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## MTC Asset Inside

CTRE *en route* highlights transportation research, education, and outreach at the Center for Transportation Research and Education at Iowa State University.

It is published online at [www.ctre.iastate.edu/](http://www.ctre.iastate.edu/)



Center for Transportation Research and Education

## Helping other states locate crashes

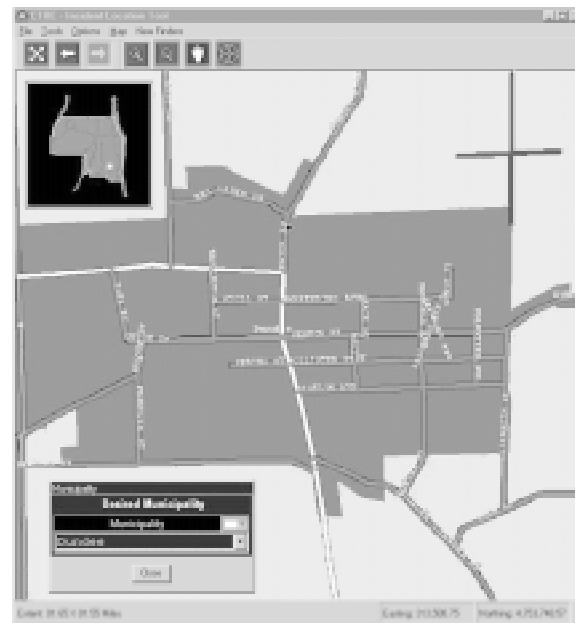
The incident location tool is catching on. The New York State Police and the Georgia Department of Transportation are working with CTRE to adapt the tool for their use. That's in addition to the 200 or so Iowa agencies currently using it, including the Iowa State Patrol and the Iowa Department of Transportation's (Iowa DOT) Office of Motor Vehicle Enforcement.

Designed by CTRE staff members Dan Gieseeman and Reg Souleyrette, the tool was originally developed for the Iowa DOT to work in conjunction with its Traffic and Criminal Software (TraCS). Gieseeman is reprogramming and generalizing the tool so that it can more easily work with other states' data requirements.

The location tool can stand alone as long as it has a database for storing and validating data. Gieseeman says development of the tool will continue "until it's an almost out-of-the-box software."

The incident location tool uses geographic information systems (GIS) software to provide users with a map-based computer screen. Users can locate car crashes and other incidents precisely on a digital map. The information is stored locally for later download.

In Iowa, all data are eventually sent to the Iowa DOT's centralized database for analysis and storage. Analyzing precise location information of crashes in conjunction with information about the condition of a road, for example, is



The location tool uses a map-based interface.

helping the Iowa DOT determine why certain crashes occur. The Iowa DOT has complete sets of data collected with the location tool beginning in 2000.

For more information about the incident location tool, see [www.ctre.iastate.edu/research/locationtool/](http://www.ctre.iastate.edu/research/locationtool/) or contact Dan Gieseeman, 515-296-0796, [dgiesema@iastate.edu](mailto:dgiesema@iastate.edu).

## Green Scholars named

Two Iowa State University students in civil engineering, Gary Conway and Molly McCarthy O'Brien, will be sharing the new Howard R. Green Company graduate assistantship beginning this fall. Both students will work on research projects at CTRE.

Conway will be working on a safety-related project with Shauna Hallmark, assistant professor of civil and construction engineering. O'Brien will be working

as a teaching assistant for Reg Souleyrette, associate professor of civil and construction engineering, in his highway design course during the fall semester. In the spring she will work on the remote sensing project, which she's been working on this summer as well.

The annually renewable assistantship was created by Howard R. Green Company to encourage students to pursue graduate study in transportation.

## Iowa DOT and CTRE library services team up

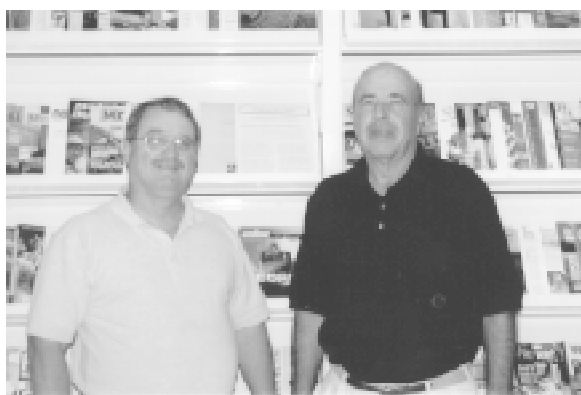
A new partnership between CTRE's Local Technical Assistance Program library (the Stan Ring Memorial Library) and the Iowa Department of Transportation's (Iowa DOT) library makes it easier for Iowa's busy transportation professionals to

- conduct research quickly and efficiently, and
- access a worldwide network of transportation resources.

