



## Institute researchers exhibit at USDOT

Two projects of the Intelligent Transportation Systems (ITS) Institute were featured in poster presentations at University Research Technology Transfer Day, an exhibition of the U.S. Department of Transportation's Research and Innovative Technology Administration (RITA), on April 6 at the USDOT headquarters in Washington, D.C.

The event highlighted research products that have been or are in the process of being deployed into the marketplace or affecting policy. Projects were chosen by University Transportation Center directors in a blind

review based on quality and intellectual merit, contribution to the state of the art and practice, national relevance, and observed or potential impact.

"Traffic Signal Performance Measurement Using High-Resolution Data: The SMART-Signal System" is led by assistant professor **Henry Liu** of the Department of Civil Engineering. This SMART-Signal system simultaneously collects event-based high-resolution traffic data from multiple intersections and generates real-time arterial performance

ITS continued on page 3



Henry Liu



Janet Creaser



Max Donath



Alec Gorjestani



Mike Manser

## Online matrix helps users determine accessibility

People who make transportation and land-use decisions in the Twin Cities region have a new tool: an online "accessibility matrix" that illustrates variations in accessibility to different types of destinations for travelers who drive, bike, walk, or use transit.

The matrix is one of the outcomes of the CTS-led Access to Destinations Study. In the interdisciplinary study, researchers analyzed, described, and mapped how *accessibility*—the ability of people to reach the destinations they need or want to visit—has changed over recent decades in the Minneapolis–St. Paul metropolitan region, whether by auto, bicycle, public transit, or on foot.

Funding sponsors included the Minnesota Department of Transportation, Hennepin County, and the McKnight Foundation, in cooperation with the Metropolitan Council.

The matrix displays four types of maps: accessibility (the ability to reach destinations), mobility (the ability of people to move on the network), travel time (how long it will take to

get between census blocks with each of the travel modes), and land use (the distribution of activities by census block).

Users can select up to four filters, including year, mode, time of day, and destination type (such as retail, restaurants, or recreation). The result, for example, could be maps showing the accessibility of jobs between two distant suburbs by transit or by car.

The tool is hosted by the University's Minnesota Traffic Observatory (MTO), a transportation laboratory staffed by experts in managing large data sets and creating visual models of complex data. The matrix is just one of the MTO's systems that support effective transportation and land-use planning. Future researchers will be able to further develop the tool and add new data as they become available.

CTS has also created tutorials to assist users with the new tool. The tool, the study's 11 research reports, and a high-level summary of the research are at [www.cts.umn.edu/access-study](http://www.cts.umn.edu/access-study). **CTS**

## Inside

- ITS video ..... 2
- Faculty news..... 2
- Maintenance expo..... 3
- Beautiful U Day..... 4

## WSTLUR symposium in July

The inaugural meeting of the World Symposium on Transport and Land Use Research (WSTLUR) will be held in Whistler, British Columbia, July 28–30, 2011. The conference will bring together academics and practitioners at the intersection of economics, planning, and engineering in the fields of transport and land use.

CTS is organizing the conference with support from several contributing partners.

The conference will include plenary presentations from:

- **Ed Glaeser**, Fred and Eleanor Glimp Professor of Economics, Harvard University
- **Robert Cervero**, director, University of California Transportation Center
- **David Banister**, professor of transport studies, Oxford University

An optional evening activity is a book discussion of *Two Billion Cars: Driving Toward Sustainability* by author **Dan Sperling**, director of the Institute of Transportation Studies at the University of California, Davis. Sperling, who gave the CTS Fall Luncheon presentation in 2010, will be present for the discussion.

Symposium continued on page 2

## New video outlines ITS-related careers

The Intelligent Transportation Systems (ITS) Institute at CTS has produced a 10-minute video designed to attract potential students to a future in transportation technology. The video outlines appropriate coursework to pursue such a career and provides students with a glimpse of ITS Institute research projects, ITS-related deployments in Minnesota by Mn/DOT and other agencies, and a snapshot of Minnesota professionals who use ITS in their jobs.

