

REPORT

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

April 1999

Faculty Present U Research at ITS Minnesota Exchange Forum

Speakers at ITS Minnesota's Fifth Annual Meeting and Information Exchange Forum painted a bright future for the continued deployment and integration of Intelligent Transportation Systems (ITS). The forum, facilitated by CTS, drew over 150 people to Bloomington on March 10.

The day began with a keynote by **Darryl Durgin**, deputy commissioner of the Minnesota Department of Transportation (Mn/DOT). Durgin believes that new commissioner **Elwyn Tinklenberg** "will be a strong supporter" of ITS and assured the audience that Mn/DOT's ITS efforts "will not diminish, but in fact will broaden."

Next followed two morning sessions. "Transit Applications," moderated by **Art Leahy** of Metro Transit, featured an update by **Bob Winter** of Mn/DOT on how ITS applications—such as traveler information systems and "smart" cards—will be used in the Hiawatha Corridor LRT line. "Updates on ITS Deployment in Minnesota," moderated by **Dennis Foderberg** of Mn/DOT, included a presentation by **Jim Wright** of Minnesota Guidestar on the Twin Cities' SmarTraveler information system, which is already receiving over "300 calls per day."

The afternoon began with a session on "Technology for Traffic Safety and Operations," moderated by Professor **Max Donath** of Mechanical Engineering/CTS and featuring three University

researchers: Associate Professors **Nikos Papanikolopoulos** of Computer Science and **Peter Hancock** of the Human Factors Research Laboratory, and Dr. **Craig Shankwitz** of Mechanical Engineering.

Papanikolopoulos reviewed his research, sponsored by the ITS Institute and Mn/DOT, into ITS for pedestrian safety. His research team has developed a system that collects real-time images of pedestrians using video cameras, converts the images into "blobs" of

computer pixels, then feeds this information into pedestrian tracking models. Traffic managers can use the results of his research to adjust signal timing algorithms. Hancock presented some of his thoughts on

continued on next page



Left: Nikos Papanikolopoulos of Computer Science presents his research into pedestrian detection. Above: Peter Hancock of the Human Factors Research Lab gave an overview of safety issues.

Register Now for CTS Conference

Registration is under way for the Center's Tenth Annual Transportation Research Conference. Please note that for the first time the conference will be held at RiverCentre in St. Paul—not the Doubletree Park Place in Minneapolis/St. Louis Park.

The conference will begin on May 18 with a keynote address and panel discussion titled "Visions for Minnesota Transportation Systems and Policies." **Elwyn Tinklenberg**, Mn/DOT commissioner, will open the plenary session on this topic. A panel discussion with

Don't forget! This year's CTS research conference is at the St. Paul RiverCentre on May 18-19.

Tinklenberg, **Ted Mondale**, chair of the Metropolitan Council, and **Gerard McCullough**, director of CTS, will follow. Another highlight on May 18 is a luncheon address by Professor **John Pucher** of Rutgers University, on "Coordinated Urban Transport Policy in Europe and Canada: Lessons for the United States?"

If you have not yet received a brochure or if you have questions, call **Catherine Ploetz**, 612-626-2259, or check the CTS Web site: www.umn.edu/cts/Research/TRC/conf.html.



Above: Craig Shankwitz describes research into human-centered vehicle technology. Right: Panos Michalopoulos and Marthand Nookala view the Autoscope display. Michalopoulos invented Autoscope, a machine vision technology for which the University of Minnesota holds the patent.



driver behavior in accident-likely conditions. His new book, *Essays on the Future of Human-Machine Systems*, covers this and many other topics. [To order a copy, contact Hancock at 612-625-8527; e-mail hanco003@tc.umn.edu.]

Shankwitz, who works with Donath on the SAFETRUCK research program, discussed how ITS can help snowplow drivers "see" in poor visibility conditions. One example is a heads-up display system that projects a graphic overlay of a virtual image (such as another vehicle) onto the windshield. "Our unique capability is that we combine radar with geographical data from a Global Positioning System (GPS), to filter road 'furniture' from the radar

return," Shankwitz says. A prototype plow will be tested next winter between Rogers and Elk River.

Other afternoon sessions were a "Corporate Perspective of ITS," with **Chuck Sprado** of 3M, and a panel on "Future Directions," including **Fred Corrigan** of the Minnesota Transportation Alliance. Sprado cited predictions of a potential private-led ITS market of over \$340 billion between 1996-2015. Corrigan endorsed partnerships as the "solution to creating the next generation transportation infrastructure," and stressed the need to impress legislators—particularly those from rural areas—with the benefits of ITS.

