This is the first edition of CTRE en route, and some of you may be wondering what CTRE is, why it has a newsletter, and what about those other newsletters from the other transportation centers at Iowa State University (ISU).

In the past year and a half, ISU’s transportation center has gone through significant restructuring. We changed the name from the Iowa Transportation Center to the Center for Transportation Research and Education (CTRE). The name change was partly to reflect the expanding breadth of the center’s program and partly to avoid being mistaken for the Iowa Department of Transportation (Iowa DOT) field offices, also known as Iowa transportation centers.

Roughly 18 months ago, we lost the University Transportation Centers Program (UTCP) for Federal Region VII, known as the Midwest Transportation Center (MTC). Through a regional competition, the one million dollar annual UTCP grant moved from a consortium led by ISU to one led by the University of Nebraska at Lincoln. When we lost the MTC program, we consolidated all our programs under one name, CTRE.

The original organization of what is now CTRE really took form as a result of the funding we received through the U.S. Department of Transportation’s UTCP grant. As a result, some people did not believe the transportation center could continue to function without UTCP. However, even though the Region VII UTCP has moved to Nebraska, CTRE is financially sound and continues to grow.

A major reason for our stability is CTRE’s partnership with the Iowa DOT. Another reason has been that we used the MTC funding to strengthen our programs, and now they are self-sustaining without the UTCP grant.

I still get asked what we are going to do now that we no longer have the UTCP grant. The answer is pretty much everything we did in the past and possibly even more. We have even been able to maintain the most difficult part of our program to sponsor: our student assistance activities through the Transportation Scholars program.

The Scholars program was part of the MTC grant and provided financing for graduate assistantships. The Scholars program allowed us to provide graduate students with special mentoring and financial support to attend conferences (like the ITE conference in Minneapolis last September) and aided in attracting students into majors leading to careers in transportation.

Through a grant from the University of Nebraska at Lincoln UTCP, we have been able to continue to sponsor the Transportation Scholars program and to increase the number of participating students. In November 1996, we sponsored our annual...
CTRE en route is a free newsletter of the Center for Transportation Research and Education (CTRE) at Iowa State University. It is financed by CTRE and the Iowa Department of Transportation in the interest of disseminating information about CTRE’s recent projects and educational programs.

The opinions, findings, or recommendations expressed herein are those of CTRE and do not necessarily reflect the views of the Iowa Department of Transportation.

CTRE (say “see-tree”) is all about change. To accommodate the demands of the 21st century, the world of transportation is undergoing some dramatic changes. Exhilarating—and challenging—changes. And CTRE is right in the thick of things. Twice a year this newsletter will update CTRE’s partners, sponsors, and others about CTRE’s efforts to help make positive changes in transportation that will enhance our mobility, economy, and quality of life in the new millenium.

We’re interested in your reactions to the newsletter and what you would like to know about CTRE and its projects. Please contact me with your comments. If you want to add someone to our newsletter mailing list or correct your own address, see the form on the back page of this issue.

Welcome to CTRE en route. Enjoy the trip.

Marcia Brink
marcia@ctre.iastate.edu
IFTA and IRP greatly simplified the reporting process for registration fee and fuel tax apportionment, but the motor carriers’ burden of compiling and tabulating vehicle mileage and fuel use data for this reporting remained. In addition, because participation in IFTA and IRP was voluntary, not all jurisdictions were members, and motor carriers still had to report mileage and fuel use data to each nonmember jurisdiction in which their vehicles traveled.

Fortunately, Title IV of the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA-91) took a giant step toward alleviating these burdens by requiring all states to join IFTA and IRP by September 30, 1996. While complete jurisdictional participation in IFTA and IRP eliminates the issues and costs associated with meeting the reporting requirements of multiple jurisdictions, motor carriers still have the burden of collecting and maintaining the necessary vehicle mileage and fuel use data to support this reporting.

Additionally, reporting data to the base jurisdictions is an inefficient paper process, with the motor carrier compiling the data, often transferring them from paper to computer records for their own uses, and then filing them in the correct paper format to the states. States then enter the data on their own computer systems. Motor carriers are required to keep records of these filings and the supporting data for three years, thus continuing the burden of the inefficient paper process. Clearly, an improved method of collecting, reporting, and archiving motor carrier mileage and fuel use data . . . could alleviate much of the burden related to regulatory requirements.
mileage and fuel use data that eliminates many of the manual and paper processes could alleviate much of the burden related to these regulatory requirements.