The video is informative, entertaining, and visually appealing. It includes interviews with ITS professionals as well as current students planning ITS-related careers. By watching the video, potential students (and their parents) will get an understanding of the breadth of ITS-related opportunities and gain familiarity with the educational requirements needed to pursue an ITS-related career.

The field of transportation technology includes traffic engineering, policy and planning, vehicle and infrastructure design, and human and environmental

factors. The video explains why this field is important to both the transportation of our nation and the economy as a whole. It also explains how these careers have longevity in the future of the world economy.

The audience for the video will be middle and high school students who have an interest in math, science, or engineering. It is the latest Institute effort to attract K-12 students to this field of study.

A St. Cloud, Minnesota, firm created the video under the direction of CTS. The interviews feature representatives from a number of organizations: Department of Civil Engineering, Department of Aerospace Engineering and Mechanics, Minnesota Traffic



*The video will be used at summer camps like this one held last year.*

Observatory, and HumanFIRST Program at the University of Minnesota; Mn/DOT; the Minnesota Valley Transit Authority; Short Elliott Hendrickson Inc.; and Athey Creek Consultants.

The video is posted on the Institute's website and will be used in settings such as career fairs and campus summer camps. For more information, see [www.its.umn.edu/Education/k12outreach](http://www.its.umn.edu/Education/k12outreach). **CTS**

## Faculty news

CTS Scholar **Saif Benjaafar**, a professor in the Department of Mechanical Engineering, is one of four Distinguished McKnight University Professors for 2011. The award aims to honor and reward the University of Minnesota's highest-achieving faculty who have recently attained full professor status. Benjaafar is a leader in the field of supply chain management and has published groundbreaking research that investigates how complex and global supply chains should be designed and managed.



*Saif Benjaafar*

**William J. Craig**, associate director of the Center for Urban and Regional Affairs, has been named a fellow of the University Consortium for Geographic Information Science (UCGIS), a consortium of more than 70 U.S. universities that focus on research and education related to geographic information systems.

A new book from the University of

Minnesota Press—*The City, the River, the Bridge*—addresses the ramifications of the 2007 I-35W bridge collapse from the perspectives of history, engineering, architecture, water science, community-based journalism, and geography.

The book, edited by **Patrick Nunnally**, the River Life program coordinator in the University's Institute on the Environment, stems from a 2008 University of Minnesota symposium. Contributors—including **Thomas Fisher**, dean of the College of Design and a member of the CTS Executive Committee, and **Roberto Ballarini**, head of the Department of Civil Engineering—examine the factors that led to the collapse, the lessons learned from the disaster and the response, the policy and planning changes that have occurred or are likely to occur, and the impact on the city and the Mississippi River.

More information about the book is online at [www.upress.umn.edu/Books/N/nunnally\\_city.html](http://www.upress.umn.edu/Books/N/nunnally_city.html).

A discussion paper from the Brookings

Institution's Hamilton Project proposes a reorganization of our national highway infrastructure priorities. The paper—"Fix It First, Expand It Second, and Reward It Third"—is coauthored by **Matthew E. Kahn**, professor of economics at the UCLA Institute of the Environment and Sustainability, and **David Levinson**, associate professor in the Department of Civil Engineering at the University of Minnesota.

More information about the Hamilton Project, as well as the discussion paper and a corresponding policy brief, are available at [www.brookings.edu](http://www.brookings.edu). **CTS**

---

### *Symposium* from page 1

WSTLUR follows on the successful Access to Destinations conferences ([www.cts.umn.edu/access-study](http://www.cts.umn.edu/access-study)) sponsored by CTS in 2004 and 2007.

For more information, see [www.cts.umn.edu/Events/wstlur](http://www.cts.umn.edu/Events/wstlur). **CTS**

## Safety innovations featured at spring maintenance expo

Safety was the focus of this year's Spring Maintenance Training Expo. The event drew nearly 300 maintenance and transportation workers to St. Cloud April 12 and 13. The Minnesota Local Technical Assistance Program (LTAP), which is housed at CTS, was one of the expo sponsors.

