 84.

An appropriation from the General Fund provides \$200,000 to the state Division of Criminal Investigation for the agency and local law enforcement's use in undercover purchases.

Relocation costs of a utility facility resulting from an interstate substitution will be determined by the authority having jurisdiction over the project and such costs may be paid from participating federal aid or other funds. The bill also requires a five-day legislative interim committee study on comparative negligence, comparative fault, and contributory negligence. As of July 1, 1983 political subdivisions cannot be sued for: (1) failure to meet standards for design and construction of streets which were not in effect at the time the street was designed or constructed, unless gross negligence is proven, and (2) abusing their discretionary authority. As of July 1, 1984, political subdivisions cannot be sued for failure to meet standards for design and construction of public improvements that were not in effect at the time the public improvement was designed or constructed unless gross negligence is proven.

Also as of July 1, 1984 the rule of joint and several liability will not apply when the plaintiff has any negligence.

And justice for all

Appointment, promotion, admission, and programs of University 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.

Buying a van? Figure life cycle cost

If your town is considering the purchase of a van, you will want to determine the vehicle's life cycle cost (LCC). Frank Sherkow of Iowa DOT's public transit division provided

us with their LCC method, which satisfies UMTA's Section 16 (b) (2) program. This method has been used for several years to purchase vans for universities and for the DOT.

The method involves the following contract award formula:

$$CA = B + G - R$$

CA = Contract award

B = Bid price

G = Projected fuel expenditure $G = \frac{12,500}{\text{Combined EPA MPG estimate}} \times \text{Projected fuel price/gallons for year}$

R = Resale value (where applicable) after 5 years/75,000 miles

Where the DOT currently requires use for submission of the following data in preparing bids:

Expected life: 75,000 miles = Projected annual fuel consumption (PAFC)

Annual fuel expenditure (AFE) = PAFC \times projected fuel cost per gallon

$G = AFE'83 + AFE'84 + AFE'85 + AFE'86 + AFE'87$

Project gas diesel

| | | |
|-------|------|------|
| 1983: | 1.29 | 1.35 |
| 1984: | 1.39 | 1.49 |
| 1985: | 1.48 | 1.57 |
| 1986: | 1.56 | 1.65 |
| 1987: | 1.63 | 1.73 |

Determination of MPG

EPA estimated mile per gallon will be used.

Resale value

Average trade-in value from NADA Used Car Guide. The value used will be of a comparable model from 2 to 5 years old based on model changes.

EPA Rated Fuel Consumption

Each bidder must also submit two sets of annotated gas mileage guides or complete tests or EPA estimated miles per gallon showing each make/model, engine, transmission combination bid.

NHI bridge inspection course is possible

Practical Highway Bridge Inspection for Local Jurisdiction Inspectors is a four and a half day course developed by the National Highway Institute (NHI). The course format includes:

- General bridge inspection information and training
- Inspecting concrete bridges
- Inspecting steel bridges
- Inspecting timber bridges

Each participant receives the FHWA Bridge Inspectors training manual and a set of course notes.

This course could be offered in Iowa if there is enough interest. Although the fee would be negligible (if any), the costs in lost time, travel, meals, and motel would be substantial.

If you would be interested in attending this course, please complete the response form below. If enough responses are received and NHI agrees to offer the course in Iowa, you will receive registration information.

Practical Highway Bridge Inspection for Local Jurisdiction Inspectors course response form

Yes, I would be interested in attending a four and a half day course.

Name _____ Title _____

Street _____

City _____ Zip _____

Return to the Local Transportation Information Center, 110 Marston Hall, ISU, Ames, Iowa 50011.

tips from — — — — — the field — — —

A device that simplifies the connection of snow plows to and from trucks has been used successfully in Spencer, reports Charles Fisher, assistant superintendent of public works.

The quick hitch snow plow attachment's bracket allows the driver to easily attach or detach the snow plow, thus making it feasible to remove the plow when not in use. According to Fisher, this capability improves the efficiency of the trucks for normal maintenance activities during the winter months.

Developed by Iowa DOT's Mike Kinyon and Chet Klucas, the attachment can be built in your shop. Plans can be obtained at no charge by contacting the Info-Line (1-800-262-8498).

Ron Kirchner, city engineer in Fort Dodge, tells us that public works materials and equipment can be purchased direct at a substantial savings from the Iowa DOT's store-room and used equipment yard.

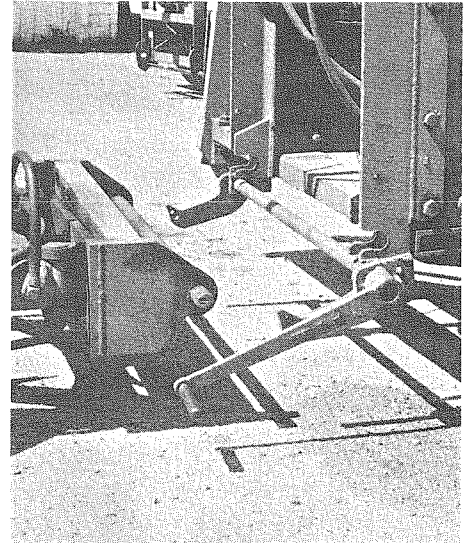
Sparkplugs, filter cartridges, storage batteries, sign posts, hand cleaner, paper coveralls, and other supplies are available.