CTRE recognized that the standardization of these reporting requirements mandated by ISTEA-91 cleared the way for automating data collection and filing processes. Such automation would further simplify both carrier compliance with, and state administration of, the IFTA and IRP reporting requirements.

Together with its project partners, CTRE developed the Automated Mileage and Stateline Crossing Operational Test (AMASCOT) to test and evaluate an innovative application of technology to electronically collect and report mileage and fuel use data for registration fee and fuel use tax apportionment. The project was funded as a Federal Highway Administration (FHWA) Intelligent Transportation Systems (ITS) Field Operational Test (FOT) project from January 1994 through March 1996. CTRE managed the project, compiled the sample data and prepared sample reports, and led the evaluation effort.

In the interest of streamlining these processes, AMASCOT demonstrated and evaluated technology that electronically collects motor carrier mileage and fuel-purchase data. AMASCOT also tested the feasibility of electronically filing the required reports for commercial vehicle operations (CVO) fuel tax and registration apportionment with the appropriate base state. The goal of the test was specifically to determine the feasibility of using an electronic collection/reporting system that would meet IFTA and IRP requirements.

To accomplish this goal, the AMASCOT partners pursued the following objectives:

- Develop procedures and software to electronically collect data and submit reports to base states.
- Ensure the system accommodates state auditing guidelines and IFTA/IRP reporting requirements.
- Test and evaluate the technology.
- Analyze user acceptance and benefits/costs to motor carriers and states.

**System description**

The AMASCOT partners used a number of technologies and processes to accomplish the test objectives, including the following:

- In-vehicle global positioning system (GPS), database of jurisdictional boundaries, and jurisdictional boundary-crossing algorithm to detect vehicle stateline crossings.
- In-vehicle recording of “significant events” (e.g., border crossing, trip start, trip stop, truck location, etc.), routes, and mileage.

Motor carriers pay registration fees and fuel taxes to each jurisdiction based on the mileage traveled in that state by all vehicles in their fleets. In most cases, drivers manually record fuel purchases and mileage traveled, a process that is time consuming and subject to error. Using these data, individual vehicle records must be compiled by the carrier, and IFTA and IRP reports generated and forwarded to the base jurisdiction.
AMASCOT TEAMS . . . FROM PAGE 4

- Software and database to convert GPS coordinates to easily readable locations (e.g., city, highway, truck stop, etc.).
- Database and data file conversion software to compile mileage-by-jurisdiction data and fuel purchase information and generate IFTA quarterly reports.
- Electronic transmission of vehicle mileage by jurisdiction, fuel purchases, and IFTA quarterly reports.

The technologies and processes used during the test only generally represent those that might be developed and used if an actual marketplace develops.

The in-vehicle equipment consisted of a satellite communications transceiver fitted with an integrated single board computer (SBC), keyboard display unit (KDU), antenna, antenna cable, odometer sensor cable, and power cable, all provided by Rockwell. The SBC provided the computing and memory resources necessary for the jurisdictional boundary database, the jurisdictional border crossing algorithm, and the collected vehicle travel event and mileage data.

The in-vehicle equipment, a custom locational database developed by Rand McNally-TDM was used to convert the GPS locational data to readable place names (cities, towns, highways, truck stops, etc.) so the data would be auditable. Similarly, CTRE used consumer, off-the-shelf database software and programming languages to create a Windows-compatible system for tabulating the data and generating quarterly reports that followed IFTA requirements.

Test design and data collection

The test was based on installing the prototype equipment in 30 commercial vehicles from six motor carriers encompassing various sizes and market segments. Two of the carriers were based in each of Iowa, Wisconsin, and Minnesota. As each vehicle traveled during the test, daily trip report (DTR) records were created on the on-board solid state disks. Each DTR contained that vehicle’s history of starts, stops, border crossings, and other events and system exceptions.