In the opening plenary session, **Cassandra Isackson** of Mn/DOT gave an overview of the state's Toward Zero Deaths program and explained how maintenance workers can help in carrying out its mission. To learn more about TZD, see [www.minnesotatzd.org](http://www.minnesotatzd.org).

Also in the opening plenary, **William Stein**, safety engineer with the Federal Highway Administration's Minnesota Division, discussed a paving technique called the Safety Edge that is gaining momentum across the country. The session covered the safety impacts and hazards of unsafe pavement edge drop-offs and how properly designed pavement edges can save lives and reduce maintenance expenses. Minnesota LTAP helped coordinate a demonstration of the Safety Edge in Dodge County, Minnesota, last

fall and has created a web page with links to information about the technique.

Stein also presented information about alternative intersections such as roundabouts, restricted crossing U-turn intersections, and other nontraditional intersection types that are showing promise for improving safety, particularly in reducing severe right-angle crashes.

**Jim Grothaus**, director of Minnesota LTAP, moderated a session about safety research innovations with **Ryan Otte** of Mn/DOT. The session focused on results of research funded through the Local Operational Research Assistance (OPERA) Program ([www.mnltap.umn.edu/about/programs/opera](http://www.mnltap.umn.edu/about/programs/opera)) and Mn/DOT's Office of Maintenance.

Grothaus also moderated a ceremony honoring this year's 10 LTAP Roads Scholars. More than 2,000 students are enrolled in the Roads Scholar program ([www.mnltap.umn.edu/RoadsScholar](http://www.mnltap.umn.edu/RoadsScholar)), which combines a range of training options into a structured curriculum.

Concurrent sessions featured two University of Minnesota presenters. **Ann Johnson**, faculty director of the

Construction Management degree program and technical expert for Minnesota LTAP, discussed roadside maintenance. A healthy roadside environment can reduce maintenance needs and costs, preserve the roadside surface, and provide safety for vehicles and travelers, she said.

**Andy Erickson**, research fellow with the St. Anthony Falls Laboratory, presented best practices for visual inspection and maintenance operations when working with stormwater options such as rain gardens, wet ponds, swales, and filter/buffer strips.

Other expo sessions touched on topics such as cable median barriers and workplace safety.

Expo cosponsors were the Minnesota Local Road Research Board, Mn/DOT, the Minnesota Street Superintendents Association, and the American Public Works Association Minnesota Chapter.

Planning committee members from the University were Grothaus and **Mindy Carlson** from Minnesota LTAP and **Lori Graven** and **Teresa Washington** of the College of Continuing Education. **CTS**



*Jim Grothaus (far left) and Mindy Carlson (far right) with LTAP Roads Scholars*

### ITS from page 1

measures, including intersection queue length and arterial travel time.

The "Smartphone-Based Novice Teenage Driver Support System (TDSS)" project developed a smartphone-based system to provide critical assistance to inexperienced drivers and enable parents to monitor their teen's driving habits effectively through real-time, in-vehicle feedback. In addition to the poster exhibit, the project was selected for a podium presentation, given by

researcher **Janet Creaser**. Co-investigators of this research are ITS Institute director **Max Donath**, research fellows Creaser and **Alec Gorjestani**, and HumanFIRST Program director **Mike Manser**.

"Janet and Henry did a great job answering questions from the many participants who stopped at their tables," Donath said, adding that the posters generated considerable interest among attendees.

Among those attending the TDSS

podium presentation were **Curt Tompkins**, RITA acting associate administrator; **Linda Cosgrove**, National Highway Traffic Safety Administration chief of behavioral technology research; and **Lydia Mercado**, RITA transportation workforce development coordinator.

Read more about the SMART-Signal system project or the teenage driver support system project at [www.its.umn.edu](http://www.its.umn.edu).

**CTS**

## Beautiful U Day focuses on sustainable transportation

Sustainable transportation was the focus of this year's Beautiful U Day on April 20. Launched in 1997, the annual event brings together students, faculty, and staff for beautification and sustainability events on all University of Minnesota campuses.

