From the Director

There is a new face associated with this column. I succeeded Tom Maze as CTRE's director in November 1999. I say succeeded rather than replaced, because no one can replace Tom. Over the last 12 years he built CTRE into an organization of more than 30 transportation professionals and 30–40 student researchers, while also working as a full-time faculty member in Iowa State's Department of Civil and Construction Engineering. Largely because of his efforts, CTRE enjoys great respect both in Iowa and nationally. I am honored to be CTRE's new director and wish Tom all the best in his new endeavors with Howard R. Green Company.

As you may know, I worked for the Transportation Research Board for the last seven years, managing the Transit Cooperative Research Program, a sister program of the National Cooperative Highway Research Program. Prior to that, I was vice president of a small consulting firm. After 25 years in the Washington, DC, area, in the months that I have been on the job here at CTRE I have been continually impressed by the goodwill I encounter everywhere I go. I'm sure the people of Iowa chiefly account for my perception, but I have learned that CTRE also earns the goodwill by providing services to the transportation community.

That tradition of service is continuing with new developments initiated before my arrival that are coming to fruition. The Center for Portland Cement Concrete Technology (the PCC center) is now a reality. The first organizational meetings were held in the spring of 1999, and in April 2000 Iowa's Board of Regents approved the center. Dale Harrington, formerly of Snyder & Associates, Inc., has been hired to direct the new center. (See a short article about the PCC center beginning on page 5.)

Another new challenge for CTRE is managing the proposed Statewide Urban Standard Design and Specification Manuals for Public Improvements. In 1995 the Governor's Blue Ribbon Transportation Task Force was charged with finding better methods to maximize the benefits of dollars spent from the Road Use Tax Fund. A 1997 survey conducted by the Iowa Department of Transportation (Iowa DOT) indicated that statewide, standardized urban designs and specifications would go a long way toward achieving that goal. A statewide steering committee has recommended that CTRE play a key role in developing the statewide manuals. CTRE will build on existing manuals being used in central Iowa by 28 units of government cooperating through interagency agreements. CTRE has begun working with this group and the Iowa DOT to develop a plan to expand the program to the entire state. Construction cost savings could exceed $7 million annually, primarily through increased competition for road construction projects facilitated by standardized specifications.

The Iowa Governor's Traffic Safety Bureau recently funded CTRE to provide traffic safety analysis services for transportation officials in the state through the Iowa Traffic

SPECIAL INSERT INSIDE: MTC Asset
Safety Data Service (ITSDS). This program builds on the research CTRE has done for the Iowa DOT and the bureau, mapping the data in the Iowa DOT's Accident Location and Analysis System using geographic information systems software. Through the ITSDS, transportation officials in Iowa can receive custom analyses of crashes at any location and presentation-quality graphics for use in public meetings.

CTRE just completed a roadway weather information system that went live on the Iowa DOT website in January 2000. Now anyone can obtain real-time roadway weather conditions around the state with the click of a mouse. Check it out at www.dot.state.ia.us/index.htm.

Our pavement management activities continue to expand. CTRE has been assisting the Iowa DOT in developing a system to automatically record pavement condition data, organize them in a database, and provide analysis tools for decision making. A private contractor is using laser technology to collect data on the state roadway system. The data are automatically added to the database, and CTRE staff provide quality control, technical assistance, and analysis services. The operational system was rolled out at a seminar in November 1999, and since then nearly 30 communities have contracted to have roadway condition data in their jurisdictions added to the system. This is another example of a valuable service that CTRE, in conjunction with the Iowa DOT, provides to local governments in the state.

There are several new faces around the office besides mine; see their brief bios beginning on page 10. Descriptions of CTRE's new training and meeting facilities are also in this issue. With new programs, facilities, and staff, CTRE is a hub of activity. Stop by and say hello if you are in Ames. You are always welcome, and our services are just a phone call away.

Iowa State University is part of the newly formed National Consortium on Remote Sensing in Transportation—Infrastructure, which will research the potential of remote sensing technology for transportation. The Iowa Department of Transportation, the US Department of Transportation, and the National Aeronautics and Space Administration are among the consortium's sponsors. Other university members include the University of California–Santa Barbara (lead institution), the University of Wisconsin–Madison, and the University of Florida.

