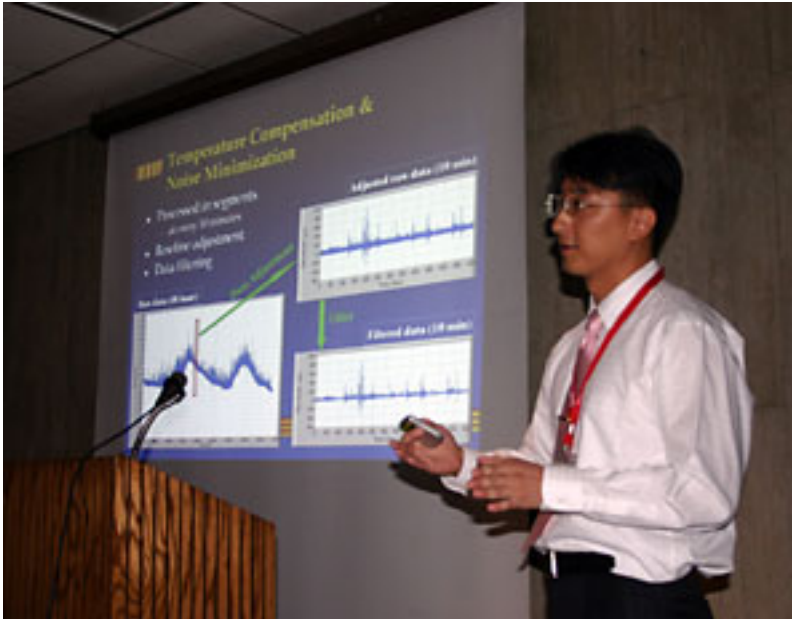


CTRE en route

Summer 2007

In this issue

Articles



Yoon-

Si Lee gives a presentation during the Mid-Continent Transportation Research Symposium.

[Director's message](#): Successful 2007 Mid-Continent Transportation Research Symposium

[New faces at CTRE](#)

[Awards](#)

Award-winning alumnus and staff

[CP Tech Center lab scores well](#)

Research projects

[Recently completed](#)

Read about projects completed between February and August 2007. This list includes links to project details, reports, and related publications.

[Recently started](#)

Find out about projects begun since winter 2007. This list includes links to brief project statements.

[Tech transfer summaries](#)

Download short, 2–4 page summaries of research projects.

Page last updated September 18, 2007

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CTRE en route

Summer 2007

Director's message

by Shashi Nambisan, CTRE Director



Tony Kane, center, Director of Engineering and Technical Services, AASHTO, speaks with symposium participants before lunch.



Sandra Larson, Lee Smithson, and Shashi Nambisan.



Symposium

participants get a laugh during one session.



Ping Lu,

ISU graduate student, during her presentation.

Successful 2007 Mid-Continent Transportation Research Symposium

The sixth biennial Mid-Continent Transportation Research Symposium, held August 16–17, 2007, in Ames, Iowa, had a record participation with 300 attendees. They came from 16 states and two other countries, Japan and Turkey. Of particular note is that 50 students participated in the symposium. The Iowa DOT had 144 participants and CTRE / ISU had 80 attendees.

We had an outstanding response to the call for abstracts, which resulted in a record number of submissions. Abstracts were reviewed by a planning committee and the accepted papers grouped into the following tracks: safety, bridges and structures, pavements, planning, ITS, traffic, weather, drivers, education and communication, and environment.

109 papers were presented in a total of 28 sessions. The presenters included students, researchers and faculty from several universities, as well as practitioners from the public and private sectors.

The stage was set for the symposium during the opening session where key representatives from Iowa State University, the Iowa Department of Transportation (Iowa DOT), and the Federal Highway Administration (FHWA) welcomed the participants and highlighted key challenges facing us with regard to transportation systems and infrastructure. Opening session speakers included Dr. John Brighton, Vice President for Research and Economic Development at Iowa State University; Sandra Larson, Research and Technology Bureau Director, Iowa DOT; Kevin Mahoney, Iowa DOT Chief Engineer and Highway Division Director; and Phil Barnes, FHWA Iowa Division Administrator.

