



## CTS to conduct \$1 million study for AIA on transportation design and communities

The American Institute of Architects (AIA) has selected CTS to conduct a \$1 million research study to examine the benefits that well-designed transportation projects bring to communities. The research is part of a \$2 million grant to AIA from the Federal Highway Administration (FHWA).

“Placing a greater focus on walkable, mixed-use urban development around transportation options is something that architects have been advocating for many years,” said **David T. Downey**, managing director of the AIA Center for Communities by Design. “This study will measure the value of well-designed transportation projects and the extent to which the transportation investment extends beyond the basic infrastructure and enhances the neighborhood and community as a whole.”

The effort—“A Community Enhancement Study on the Effects of Well-Designed Transportation Projects: Outcomes, Measures, and Best Practices”—was authorized by Congress in the 2005 transportation bill.

The research component of the study will be conducted by an interdisciplinary research team at the University of Minnesota with primary investigators from architecture, landscape architecture, geography, planning, and civil engineering. **Robert Johns**, director of CTS, will be the study’s overall principal investigator responsible for interdisciplinary leadership.

“Despite the many impacts of well-designed community transportation projects, there is little quantifiable or qualitative data about their benefits,” said Johns. “The findings from this research project will provide a framework to help communities make wiser transportation decisions.”

Landscape architecture professor **Lance Neckar** was instrumental in helping CTS prepare the proposal. He is the co-investigator of the study, responsible for technical guidance of the research.

The research will have three separate parts that will document measurable outcomes and best practices relative to design and planning.

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## National bridge specifications updated with U of M research

The results of research conducted by graduate student **Eray Baran** and civil engineering professors **Arturo Schultz** and **Catherine French** have influenced changes in the Load and Resistance Factor Design (LRFD) Bridge Design Specifications of the American Association of State Highway and Transportation Officials (AASHTO). Both French and Shultz are CTS Faculty Scholars.

The researchers investigated the specifications as part of a two-phase study, titled “Stability Tests of Prestressed Concrete Through-Girder Pedestrian Bridges under Lateral Impact.” CTS provided funding for the



Catherine French



Arturo Schultz

first phase and the Minnesota Department of Transportation (Mn/DOT) funded the second.

A prestressed concrete through-girder bridge is a practical form of pedestrian bridge construction in which two prestressed concrete girders support the bridge deck. Widely used in Minnesota, the system is easy to construct, economical, and durable, but questions had been raised about the ability of the girders to sustain impact if hit by an overheight vehicle. Pedestrian bridges are of lighter construction and less redundant than highway bridges, and thus more vulnerable to collapse if the girders are damaged.

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## Former CTS director speaks at interstate celebration

CTS founding director **Richard Braun** was one of three speakers at Mn/DOT’s celebration of the U.S. Interstate Highway System’s 50<sup>th</sup> birthday. The June 29 celebration in St. Paul also featured vintage cars, music from the 1950s and 1960s, and displays about the interstate’s history.

Braun, a former Mn/DOT commissioner who was extensively involved in planning and building the system, recounted the many challenges and eventual triumphs experienced during its construction. He noted that over one-third of the original design was never built, which he said is part of the reason for the interstate congestion we see today. “It really is a miracle we get as much use out of it as we do,” Braun said, “so enjoy the ride on the miracle.” He concluded by urging audience members to support Mn/DOT in providing better facilities in the future.



Richard Braun at the celebration

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## TERRA adds new partner, launches Web site

The Michigan Department of Transportation is the newest addition to the Transportation Engineering and Road Research Alliance (TERRA). The Michigan partnership is an important milestone for TERRA, said CTS associate director **Laurie McGinnis**, because it shows the potential for greater regional cooperation on pavement research topics to benefit states across the Upper Midwest. **Dick Stehr**, Mn/DOT division director and co-chair of the TERRA board of directors, said he welcomes another state DOT and hopes that others will see the value of the partnership.

Michigan joins a number of regional partners including Mn/DOT, the Minnesota Local Road Research Board, pavement industry associations, and Iowa State University's Center for Transportation Research and Education (CTRE). The Norwegian Public Roads Administration is also a member.

In other news, TERRA launched a Web site, [www.terreroadalliance.org](http://www.terreroadalliance.org), featuring information on the organization and its activities. The site is a good place to learn more about partnering with TERRA, according to **Fred Corrigan**, co-chair of the organization's board of directors. Corrigan said TERRA is actively seeking to expand its research activities through partnerships with pavement stakeholders in both the public and the private sectors.