AMASCOT TEAMS . . . TO PAGE 6

In addition to the in-vehicle equipment, the Fleet Vehicle
On Board Equipment

Fleet Management Equipment

Fleet Management Station

Rockwell Base Station

Figure 1 shows the system diagram of both the on-board and fleet management system of the test.
Jurisdictional border crossing events and other significant events, such as trip starts and stops, were recorded with a code identifying the event, a position quality code, an odometer reading for when the event occurred, the vehicle’s position, and the date and time. These significant events provided a trail of mileage and location data and definitive jurisdiction entrance and exit dates, locations, and odometer readings for the vehicle. Combining these data with fuel purchase information provided all the necessary information for creating and maintaining individual vehicle records for use in tabulating and reporting IFTA and IRP data.

Relevance
AMASCOT succeeded in proving the concept of automated mileage and route data collection and electronic filing for use in complying with commercial vehicle fuel tax and registration apportionment requirements.

Auditors from Iowa, Minnesota, and Wisconsin take a test ride to see how the automatic data collection works.

Evaluation of the truck system and electronic data interchange (EDI) demonstrated that automatically collecting data that meet IFTA and IRP requirements is feasible and that electronic transfer of those data also is feasible. States can benefit through reduced data entry by staff, increased integrity of the data, reduced data storage requirements, and increased data accessibility and portability. Motor carriers can benefit through reduced data entry, reduced errors and paperwork, and electronic record keeping. The costs to motor carriers will be relatively affordable, and carriers may reap significant—33 to 50 percent—savings over current IFTA and IRP compliance costs, according to post-test interviews with carriers.

Technology providers have already begun marketing systems. These systems have the very real potential for reducing the time and paperwork necessary for motor carriers to comply with, and states to administer, the regulatory processes for vehicle registration and fuel tax filing.

Remaining issues
With the viability of the concept proven, states and motor carriers can move ahead to solve the related issues of EDI standards, EDI facilities, and electronic funds transfer. Some participating motor carriers identified concerns about access to data and data privacy issues. States face a number of issues related to achieving the infrastructure and processes to facilitate and capitalize on these capabilities to collect and report data electronically. Fortunately, these issues have achievable solutions and are being investigated through other ITS efforts.
Iowa’s statewide pavement management program was far along in its development when the National Highway System Designation Act of 1995 rendered ISTEA-91’s mandate for such systems optional. But by then, with significant resources invested and anticipated benefits yet to be experienced, the Iowa Department of Transportation (Iowa DOT) confidently proceeded to develop a management system for the 40,000 kilometers (23,500 miles) of Iowa’s non-National Highway System (NHS) roadways eligible for federal aid. CTRE is providing staff support for the project.

The Iowa Pavement Management Program (IPMP) will be a system for programming pavement maintenance, rehabilitation, and reconstruction. It will help planners and engineers plan road work that is most cost effective in the long term, stretching pavement life to the maximum and making the most of available dollars.

At the heart of such a system are data about Iowa’s existing highways. With roadway data collected statewide, state, regional, and local governments will have access to these data to support management systems within their jurisdictions. In addition to an inventory of existing roadways, the IPMP requires specific data for each roadway: When was the roadway constructed? Is it asphalt or portland cement? What maintenance has been performed on it? What is its current condition? How much and what kind of traffic does it serve? The list goes on.

To make the data issues more complex, significant highway data had already been collected before the IPMP was initiated but were stored in a variety of formats, and not all data were accurate or up to date. Much of the data still had to be collected and, once collected, kept current. In addition, existing data support systems do not necessarily interface with pavement management software. Not least important, the database of highway data must be compatible with Iowa’s other transportation management systems (e.g., bridge management, safety management, congestion management, etc.); ultimately, the IPMP database will be part of a completely integrated, statewide transportation information system.

Collecting, maintaining, and manipulating pavement data with management software is a complex challenge. The IPMP is being developed to address that challenge under the direction of a task force. CTRE serves as facilitator and technical advisor for the task force. Consisting of representatives from Iowa cities, counties, regional planning agencies, metropolitan planning organizations, the Federal Highway Administration’s (FHWA) division office, and the Iowa DOT, the IPMP task force has input from all levels of government.

The following article briefly discusses the issues involved in designing the IPMP.
“Dynamic segmentation provides . . . flexible data management . . . (and) allows for the use of multiple linear referencing methods.”

The IPMP database’s basic design focuses on the development of a geographic information system (GIS) database that supports the use of dynamic segmentation (storage methods) and data transformation. Dynamic segmentation provides for more flexible data management without requiring the duplication of network geometry or data. Dynamic segmentation also allows for the use of multiple linear referencing methods, while accommodating statically segmented data sets. GIS for data analysis allows flexibility in displaying and integrating all of the pavement data.