Remote sensing may be broadly defined as employing electromagnetic energy to detect and measure target characteristics about objects (like traffic) without making physical contact with them. Satellite imagery, aerial imagery, and video/magnetic detection are among the remote sensing alternatives that are replacing or supplementing traditional traffic gathering methods such as travel surveys, aerial photographs, and traffic detectors. Remote sensing methods are also an alternative to other technologically sophisticated data gathering methods, including transponders, infrared detection, acoustic detection, and microwave detection, which have largely abandoned the sight-based approach. Remote sensing methods of traffic data collection retain the firsthand, sight-observation approach of traditional methods, while generally being less intrusive and more economical.

With research support from CTRE, Iowa State's contributions to the consortium focus on four goals: determining the accessibility of high-resolution satellite data, assessing and theorizing methods for procuring data, establishing criteria for evaluating data, and utilizing remote sensing to gather asset, access, linear...
Fly ash: the “poor man’s portland cement”

Editor’s note: Kenneth Bergeson, professor of civil and construction engineering, will retire from Iowa State University in December 2000. Ken is not only an award-winning teacher but an active member of many research groups, including the Iowa Fly Ash Affiliates.

Ken has been a valuable research affiliate of CTRE, and we will miss his important contributions to transportation research in Iowa.

Kenneth Bergeson has dedicated the past 15 years of his research career to an important material in highway construction—fly ash. Researching fly ash has led him throughout Iowa as he works to discover new ways to use this product.

Fly ash is a waste product generated when a power plant burns coal. It has been shown to be effective in many transportation-related applications because of its unique strength-gain properties.

Fly ash historically had been relegated to landfills. By the 1980s, however, the US Department of Energy realized that the country’s landfills rapidly were filling with the material and searched for alternative disposal methods. Bergeson’s work has developed some of those alternatives since 1985. “We were looking for high-volume applications for fly ash, primarily to keep it out of the landfills and utilize it in construction,” he explains. “Why should we waste it when meanwhile our mineral resources are being depleted?”

The unique physical properties of fly ash from subbituminous coal make it useful in a variety of transportation construction applications. When moisture contacts the calcium-rich crystalline material, calcium silica hydrates form, which in turn bond the glass particles in the ash. This reaction is similar to portland cement hydration.

“That’s why it’s often referred to as the ‘poor man’s portland cement,’” Bergeson says.

Since 1990 researchers have been investigating the potential of reclaimed hydrated Class C fly ash. This material is typically produced at a utility sluice pond site by dumping raw ash into the pond and allowing it to hydrate and harden into a working platform. Additional raw ash is placed on top of the platform in thin lifts, watered, compacted, and allowed to hydrate and harden. This process continues until 10 to 20 feet of hardened ash has been placed. Reclaiming the material for use as an aggregate is accomplished when recycling/reclaiming equipment scarify the ash.

When the reclaimed, hardened ash is watered and recompacted, it exhibits the unique property of resuming its strength-gain characteristics. The continued strengthening of the reclaimed fly ash is attributed to the gradual dissolution of its reactive glass components, which release additional calcium, silica, and aluminum. These then continue to hydrate and harden.

Researchers now are working to determine the full extent of fly ash’s hardening
Reclaimed fly ash has been used (top to bottom) in building borrow pit haul roads, as select fill in some road projects, and as railroad track subballast.

propensities and the amount of time necessary to reach this maximum strength. Recent core samples taken from a fly ash–based access road at the Sutherland Power Plant in Marshalltown, Iowa, averaged 2,600 psi. Such strengthening properties of a fly ash subbase can contribute to the endurance and durability of the roadway it supports.

An additional benefit of reclaimed fly ash for transportation construction is the potential applicability of traditional testing methods. Bergeson reveals that the dynamic cone penetrometer appears to be one reliable method for testing fly ash–based roadways “because it has such an extensive research background. There’s been so much work done with this test by the Corps of Engineers. It’s a quick, economical method.”

Other testing procedures, including the Clegg hammer and nuclear densometer, are being studied for their ability to transfer to reclaimed fly ash testing situations.

Of the many uses for fly ash that Bergeson has studied during the past 15 years, a few are chronicled below:

As highway base material. In a 1991 study, fly ash from a Council Bluffs, Iowa, power plant, reclaimed with a single pass of a scarifier, was determined to nearly meet Iowa Department of Transportation specifications for low quality Class B crushed stone. The fly ash demonstrated high absorption and low specific gravities, and when activated by portland cement kiln dust, revealed significant gains in strength and resistance to freeze-thaw conditions. The study consequently suggested that the fly ash had potential as highway base material.

