

roads bridges transit technology news

Local Transportation Information Center
Iowa State University Engineering Extension Service

April 1983

Introducing the Local Transportation Information Center

Iowa State University was recently designated a "Technology Transfer Center for Local Transportation" by the U.S. Department of Transportation, the Federal Highway Administration (FHWA) and the Iowa Department of Transportation.

Most of you are painfully aware of the major transportation problems facing our small urban and rural areas. Streets and roads are in disrepair or are obsolete, with no improvement funds available. Bridges require a large capital investment. The new construction and reconstruction funds needed have not been available for the past few decades.

Communities also have seen the decline of private taxi and transit operations. In many areas, the social service's transit operation for the elderly or disabled is the only public transportation available. The deregulation of the intercity bus industry has had and will continue to have a major effect on public transportation services between communities. Only a few communities are served by intercity

transit and the situation will probably deteriorate.

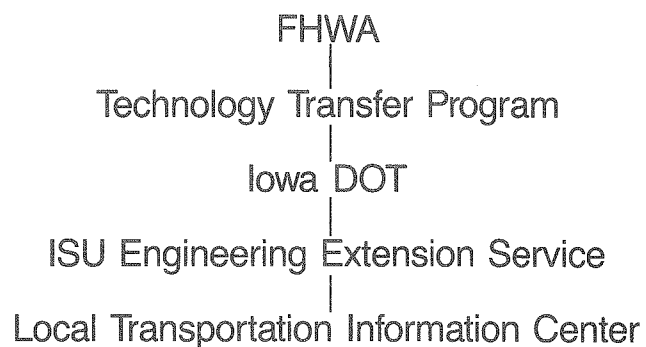
Congress is increasingly aware of the decline of these elements of our nation's infrastructure. They funded the Rural Technical Assistance Program (RTAP) to address these problems. Several programs, including ISU's project for technology transfer to local transportation agencies, are now available through the FHWA.

The goal of ISU's Local Transportation Information Center is to share new research and updated information so that it is useful to you in your

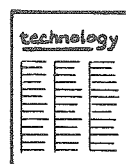
daily operations. In order to carry out this program, the Center will:

- * Publish the Technology News newsletter to disseminate technical information, innovative ideas, helpful hints and details about upcoming educational programs.

- * Establish a toll-free Info-Line which will enable you to call ISU directly. Experts in the areas of streets and roads, bridges and public transportation will provide technical assistance or will refer you to an appropriate information source. The



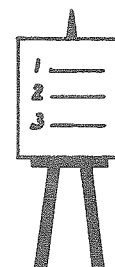
Technology News



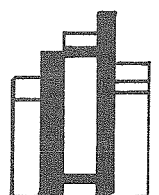
Info-Line



Workshops



Technical Materials



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.

service will range from the answering of questions about patching potholes to the contacting of an expert consultant about complicated bridge design problems.

* Develop a service to provide technical materials. Publications, films, slide/tape sets and other resource materials will be reviewed in this newsletter and made available to you upon request.

* Conduct short courses, training schools and workshops on various aspects of local transportation. In general, these schools will offer an opportunity for hands-on learning. They will be conducted throughout the state to minimize your travel. Cost will be minimal.

These are the activities which we envision in this federally supported project. We hope those of you who are concerned with local transportation services and facilities will soon be aware of the center and will utilize the services offered.

We will periodically conduct surveys of your needs. Until the Info-Line is established, please call me if you have any questions. My phone number is 515/294-6777 -- **Stan Ring, Project Director.**

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.

A chance to share and work together

Public works officials in cities large or small are under constant pressure to do more with less. Budgets are tight and will remain at restricted levels for years to come. The days of federal handouts are over. One method for coping with the situation is to work together to solve problems and to share ideas and information. Public works officials are innovators and can help each other through cooperation.

A public works official is often caught between the staff, the citizens and the city council. Each group looks to the official to solve its problems. The position can be a lonely one. However, it's possible to turn to those in similar positions in neighboring cities or in locations across the state or even the nation. Public works officials are usually more than happy to assist with problems and to share ideas.