Keynote speakers

In his presentation titled *SHRP 2 Briefing: Accomplishments and Opportunities*, **Steve Andrie, Chief Program Officer at the Transportation Research Board**, provided an overview of the Strategic Highway Research Program 2 initiative. He identified activities completed during the past year and those programmed for the future in the 4 program areas of SHRP2 (safety, renewal, reliability, and capacity). He also noted the success of CTRE and Iowa State University in winning several awards from these nationally competitive research programs. Steve served as Director of CTRE for about 7 years prior to his current role at TRB.

Tony Kane, Director of Engineering and Technical Services, AASHTO, made the luncheon presentation entitled *A New Vision for the 21st Century Transportation: Invest in Our Future*. He identified the primary objectives being to reduce congestion, keeping America globally competitive and meeting the mobility needs of the 21st century. He emphasized the need for a multi-modal approach that addresses preservation of the existing system, improves system performance, and adds substantial capacity. He also outlined 10 policy priorities and the global challenges to America. Mr. Kane identified the need to provide a quantum increase in funding as a key challenge facing the nation.

During the dinner presentations, **Mark Kushner, Dean of the Iowa State University College of Engineering** challenged the audience to communicate more proactively with decision makers about the need for investment in infrastructure development and renewal. Then, **Steve Chase, Chief Scientist, FHWA Turner Fairbank Highway Research Center** made a presentation titled *Future Directions for Surface Transportation Research*. He discussed key factors that will shape our future and their implication for

transportation systems. He also highlighted some of the research efforts and new directions and initiatives being pursued by FHWA.

Symposium proceedings

The [symposium proceedings is available online](#).

Next symposium

Continuing the tradition of alternating hosting the symposium in Wisconsin and Iowa, next year's symposium will be hosted by the Midwest Regional University Transportation Research Center at the University of Wisconsin-Madison on August 14–15, 2008.

Additional information about the event can be found at the following URL: www.mrutc.org/midcon/. We look forward to partnering with our colleagues in Wisconsin in organizing the event. Please join us in continuing and growing this successful partnership.

Acknowledgements

Many individuals contributed to the success of the symposium. They include members of the program planning committee, and others from CTRE, ISU, and the Iowa DOT who helped with various aspects related to the details of organizing and managing the event. I thank all of them, along with the participants, for their roles and contributions that helped make the symposium a success.

Page last updated September 18, 2007

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CTRE en route

Summer 2007

New faces at CTRE

Several new people have started work at CTRE in recent months, including a secretary, report editor, 2 bridge engineers, concrete pavement engineer, and an associate director of the CP Tech Center.

What you need to know

Jake Bigelow, Bridge Engineer

Jake is one of two new bridge engineers with the Bridge Engineering Center. He'll be working on a variety of projects related to timber bridges and construction and design. He has BS (civil engineering) and MS (structural engineering) degrees from Iowa State University. Before returning to Iowa State this summer, he worked as an engineer at two private firms, first at Charles Saul Engineering in Des Moines, Iowa, and later at Opus Architects and Engineering in Minnetonka, Minnesota.

Yoon-Si Lee, Bridge Engineer

Yoon-Si is the other new bridge engineer with the Bridge Engineering Center. He'll focus on structural health monitoring of bridges. He recently completed his PhD in structural engineering at Iowa State, where he's worked as a research assistant for several years.

How to recognize him/ her



Tyson Rupnow, PCC Research Engineer

Tyson joined the CP Tech Center this summer after completing his PhD in civil engineering at Iowa State. His current research focuses on optimization of ternary cementitious systems, improvement of PCC mixtures using a two-stage mixing process, and materials and construction optimization.



Sabrina Shields-Cook, Report Editor/ Technical Writer

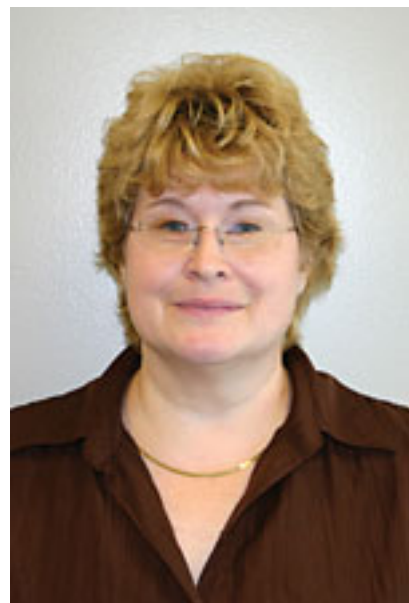
Sabrina has taken Oksana (Opsomer) Gieseman's place* as CTRE's primary report editor. Sabrina recently completed a master's degree in rhetoric, composition, and professional communication at Iowa State University. As a grad assistant, she did technical writing and editing for Iowa State's Institute for Food Safety and Security.



