University of Minnesota
CTS
Center for Transportation Studies
REPORT
A monthly report on transportation research, education, and outreach activities at the University of Minnesota
October 2011

Conference focuses on performance measures for transportation and livability

University of Minnesota researchers were among the presenters at the Conference on Performance Measures for Transportation and Livable Communities, held September 7 and 8 in Austin, Texas.

Developing and applying appropriate performance measures to transportation and livability is critical to ensuring that federal, state, and local goals and objectives are being met. Presenters addressed the state of the practice in performance measures for urban, suburban, exurban, and rural areas.

The conference was sponsored by the University Transportation Center for Mobility and the Texas Transportation Institute, and cosponsored by CTS, the Transportation Research Board, and the Transportation Economics Center at the Texas Transportation Institute.

Katie Turnbull, director of the Texas Transportation Institute, gave the conference welcome and overview. Also in the opening session, **Robert Johns**, associate administrator and director of the Volpe National Transportation Systems Center and former director of CTS, presented "Livable Communities: The Critical Role of Performance Measures from Concept to Implementation."

Laurie McGinnis, director of CTS, moderated a general session that featured leaders from the Federal Transit Administration, U.S. Environmental Protection Agency, and Department of Housing and Urban Development. **Gina Baas**, CTS assistant director of education and outreach, moderated a breakout session titled "Access to Destinations Performance Measures."

Several University of Minnesota researchers gave presentations in breakout sessions:

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Freight and Logistics Symposium to focus on impacts of economic change

The impacts of economic change on freight transportation will be the focus of this year's Freight and Logistics Symposium on December 2. Representatives from the business community, academia, and the public sector will consider major trends and the effect of possible economic changes on freight and logistics providers.

Christopher Caplice, executive director of the Center for Transportation and Logistics at the Massachusetts Institute of Technology, will present "Future Freight Flows" in the keynote presentation.

Following Caplice, a panel discussion will explore the implications of economic trends for Minnesota. Panelists will be **Wil Kratz**, vice president of operations, Logistics Planning Service; **Chip Smith**, COO, Bay and Bay Transportation; **Judy Mitchell**, director, Passenger Rail Strategic Initiatives, Canadian Pacific Railway; and representatives from Target Corporation and Best Buy.

A second panel will focus on the intersection of transportation and economic development. Scheduled speakers include **Steve Elmer**, planning analyst, Metropolitan Council; **Vann Cunningham**, assistant vice president – economic development, Burlington Northern Santa Fe; and **Dan Dorman**, executive director, Albert Lea Economic Development Agency

The symposium brochure is enclosed. For more information, contact **Nicole Freese**, 612-624-3708, or see www.cts.umn.edu/Events/FLOGSymposium. **CTS**

Inside

Fall luncheon: 'The Flat City'

Patrick Condon

Cities have pointy centers and gradually flatter edges that slope to the countryside, says **Patrick Condon,** a professor and senior researcher with the Design Centre for Sustainability at the University of British Columbia.

This hierarchy has remained unchallenged despite the fact that North American cities, when they were at their most powerful, were flat—homogeneous across large urban landscapes in a form and density that was uniquely American. The form was the grid, and the means of getting around in those days was on foot or by streetcar. In this first manifestation of the American Dream, residents produced almost no greenhouse gas from their transportation choices.

In a speech titled "Flat City: The Streetcar City and the Revival of the American Dream," Condon will argue that the Streetcar City is again desirable for our future quality of life. He will give his presentation at the CTS Fall Luncheon December 8 in Minneapolis.

Metropolitan governments

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Techplan research uses smartphones to improve safety

Frank Douma

Yingling Fan

Connecting theory and practice is essential to solving complex transportation problems. With that sentiment, **Greg Lindsey**, professor and associate dean of the Humphrey School of Public Affairs, welcomed attendees to an August 19 forum focused on current research by the TechPlan program.

TechPlan, directed by **Frank Douma**, associate director of the State and Local Policy Program (SLPP) at the Humphrey School, is a collaboration between the Intelligent Transportation Systems (ITS) Institute at CTS and SLPP. TechPlan researchers are conducting a set of federally sponsored studies on how transportation systems can be planned to accommodate an increasingly complex technological environment.

The intersection of public health and transportation serves as a starting point for the current work of Humphrey School assistant professor **Yingling Fan**, whose research group designed a smartphone application to gather data on travel behavior and help users better understand and shape their own travel behavior.

As part of a research project dubbed "UbiActive," Fan worked with Douma, senior systems engineer **Chen-Fu Liao** of the Minnesota Traffic Observatory, and Assistant Professor **Julian Marshall** of the civil engineering department to create a smartphone app for the Android mobile platform. The app will semi-automatically collect data about the user's travel and activity patterns. It also includes a self-reporting function, prompting users to provide information about their travel and secondary activities.