Developed by CTS, the new Web site will play a key role in communicating the results of research at MnROAD to a broad audience of pavement stakeholders. As new research results and projects are generated, they will appear on the site. TERRA is also developing an electronic newsletter to highlight developments in pavement research.

The Web site was featured in TERRA's exhibit at the national Research Advisory Committee of the American Association

of State Highway and Transportation Officials (AASHTO) in July. McGinnis was among the Minnesota representatives who traveled to Columbus, Ohio, for the meeting.

TERRA was established in 2004 as a new governance structure for MnROAD, Minnesota's large-scale pavement research facility. With a combination of mainline freeway sections and dedicated low-volume test roadway, MnROAD enables researchers to carry out long-term evaluations of pavement materials and designs under real-world conditions. More information about MnROAD is available on the TERRA Web site.

The success of MnROAD as a research tool during its first decade of operation, along with a need for sustained funding, prompted Mn/DOT to create the partnership-based research model for future operations. **CTS**

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These outcomes, measures, and practices will be integrated in a fourth part, a synthesis on the composite synergies of the other three parts. This synthesis will be cross-linked to cases and provide information that can be used as a guidebook.

Each of the four parts will be led by a principal investigator with assistance from interdisciplinary staff and students. The research team is:

- Research Part I: Promoting Economic Development, **John S. Adams**, professor, and **Barbara J. VanDrasek**, research associate, Department of Geography
- Research Part II: Protecting Public Health, Safety, and the Environment, **John Carmody**, director, Center for Sustainable Building Research
- Research Part III: Enhancing the Architectural Design and Planning of Communities

-IIIA: Community Identity/Vision/Aesthetic, Architectural, Cultural and Scenic Benefits, **Ann Forsyth**, professor and director, Metropolitan Design Center

-IIIB: Public Participation Practices, Public-Private Outcomes, **Carissa Schively**, assistant professor, Humphrey Institute of Public Affairs

- Research Part IV: A Study Synthesis, **Lance Neckar**, professor, Landscape Architecture, and **Gary Davis**, professor, Department of Civil Engineering

The researchers will be brought together as a group by CTS on a frequent basis to discuss approaches, share findings, and plan joint activities. CTS will use its experience in leading previous interdisciplinary research teams—such as the Transportation and Regional Growth Study ([www.cts.umn.edu/trg](http://www.cts.umn.edu/trg))—to facilitate linkages across academic departments and

colleges.

The AIA will develop and implement outreach efforts that involve practitioners at various points of the study, including focus groups that will bring local officials and AIA practitioners together with the research team to explore the case studies in greater detail. The focus groups will be held in various regions of the country and include as many community and transportation project types as possible.

A key outreach goal by both CTS and the AIA will be to educate transportation practitioners, community designers, and the public about the benefits and best practices of working together to enhance communities through well-designed transportation projects. CTS will work with the AIA to plan and conduct forums of practitioners and members of the public and to develop tools for communicating progress on the research. CTS will also use



Lance Neckar



John Adams



John Carmody



Ann Forsyth



Carissa Schively



Gary Davis

## Successes, opportunities shared at regional TZD safety conference

Nearly 100 community leaders focused on ways to reduce traffic deaths and injuries in southeastern Minnesota during the Southeast Minnesota Toward Zero Deaths (TZD) conference held June 14 in Rochester.

Mn/DOT and the Department of Public Safety lead the statewide TZD initiative with support from the Department of Health, CTS, and the Federal Highway Administration (see [www.tzd.state.mn.us](http://www.tzd.state.mn.us).)

The purpose of the southeastern regional initiative is to create a comprehensive approach to reduce traffic deaths and severe injuries. In the southeastern region, District 6 Engineer **Nelrae Succio** and State Patrol Capt. **Randy Slinger** co-chair the TZD steering committee.

Conference participants represented law enforcement, traffic safety, health and emergency medical services, education, and city, county, and state governments.

At the conference, leaders announced that traffic fatalities in the state's 11 southeastern counties decreased from 70

in 2004 to 63 last year, a 10 percent drop, and by more than 20 percent compared with the 2000–04 five-year average traffic death count of 78.

During the past year, the regional TZD effort focused on 15- to 19-year-old high school students, who as a group have the highest fatality rates on regional roads, as well as on the 3 p.m. to 7 p.m. time period, which experiences the highest number of teen traffic fatalities.

