

# REPORT

A monthly report on transportation research, education, and information/outreach activities at the University of Minnesota

July 2000

## CTS Holds Prototype Context Sensitive Design Workshop

Context sensitive design (CSD) is more than a new policy direction—it is a philosophy that more and more managers are following to design projects that not only function well but also fit within the broad community context. This was the consensus of the speakers and panelists at the first Context Sensitive Design workshop, held May 8–10 by CTS for the Minnesota Department of Transportation (Mn/DOT) and the Federal Highway Administration (FHWA).

Context sensitive design is a framework for integrating community involvement with environmental sensitivity, aesthetic and historical values, and traditional engineering concerns during project development. Mn/DOT and four other states received funding from the FHWA to develop pilot training programs for context sensitive design. Under contract to Mn/DOT, **Maria Hagen** of CTS, with assistance from SRF Consulting, led the planning and delivery of the May workshop, which featured successful case studies and presentations by local and national experts. Participants from Mn/DOT, counties, cities, and the private sector also applied CSD concepts as they devised their own design solutions for case studies and compared those ideas with actual project designs.

“The public expects us to think differently,” said **Tom Warne**, executive director of Utah’s Department of Transportation and the workshop’s keynote speaker. “What’s going on now is the asphalt rebellion. We’re moving toward this notion of context sensitive design because we need balance.” Increasingly, the community at large is looking for solutions that reflect more than transportation considerations, said Warne, who is also current president of the American Association of State Highway and Transportation Officials (AASHTO). “There are higher expectations of us than ever before.”

Mn/DOT remains strong in its desire to continue expanding the use of CSD. “This, in fact, is a movement and philosophy,” said **Doug Weiszhaar**, Mn/DOT deputy commissioner and former county engineer. “Our philosophy is that this is our way of doing business.” CSD offers a way to leave a lasting impression and add to the sense of place in a community, he added.

The elements of CSD respond to many important trends and to

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Tom Warne, Doug Weiszhaar, and David Ekern

community needs, said **David Ekern**, Mn/DOT assistant commissioner. New directions established in federal legislation support the use of CSD, which

also offers a way to succeed in addressing the increasing complexities that accompany project development in today’s environment.

A summary of the workshop will be available in August. To order, call CTS at 612-626-1077 or visit the Center’s Web site. [CTS](#)

## Initial Findings Available from Specialized Transit Project

Dakota Area Resources and Transportation for Seniors (DARTS) and CTS have recently completed the first of two phases in a project on “Specialized Transit and Elderly, Disabled, and Families in Poverty Populations.” The project, documented in a preliminary report written by **Dawn Spanhake** of CTS, is sponsored by the United Way of Minneapolis Area and the Center’s Intelligent Transportation Systems (ITS) Institute.

The first phase in this project included identifying the transportation accessibility issues for a target group of users. Three separate listening sessions were held in March and April 2000 with a focus on specialized transit and the elderly, specialized transit and the disabled, and specialized transit and families in poverty.

The listening sessions, led by **Robert Johns** of CTS and **Dick Graham** and **Mark Hoisser** of DARTS, provided a forum for service providers, along with transit experts and researchers, to discuss needs, issues, and future plans for specialized transit. It was apparent from the three sessions that the populations experience three common barriers: a need for coordinated resources among all service providers; a lack of flexible transportation options; and a need for transportation-oriented developments and better community planning. Although common themes emerged during the listening sessions, differences among the population groups were also apparent. The primary differences center on the lack of flexible transportation options—each population group has different needs and varying definitions of flexible options.

The second phase of the project is currently under way, and the final report publication is anticipated for late fall 2000. For more information on the project’s initial findings, contact Spanhake at 612-626-1536 or [spanhake@cts.umn.edu](mailto:spanhake@cts.umn.edu) for a copy of the preliminary report. [CTS](#)

## CTS to Hold Logistics Symposium on September 11

CTS is offering its "Fourth Annual Symposium on the Impacts of Logistics on the Upper Midwest Economy," on the afternoon of September 11 at the Sheraton Inn Airport, Bloomington. The brochure is enclosed.

The keynote will be given by Dr. **Christopher B. Lofgren**, chief operating officer with Schneider National Inc., North America's largest truckload transportation and logistics company. Other sessions include a panel titled "Urgent Concerns and Issues Facing Freight Transportation" and another titled "The Role of Government—Practical Applications/Practical Solutions."

The cost for the program, which begins at 12:30 p.m. and adjourns at 5:30 p.m., is \$50. For further information call **Shirley Mueffelman**, 612-624-4754. [CTS](#)

## CTS, Mn/DOT Host Research Project Orientation Session

On May 31, CTS and Mn/DOT's Office of Research and Strategic Services (ORSS) hosted the Second Annual Research Project Orientation Session. The purpose of the orientation was to guide key research team members through the contract process, clarify expectations and requirements, and facilitate communication among the researchers and the sponsoring agencies. The orientation covered FY01 projects sponsored by Mn/DOT, the ITS Institute, and CTS.