The event included a Transportation Expo on Northrop Plaza in Minneapolis that highlighted the campus community's sustainable transportation options and provided information on how to take advantage of them. Organizations showcased sustainable transportation options such as biking, walking, public transportation, and carpooling. CTS hosted a table and handed out brochures at the expo, which also included a used bike sale, bike tune-ups, and a competition to build the coolest "Frankenstein" bike from spare parts.

Beautiful U Day also included public presentations on a range of transportation and related topics. For example, the State and Local Policy Program (SLPP) of the

Humphrey School of Public Affairs presented a brown-bag lunch presentation and discussion titled "Bike Sharing in the Twin Cities," given by **Bill Dossett** of NiceRide Minnesota and **Tony Hull** of Transit for Livable Communities/Bike Walk Twin Cities.

The lunch was part of SLPP's Regional Planning and Policy Discussion Series and was cosponsored by the University's Interdisciplinary Transportation Student Organization.

In another presentation, **Jonathan Schilling**, assistant professor in the Department of Bioproducts and Biosystems Engineering, presented "Decay, Fungi, and Biofuels." More information about his research is available at



*The Transportation Expo at Beautiful U Day*

[http://environment.umn.edu/news\\_events/events/frontiers.html](http://environment.umn.edu/news_events/events/frontiers.html).

**Bob Baker**, executive director of Parking and Transportation Services, provided a comprehensive overview of how construction on the Central Corridor Light-Rail Transit Line will affect the Twin Cities campus. His presentation is online at <https://umconnect.umn.edu/lr>. Information about the corridor is available at [metrotransit.org/construction](http://metrotransit.org/construction). **CTS**

## REMINDER: The CTS Transportation Research Conference is at the Crowne Plaza Hotel in St. Paul on May 24 and 25.

### Upcoming events *To see other events or publicize yours, visit [www.cts.umn.edu/Events](http://www.cts.umn.edu/Events).*

May 19	Southeastern Toward Zero Deaths (TZD) Workshop, Rochester, Minn. See <a href="http://www.minnesotatzd.org">www.minnesotatzd.org</a> .	July 24–27	10th International Low-Volume Roads Conference, Lake Buena Vista, Fla. See <a href="http://www.trb.org/LowVolumeRoadsConference/LVR10.aspx">www.trb.org/LowVolumeRoadsConference/LVR10.aspx</a> .
May 24–25	22nd Annual CTS Transportation Research Conference, Crowne Plaza, St. Paul. See <a href="http://www.cts.umn.edu/Events">www.cts.umn.edu/Events</a> .	July 28–30	World Symposium on Transport and Land Use Research, Whistler, British Columbia. See <a href="http://www.wstlur.org">www.wstlur.org</a> .
June 13–14	Symposium on Mileage-Based User Fees, Breckenridge, Colo. See <a href="http://utcm.tamu.edu">http://utcm.tamu.edu</a> .	Aug. 16	Transportation Engineering and Road Research Alliance (TERRA) Innovation Series: MnROAD Research Conference. See <a href="http://www.terraroadalliance.org">www.terraroadalliance.org</a> .
June 15	Northeastern Minnesota TZD Workshop, Hermantown, Minn. See <a href="http://www.minnesotatzd.org">www.minnesotatzd.org</a> .	Oct. 6–7	AirTAP Fall Forum, Breezy Point, Minn. See <a href="http://www.airtap.umn.edu">www.airtap.umn.edu</a> .
		Oct. 12–14	Minnesota Public Transit Conference, St. Paul. See <a href="http://www.mpta-transit.org/events/conference">www.mpta-transit.org/events/conference</a> .
		Nov. 16–17	Minnesota Toward Zero Deaths (TZD) Annual Conference, Duluth, Minn. See <a href="http://www.minnesotatzd.org">www.minnesotatzd.org</a> .

#### Submit or view transportation-related jobs:

CTS website: [www.cts.umn.edu/Education/Careers/JobPostings](http://www.cts.umn.edu/Education/Careers/JobPostings)

LinkedIn: [www.linkedin.com/groups?gid=2316997&trk=hb\\_side\\_g](http://www.linkedin.com/groups?gid=2316997&trk=hb_side_g)