The Iowa DOT library's extensive body of transportation research, data and graphics, and history includes

- stay abreast of new technology,
- track new developments in any specialty area,

- books,
- technical reports,
- periodicals,



CTRE's librarian, Jim Hogan (right), with Iowa DOT's librarian, Hank Zaletel

- videotapes,
- maps,
- aerial photographs, and
- historic documents.

Iowa DOT librarian Hank Zaletel and his staff also provide comprehensive reference and database services. The library has access to the Transportation Research Information Service (TRIS) and, through membership in the Online Computer Library Center, can borrow materials from thousands of libraries worldwide.

The LTAP library emphasizes training materials and also has 1,370 research and technical publications. Librarian Jim Hogan regularly helps Iowa's transportation agencies access materials on a variety of specific topics. The LTAP library catalog is online, [www.ctre.iastate.edu/library/search.cfm](http://www.ctre.iastate.edu/library/search.cfm)

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He worked as a research assistant at the Iowa Transportation Center (CTRE's first name), then at CTRE as a post-doc, and finally as part of the permanent staff beginning in 1996. He has worked on numerous projects related to intelligent transportation systems and work zone safety, including the award winning Midwest States Smart Work Zone Deployment Initiative.

In his new position, Kamyab will be the liaison with the California Department of Transportation (CalTran) for Montana State University's Western Transportation Institute. He'll be based in Sacramento and will oversee CalTran-sponsored projects.

## New Construction Management and Technology Group seeks to improve project efficiency

Ed Jaselskis, associate professor of civil and construction engineering at Iowa State University, is coordinating a new Construction Management and Technology Group (CMTG) at CTRE to research state-of-the-art management techniques and information technologies for the transportation community. CMTG researchers focus on information areas such as electronic bidding, constructability, as-built drawings, and field simplified drawings. Research technologies include 3-D and 4-D CAD models, GIS, and remote sensing.

Currently, CMTG focuses on the benefits of laser scanning over standard survey techniques. Laser scanning quickly scans an accurate as-built object for use in CAD software. *As-built* means the corrected versions of the design drawings or blueprints since there are usually some minor changes that are made as construction progresses. Therefore, it is imperative to construction design that the final drawings be as accurate as possible. Poor as-built drawings must be found and reworked, which can cost up to 15 percent of the total project cost.

Laser imaging technology can drastically reduce the time spent rendering an object while improving its accuracy for a particular traffic construction project. Laser scanning is a ground laser-imaging system that quickly creates a highly accurate 3-D image for use in standard CAD software packages.

CMTG proposes to use this technology to help the Iowa Department of Transportation with several important design and construction projects. This technology may help with intersection, highway, and bridge design. To date, CMTG has test scanned a borrow pit, stockpile, highway, several bridges, a bridge deck, and a concrete paving surface. CMTG is currently determining how much money laser scanning saves when compared with conventional approaches.

CTRE and CMTG envision research that directly applies to the transportation community. For example, as CMTG continues to develop laser scanner technology, it will make such technology available to Iowa's public agencies. CTRE's resources could also help CMTG educate interested parties about the new technology. CMTG staff will be working with Tom Cackler, CTRE's new associate director for construction research and advanced technology.

## Hello, Tom Cackler

CTRE has recently acquired the expertise of E. Thomas (Tom) Cackler. Before coming to CTRE, Tom spent 27 years at the Iowa DOT; the last nine were spent as chief engineer for the Highway Division, a department with more than 2,600 employees. As chief engineer, Tom directly oversaw project development, contract administration, maintenance of the primary road system, and Iowa DOT support of local government programs. Before that, Tom was director of the Iowa DOT Office of Construction, and was responsible for a \$300 million highway construction program and was on quality improvement committees for four major construction and materials associations.



Tom Cackler

At CTRE, he is the associate director for construction research and advanced technology. Tom hopes that he can contribute to the development of innovative construction technology. "There's great opportunity to apply technology to construction processes. I feel we are on the verge of something new and exciting," he says. Tom is the principal investigator for the highway renewal division of the future Strategic Highway Research Program (F-SHRP) (see CTRE Director's message on page 2). He also works closely with the Center for Portland Cement Concrete Pavement Technology (PCC Center) as a research coordinator and manager.