



Researchers analyze travel effects of bridge collapse

The collapse of the I-35W bridge over the Mississippi River on August 1, 2007, sparked a number of new research studies to understand the causes of the catastrophe. At the same time, traffic researchers realized that the tragic event had provided them with a rare opportunity to study how metropolitan travel patterns respond to the sudden loss of a major transportation link.



David Levinson

The University of Minnesota's NEXUS research group is bringing a variety of research methods to bear on the aftermath of the bridge collapse, says **David Levinson**, an associate professor in the Department of Civil Engineering (CE). Levinson, who holds the CTS Braun Chair in Transportation Studies, leads NEXUS, which stands for "Networks, Economics, and Urban Systems." The group

specializes in analyzing the ways transportation networks change over time.

In the weeks immediately following the collapse, Levinson and three other researchers—CE assistant professors **Henry Liu** and **Nikolas Geroliminis** and human factors researcher **Kathleen Harder**—received funding from the National Science Foundation's Small Grants for Exploratory Research program to gather traffic data, perform a preliminary analysis, and identify further research needs.

They found that traffic adapted well to the bridge collapse. Most drivers did not see a change in travel time after they chose alternative routes for their trips, but some saw an increase and a smaller number experienced a reduction in their travel time.

Of the 140,000 vehicles crossing the bridge prior to the collapse, only 90,000 could be accounted for after the incident because of

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New tool maps out roadway fatalities

Would you be surprised to learn that nine people died on the highway you take to work everyday? Or would you be shocked to see that six teenagers died within five miles of your home in fatal car crashes? With the help of the interactive maps on www.SafeRoadMaps.org developed by University of Minnesota researchers, you can learn those facts and more by simply typing in your address.

Researchers with the Center for Excellence in Rural Safety (CERS) have mapped out every traffic fatality in the nation with details on each death.

"When drivers type in their most common routes, they're shocked how much blood is being shed on it," said **Tom Horan**, research director for CERS. "When it's the route you or your loved ones use, the need to buckle up, slow down, and avoid distractions and drinking suddenly becomes much more personal and urgent."



Tom Horan

The researchers unveiled www.SafeRoadMaps.org on July 28 in Santa Rosa, Calif., as part of the annual CERS conference on rural safety (the October *CTS Report* will have more about the conference).

In its first week of operation, www.SafeRoadMaps.org received more than three million hits.

Enter your address at www.SafeRoadMaps.org and you will see a map or satellite image of all the road fatalities that have occurred in the area. Plus, users have the ability to narrow down their search to see the age of the driver, whether speeding or drinking was a factor, and if the driver was wearing a seat belt.

One of the most important aspects of the new tool also shows which life-saving public policies, such as strong seat belt laws, are in the chosen area.

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CTS fall luncheon:

Patterns of the past, implications for the present

The effort to pass a new federal surface transportation bill is just beginning—making this a good time to explore some of the patterns in the federal government's more than two centuries of involvement in the development of the nation's transportation systems, says **Bruce E. Seely**.



Bruce E. Seely

Seely, the dean of the College of Sciences and Arts at Michigan Technological University, will present "American Transportation Policy: Patterns of the Past and Implications for the Present" at the CTS Fall Luncheon on November 6.

His speech will sketch the primary continuing patterns that characterized the federal role and policy presence in transportation during the 19th and 20th centuries. While focusing on highways, Seely will bring other key features of the policy landscape into view. He will conclude with a historian's view of some of the changes now overtaking key elements—some of them long-lived—of federal policy as we move into the 21st century.

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increased traffic on other bridges. (The number of vehicles crossing the I-94 Mississippi River bridge, for example, jumped 26 percent during that time.) This finding suggested that the remaining 50,000 cars had avoided crossing the river—either not making the trip at all, or more likely, changing destinations, the researchers say.

This short-term effort led to two additional studies of the effects of the collapse. The first of these studies, “Traffic Flow and Road User Impacts of the Collapse of the I-35W Bridge Over the Mississippi River,” is funded by Mn/DOT with the goal of understanding the effect of the bridge closure on observed travel behavior, shifts in traffic flows, and resulting effects on alternate

routes. Using data from travel surveys as well as GPS tracking of study participants whose travel activities are affected by the loss of the bridge, the researchers are developing a model of local travel behavior prior to and following the collapse. Using these models and observations of travel pattern changes, the researchers will attempt to estimate road-user costs associated with the collapse.