**Data sources**

Pavement data consist primarily of pavement history information provided by local highway operating agencies (cities and counties), and vendor-collected, pavement condition (distress) data. The database will include information from three sources, each with a different location referencing method. See Figure 1.

**Figure 1.** The basic components of the IPMP are data, maps, and management software.
The first source is the Iowa DOT base record information. These inventory data are based on a kilometer point (km.pt) referencing system. Attribute data are stored using variable-length static segments. Each record is identified by a route name, a begin km.pt, and length. Base record section lengths vary from 0.01 to 1 mile.

Local agencies provide history data and updated inventory data of pavement sections. These data are also stored using variable-length static segmentation, but the information is referenced from point x to point y. Each record contains the surface type, maintenance and rehabilitation history, and cost information. Pavement management section lengths vary, with no length limitations.

Finally, a vendor is electronically collecting and providing current condition, or distress, data, which are stored using fixed-length static segmentation and referenced by geographic latitude/longitude coordinates using global positioning systems (GPS). Data collection sections are constant in length, each covering 0.1 kilometer. Examples of condition data include cracks, potholes, patches, rutting, and ride.

The only commonality among these data sets is that each describes a linear portion of the roadway network. Although both the inventory and history data are stored using variable-length static segmentation, these limits rarely coincide.

Furthermore, each data set uses a different linear referencing method, making their integration difficult and significantly complicating database design and development. To accommodate the different kinds of data sets, the IPMP task force selected a database that supports dynamic segmentation for its pavement management program.

**Developing the graphic linear network**

A base map of the entire state network of roadways involved in the management program is being created using data provided by the Iowa DOT. These data are the product of a cartography attribution procedure the department has initiated, and as such they do not satisfy all the requirements of the IPMP database.

One problem is incorrect or missing attribution of graphic elements. Another problem is that individual or multiple base record sections may not be represented in cartography at all, so no data exist for these sections.

Both of these coding errors result in an incomplete or incorrect transportation network. Correcting these problems will require significant time and effort. Another solution is to recognize and accept that the transportation network is not entirely complete or correct and to gradually work on completing it.

**Storing and managing data**

To facilitate data analysis, data are stored and managed according to regional planning affiliation (RPA: a planning organization of several cities and counties that serves a rural area just as a metropolitan planning organization serves an urban area). Individual data sets within each RPA are aggregated by county or city jurisdiction.

Data for all cities within an RPA are maintained together, and data for all counties are maintained together. Although this process decreases the data
“The IPMP task force is not trying to develop one huge database for all of Iowa’s transportation management systems. . . . however, Iowa is developing a single database containing crucial information from each of the transportation management systems that can be accessed by all the systems.”

processing overhead, it has two drawbacks: (1) statewide analyses require multiple queries, and (2) city and county data must be analyzed separately.

Maintaining data
The attribute data associated with the graphic linear network must be updated whenever highway alignments or route (street) names change. Alignment changes may entail recalibrating all the distance attributes along the routes that have changed. The cartographic data (graphic elements) must also be modified to represent any changes in highway alignment.

The primary data maintenance issue is not how to implement route changes but how to identify them. Also, dynamic segmentation requires that each route be uniquely identifiable. Two attributes, route (street) name and jurisdiction (specific county or city), can uniquely identify a route.

But not all base record sections are uniquely identifiable. For example, several streets in the same county may have the same name.

While the base linear network is being developed, an attempt is being made to assign a unique name to these routes and then update the route names in the database. The changes must also be made in the Iowa DOT’s base record inventory. If not, the base record inventory will contain old route names, and then the Iowa DOT’s yearly updates of inventory data for these routes cannot be overlaid onto the base linear network.

Integrating data with other management systems
The IPMP task force is not trying to develop one huge database system for all of Iowa’s transportation management systems. Rather, the task force is designing a database for each management system (as needed) and making information sharing among these databases an easy task. The IPMP database is just one of the databases Iowa may develop for its management systems, and it will be compatible with the others in that they will be able to share information easily. See Figure 2.