**Bob Benke** of ORSS and **Gerard McCullough** of CTS welcomed the group of over 50 University faculty and staff researchers, Mn/DOT staff, CTS staff, and county engineers. **Laurie McGinnis** of CTS asked attendees to volunteer their perspectives on the cultural differences between sponsoring agencies and researchers. **Dave Johnson** of ORSS gave an overview of the entire research process, from problem statement development to evaluation of the completed project. More detailed information was given by **Manjula Louis** of ORSS, who clarified contractual obligations.

In addition to discussing contract development and work plan requirements, McGinnis introduced the audience to the University's new Electronic Grant Management System (EGMS). EGMS will allow researchers to prepare and submit their work plans online in a standardized format.

Additional topics covered included transportation libraries by **Shirlee Sherkow** of Mn/DOT, technical advisory panel responsibilities

ties by **Louis**, and research publication requirements by **Micky Ruiz** of Mn/DOT. Johnson introduced the lunchtime implementation workshop, which gave researchers and technical liaisons the opportunity to meet with their research team to discuss their specific project in greater detail. The workshop allowed them to define objectives and expectations and to create ideas for implementing the research. A supplemental session was conducted after the orientation by **Dawn Spanhake** of CTS for all ITS-Institute related projects, covering unique Institute requirements. [CTS](#)



Researchers learned about the contract process at the project orientation session.

## CTS Represented at Midwest ITS Workshop

The Wisconsin DOT, in conjunction with Mn/DOT, hosted a joint workshop on ITS-related issues on May 23. Participants in the workshop included staff from the areas of traffic engineering and traffic management from both of the DOTs as well as researchers from the University of Wisconsin and the University of Minnesota.

The workshop format was a series of breakout sessions to provide opportunities to share ideas and current research as well as identify areas where more information and study are needed. Breakout sessions included the topics of planning, operations, deployment, maintenance, evaluation and research, and jurisdictional integration.

Those attending from the University of Minnesota were **Robert Johns**, **Eil Kwon**, **Ted Morris**, **Dawn Spanhake**, all of CTS, and **Gary Davis** and **John Hourdakis** from the Department of Civil Engineering. [CTS](#)

## Logistics Task Force Has New Chair

As of July 1, **Bill Goins** (left) replaces **Cathy Petersen** and **Ron Lifson** as chair of the CTS Logistics Task Force. Goins is global account manager with Federal Express. CTS thanks Lifson and Petersen, founding chairs of the task force, for their dedicated service. [CTS](#)



## Papers, Web Presented at ITS America Conference

Representatives from three University of Minnesota units presented papers at the 10th Annual ITS America Meeting in Boston the first week of May:

- "A New Focus for Side Collision Warning Systems for Transit Buses," **Sue McNeil**, visiting professor, Civil Engineering (coauthored by **Chuck Thorpe** and **Christoph Mertz**, Robotics Institute, Carnegie Mellon University)
- "ITS Improves Transitway Safety," **Lowell A. Benson**, CTS (coauthored by **Roger Huss**, University of Minnesota Parking and Transit Services)
- "Effects of Driver Interaction with an In-Vehicle Navigation Display on Variability in Simulated Driving Performance," **Thomas Smith**, research associate, Kinesiology (coauthored

## STUDENT UPDATE

### Mn/DOT Staff Hear UMD Student Presentations

On May 11, eight University of Minnesota—Duluth students made their senior project presentations. This class was a part of McKnight Visiting Professor **Eil Kwon**'s activities during spring semester. Kwon is director of the ITS Institute's Advanced Traffic Systems Program. The students and their presentation topics were:

- "Online Monitoring System for Freeway Traffic Performance," **Syed Rahman**
- "Online Visualization System for Detecting Traffic Anomalies," **Brian Meyers**
- "Route-Specific Travel Time Information System," **Kristi Meierhofer**
- "Destination-specific Travel Time Information System," **Mary Bradley**
- "Online Identification of Malfunction Detectors," **Adam Ford**
- "Distributed Database System for On/off-line Analysis of Traffic Data," **Tom Connolly**
- "Hardware-In-Loop Simulation System for Evaluating Ramp-Intersection Coordinated Strategies," **Troy Mickelson and Joseph Rebrovich**

Five engineers from Mn/DOT's Traffic Management Center (TMC)—**Rich Lau, John Bieniek, Cory Johnson, Eric Enstrom, and Jim Aswegan**—and two others from Mn/DOT Duluth—**Rob Ege**

and **Jim Miles**—came to see the presentations and participate in the discussions. The real-time traffic data and related information necessary for the UMD student projects were provided by the TMC, and the TMC staff gave valuable guidance through continuous interaction during the whole project period.