A parent of a teen killed in January shared his tragic evidence of these statistics. **John Vitek's** 16-year-old daughter, Brianna, died on her way to work on Hwy. 43 near Winona. He attributed the single-vehicle crash to three main causes: excessive speed, inexperience, and not wearing a seat belt.

Vitek said he accepted the invitation to speak at the conference to “publicly thank you for what you do, for your commitment and contributions to building safer roads and educating people to be safer drivers.”

During the conference workshops,

participants discussed opportunities for expanding the TZD program into new communities. Slinger led a panel discussion—titled “What Have We Done?”—that shared best practices from the past year's efforts, including Winona County's “Bluff Country Buckle Up” seat-belt use campaign.

In conjunction with the conference, the State Patrol launched its second Summer HEAT speed enforcement campaign. The campaign combines the efforts of the State Patrol and 44 other law enforcement agencies from the region; it serves as an example of a regional approach to reducing fatal traffic crashes. Last year, participants in the Summer HEAT campaign issued nearly 5,300 speeding citations.

CTS is hosting the statewide TZD Conference, November 2–3, in Duluth. For information, see [www.cts.umn.edu/events](http://www.cts.umn.edu/events).

(Reprinted and revised from an article by Kristine Hernandez, District 6 public affairs coordinator, in Mn/DOT's July 12 Newline.) CTS

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All state DOTs use the LRFD specification equations for the design of flanged girders. The first phase of the project investigated these equations, specifically, the calculation of the nominal moment (bending force) capacity and ductility (ability to bend) of I-girders.

The researchers showed—through nonlinear strain compatibility analysis and comparison to experimental results—that the current equations in the specifications were erroneous, and recommended appropriate modifications.

The specifications have been updated

and released to DOTs. The commentary for that design section cites the Schultz/French/Baran results as a reference for the modification. The results also were published in the *Precast/Prestressed Concrete Institute Journal*.

“Additional results from this study will likely influence a change in Mn/DOT's connection details for prestressed concrete through-girder pedestrian bridges,” said **Linda Preisen**, CTS research program manager.

To read more about the research, visit [www.cts.umn.edu/research](http://www.cts.umn.edu/research). CTS

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its existing outreach mechanisms, including the *CTS Report* and the electronic *CTS Research E-news*, to communicate to a broad set of transportation stakeholders.

In addition, CTS will consider incorporating best practices resulting from this study in the training programs of the Minnesota Local Technical Assistance Program (which is sponsored by the FHWA and housed at CTS) and in other outreach and training efforts. This will complement the AIA's communications and outreach to the design community.

The study, which will involve graduate students from multiple disciplines, also advances the educational mission of CTS and the University. “These students are our future practitioners and intellectual leaders,” said Johns. “They will gain knowledge that will influence their careers, learn new approaches and practices, and experience the process of interdisciplinary collaboration.” CTS



Photo courtesy of AAA Foundation for Traffic Safety

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**Tom Sorel**, Federal Highway Administration regional administrator for Minnesota, said the interstate highway system might be considered the greatest public works project in the nation's history. Lt. Gov./Commissioner **Carol Molnau** sounded a similar theme in her remarks, citing examples of continuing innovation on Minnesota's interstates.

Minnesota's observance was part of a national celebration of the interstate highway system's beginning. CTS

## Faculty update

**Demoz Gebre-Egziabher**, an assistant professor in the Department of Aerospace Engineering and Mechanics, was named a 2006 McKnight Land-Grant Professor by the Office of the Provost and the Graduate School. Along with the year's other recipients, Gebre-Egziabher was honored by the Board of Regents in March. Gebre-Egziabher was featured in the most recent issue of the Intelligent Transportation Systems (ITS) Institute's newsletter, the *Sensor* (online at [www.its.umn.edu](http://www.its.umn.edu)).

Research led by **Ann Forsyth**, director



Demoz Gebre-Egziabher

of the Metropolitan Design Center, was featured in the May 30 Minneapolis *Star Tribune*. The article—"In City or Suburb, Few are Walking the Walk"—described results from a three-year study of 715 Ramsey County residents. The results suggest that suburbanites and city dwellers get about the same amount of exercise; the difference is that urbanites walk and bike more for work or errands, while suburbanites do so more for fun and exercise. Forsyth said this casts doubt on the idea that redesigning suburbs to mimic cities can increase overall physical activity and reduce obesity. For more about her research, see [www.designcenter.umn.edu/projects](http://www.designcenter.umn.edu/projects). **CTS**

## U of M offers supply chain management program

The Carlson Executive Development Center is hosting a program on supply chain management October 17–19. Participants will examine the latest challenges facing supply chains in light of increased globalization and security concerns, industry consolidation, and rising customer expectations.