The UbiActive app will do more than gather data—it will also give users feedback about the health implications of their travel behavior. During an upcoming field study, Fan said, the researchers will try to determine if users will respond to feedback from their smartphones by altering their travel behavior.

UbiActive is the first study to use smartphones to collect public health data in the context of travel behavior, Fan noted.

Turning to a different kind of health impact, **Tom Horan** and **Ben Schooley**, researchers with the ITS Institute and the Center for Excellence in Rural Safety, described their ongoing work aimed at improving emergency response and treatment by helping EMS providers share information quickly and easily with emergency room doctors.

Their CrashHelp system, now being tested as a prototype in Idaho, consists of a smartphone application for emergency responders and a web interface for emergency medical center workers. Using CrashHelp, paramedics can send videos, digital photos, and other information directly to physicians at the hospital. Data security is a key issue in the development of the system, they said.

Douma also discussed the importance of data security in a presentation on ITS data needs. Noting that the privacy issues raised by ITS technologies are both important and varied, Douma said that both the nature of the data collected and the privacy expectations of the people affected have to be taken into account.

The final presentation of the day focused on consumer travel behavior and retail geography. Graduate student **Arthur Huang** worked with Associate Professor **David Levinson** of the civil engineering department to study how clusters of retail businesses develop in response to consumer demand and transportation system dynamics. The project, which is ongoing, is attempting to answer questions including whether retail clustering increases or decreases travel demand, and whether trip chaining—combining multiple tasks and destinations into a single journey—contributes to the development of retail clusters.

For more about TechPlan, please see www.its.umn.edu/ProgramsLabs/PolicyPlanning. **CTS**

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- **Mike Iacono**, Department of Civil Engineering, "Key Findings from the Access to Destinations Study" (see www.cts.umn.edu/access-study for more about the CTS-led study)
- **Carissa Schively Slotterback**, Humphrey School of Public Affairs, "Planning for Sustainability at a Regional Scale"

Mike Iacono

Carissa Schively-Slotterback

- **Ingrid Schneider**, Tourism Center, "Learning About Transportation-Related Livability: A Mixed-Methods Approach"
- **Brigid Tuck**, Tourism Center, "Livability and Scenic Byways: An Exploration and Opportunity for Measurement"
- **Andrew Guthrie**, Humphrey School, "Impact of Light-Rail Implementation on Labor Markets Accessibility: A Transportation Equity Perspective"

The conference was intended to advance research in the field of livability performance measures and help agencies such as state departments of transportation, metropolitan planning organizations, transit agencies, and other groups to develop and use appropriate performance measures.

The presentations from the conference have been posted on the conference website and are available for download at http://utcm.tamu.edu/LivabilityConference/program.stm. A conference proceedings will also be posted. **CTS**

Portable weigh station for rural roads debuts at MnROAD

In August, the Minnesota Department of Transportation (MnDOT) hosted a demonstration of a portable weigh-in-motion (WIM) system at the MnROAD pavement research facility near Albertville, Minnesota. The system, designed by University of Minnesota Duluth electrical and computer engineering professor **Taek Kwon**, promises to make it easier and less expensive to monitor truck traffic, especially in rural areas.

In recent years, state, county, city, and township transportation authorities have grown more concerned about damage to local roads and bridges due to the increased traffic of larger, heavier trucks. The need for better data about vehicle loads became critical when a new state law in 2009 considered all paved roads to have a 10-ton design unless posted otherwise.

Minnesota has 16 WIM stations, with another scheduled to open near Moorhead this fall. All but one are located on a principal arterial route. "There's a lot of area that we're not really covering, and a portable weigh-in-motion system would be useful," said **Ben Timerson**, weight data and engineering coordinator at MnDOT. "Truckers fairly rapidly figure out where the permanent sites are and learn how to avoid them."

Timerson, who hosted the MnROAD demo, said a portable WIM system would aid the Minnesota State Patrol in weight enforcement, and the additional freight data would be useful for managing the county road system, designing appropriate pavements, and setting bridge load restrictions.

The research to develop the portable WIM system was sponsored by MnDOT. In addition, MnDOT State Aid and the Minnesota County Engineers Association have supported the research, with several county engineers serving on the technical advisory panel for the project. Eventually, the plan is to contract with a manufacturer to produce a commercial version of the system.

Professor Taek Kwon at a demo of the portable WIM device.

For more about Kwon's research, please see the winter 2009–10 issue of the ITS Institute's newsletter, the *Sensor*, at www.its.umn.edu. **CTS**

Levinson to continue as Braun/CTS Chair

David Levinson

The selection committee for the Braun/CTS Chair in Transportation Engineering has recommended Associate Professor **David Levinson**, a CTS Faculty Scholar, for a second term. Levinson was named the inaugural chair in fall 2006.

Levinson's research focuses on the intersection of transportation networks, economics, and cities. He has taught six different courses at the University and was a co-leader of the interdisciplinary Access to Destinations Study coordinated by CTS. He received the Richard P. Braun Distinguished Service Award earlier this year.