As construction working platforms. Also during the 1991 study, it was noted how the unloading trucks at the Council Bluffs plant end-dumped fly ash into the sluice pond, where it would quickly self-harden. Continuous, subsequent dumps resulted in a six- to eight-foot hardened ash platform, on which the trucks drove their ash loads increasingly farther into the pond. Consequently, the potential value of fly ash for construction platforms built on soft soils was implied during this study.

As access roads. In 1994, an access road was constructed near the Sutherland Power Plant in Marshalltown, Iowa, the base of which included reclaimed fly ash and was activated with cement kiln dust and combustion ash. Five years later, the 1999 Iowa Fly Ash Affiliate Research Program Annual Research Report stated that “the road is performing very well” and continues to demonstrate significant strength gains.

As structural fill. In 1998, a haul road between Chillicothe and the Monroe-Wapello county line was constructed using 10 inches of reclaimed fly ash as select fill under portland cement concrete (the fill was necessary because of the Class 10 soil in the area). Subsequent testing revealed that those areas of the road with fly ash select fill showed greater stability than areas supported only with soil fill.

As railroad subballast. Given the ever-increasing strength and weather endurance of a reclaimed fly ash subbase, in 1997 the material was used to build a foot-thick railroad track subballast over the soft soil of the Missouri River’s flood plain near Council Bluffs, Iowa. Not only does the reclaimed fly ash provide a uniform, high-strength support for the rail system, it also minimizes loss of ballast into the subgrade soil.

For more information, contact Ken Bergeson, 515-294-9470; kbergy@iastate.edu. •
Recognizing the critical need to reduce pavement life cycle costs, Iowa's Portland cement concrete paving industry is supporting a major new program at CTRE. The Center for Portland Cement Concrete Pavement Technology (the PCC center) will focus on applied research to develop better designs and processes for building longer-lasting, better-performing PCC pavements. The center will also develop education and training programs that move the best new designs and processes out of the laboratory and into the hands of design engineers, materials suppliers, contractors, and construction managers.

Partners in this effort are the Iowa Concrete Paving Association, the Iowa Department of Transportation (Iowa DOT), Iowa State University’s Department of Civil and Construction Engineering, and CTRE, where the PCC center is housed.

Why Iowa?
In the heart of the PCC pavement industry, the PCC center will take advantage of Iowa’s unique combination of resources:

- a PCC manufacturing and construction industry that strongly supports research, innovation, engineering education, and technical training;
- the Iowa DOT’s nationally recognized pavement engineers and researchers, 40 years of pavement data and a mature statewide pavement management program, and a century of leadership in pavement research and tech transfer (including the conduct of more than 165 PCC pavement-related research projects);
- Iowa’s “PCC manufacturing and construction industry ... strongly supports research, innovation, engineering education, and technical training.”

The mission of the Center for Portland Cement Concrete Pavement Technology is to advance the state of the art of Portland cement concrete pavement technology. The center will focus on improving design, materials science, construction, and maintenance in order to produce a durable, cost-effective, sustainable pavement.

Focus on training/partnering
The vision of the PCC center is to become an internationally recognized resource and leader for research, education, and technology transfer in PCC pavement technology. Training programs will be conducted locally, regionally, and nationally via...
hands-on training, videoconferences, and the Internet.

Training will focus on the following areas:

• exploiting existing outreach resources at Iowa State University and the Iowa DOT—facilities, instructors, materials, and electronic and digital media;

• compiling PCC training and technology transfer reference materials;

• developing curricula for high-priority training;

• publishing a quarterly PCC pavement technology newsletter;

• publishing training materials on the center's web site; and

• serving as the PCC pavement technology clearinghouse.

One of the PCC center’s primary directives is to work in teams and partner with laboratories, centers, institutions, and agencies on projects of common interest. Working with its advisory board, the PCC center will seek sustainable support within and outside Iowa. Staff will work with foundations and organizations to identify potential future partners and funding sources and to help develop an understanding of research, technology, and training priorities.

Want to know more?
For more information contact the director of the PCC center, Dale Harrington, 515-294-8103, pcconc@iastate.edu.

The PCC center has access to a wealth of resources (like the low-vacuum electron scanning microscope, left) at research laboratories at the Iowa Department of Transportation, Iowa State University, and CTRE, all within a three-mile radius.
CTRE's new videoconference room and computer classroom are getting a workout. In addition to being used for CTRE's training programs, the facilities are available to CTRE's partners, including the Iowa Department of Transportation, Iowa's city and county transportation agencies, and transportation-related associations, as well as Iowa State University centers, institutes, and departments and Iowa State's Research Park.