In addition, however, Iowa is developing a single database containing all the crucial information from each of the transportation management systems that can be accessed by all the systems on a regular basis. See Figure 3.

Accessing data
The pavement management database, with its use of a relational database and

Figure 2. Each of Iowa’s management systems will have its own database, and all the management databases will be able to share data easily.
GIS, is quite complex. An inexperienced user may find it difficult to perform a simple analysis of the data. Access to the system is also somewhat limited.

To develop a more user-friendly, accessible system, the following questions should be addressed:

- Who should have access to the data?
- How should users access the data?
- How much experience should users have?
- How will they be trained?
- What types of analyses are necessary?

The answers to these questions will dictate the approach the IPMP task force will take to improving access and simplifying analyses during 1997.

Implementing the system
Most database issues have been or are in the process of being resolved. However, the IPMP task force is still in the process of selecting pavement management software.

Distress data for half of the roadway network have been collected and were distributed to the appropriate local agencies by the end of 1996 to use with their own management systems and/or planning tools.

Distress data for the remainder of the network will be collected in 1997, and the task force anticipates the statewide management system will be operating by the end of 1997.
In May 1996 more than 300 state, regional, and national transportation researchers and practitioners gathered in Ames, Iowa, to honor the Transportation Research Board’s 75th anniversary at the Semisesquicentennial Transportation Conference. CTRE and the Iowa Department of Transportation (Iowa DOT) sponsored this first-of-its-kind conference highlighting basic and applied transportation research.

Attendees heard special presentations by Robert E. Skinner, Jr., executive director of the Transportation Research Board; Dr. Thomas Larson, former administrator of the Federal Highway Administration and former chair of the Strategic Highway Research Program Executive Committee; Damian Kulash, president and CEO of the Eno Transportation Foundation, Inc. and former executive director of the Strategic Highway Research Program; and Francis Francois, executive director of the American Association of State Highway and Transportation Officials.

Because response to the conference was overwhelmingly positive, CTRE and the Iowa DOT will hold similar conferences every other year. An agenda is already being planned for spring 1998.

A call for papers will go out in the fall of 1997, and we look forward to responses from readers of CTRE en Route.
GOODBYE TO FORMER STAFF

In 1989, CTRE—then the Iowa Transportation Center—was fortunate to snag Ed Bigelow for the new position of Safety Circuit Rider for Iowa’s Local Technical Assistance Program. After an already illustrious career as a county engineer and private consultant, Ed brought his energy and expertise—and his dedication to transportation safety—to develop an award-winning safety program for Iowa.

After seven years with CTRE, during which he built a statewide reputation as a hardworking, hard-hitting promoter of roadway safety, Ed retired on October 3, 1996.

Ed’s training programs included flagger training, accident analysis, sign and safety management systems, excavation safety, pavement markings, and county engineers’ safety policies. In addition, Ed served on a number of state and regional professional safety organizations, including Iowa’s Statewide Traffic Records Advisory Committee.

Ed and his wife Trudie have moved to their retirement home on Lake Cypress Springs in Scroggins, Texas. Ed is learning about the territory (specifically, how to kill fire ants) and, along with lots of birds and ducks, enjoying the warmer weather lakeside in Texas. He also plans to get involved in local efforts to improve traffic safety.

In August 1996, CTRE lost a one-of-a-kind motor carrier specialist when Jim York accepted a position as associate director of research programs at the National Private Truck Council (NPTC) in Alexandria, Virginia.

Jim has been deeply involved in the motor carrier industry for nearly 20 years. Before coming to CTRE in August 1993, he worked as an owner-operator and a used-truck dealer, as well as a dispatcher, a safety manager, and a general manager for various private motor carriers.

During his three years at CTRE, Jim wrote the evaluation plan for the I-75 mainline automated clearance system; the evaluation is now being conducted and other CTRE staff are involved. Together with CTRE’s director, Jim studied the applicability of performance-based standards to truck size and weight regulations in the U.S.