Program faculty include associate professor **Karen Donahue**, a CTS Faculty Scholar who also serves as program faculty for the Graduate Certificate in Transportation Studies.

The program fee is \$2,500. Register online at [www.carlsonschool.umn.edu/edc/suppa](http://www.carlsonschool.umn.edu/edc/suppa), or call 612-624-2545 or 800-388-3863. **CTS**

## Upcoming events

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

Sept. 13–15	Minnesota Surveyors and Engineers Society 84th Fall Outing, Madden's Resort. Visit <a href="http://www.msos.org/event">www.msos.org/event</a> or contact Ann Manthey, 651-457-2347, <a href="mailto:ann@msos.org">ann@msos.org</a> .	Oct. 23	ITS Minnesota Fall Industry Forum, St. Paul. Contact Electra Sylva, 612-624-3708, <a href="mailto:conferences5@cce.umn.edu">conferences5@cce.umn.edu</a> .	Dec. 6	Minnesota Association of Asphalt Paving Technologists 53rd Annual Asphalt Conference, Brooklyn Park. Contact Tim Mueller, 612-221-0428.
Oct. 2–4	Minnesota/Wisconsin Public Transit Conference, LaCrosse. Contact <b>Tony Kellen</b> , 320-529-4481, <a href="mailto:tkellen@stcloudmtc.com">tkellen@stcloudmtc.com</a> .	Nov. 2–3	Toward Zero Deaths Conference, Duluth. Contact Shirley Mueffelman, 612-624-4754, <a href="mailto:conferences2@cce.umn.edu">conferences2@cce.umn.edu</a> .	Dec. 7	56th Annual Concrete Conference, St. Paul. Contact Kay Syme, 612-624-4938, <a href="mailto:kysyme@cce.umn.edu">kysyme@cce.umn.edu</a> .
Oct. 4–5	Minnesota Fall Maintenance Expo, St. Cloud. Contact <b>Kathy Warren</b> , 651-351-7432, <a href="mailto:kwarren@usinternet.com">kwarren@usinternet.com</a> .	Nov. 16	Northland Advanced Transportation Systems Research Laboratory (NATSRL) Research Day, Duluth. Contact Carol Wolosz, 218-726-7446, <a href="mailto:cwolosz@d.umn.edu">cwolosz@d.umn.edu</a> .	Feb. 15	11th Annual Minnesota Pavement Conference, St. Paul. Contact Shirley Mueffelman, 612-624-4754, <a href="mailto:conferences2@cce.umn.edu">conferences2@cce.umn.edu</a> .
Oct. 4–6	Mn/DOT 2006 National Safety Rest Area Conference, Minneapolis. See <a href="http://www.dot.state.mn.us/restareas/conf.html">www.dot.state.mn.us/restareas/conf.html</a> .	Nov. 16–17	Minnesota Public Works Association Fall Conference, Brooklyn Center. Contact Oona Besse, 612-624-3492, <a href="mailto:conferences3@cce.umn.edu">conferences3@cce.umn.edu</a> .	Apr. 10–11	Spring Maintenance Training Expo, St. Cloud. Contact Shirley Mueffelman, 612-624-4754, <a href="mailto:conferences2@cce.umn.edu">conferences2@cce.umn.edu</a> .
Oct. 11–12	AirTAP Fall Forum, Breezy Point. Contact <b>Mindy Carlson</b> at 612-625-1813, <a href="mailto:carlson@cts.umn.edu">carlson@cts.umn.edu</a> .	Nov. 24–25	Annual Water Resources Conference, Brooklyn Center. Contact Electra Sylva, 612-624-3708, <a href="mailto:conferences5@cce.umn.edu">conferences5@cce.umn.edu</a> .	May 1–2	CTS Eighteenth Annual Transportation Research Conference, Saint Paul RiverCentre. Contact Electra Sylva, 612-624-3708, <a href="mailto:conferences5@cce.umn.edu">conferences5@cce.umn.edu</a> . <b>CTS</b>