**Videoconference (VC) room**
The VC room enhances CTRE's ability to conduct long-distance training and meetings. It can be connected to more than 400 Iowa facilities, as well as to sites around the world via private networks like Sprint and AT&T, and to the Iowa Department of Transportation's video network and the Iowa Communications Network, Iowa’s fiber-optic system. Broadcasting at least 15 frames per second, the facility gives the impression of full-motion video.

The Iowa DOT has used the VC room to conduct several weeks of “CoolCareers” training — the department's education and training program for engineering technicians — for students on site and at remote locations. CTRE's partners are using the facility to involve people at distant locations in “face-to-face” meetings and workshops, saving travel costs and time and enhancing convenience.

**Computer classroom**
With large, comfortable seating arrangements for up to 40 students, CTRE's computer classroom provides a convenient facility for hands-on training. Trainers can install their own software and configure the computers to meet their training needs, while trainees can come together to share experiences with software and to network about software applications.

In its first year, the room has hosted dozens of classes on topics such as:
- computer-aided design
- geomedia
- pavement management system
- hydraulic design of culverts
- intelligent transportation systems

For more information about the videoconference room or computer training laboratory, contact Traci Stewart, secretary, 515-294-8103, stewartt@iastate.edu.
New Eisenhower and Eno fellows at CTRE

Two CTRE research assistants recently were honored with fellowships in transportation education.

2000 Dwight David Eisenhower Fellow Richard Storm continues a CTRE tradition—since 1996, at least one CTRE research assistant has won an Eisenhower fellowship each year. Only 25 students across the nation receive this award annually; the program is administered by the US Department of Transportation.

The fellowship will provide Richard with a monthly stipend along with tuition and school expenses for up to two years. He currently is pursuing a Master of Science degree in civil engineering at Iowa State, having earned his Bachelor of Science degree here in 1999. Richard’s research interests lie in the transportation modeling area.

CTRE also is pleased to announce that Eric Padget was one of only 20 students nationally who were honored this year with an Eno Fellowship, an award sponsored by the Eno Transportation Fellows Leadership Development Program and meant “to develop a cadre of competent, motivated people who are capable and willing to assume leadership roles in tomorrow’s transportation industry.” Each year’s recipients attend a five-day transportation conference in Washington, DC, where they interact with policy officials in transportation.

Eric received his Bachelor of Science degree in community and regional planning from Iowa State and soon will graduate with a Master of Science degree in transportation with an emphasis in transportation planning and economics. He currently works on the Missouri Department of Transportation's access management project and a pilot study of sport utility vehicle speeds and safety on winter roadways.

Student wins traffic safety award

CTRE research assistant Jerry Roche recently was honored with the American Traffic Safety Services Foundation Mid-Career Scholarship, an award that supports a federal, state, or local agency staff member’s education in the transportation field. Jerry was the sole recipient of the award this year, and he received almost $8,000 to support four semesters of coursework. Having received a Bachelor of Science degree from Iowa State University in 1999, he currently is pursuing a master's degree in civil engineering with an emphasis in transportation.

The award comes in response to Jerry's work with the Iowa Traffic Safety Data Service (ITSDS), a program that synthesizes information from several Iowa Department of Transportation traffic safety and geographic information systems tools in order to generate reports, tables, and maps about a jurisdiction’s crash statistics. ITSDS is sponsored by the Iowa Governor’s Traffic Safety Bureau and is administered by CTRE.

“It’s a tremendous honor to receive this award,” Jerry says. “It helps promote traffic safety as well as helps pay for the rising costs of a college education.”
CTRE sponsors a unique student organization

The Transportation Student Association (TSA) “provides an opportunity for students from all facets of transportation to come together and take a cooperative look at the issues facing today's transportation professionals,” says Jerry Shadewald, TSA's past president and a graduate student in civil engineering.

TSA was formed at Iowa State University in 1997 as a joint organization composed of Iowa State’s student chapters of the Institute of Transportation Engineers (ITE) and the Intelligent Transportation Society of America (ITS-A). TSA provides a unique venue for these two groups to build on their common interests and goals instead of competing for members, funds, and sponsors.

“As far as we know, ISU is one of only a few organizations to combine ITE and ITS-A,” says Karen Giese, a founding member and former president of TSA.

TSA's initial membership consisted mostly of student research assistants working at CTRE. CTRE supported the fledgling organization by providing funding for activities, program advice, and administrative support.