At the NPTC, Jim is conducting research on the impact of fatigue on short- and long-haul drivers, developing a wellness program for drivers to minimize fatigue, and participating in the development of policy matters such as hours of service standards, highway funding taxation issues, and truck size and weight restrictions.
Transportation students at Iowa State University have the opportunity to take a course of weekly seminars each spring. Presentations by speakers of national and international repute provide students with a broad perspective on contemporary transportation issues. Research staff, other students, faculty, and area transportation professionals are invited to attend the seminars Fridays at 10 a.m. in 147 N. Lagomarcino Hall at the ISU campus in Ames. Seminars are broadcast through the Iowa Communications Network (ICN) and, with ample lead time, they can be viewed remotely at ICN classrooms throughout Iowa. For more information, or to borrow a videotape of any seminar, contact Sharon Prochnow (voice) 515-294-8103; (fax) 515-294-0467; (email) sharon@ctre.iastate.edu. Following is the schedule for spring 1997. Speakers for February 14, February 28, and May 2 are not yet scheduled.

**March 21**
“An Introduction to Intelligent Transportation Systems (ITS): Results of Early ITS Applications and Future Deployments” Howard Preston, Senior Transportation Engineer, BRW, Inc.

**March 28**
“The Impact of NAFTA on the Motor Carrier Industry” Gary Nichols, Director of Marketing, Contract Freighters Inc.

**April 4**
“Transportation Planning Under ISTEA: Accomplishments and Shortfalls” Elizabeth Deakin, Associate Professor of City and Regional Planning, University of California at Berkeley

**April 11**
Thomas Humphrey, Coordinator, ITS Professional Capacity and Building Program, U.S. Department of Transportation (no title yet)

**April 18**

**April 25**
“ITS Deployments, Lessons Learned” Doug Robertson, Vice President for ITS Development, JHK and Associates

**January 17**
“An Introduction to Intelligent Transportation Systems (ITS): Results of Early ITS Applications and Future Deployments” Howard Preston, Senior Transportation Engineer, BRW, Inc.

**January 24**
“NAFTA, The New North-South Trade Routes” Bob Ehinger, Director of the ITDS Project Office, Customs, Department of the Treasury

**January 31**
“The Commodity Flow Survey and Other Freight Projects at Oak Ridge National Labs” Mike Bronzini, Center for Transportation Analysis, Oak Ridge National Labs

**February 7**
“Border Crossing Technology and ITS Applications at SAIC” Don Brady, Director of New Business Development, Transborder Programs, SAIC

**February 21**
“Asset Management and the Federal Aid Highway Systems” Gerald Eller, Chief of Construction and Maintenance, Federal Highway Administration

**March 7**
“An International Perspective of Transportation Facility Asset Management” Ray Gerke, VEMAX Management, Inc.
Only about 25 students nationwide receive prestigious Dwight David Eisenhower Fellowships to pursue graduate studies in transportation-related fields. Last fall, two research assistants at CTRE were selected as Eisenhower Fellows: Mike Anderson, BSCE ’94 and MSCCE ’96 (Iowa State University), received a three-year doctoral fellowship; and Christopher Monsere, BSCE ’94 (University of Detroit-Mercy), received a two-year master’s fellowship.

Anderson (who also received an Eisenhower Fellowship as a master’s student) has developed transportation and traffic modeling software used in several cities, including Des Moines, Iowa, and Tucson, Arizona. Monsere is beginning research on the application of intelligent transportation systems (ITS) to expedite movement of selected commercial vehicles at border crossings. The U.S. Department of Transportation administers the Eisenhower Fellowship Program.

Three students won cash awards for research presented at the November 1996 Transportation Scholars Conference. The conference, part of the Transportation Scholars Program for the federal region VII University Transportation Centers Program, was hosted by CTRE at Iowa State University. The federal region VII UTCP grant is managed by the Mid-America Transportation Center through the University of Nebraska at Lincoln.

Christopher Monsere, ISU graduate student in civil and construction engineering, and Xiao Kuan Yang, graduate student in civil engineering at the University of Kansas, each won $1,000 for their papers, “Estimating the Value of Commercial Vehicle Time: An Assessment of Methods,” and “A Comparison Among Computer Packages in Providing Timing Plans for Iowa Street in Lawrence, Kansas,” respectively. Bradley Roeth, undergraduate student in civil and construction engineering at ISU, won $300 for his paper, “The Use of Geographic Information Systems in the Iowa DOT’s Office of Project Planning.”
CTRE is pleased to welcome David Plazak, who recently joined the staff as a transportation policy analyst. David is also an adjunct faculty member with the Department of Community and Regional Planning at Iowa State University. His responsibilities at CTRE include developing proposals, managing projects, and conducting research related to geographic information systems (GIS) policy issues, transportation planning, intergovernmental cooperation, and telecommunications substitution for travel.