* (Oksana still works at CTRE but now does technical writing and editing for the CP Tech Center.)

Dee Short, Secretary

Dee works mornings as CTRE's receptionist and afternoons as a secretary for the CP Tech Center. She is new to Iowa State University. She previously worked at Iowa Central Community College's Homeland Security Training Center.



Peter Taylor, Associate Director, CP Tech Center

Peter arrived at CTRE this summer after 10 years with Construction Technology Laboratories (CTLGroup) in Skokie, Illinois. One of his main projects for the CP Tech Center will be leading the mix design track of the [CP Road Map](#), a long-term research plan for concrete pavements. Peter has a PhD in civil engineering from the University of Cape Town.



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CTRE en route

Summer 2007

Awards



Travis Konda accepting his award.

TRB Eldon J. Yoder outstanding paper award

Travis Konda (ISU PhD Structural Engineering, 2004) is the lead author of the outstanding paper at the 2007 Transportation Research Board Low Volume Road Conference held June 24–27, 2007, in Austin, Texas. Konda works for HNTB Corporation in Kansas City.

The paper, “Precast Modified Beam in Slab Bridge System: An Alternative Replacement for Low-Volume Roads,” is based on research sponsored by the Iowa DOT. Other authors include Terry Wipf, director of the Bridge Engineering Center, F. Wayne Klaiber, distinguished professor of civil engineering, and T.P. Schoellen, Howard County Engineer.

National technical communication award

Congratulations to CTRE technical writer Oksana (Opsomer) Gieseeman and graphic designer Alison Weidemann!



Oksana (Opsomer) Gieseeman (left) and Alison Weidemann

Last winter they won the highest award given at the regional competition for their work on the *Toolbox to Address Safety and Operations on School Grounds and Public Streets Adjacent to Elementary and Middle Schools in Iowa*. Consequently, their project was automatically forwarded to the national competition where it **earned a "Merit" award**. [Download the report](#) (8 mb *pdf) or [read a project abstract](#).

This is the second time CTRE has won a national award for its technical communication products. The first was in 2003 by webmaster Michele Regenold for CTRE's [research web page](#).

Page last updated September 18, 2007

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CTRE en route

Summer 2007

CP Tech Center lab scores well



Equipment for the Rapid Chloride Permeability test.

Equipment



a boil test.

Conducting

In June 2007, Kansas Department of Transportation (KDOT) Concrete Research Engineer Rodney Montney invited 5 concrete research labs to take part in a “round-robin” set of tests. The objective was to compare test results from different labs. The test results should be similar; however, they may be influenced by the different labs’ operations, technicians, and equipment.

The CP Tech Center’s lab results were right on the average. Lab manager Bob Steffes said, “These results show that our technician and equipment are doing good work.”

About the testing

KDOT created identical concrete samples:

- 6 4”x8” concrete cylinders with 5% silica fume and
- 6 4”x8” concrete cylinders with 7% silica fume.

Each lab was ordered to follow the exact same test standards and procedures covering 2 different tests:

- Rapid Chloride Permeability (ASTM C1202-97) and
- Volume of Permeable Voids (Boil Test) (ASTM C 642).

Results

KDOT analyzed all the labs' results from the 2 tests.

Test performed	Cylinders tested (3 per test)	Range of results	Average results from all labs	CP Tech lab results
Volume of Permeable Voids(%) (ASTM C 642)	5% silica fume 7% silica fume	10.3 % to 8.9 % 10.0% to 8.2%	9.7 % 9.0 %	9.7 % 9.2 %
Rapid Chloride Ion Permeability (Coulombs) (ASTM C 1202-97)	5% silica fume 7% silica fume	3258 to 1847 3054 to 1727	2420 2251	2446 2288

These results show that the CP Tech Center lab performance is very well centered within the range of results from all the participating labs.

Congratulations to Jeremy McIntyre, CP Tech Center lab technician, and Bob Steffes, CP Tech Center lab manager.