### ITE Student Awards

The North Central Section of the Institute of Transportation Engineers (NCITE) announced recipients of four scholarships and the winner of the section's student paper competition at an April 27 dinner meeting. University of Minnesota students **Kate Sanderson** and **Joseph Gustafson** were presented scholarships at the meeting by NCITE president **Joel Katz** and student activities chair **Kevin Schwartz**. (Katz is currently assigned to CTS as a visiting fellow from Mn/DOT's Traffic Management Center.)

Sanderson is a December 2000 master's candidate majoring in transportation. She is currently a research assistant with civil engineering professor **Gary Davis**. Gustafson is majoring in civil engineering with an emphasis in transportation.

Sophomore **Carl Jackson** was awarded an NCITE scholarship to help him contin-


ue his studies in civil engineering and business administration at North Dakota State University in Fargo.

An NCITE scholarship was also awarded to **Joshua Storm**, a civil engineering junior at South Dakota State University. He is a member of the American Society of Civil Engineers SDSU student chapter.


**Aaron Vacek** is the winner of NCITE's annual student paper competition. Vacek expects to receive a degree at North Dakota State University at the end of this year. The title of his paper is "Transportation Y2K." The paper will be entered in the ITE district competition in July.

### WTS Awards

**Dana Colestock** of St. Cloud State University earned this year's Women's Transportation Seminar (WTS) chapter undergraduate scholarship. She is majoring in aviation management with a minor in professional flight. By winning the chapter award, Colestock became eligible for the national WTS scholarship. She was selected for this award at the May WTS annual meeting in New York City.


Winning the chapter graduate scholarship award was **Shimin Yang**, a doctoral student in civil engineering with a concentration in transportation at the University of Minnesota. 

by **Curtis Hammond** of Kinesiology)

CTS librarian **Eric Hinsdale** and ITS Institute technical staff engineer Lowell Benson staffed the joint University-Mn/DOT Guidestar exhibition booth. There they demonstrated Web sites for the ITS Institute and CTS as well as the technologies being integrated into the Institute's SAFEFLOW intelligent vehicle. 

### Faculty/Staff Activities

- Nelson Assistant Professor **Perry Li** of the Department of Mechanical Engineering gave an ITS Institute-sponsored seminar on "Highway Traffic Flow Control and Adaptive Cruise Control Vehicles" on April 13. As part of its education program, the ITS Institute will sponsor a bi-weekly research seminar series beginning in the 2000-2001 academic year.
- Professor **Catherine French** of Civil Engineering (CE) received the 2000 Arthur J. Boase Award from the Reinforced Concrete Research Council of the American Concrete Institute (ACI) at the ACI convention. The award recognizes her outstanding accomplishments in research and teaching in the field of prestressed and precast concrete and her service on behalf of the ACI.
- Associate Professor **Jerome Hajjar** of CE received a Bush Sabbatical Fellowship in support of his planned sabbatical next year at Stanford University.

- Hajjar and Associate Professor **Carol Shield** of CE and **Michael A. Gustafson** (Civil M.S. '97) received the 2000 Norman Medal from the American Society of Civil Engineers. They were honored for their paper "Seismic Response of Composite Moment-Resisting Connection, Parts I and II," published in the August 1998 *Journal of Structural Engineering*.
- **Dawn Spanhake** represented the ITS Institute and discussed transportation and ITS career opportunities at Youth Expo 2000, a career fair for high school students sponsored by the St. Paul *Pioneer Press* and Mn/DOT. 

### Upcoming Transportation and Related Events

To publicize your event, call CTS at 612-626-1077; fax 612-625-6381; e-mail [snopl001@tc.umn.edu](mailto:snopl001@tc.umn.edu). Visit the CTS Web site—[www.umn.edu/cts](http://www.umn.edu/cts)—for more comprehensive event information.

- July 26 "Telecommunities," DoubleTree Airport, Bloomington. Sponsor: Sensible Land Use Coalition. Call 612-474-3302.
- Aug. 20-23 Second National Conference on Transportation Finance, Hyatt Regency, Scottsdale, Ariz. Contact **Jon Williams** at 202-334-3204; Web: [www.nationalacademies.org/trb/calendar/nsf](http://www.nationalacademies.org/trb/calendar/nsf).
- Aug. 25 Duluth Transportation Operations and Communications Center Ribbon Cutting and Duluth ITS Minnesota Outreach Forum. Call **John Bray**, 218-723-4850.

Sept. 5–8 Eleventh International Conference on Bicycling and Walking, Philadelphia. Visit [www.bikewalk.org](http://www.bikewalk.org) or e-mail [conference@bike-walk.org](mailto:conference@bike-walk.org).