David received a master’s degree in urban and regional planning from the University of Iowa in 1979 and transportation program certificates from both the University of Iowa and the University of Michigan. He is a member of the Professional Developers of Iowa and co-founded and currently chairs the Iowa Geographic Information Council, which coordinates public, private, and academic GIS activities. He is a past member of the Council of Governors’ Policy Advisors.

David has over 17 years of experience in policy analysis in Iowa with the Iowa Department of Transportation, the Iowa Department of Economic Development, and the Iowa Rural Development Council. He has extensive experience in transportation systems planning, transportation and economic development, and small community/rural issues.

CTRE also welcomes Dennis Kroeger, transportation research specialist in intelligent transportation systems for commercial vehicle operations (ITS/CVO). Dennis is presently involved in field operational tests of electronic clearance at weigh stations in Oregon. Other research involves electronic clearance of commercial vehicles at the international border between California and Mexico to expedite the commercial vehicle traffic between the U.S. and Mexico to meet ITS and NAFTA initiatives.

Dennis brings a decade of experience in motor carrier regulatory issues and ITS/CVO to his new position at CTRE. He received a bachelor’s degree in political science and philosophy from Luther College in 1982 and a master’s degree in public administration from Drake University in 1984. While at Drake, he worked for the City of Des Moines as manager of special events and later joined Pester Corp. as a petroleum marketing specialist.

In 1986 Dennis joined the Federal Highway Administration’s (FHWA) Office of Motor Carriers and was assigned to the St. Paul office. During his 10 years with the FHWA, he worked on motor carrier regulatory enforcement issues, ITS/CVO, and size/weight regulations for commercial vehicles.
A post-doctoral research associate at CTRE since 1995, Ali recently joined the full-time staff as a research scientist specializing in traffic engineering, transportation engineering, and traffic modeling.

Ali holds a bachelor’s degree in mathematics from the University of Texas at Arlington (1982); bachelor’s and master’s degrees in civil engineering from the University of Mississippi (1986 and 1988); and a doctorate in civil engineering, specializing in transportation engineering, from Iowa State University (1995).

Ali has worked on a number of projects related to intelligent transportation systems for commercial vehicle operations (ITS/CVO). For example, for the AMASCOT project described earlier in this newsletter, he developed a computer package to generate IFTA reports.

He has also investigated the potential benefits of vehicle-specific information at intersections. He developed an adaptive traffic signal control logic and a traffic simulation model to evaluate the new capabilities of the control logic.

For the Advantage I-75 evaluation project, Ali is developing a series of microsimulation prototypes to model traffic operations and to estimate the benefits of the truck clearance automation at weigh stations along the I-75 corridor.

The newest member of CTRE’s staff is Mark Nelson, transportation research specialist in intelligent transportation systems for commercial vehicle operations (ITS/CVO), who comes to the center just this month. His first assignments at CTRE involve conducting research in support of the National Governors Association’s study of state benefits resulting from ITS/CVO deployments and supporting CTRE’s evaluation of the Oregon Green Light project.

Mark received a bachelor’s degree in political science from the University of Minnesota in 1987 and a master’s degree in public administration from Evergreen State College in 1994. He spent two years as business systems analyst for the Washington State Department of Transportation, where he coordinated the department’s self-evaluation of operational procedures.

Before coming to CTRE, Mark was a research coordinator at the University of Washington’s Transportation Research Center. In this position, Mark managed a variety of research projects conducted by research agencies in the state of Washington and managed the implementation of project findings and the transfer of technology between state and federal agencies.
To add someone to the mailing list or to correct your mailing address, please fill out the following form and return it to CTRE. You may also fax this page to CTRE (515-294-0467) or contact Margaret Bonel at CTRE: (voice) 515-294-8103; (e-mail) margaret@ctre.iastate.edu.

Name/Title: ________________________________________________________________

Business or agency: _________________________________________________________

Address: ___________________________________________________________________
_________________________________________________________________________
_________________________________________________________________________
_________________________________________________________________________

Work phone: __________________________________________________________________

Fax: _________________________________________________________________________

E-mail: _____________________________________________________________________

This address is □ new □ a correction.