Under his first appointment, Levinson used Braun/CTS Chair funds to support graduate students in their research and education. Levinson anticipates future funds will again primarily support graduate students, particularly in research into the effects of network structure on travel behavior.

"It is an honor to be selected," Levinson says. "The research will allow us to better design networks while accounting for how travelers perceive them. Some network designs lead to systematic over-estimation or under-estimation of travel times, and thus lead to fewer or more vehicle-miles."

CTS established the endowed faculty chair in collaboration with the Department of Civil Engineering in honor of **Richard P. Braun**, the founding director of CTS and a former commissioner of the Minnesota Department of Transportation. The chair fosters innovation in the University's academic programs in transportation engineering. **CTS**

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Reminder: Abstracts due November 18 for CTS research conference

CTS has issued a Call for Presentations for its 23rd Annual Transportation Research Conference, to be held May 23–24, 2012, at the Saint Paul RiverCentre. Interested individuals should submit a one-page abstract at www.cts.umn.edu/events/rescon by November 18. For further information, contact **Nicole Freese**, 612-624-3708, cceconf5@umn.edu. **CTS**

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Fairgoers learn about CTS education efforts

CTS and the Intelligent Transportation System (ITS) Institute once again exhibited transportation-related attractions at the Minnesota State Fair.

The exhibit included Gridlock Buster, an interactive traffic-control game designed by the ITS Institute and Web Courseworks (www.its.umn.edu/GridlockBuster), and SafeRoadMaps.org, a crash-mapping tool from the Center for Excellence in Rural Safety that maps every roadway fatality in the nation down to the local level.

Staff also distributed a new brochure—*Is a Career in Transportation for You?*—intended for potential students and their parents (downloadable at www.cts.umn.edu/Education/Careers/TransportationCareers).

Mike Marti (left) and Bernie Arseneau

On stage: Don Theisen with Stephanie Malinoff of CTS

This year's rounds of *Transportation Jeopardy!* were emceed by **Michael Marti**, a principal with SRF Consulting Group (with help from MnDOT deputy commissioner **Bernie Arseneau**), on August 25 and **Don Theisen,** Washington County public works director, on August 26.

View photos and a video clip at www.cts.umn.edu/Events/statefair/2011. **CTS**

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have invested huge resources in supporting what might be called a "centers strategy" at the expense of everything in between, Condon says. And there is a vast amount of urban space in between: the framework of a uniquely North American world where the middle class first gained access to single-family homes—the Streetcar City.

Condon has more than 25 years of experience in sustainable urban design, first as a professional city planner and then as a teacher and researcher. He is the author of several books, most recently *Seven Rules for Sustainable Communities: Design Strategies for the Post-Carbon World* (2010), from Island Press.

More information is in the enclosed registration form and on the web at www.cts.umn.edu/Events. **CTS**

Upcoming events *To see other events or publicize yours, visit www.cts.umn.edu/Events.*

Nov. 2–3	Twin Cities Urban Sustainability Forum, St. Paul, Minn. See TCUSforum.umn.edu.
Nov. 16–17	Minnesota Toward Zero Deaths (TZD) Annual Conference, Duluth, Minn. See www.minnesotatzd.org.
Nov. 16–18	American Public Works Association–Minnesota Chapter Fall Workshop and Conference, Brooklyn Center, Minn. See www.cce.umn.edu/APWA-Minnesota-Chapter.
Dec. 2	Freight and Logistics Annual Symposium, Minneapolis, Minn. See www.cts.umn.edu/Events/FLOGSymposium.
Dec. 7	58th Annual Asphalt Conference, St. Louis Park, Minn. See www.asphaltisbest.com.
Dec. 8	Annual Concrete Conference, Minneapolis, Minn. See www.cce.umn.edu/concrete.
Dec. 8	CTS Fall Luncheon with **Patrick Condon**, Minneapolis, Minn. See www.cts.umn.edu/Events/Luncheon.
Jan. 25–27	City Engineers Association of Minnesota Annual Conference, Brooklyn Center, Minn. See www.ceam.org.
Feb. 9	TERRA Pavement Conference, St. Paul, Minn. See www.cts.umn.edu/Events/PavementConf.
Feb. 28	Transportation Career Expo, Minneapolis, Minn. See www.cts.umn.edu/Events/CareerExpo.
March 8–9	Concrete Paving Association of Minnesota 51st Annual Concrete Paving Workshop, Mankato, Minn. See www.concreteisbetter.com.
May 23–24	23rd Annual CTS Transportation Research Conference, Saint Paul RiverCentre. See www.cts.umn.edu/Events. **CTS**

Submit or view transportation-related jobs:

CTS website: www.cts.umn.edu/Education/Careers/JobPostings

LinkedIn: www.linkedin.com/groups?gid=2316997&trk=hb_side_g