Complementing the Mn/DOT study is “BRIDGE: Behavioral Response to the I-35W Disruption—Gauging Equilibration,” funded by the National Science Foundation (see below).

Both projects are expected to be completed in 2010.

The NEXUS group members have already completed several scholarly

Media coverage

David Levinson discussed his bridge findings in an “Expert Alert” video on the Expert Alert Live page of the University of Minnesota’s News Service: <http://www1.umn.edu/urelate/newsservice/expertalert/ea-live.html>. CTS worked with the University News Service and Levinson to create the alert, which generated coverage from the local NBC-TV affiliate, Minnesota Public Radio, and other media outlets.

papers on the effects of the bridge collapse, which are available on the group’s Web site (<http://nexus.umn.edu/>) along with more information about the research projects and related transportation issues. **CTS**

Researchers awarded NSF grant to study response to I-35W bridge collapse

The National Science Foundation (NSF) has awarded a two-year, \$300,000 grant to University of Minnesota researchers to study travel behavior changes after the collapse of the I-35W bridge in August 2007 as well as its planned reopening this fall.

The research team consists of principal investigator **Henry Liu**, assistant professor in the Department of Civil Engineering (CE), and co-investigators **David Levinson**, CTS Braun Chair in Transportation Studies, and **Kathleen Harder**, research associate with the Center for Human Factors Systems Research and Design. The project is a continuation of their previous NSF Small Grants for Exploratory Research (see page 1). CE assistant professor **Nikolas Geroliminis** is



Henry Liu



Kathleen Harder



Nikolas Geroliminis

also involved with this new project.

The project, “BRIDGE: Behavioral Response to the I-35W Disruption—Gauging Equilibration,” will analyze how an extensive traffic system responds to a sudden, major network disruption. Equilibration refers to the process of establishing equilibrium—a stable condition that is assumed to characterize normal operation in many complicated transportation systems. Following a serious

disruption, the researchers theorize, the Twin Cities surface transportation system is likely to settle into a new state of equilibrium as thousands of users adapt their behavior to the new demands of getting from place to place. On the other hand, the possibility that the system will remain chaotic for a long time cannot be ruled out without gathering detailed data.

“The problem of traffic flow evolution after a major network disruption has not been well-studied in transportation science,” Liu says. “We hope to fill in the gap.”

The University’s Metropolitan Consortium, formed in 2006 to coordinate and refocus University efforts in the urban arena, is providing additional funds for the project. **CTS**

CTS Executive Committee update

The CTS Executive Committee, chaired by **Fred Corrigan**, welcomed two new members—**Khani Sahebjam** and **Andy Furco**—at the committee’s August 14 meeting.



Khani Sahebjam

Sahebjam was recently appointed deputy commissioner of the Minnesota Department of Transportation. Furco is the associate vice president, and



Andy Furco

senior vice president for system academic administration, at the University.

In other member news, **Tom Sorel** will remain on the Executive Committee. Sorel, who was appointed Mn/DOT commissioner

in April, previously was the division administrator for the Federal Highway Administration (FHWA). **Robin Schroeder**,

acting FHWA division administrator, will represent FHWA on the committee until a new division administrator is named.

Also, former CTS Board of Advisors member **John Brandl**, a state legislator and former dean of the Hubert H. Humphrey Institute of Public Affairs, died August 18. CTS joins the University community and many others in acknowledging his leadership and extending our sympathy to the Brandl family. **CTS**

TERRA Innovation Series: MnROAD open house

More than 175 visitors descended upon the Minnesota Road Research Project (MnROAD) facility near Albertville on July 30 for a daylong TERRA Innovation Series event. TERRA, the Transportation Engineering and Road Research Alliance, is a research governance structure that brings together government, industry, and academia in a dynamic partnership to advance innovations in road engineering and construction.

The event showcased how materials and pavement engineering innovations are developed, tested, and implemented on Minnesota roads at this one-of-a-kind, live transportation laboratory. Representatives from TERRA, Mn/DOT, local government, academia, and industry were on hand to discuss TERRA-initiated research under way as part of the MnROAD Phase Two Research Initiative as well as the latest innovations in transportation engineering.