The Local Transportation Information Center administered by ISU is a program to promote idea sharing, with activities such as the Info-Line, technical information dissemination and short courses. The program can be successful only if everyone becomes involved. How can you participate? Share an idea, volunteer to write a newsletter article, become involved on the Info-Line, be an organizer for a regional conference, or just read the newsletters and apply the ideas to your own job.

Professional organizations such as the American Public Works Association (APWA) hope to participate in regional one-day short courses that cater to the small- and medium-sized cities. These regional conferences can be a great way to share ideas and information and to formulate joint problem-solving methods.

Working together can solve many problems, be rewarding and take some of the pressure off those tight budgets. Let's become active today! — **Lon Hawbaker, Department of Public Services, West Des Moines.**

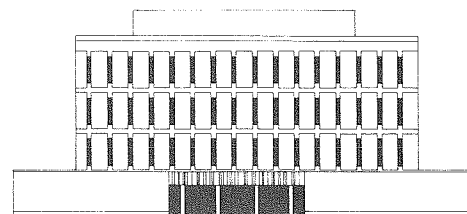
Traffic conference coming up

The eighth annual Traffic Control and Safety Conference will be held Thursday, May 12, at the Scheman Continuing Education Building at ISU in Ames. Safety and efficiency of Iowa's transportation system will be the focus of discussion. Co-sponsors for this annual meeting are the Iowa Traffic Control and Safety Association and ISU's civil engineering department and Engineering Extension Service. Fee is \$35. For more information, contact Patty Campbell, Engineering Extension Service, 515/294-7834.

Technology News is published by the Local Transportation Information Center Engineering Extension Service
110 Marston Hall
Iowa State University
Ames, Iowa 50011
Phone 515/294-7834

Director—Stan Ring
Coordinator—Dave Dickinson
Editor—Teddi Barron-Penfold
Secretary—Patty Campbell
Clerk-typist—Holly Bell

civil engineering extension



Public transit assistance available

How do we get bus service for our city? What transit services are available to the elderly in our area? If the intercity bus company abandons service, what can we do?

There is a state agency that can help you get answers to these and many other questions. The Public Transit Division of Iowa DOT is available to assist you with questions or problems concerning bus services. We have people, programs, information, contacts and even a little money to help solve your problem.

The Public Transit Division works closely with the 17 urban and 16 (multi-county) regional transit systems. Some form of public transportation probably exists in your part of the state right now. We also work with communi-

ties, businesses, elected officials and citizens to address their needs. Several methods are used to organize these activities.

District Managers

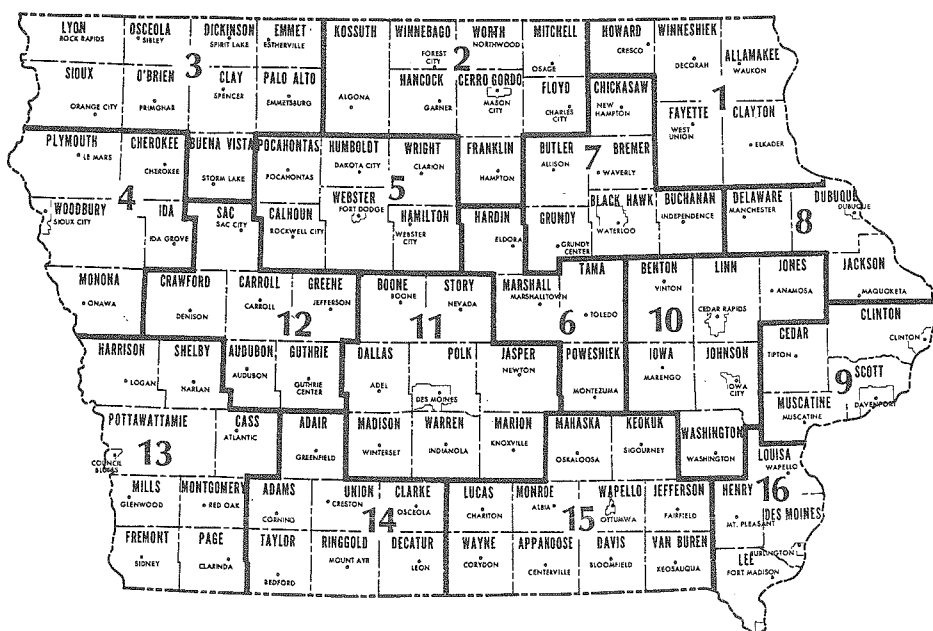
The Public Transit Division uses six district managers to cover the 33 urban and regional transit systems. These individuals are the personal contact and resource people for all transit activities in their respective areas. The district managers travel regularly to their districts but are headquartered in Des Moines at the Public Transit Division. The organization enables the division to build a management team in-house. Each of the district managers, in addition to being a 'generalist' in transit, is also a 'specialist.' Each district manager has expertise in