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CTRE en route

Summer 2007

Recently completed research



Rolling the geogrid over the soft subgrade layer near Nashua, Iowa. See [Effective Shoulder Design and Maintenance \(TR-531\)](#).

Below is a list of projects that were completed since winter of 2007. All links will take you out of this newsletter site. Each project page includes a link to the final report.

Asphalt

- [Evaluation of Long Term Field Performance of Cold In-Place Recycled Roads \(TR-502\)](#)
- [Investigation of Electromagnetic Gauges for Determination of In-Place Density of HMA Pavements \(TR-547\)](#)

Bridges

[An Integral Abutment Bridge with Precast Concrete Piles \(TR-438\)](#)

Concrete

[Simple and Rapid Test for Monitoring the Heat Evolution of Concrete Mixtures for Laboratory and Field Applications, Phase 2](#)

Design

- [Effective Shoulder Design and Maintenance \(TR-531\)](#)
- [Roadway Design Standards for Rural and Suburban Subdivisions \(TR-549\)](#)

Geotech

- [Evaluation of Intelligent Compaction Systems](#)
- [Field Validation of Intelligent Compaction Monitoring Technology for Unbound Materials and HMA](#)

Safety

Tom Maze recently completed a project on work zones. Maze says, “The core of the project is strategies to manage work zones and work zone traffic. Given the new federal regulations on the management of work zones, the documents originating from the report should be very useful.” See the links below:

- [Asset Management Strategies to Mitigate Freeway Work Zone Congestion](#)
- [Synthesis of Practices for Mitigating the Impact of Work Zones on Traffic](#)
- [Prefabricated Elements Case Study](#)
- [Flexible Start/Fixed Duration Contracting for Construction of Transportation Projects: A Case Study of the Paseo Bridge](#)

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CTRE en route

Summer 2007

Recently started research

(photo of permeameter? Pi girder?)

Below is a list of projects that were started between (roughly) February and August 2007. All links will take you out of this newsletter site.

Bridges

- [Evaluation of the 24th Street Bridge, Interstate 80/29, Council Bluffs, Iowa](#)
- [Structural Design, Construction, and Evaluation of a Prestressed Concrete Bridge Using Ultra High Performance Concrete Pi Girders](#)

Concrete

- [Implementation Activities Supporting the International Technology Scan on Long-Life Concrete Pavements](#)
- [Implementation of Concrete Pavement Preservation and PCC Surface Characteristics: Tire Pavement Noise Program](#)
- [Investigation into Freezing-Thawing Durability of Low Permeability Concrete with and without Air Entraining Agent](#)

Construction

[Identification of Practices, Design, Construction, and Repair Using Trenchless Technology \(TR-570\)](#)

Geotechnical

- [Implementation of Intelligent Compaction Performance Based Specifications in Minnesota](#)
- [Rapid, Self-contained In-situ Permeameter for Field QC/QA of Pavement Base/Subbase Materials](#)

Management

- [Achieving Efficiency in Meeting Safety, Operations, Maintenance, and Air Quality Goals](#)
- [Development of a Comprehensive Framework for Managing Decisions Regarding Highway Bypasses](#)
- [Iowa Pavement Marking and Sign Management System](#)

Safety

- [Development of Analytical Tools to Evaluate Road Departure Crashes Using Naturalistic Driving Study Data](#)[Improving Safety for Slow Moving Vehicles on Iowa's High Speed Rural Roadways](#)
- [Management of Rural Expressways for Improved Safety and Operational Performance](#)

Tools/software

- [Minnesota Mapping Analysis Tool \(MnMAT\) Enhancements](#)
- [Food Product Demand Mapping](#)

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CTRE en route

Summer 2007

Technology transfer summaries

Below is a list of research summaries completed during the spring and summer of 2007.

All links are to pdf files. To view pdf files, you may need to download the [free Adobe Acrobat Reader](#).

Asphalt

- [Testing HMA Density with Electromagnetic Gauges](#) (*pdf)
- [Performance of Cold In-Place Recycled Roads](#) (*pdf)

Construction/maintenance

- [Effective Construction Training Program for Hispanic and American Supervisors and Craft Workers](#) (*pdf)
- [Effective Shoulder Design and Maintenance](#) (*pdf)
- [Field Validation of Intelligent Compaction Monitoring Technology for Unbound Materials](#) (*pdf)
- [Thin Maintenance Surfaces for Municipalities](#) (*pdf)

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