Since that first year, TSA has taken on a life of its own. Its membership has doubled to 30 and now includes undergraduate and graduate students from Iowa State's Departments of Community and Regional Planning in the College of Design; Civil and Construction Engineering in the College of Engineering; and Logistics, Operations and Management in the College of Business. The group is now self-sustaining, raising over $3,500 in 1999, says Giese.

Each year TSA offers its members more opportunities for professional development and growth. Activities this past year included the following:

Iowa State’s TSA named outstanding student chapter

The Institute of Transportation Engineers (ITE) recently named Iowa State University's Transportation Student Association (TSA) the District 4 Outstanding Student Chapter. The district includes universities from 11 Midwestern states.

TSA acts as a parent organization for Iowa State's student chapters of ITE and the Intelligent Transportation Society of America (ITS-A); see the article about TSA on this page.

Applicants for the District 4 award were assessed according to chapter activities (60 percent), relations with other ITE organizations (25 percent), and organizational structure (15 percent). TSA submitted its 1999–2000 annual report for consideration, a document that already has proved its mettle—it won the chapter the Missouri Valley ITE outstanding chapter award and $400 cash prize.

In its report, the TSA chronicled a variety of activities including its recruitment efforts, community service activities, and social events, all of which demonstrate the growing strength of the association and commitment to transportation engineering. Of special mention was TSA’s hosting duties at Iowa State’s first Transportation Career Days event in fall 1999, where students had the opportunity to meet and interview with transportation companies from the Midwest.

This honor comes only three years after the founding of the Iowa State chapter, which now will submit its annual report to compete for the national student chapter award against chapters at the likes of Texas A&M, Purdue University, and Pennsylvania State University.

In preparation for this competition, ISU TSA president Jerry Roche suggests, “Hope and pray!” •

TSA continues on page 10
STUDENT ACTIVITIES / NEW STAFF

A trip to the Transportation Research Board in Washington, DC. The 16 students who attended, says Shadewald, received “invaluable knowledge of work on the cutting edge of transportation research.”

The First Annual TSA Career Days. Five firms from Omaha to Chicago participated in the fair, with approximately 30 students attending.

A trip to Chicago to tour both the Metra transit system and the Illinois Department of Transportation.

TSA business meetings, with presentations from regional and national transportation professionals. Approximately 20–30 students attended each meeting. “Several additional firms have expressed interest in participating in future TSA meetings,” says Shadewald.

Community service. During Iowa State’s annual VEISHEA celebration, 12 TSA members helped young children learn about traffic signs and safety. Five students volunteered for Story County Habitat for Humanity, a nonprofit organization that builds housing for low-income families.

Recreational activities. Students participated in a TSA-sponsored golf outing, a canoe trip, and an evening at a local ski hill.

Although CTRE continues to support TSA by providing advisors and meeting space, the future direction of the organization is firmly in the hands of TSA members.

“TSA has been growing since its inception in 1997 and is poised for continued growth in the years to come,” says Shadewald. “By bringing together a wide range of students and transportation professionals, we will continue to advance the transportation industry both in Iowa and beyond.” •

New faces at CTRE

Mark Anderson-Wilk joins CTRE’s publications group as a writer and editor. Mark comes from the University of Chicago Press, where he was an editor at the Astronomical Journal. His specialization has been in editing technical and scientific manuscripts. He earned his MA degree in English at the University of Minnesota. Mark will be writing articles for various publications and editing reports and software manuals.

Randy Boeckenstedt is CTRE’s newest transportation research specialist, focusing on asset management and transportation policy. He’ll be working with David Plazak and the Midwest Transportation Consortium, the US Department of Transportation’s University Transportation Center for region 7. Randy earned a bachelor’s degree in manufacturing technology/mechanical design and an MBA from the University of Northern Iowa (UNI). He worked at UNI for several years, first as the business manager for the Metal Casting Center and then as the program manager for the Ag-Based Industrial Lubricants Research Program.

Mahmoud Halfawy is a post-doctoral research associate at CTRE working with Terry Wipf. His work focuses on structural analysis of bridge structures and software development of integrated bridge CAD systems. He’ll be assisting in a number of research projects in collaboration with the Iowa Department of Transportation to assess and evaluate the structural performance of existing bridges (e.g., using load testing techniques). Mahmoud has a PhD in civil engineering from Ohio State University. Before coming to CTRE he worked as a software engineer at Engineering Animation, Inc., in Ames, Iowa, developing object-oriented CAD systems for industrial facility layout and design. Before that he worked as an engineering scientist at EMH& T, Inc., in Columbus, Ohio, where his work focused on...
on the development of GIS for sanitary/storm water sewers evaluation and simulation.