The event was the second in the TERRA Innovation Series, which began last fall with an open house featuring the reconstruction of Highway 36 through North St. Paul. The events have a technical focus and address research results, trends that affect or improve productivity, innovative partnering and contracting models, and hot topics that may lead to new research related to TERRA priorities.

During lunch, TERRA Board co-chair **Tim Worke** presented Mn/DOT commissioner **Tom Sorel** with an appreciation award for his commitment to the TERRA Board and his leadership in guiding the TERRA Marketing and Communications Committee. Sorel was acknowledged for his dedication and support of TERRA as



Fred Corrigan and Tom Sorel

well as his recognition of the importance of partnerships. TERRA Board members **Fred Corrigan**, executive director of the Aggregate and Ready Mix Association of Minnesota, and **Mark Maloney**, one of two Minnesota Local Road Research Board (LRRB) representatives, also spoke.

More than a dozen concurrent morning and afternoon sessions focused on topics ranging from innovative hot-mix asphalt (HMA) compaction methods to concrete overlays and composite pavements. Just outside the concurrent sessions, posters and equipment demonstrations shared the latest innovations in the industry. In addition, tour buses made loops through the MnROAD facility, stopping at various project locations under construction on the 2.5-mile low-volume road test track and the 3.5-mile mainline test portion of Interstate 94.

At present, MnROAD is home to eight pooled-fund projects totaling \$3.8 million and involving the participation of 17 states, the Federal Highway Administration, the LRRB, and industry. In addition, the facility has 15 Minnesota projects, supported by industry, the LRRB, and Mn/DOT, with opportunities for further partnerships. **CTS**

Fall semester seminar series under way

CTS offers free research seminars open to anyone interested in learning more about transportation research at the University of Minnesota. Undergraduate and graduate students, faculty, and practitioners are encouraged to attend.

During the fall semester of 2008, seminar topics will range from intelligent compaction to the economic impact of transitways. Seminars will be held Tuesday afternoons from 3:30 to 4:30 p.m. CDT in Room 1130 of the Mechanical Engineering Building on the east bank of the Twin Cities campus. Seminars also are broadcast live on the Web and will be available for later viewing.

The series combines the following seminars:

- CTS Research Seminars (www.cts.umn.edu/Events/ResearchSeminars), held as part of CTS research council meetings
- Advanced Transportation Technologies Seminars (www.its.umn.edu/Events/SeminarSeries), sponsored by the Intelligent Transportation Systems (ITS) Institute each fall semester
- Access to Destinations Study workshops (www.cts.umn.edu/access-study/events), communicating findings of this interdisciplinary research effort

Registration is not required. Each seminar qualifies for one Professional Development Hour (PDH).

For more information, visit the CTS Seminar Series Web page at www.cts.umn.edu/Events/ResearchSeminars or contact **Stephanie Malinoff**, malinoff@cts.umn.edu, 612-624-8398. **CTS**

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“This tool sheds light on the importance of strong public policy that helps save lives in states across the nation,” said **Lee Munnich**, director of CERS. “When you can visually see how many lives can be saved, it really changes how the public and policymakers see our roads.”

CERS officials hope the tool will educate the public about road fatalities, especially those people who live in rural areas. U.S. Census figures show that 21 percent of Americans live in rural areas, and the Federal Highway Administration

has found that 57 percent of highway deaths happen on rural roads.

CERS, established by the 2005 federal transportation act, is a joint program between the University of Minnesota’s Hubert H. Humphrey Institute of Public Affairs and CTS.

The tool will be useful to a wide range of people, from rural to urban drivers as well as drivers’ education teachers, parents, and policymakers. It will also serve as an important illustration for teaching new drivers the importance of safety and

give veteran drivers an opportunity to explore their most common routes and make sensible adjustments.

“By mapping out these fatalities, we can see what a large problem we have in our country,” Munnich said. “It is time to start working toward prevention.”

To view a video about the tool, visit www1.umn.edu/urelate/newsservice/Multimedia_Videos/safe_road.htm.