a different field (routing, operations, insurance, planning and administration). District managers can work together to solve a problem at a property which needs this specialized assistance.

Management Assistance Program

The Management Assistance Program is a specific twelve-unit set of programs. The modules cover the following areas: transit education; bus operators training; bus care training; employee selection; identifying and gaining potential ridership; dispatching in small systems; selecting and programming alternatives; measurement and analysis of performance; marketing; establishing public transit goals for policy makers; preparation of contract documents; and consolidation and coordination.

Iowa Transit Regions



Region 1
Allamakee
Clayton
Fayette
Howard
Winneshiek

Region 2
Kossuth
Winnebago
Hancock
Cerro Gordo
Mitchell
Floyd
Franklin

Region 3
Lyon
Sioux
Osceola
O'Brien
Dickinson
Clay
Emmet
Palo Alto
Buena Vista

Region 4
Plymouth
Cherokee
Woodbury
Ida
Monona

Region 5
Pocahontas
Humboldt
Wright
Calhoun
Webster
Hamilton

Region 6
Hardin
Marshall
Tama
Poweshiek

Region 7
Chickasaw
Butler
Bremer
Grundy
Black Hawk
Buchanan

Region 8
Delaware
Dubuque
Jackson

Region 9
Cedar
Clinton
Scott
Muscatine

Region 10
Benton
Linn
Jones
Iowa
Johnson
Washington

Region 11
Boone
Story
Dallas
Polk
Jasper
Madison
Warren
Marion

Region 12
Sac
Crawford
Carroll
Greene
Audubon
Guthrie

Region 13
Harrison
Shelby
Pottawattamie
Cass
Mills
Montgomery
Fremont
Page

Region 14
Adair
Adams
Union
Clarke
Taylor
Ringgold
Decatur

Region 15
Mahaska
Keokuk
Lucas
Monroe
Wapello
Jefferson
Wayne
Appanoose
Davis
Van Buren

Region 16
Louisa
Henry
Des Moines
Lee

Regions	Manager	Phone (515)
1, 2, 7	Edward Moses	281-6407
3, 4, 5	Deanna Lehl	281-4293
6, 11	J. P. Golinvaux	281-6406
8, 9	Michael Slyby	281-4298
10, 16	Nancy Richardson	281-8745
12, 13, 14, 15	Dee Arends	281-6405

Pothole patching procedure

Most potholes result from the effects of winter freeze-thaw cycles. When temperatures are above the freezing point, water seeps into the cracks and crevices of the pavement. When temperatures fall below the freezing point, water expands, causing enormous pressure. The weight of the passing vehicles creates additional pressure which, coupled with the pressure of freezing water, causes a fracturing action, creating small holes. The cycle is repeated over and over as long as water is available and freezing and thawing occur, thereby expanding the pavement holes.

Other reasons for pothole occurrences are insufficient paving thickness, poor drainage and failures at utility trenches and castings.

The recommended procedure for permanent pothole repair is as follows:

Square up hole sides and remove fractured surfacing to firm and dry support.

Apply tack coat of liquid asphalt. Place full depth asphalt mixture to a level above surrounding pavement.

Compact to surrounding pavement level, adding asphalt mixture as needed.