Shauna Hallmark comes to CTRE from Georgia where she recently completed a PhD in civil engineering at the Georgia Institute of Technology. At CTRE she'll be working as a transportation engineer, applying her expertise in traffic engineering and air quality modeling to a variety of projects. She will be involved with the National Consortium on Remote Sensing in Transportation—Infrastructure and will work on emergency response information service projects. Shauna also holds a halftime appointment as an assistant professor in Iowa State's Department of Civil and Construction Engineering.

Dale Harrington is the director of the CTRE’s new Center for Portland Cement Concrete Pavement Technology. After earning a degree in applied science in construction technology from Iowa State University in 1964, Dale worked for the US Naval Civil Engineering Laboratory in California for three years. He then returned to Iowa, earning his professional engineering registration in 1971. Dale was the principal chief engineer for the Central Iowa Regional Association of Local Governments (now the Des Moines Area Metropolitan Planning Organization) in the mid-1970s. From 1975 to 1988 he was assistant Polk County (Iowa) engineer. For the last 12 years, he has been project director and a partner for Snyder & Associates, Inc., in Ankeny, Iowa. After such a varied career, what challenges were left? A chance to work in academia, Dale says. He looks forward to developing research programs and providing training and technology transfer opportunities to state and local governments and private contractors.

Gary Thomas joins CTRE as a transportation engineer, and Iowa State’s Civil and Construction Engineering Department as an assistant professor. At CTRE he conducts research in traffic engineering and traffic safety, and at Iowa State he teaches courses in traffic safety and traffic operations and engineering. Gary is also the education program coordinator for the Midwest Transportation Consortium, the US Department of Transportation University Transportation Center for region 7, which is administered at CTRE. Originally from Wisconsin, Gary returns to the Midwest after 10 years studying and working in Arizona. He has a PhD in civil engineering with an emphasis in transportation from Arizona State University. Before coming to CTRE he was the city traffic engineer for Gilbert, Arizona, a city of 100,000 people in the Phoenix metropolitan area. He also worked as a transportation engineer/consultant for several years in Phoenix.

Terry Wipf joins CTRE as the associate director for bridges and structures. Terry has been a professor in Iowa State’s Department of Civil and Construction Engineering for 17 years; he will continue with a halftime appointment in that capacity. Terry is also the manager of Iowa State’s Bridge Engineering Center. By restructuring his time, Terry will concentrate on sponsored bridge research through CTRE’s Division of Bridges and Structures. The goals of the division are to continue to provide bridge research and training services to the Iowa Department of Transportation (Iowa DOT) and to be a leader at the national level in bridge engineering. Together with Mahmoud Halfawy, Terry is working on several Iowa DOT projects, including one to refine the testing of bridge load limits. Terry earned his PhD in mechanics and energetics from the University of Nebraska–Lincoln and previously served as a bridge engineer for three and a half years with HNTB.
Biennial research conference draws 300-plus

During Transportation Week 2000, CTRE sponsored its third biennial regional research conference: the Mid-Continent Transportation Symposium 2000. Cosponsors were the Iowa Department of Transportation and the Midwest Transportation Consortium. For the first time, the Missouri Valley section of the Institute of Transportation Engineers (MOVITE) was also a cosponsor, and the symposium served as MOVITE's spring 2000 conference.

More than 300 participants attended their selections of more than 80 technical presentations offered in concurrent sessions during the two-day event. Plenary speaker Robert Skinner, executive director of the Transportation Research Board, shared his vision of the future of transportation and transportation-related research. Other special guest speakers were Charles Nemmers, director of the Transportation Infrastructure Center at the University of Missouri–Columbia, and Francis “Frank” B. Francois, former executive director of the American Association of State Highway and Transportation Officials.

Four Awards for Excellence in Transportation were presented at the symposium banquet: Richard Drake, State Senator; David Forkenbrock, Professor, Public Policy Center, The University of Iowa; Robert Given, Associate Engineer, Iowa Concrete Paving Association; and Jerry Welter, State Representative. These recipients were honored based on their lifelong contributions to transportation research and/or transportation practice in the state of Iowa.

Robert Skinner, executive director of the Transportation Research Board (right foreground), and CTRE staff and board members listen to discussion during CTRE’s advisory board meeting, part of the events during the Mid-Continent Transportation Symposium 2000.