September 6 Joint Luncheon on “Transportation Funding,” Twin Cities. Cohosted by ITS Minnesota, WTS, NCITE, Minnesota Transportation Alliance, and MN Consulting Engineers Council. Call **Daryl Taavola**, 612-373-6529; e-mail [daryl\\_taavola@urscorp.com](mailto:daryl_taavola@urscorp.com).

Sept. 11 CTS “Fourth Annual Symposium on the Impacts of Logistics,” Sheraton Inn Airport, Bloomington. Call **Shirley Mueffelman**, 612-624-4754.

Sept. 24–27 Council of Logistics Management Annual Conference, New Orleans. Call 630-574-0985 or see [www.clm1.org](http://www.clm1.org).

Sept. 27–28 Fall Maintenance Expo & Snow Roadeo, St. Cloud Public Works. Call **Kathy Warren**, 651-351-7432.

## CTS Named Employer of the Year



CTS received the Employer of the Year Award from the Women's Transportation Seminar (WTS) Minnesota Chapter at the chapter's April meeting. The award recognizes an organization for its support of the goals and purpose of WTS. CTS was commended for its mission of being the premier source of information and analysis on transportation issues, providing opportunities for professional development, and supporting future transportation professionals by offering scholarships and internship programs.

Staff shown above are Pat Rouse, Gary Barnes, Laurie McGinnis, Gina Baas, Robert Johns, Lowell Benson, Eric Hinsdale, Emeka Madubuikwe, and Dawn Spanhake. Spanhake was named Member of the Year at the chapter meeting. <sup>(TS)</sup>

Sept. 28–30 “Tools of the Trade,” 7th National Conference on Planning for Small and Medium-Sized Communities, Little Rock, Ark. Call **Kathy Briscoe** at 651-296-1614.

October 4–6 Minnesota GIS/LIS Consortium 10th Annual Conference, St. Cloud Civic Center. Call 612-226-5312 or visit [www.mngisllis.org](http://www.mngisllis.org).

October 11 ITS Minnesota Fall Industry Forum, Twin Cities. Call **Daryl Taavola**, 612-373-6529; e-mail [daryl\\_taavola@urscorp.com](mailto:daryl_taavola@urscorp.com).

Oct. 19 6th Annual “Partners for Roadway Safety Conference,” Sheraton Midway Hotel, St. Paul. Call **Marv Sohlo of Mn/DOT** 651-

284-3460 or e-mail [marv.sohlo@dot.state.mn.us](mailto:marv.sohlo@dot.state.mn.us).

Oct. 24–25 26th Annual Minnesota Public Transit Conference, St. Cloud Civic Center. Sponsors: Minnesota Public Transit Association, Mn/DOT, and the Met Council. Call Mn/DOT Office of Transit, 651-296-3379, or visit [www.dot.state.mn.us/transit/00mptc/index.html](http://www.dot.state.mn.us/transit/00mptc/index.html). <sup>(TS)</sup>

## TRANSPORTATION & REGIONAL GROWTH STUDY

### New Report Examines Forces that Affect Transportation and Development

Dynamic forces act on transportation infrastructure, and transportation itself acts on other elements within the Twin Cities' system, to directly affect regional economic vitality and form the conditions for stable, livable neighborhoods.

These forces serve as the background for analyses in *Synthesizing Highway Transportation, Land Development, Municipal and School Finance in the Greater Twin Cities Area, 1970–1997*, by **John S. Adams, Julie L. Cidell, Laura J. Hansen, and Barbara J. VanDrasek** of the University's Department of Geography. The recently published report, fourth in a series of the Transportation and Regional Growth Study, examines relationships in the metropolitan region between land development, school finance, local government finance, and transportation infrastructure investment.

The report's authors focused on changes in the built environment and transportation infrastructure of the greater Twin Cities region since 1970. One facet of the study involved examining residential, commercial,

industrial, and office development in the 24-county study area. The researchers also studied the changes in revenues and expenditures during the development process for a sample of 28 local units of government from 1970 to 1996.

Next, the researchers analyzed school enrollments, revenues, and expenditures for a sample of five school districts at different stages in the development process. Finally, the researchers considered the question of whether land development or highway transportation comes first in a locality, and found it a far more complex issue than it initially appeared to be. The researchers presented a statistical analysis of how major highway infrastructure and improvements have both led and lagged the development process within the 24-county study area since 1970. They also noted that statistical relationships differed by decade as well as by type of development.

The researchers contend that although the current system has created many livable communities in the metropolitan area for a majority of households and businesses, this current livability is unlikely to continue if present development paths are not redirected because the efficiency of the system appears to be declining. <sup>(TS)</sup>

To order a print copy of this report or read it online, see the study's Web site: [www.umn.edu/cts/trg](http://www.umn.edu/cts/trg).