For large quantities or bulk items such as rock salt or traffic paint, Kirchner says it may be preferable to be included in a DOT letting. Such materials can be purchased from the vendor following the letting.

The DOT Office of Purchasing and Inventory also may be of help if you are having problems preparing specifications for bids on a piece of equipment. Chances are they have purchased the same item, or a similar one. They can supply you with copies of current contracts, Kirchner says.

If interested in purchasing through the DOT, a catalog is available. Contact Lee Hammer, DOT Office of Purchasing and Inventory, 800 Lincoln Way, Ames, Iowa 50010; phone 515-239-1344.

If you have a piece of equipment, modification, or an innovative technique that would be beneficial to others involved with local transportation systems, please share it with us. Contact Dave Dickinson, Local Transportation Information Center, 110 Marston Hall, ISU, Ames, Iowa 50011.



Quick hitch snow plow attachment

Rules explained for archeological findings

Because the federal government has placed emphasis on cultural resources that may be affected by federally funded construction projects, it is important to know the procedures to follow when such materials are discovered.

On all projects with some form of federal participation, a cultural assessment is needed to determine what effect the project will have upon the archeology, history, and architecture involved. An archeological field survey is usually required if additional right-of-way, borrow, relocation, or realignment is needed on a transportation facility. These surveys are based on information provided by the engineer.

When the archeological assessment has been performed, the State Historical Department determines if the

project has effect upon significant cultural properties. If it does not, it can be "cleared" only by the Historical Department and the Federal Highway Administration. Field archeologists cannot give clearance for a project to proceed.

On occasion, archeological materials are encountered during construction. The discovery can be in the form of Indian fire hearths or pits, spear or arrow points, bones, burial mounds, or other physical remnants of prehistoric life and past cultures. All remains are potentially important although they may seem insignificant to the untrained eye. Even the soil itself can reveal critical data to an archeologist.

For this reason, it is important not to disturb the area where material is encountered. Construction should

proceed in another portion of the project. Contact the district engineer and one of the following people at DOT's Office of Project Planning: Dave Cook (515-239-1215), Dave Drake (515-239-1251), or Harry Budd (515-239-1391). They will contact the appropriate federal officials. An on-site inspection may be necessary.

Most problems can be avoided by performing the initial archeological field assessment. However, if accidental exposures do occur they will be handled effectively if the proper procedures are followed. A detailed outline of DOT's policy on cultural resources and prehistoric burials can be found in the Iowa Department of Transportation's Policy and Procedure Manual 500.17.

David L. Cook, Historic preservation specialist, DOT Office of Project Planning.

for more information

When subdivisions are unregulated, undesirable results are likely to occur. Streets often do not line up, creating hazardous intersections. And, if poorly paved or constructed too narrow, streets may eventually require repair at public expense. **The Subdivision Review Manual for Local Officials in Iowa** explains the subdivision process and gives guidelines for the regulation of land subdivision. It includes a detailed look at subdivision regulation and provides model ordinances for cities and counties. Available free from the Office for Planning and Programming, 523 East 12th, Des Moines, Iowa 50319; 515-281-3711.

The following publications may be obtained free of charge by calling the Info-Line 1-800-262-8498.

The establishment of highway work zones on in-service facilities often can create hazardous conditions. At times, some type of positive barrier may be needed. **Warrants for Temporary Positive Barriers in Highway Work Areas** is a U.S. DOT booklet

that presents a design process for determining the need to install temporary positive barriers in highway work zones. The procedure examines the potential of work zone accidents based on roadway and work site conditions and traffic characteristics.

Street maintenance needs often are determined informally. A training manual for **Setting Street Maintenance Priorities** can help city staff judge the relative condition of streets and rank them in their order of maintenance priority. The manual gives an inexpensive and fast method to record and analyze surface conditions that reflect street base failures.

Shoulder Maintenance is a report of a four state study on unpaved shoulders. It offers a selection of techniques for reducing the unit cost of shoulder maintenance activities and covers a variety of local situations.

Poorly built and maintained roads are both expensive and inconvenient for taxpayers. **Quality Assurance for Local Governments** provides a guide for improved highway construction management in county and municipal government units. It includes an overview of quality assurance and recommendations for quality assurance in contracting, in-house construction and maintenance, and for work performed by others. Sample procedures are included. The manual is written specifically for those responsible for local street and road activities.



Transportation Info-Line
Call toll-free
1-800-262-8498
In Ames call
294-7834



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