It is important to note that the greatest emphasis should be placed on shaping the hole and compacting the mix. Long term observation of pothole repairs has indicated that the above repair procedure will last up to 10 times longer than the old standby of fill hole in one lift with mixture and compact by hitting with the back of the shovel.

Remember, your suggested pothole repair program should include a trained 'pothole supervisor,' proper equipment and, last, but not least, a first class asphalt mixture.
John Bellizzi, Director of Public Services, City of Des Moines

Court ruling implications

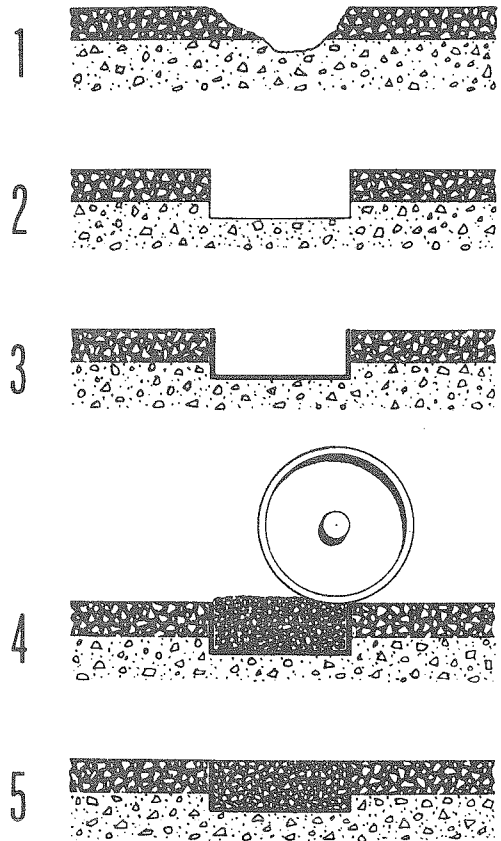
Recently, the Iowa Court of Appeals ruled unanimously that the State Department of Transportation "had been negligent in not rebuilding highway guard rails as national safety standards changed over the years."

Should this decision prevail through the higher courts, all state, county and city road funds are vulnerable to law suits claiming anything except the most recent road or bridge standards as a contributing factor.

To meet the criteria established by this ruling, and thereby eliminate all legal liability exposure of this nature, would require the updating of all roads, rights of way and bridges to standards in effect today. This would cost the state \$55.3 billion; the counties \$6.7 billion; and the cities \$2.2 billion.

Furthermore, each year every installation in or on the roadway, shoulders, bridges and right of way would have to be reviewed to determine if it had been affected by any standard or specification changes during the year. If it had, the installation would have to be brought up to the latest standards in effect as of that moment.

At this time, there are approximately 60 million dollars worth of road related liability suits outstanding against the state alone. This does not include law suits against the counties and cities. Without legislation defining the extent of road or street liability and establishing reasonable guideline limits, this dollar figure will continue to increase. -- From the IGRA News.



Pothole permanent repair.

1. Untreated pothole
2. Surface and base removed to firm support
3. Tack coat applied
4. Full-depth asphalt mixture placed and being compacted
5. Finished patch compacted to level of surrounding pavement

State and federal aid projects

The Iowa Department of Transportation has a duty to assure county and city governments have a knowledge of and comply with Iowa Code and federal regulations for state and federal-aid projects. This is done through the Office of Local Systems and the six District Offices (and the Railroad Division in the case of rail/highway projects). A working relationship is established and a liaison is maintained to provide guidance and assistance in the planning, development and construction of secondary road and municipal street projects.

Federal-aid to counties includes regular Federal Aid Secondary (FAS) and Secondary 3R (SR), and special categorical programs. Presently funded special programs are bridge replacement (BRS and BROS) and rail/highway projects. State-aid is available to counties through the County-State Traffic Engineering Program (C-STEP). The state/county relationship goes beyond state/federal participation in projects, however, because of Iowa Code requirements in various aspects of administration of road use

taxes and secondary road funds. Iowa has a long history of successful state/county relations.