To download a mid-term report on CERS activities to date, see www.ruralsafety.umn.edu/publications. **CTS**

Transportation Alumni Group holding debut event

The University of Minnesota Transportation Alumni Group is holding a homecoming get-together for alumni and students on Saturday morning, November 1, prior to the Gophers football game. The event will be held at Gateway Plaza (outside McNamara Alumni Center) on the east bank campus.

CTS initiated the group last year to provide a way to keep transportation alumni connected with each other and with education and student activities at the University of Minnesota. Joining also gives alumni a venue to support current

students by becoming a mentor or speaking to student groups. Graduates of other institutions are also welcome to join. The group has roughly 75 members.

The CTS Education and Outreach Council, led by **Shannon Tyree**, met last month to help plan the homecoming event with CTS staff. To join the group, go to www.cts.umn.edu/Education/Alumni/index.html.

If you have questions, please contact **Stephanie Malinoff**, CTS outreach and education coordinator, at 612-624-8398, malinoff@cts.umn.edu. **CTS**

CTS to hold Grad Certificate info session

Take a step toward continuing your education: Attend a Graduate Certificate in Transportation Studies information session. The session will describe the program, course requirements, and more.

- When: November 7, 2008
- Time: 12:00–1:00 p.m.
- Location: Room 202 Civil Engineering Building, Minneapolis east bank campus
- Free pizza and soda will be provided.

Walk-ins are welcome. To preregister or for more information, visit www.cts.umn.edu/education/certificate or contact **Stephanie Malinoff** at 612-624-8398, malinoff@umn.edu. **CTS**

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Seely is a historian of technology who has written and published extensively about the history of American transportation and American transportation policy. He has been an active member of the History Committee of the Transportation Research Board since its founding more

than a decade ago. During 2006 he spoke frequently to professional and engineering organizations about the history of the Interstate Highway System, and he recently testified before the Senate Committee on the Environment and Public Works. Seely earned his doctorate

at the University of Delaware in 1982.

A registration form is enclosed. For more information, contact **Sara Van Essendelft**, 612-624-3708, cceconf5@umn.edu, or visit www.cts.umn.edu/events. **CTS**

Upcoming events

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

Sept. 29– Oct. 1	Minnesota Public Transit Association Conference, St. Paul. See www.mpta-transit.org .	Nov. 1	University of Minnesota Transportation Alumni Group Homecoming Event. Contact Stephanie Malinoff , 612-624-8398, malinoff@cts.umn.edu .	Nov. 20–22	Minnesota Association of Townships Annual Educational Conference, Alexandria, Minn. See www.mntownships.org .
Oct. 1–2	Fall Maintenance Expo, St. Cloud, Minn. Contact Kathy Warren , 651-351-7432, kwarren@usinternet.com .	Nov. 6	CTS Fall Luncheon, Radisson Metrodome, Minneapolis. Contact Sara Van Essendelft , 612-624-3708, cceconf5@umn.edu .	Dec. 3	Minnesota Association of Asphalt Paving Technologists 55th Annual Asphalt Conference, Brooklyn Park, Minn. See www.mn-aapt.org .
Oct. 7–8	Toward Zero Deaths Conference, Rochester, Minn. Contact Shirley Mueffelman , 612-624-4754, cceconf2@umn.edu .	Nov. 7	Graduate Certificate in Transportation Studies Information Session, Minneapolis. Contact Stephanie Malinoff , 612-624-8398, malinoff@cts.umn.edu .	Dec. 4	58th Annual Concrete Conference, Brooklyn Center, Minn. Call 612-624-4938, e-mail cceconf4@umn.edu , or see www.cce.umn.edu/concrete .
Oct. 14	ITS Minnesota Fall Industry Forum, St. Paul. Call Clair Daley , 612-624-3492, or see www.itsmn.org .	Nov. 19–21	Minnesota Public Works Association Fall Conference and Workshop, Brooklyn Center, Minn. Call 612-624-3492, cceconf3@umn.edu , or see http://minnesota.apwa.net .	May 19–20	20th Annual CTS Transportation Research Conference. NOTE NEW LOCATION: Sheraton Hotel, Bloomington. CTS
Oct. 14–15	2008 AirTAP Fall Forum, Breezy Point, Minn. See www.airtap.umn.edu .				