Federal funds are available for street improvement projects on the Federal-Aid Urban System (FAUS) in cities over 5,000 population, and for bridge rehabilitation and replacement projects (BRM and BROS), on both federal-aid and local streets. In addition, jointly funded projects may be accomplished on the primary highway extensions (state and U.S. marked routes) through the Urban-State Traffic Engineering Program (U-STEP). All programs except the FAUS program are applicable to cities regardless of population size.

The Railroad Division administers the Federal-aid 203 rail/highway crossing safety programs. They are presently looking for candidates for crossing signal projects where local jurisdictions believe signal warning systems are warranted. Selected projects are funded with 90% federal-aid and 10% local match.

The Railroad Division also administers a state grade crossing surface repair fund. The fund will pay up to one-third of the cost of crossing surface repair or reconstruction if the railroad and highway jurisdiction each agree to the work and to pay one-third each. -- **Lowell Richardson, Local Systems Engineer, Iowa DOT**

Who to call at DOT

Office of Local Systems,
Iowa DOT Ames, 515/239-1528

District Local Systems:
District 1 - Ben Klaus, Ames, 515/239-1421
District 2 - Bill Kupka, Mason City, 515/423-7584
District 3 - Larry Jesse, Sioux City, 712/276-1451
District 4 - John Pearson, Atlantic, 712/243-3355
District 5 - Lowell VanderHamm, Fairfield, 515/472-4171
District 6 - Jim Loy, Cedar Rapids, 319/364-0235

What would you like to read about?

Help us prepare a useful newsletter.

Please let us know what subject matter is of interest to you.

Check as many items as you wish or write in others.

Mail to: Technology News, 110 Marston Hall, ISU, Ames, Iowa 50011.

pothole patching
 pavement design
 pavement reconstruction
 street & road signing
 transportation funding
 bridge inspection
 training course opportunities

street maintenance practices
 street maintenance equipment
 urban drainage practices
 tort liability
 transit routing
 bridge rehabilitation
 self study opportunities

Other: _____

Technical Assistance Library

The Public Transit Division has developed a library which contains more than 1,000 volumes of books, papers, manuals, articles and documents concerning transit subjects. An index for the library has been distributed to transit managers and to others. Although people are welcome to visit the library, most material also can be mailed.

Vehicle Procurement Assistance

Several forms of vehicle procurement assistance are available from the department. If a property wishes, it may request that the state vehicle dispatcher purchase a vehicle or vehicles through this process. These are usually vans of uncomplicated specifications.

For properties which wish to purchase vehicles on their own, the department can, upon request, assist in the following ways:

- *Compile requests from various agencies for a single equipment bidding.
- *Review and assist in the grant application process.

*Supply the properties with 'model' specifications for small, medium and large vehicles which may be modified to suit the individual property's needs.

- *Assist in preparing specifications.
- *Assist in the contract, bid and other areas of the procurement process.

Statewide Transit Marketing Program

A statewide, multi-media, audio-visual, marketing package covering planning, the future, the economy and energy has been prepared and distributed to transit managers. These radio and TV spots are usually used as public service announcements.

General Technical Assistance

Various types of assistance are available to transit managers and decision makers upon request. These include:

- *Financial planning and programming.
- *Administrative and organization planning.
- *Grant application preparation assistance.
- *Operational analysis (routing and scheduling).
- *Marketing program formulation.

In addition, planning assistance is available as follows:

- *Regional Transit Development Program (RTDP) Guidelines Manual.
- *Energy contingency planning.
- *Transit surveys development and execution.
- *Short-range transit planning projects.
- *Transit project programming.
- *Alternatives formulation and analysis.
- *Coordination between transit and highway projects and programs.

The legislature is currently in the process of determining the transit assistance program for Iowa. Details of allocation procedures will be covered in a future issue of Technology News.

We're even getting involved in the small computer technology. We are here to assist you. We will work with you and transit systems that can meet your needs. If you have a problem, let us know. Our phone number is 515/281-4265. -- Frank Sherkow, Public Transit Division, Iowa DOT.



engineering extension service
iowa state university

**110 Marston Hall
Iowa State University
Ames, Iowa 50010**

Route to:

Address correction requested.
Include entire mailing label.