TRANSPORTATION & REGIONAL GROWTH STUDY UPDATE

Morrish Presents Planning Framework at Workshop

Professor **Bill Morrish**, director of the Design Center for American Urban Landscape, was the featured presenter at the first spring research workshop of the Transportation and Regional Growth Study. His presentation "Subregional Urban Design and Planning Frameworks as Regional Strategies for Livable Communities" described the work his research team has undertaken with the North Metro I-35W Corridor Coalition. The Coalition is a joint powers organization that includes the suburban communities of Arden Hills, Blaine, Circle Pines, Mounds View, New Brighton, Roseville, and Shoreview.

Morrish offered an overview of the common issues these communities face that led them to join together including rising congestion, changing demographics of their populations, aging housing stock, and shifting economic development patterns and needs. Morrish and his research team have been working with the Coalition to develop a subregional planning framework that promotes cooperative and regional solutions to these problems. A major step in this process has been the development of a subregional



Bill Morrish

Geographic Information System (GIS) that provides a shared information base that crosses political boundaries.

In their recommendations to the Coalition regarding transportation planning, Morrish and his team advised that the Coalition look at

transportation planning on a district, rather than a node, basis. The movement of traffic is addressed on a corridor basis rather than at an individual project level. They argue that this cooperation can have great benefits including better leveraging of roadway funding by the municipalities as well as more integrated transit planning.

For more information on this initiative, visit the Design Center's Web site at:

www.cala.umn.edu/design_center/dcaul.html

Upcoming Events

Gary Barnes from CTS and Professor **Gary Davis** from the Department of Civil Engineering will discuss the second phase of their research on passenger and freight travel demand on Thursday, May 6, from 3:30-5:00 p.m. in Room 1-135 at the Carlson School of Management. The workshop, titled "Daily

Travel Time Budgets in the Twin Cities: 1958-1990," is free and open to the public. Registration is not required. The abstract follows:

Research done by Zahavi around 1980 found that the average total daily travel time per traveler remained constant between 1958 and 1970 in the Twin Cities. Average speeds increased considerably during this time as new freeways were constructed; however, the resulting time savings apparently were spent on additional travel rather than on other activities. This result calls into question two major beliefs in the current national debate on "sprawl": that people are spending more and more time in their cars, and that they would prefer to spend less time.

This talk will present the results of an extension of Zahavi's analysis to 1990, using the data collected in the travel behavior inventory. The research addresses two main questions. First, whether the daily travel time budget and other findings of 1970 were still the same in 1990. Second, whether important deviations from "average" behavior exist within the region. Of particular interest is the effect of location and land use on travel behavior.

Jostens CEO To Keynote CTS Logistics Symposium

CTS is sponsoring the "Third Annual Symposium on the Impacts of Logistics on the Upper Midwest Economy," on Monday, June 14, at the Carlson School of Management—Honeywell Auditorium.

The keynote speaker is **Robert Buhmaster**, CEO of Jostens, who will present "The Evolving Economy and the Challenges for Logistics." In addition, Commissioner **Elwyn Tinklenberg** of Mn/DOT will be a panelist in a session titled "Rethinking the Role of Government," moderated by former U.S. Rep. **Tim Penny**.

The cost for the program, which begins at 8:00 a.m. and adjourns at 12:00 noon, is \$50. A brochure with full details is enclosed. For further information call **Catherine Ploetz**, 612-626-2259.

New CE Professor to Focus on ITS and Transportation Planning

David Levinson has accepted an offer from Civil Engineering department head **John S. Gulliver** and Institute of Technology dean **H. Ted Davis** to join the faculty of the Department of Civil Engineering (CE) in fall 1999. He will be a part of the transportation systems research program, specializing in transportation planning and intelligent transportation systems (ITS).

"We are excited about David's involvement in the department and feel that there are no bounds to his potential for high-quality research," says Gulliver.

Levinson, who recently completed his doctorate in transportation engineering at the University of California, Berkeley, fills the vacancy left when Professor **Yorgos Stephanedes** resigned from Civil Engineering in 1997.

FHWA Funds Transportation, Trade & Economic Development Project

The Federal Highway Administration (FHWA) is funding a new endeavor—the “Trade and Transportation Infrastructure Investment Strategy Project”—as part of the Northern Great Plains (NGP) Initiative for Rural Development. Based at the University of Minnesota, Crookston, the Initiative serves the economic development needs of the five-state region of Iowa, Minnesota, Nebraska, North Dakota, and South Dakota. **Jerry Nagel** of UMC is the Initiative’s president and the program director of the Red River Trade Corridor.

The FHWA-funded project will examine in detail the current and future opportunities for regional and international trade development and correlate these opportunities with specific transportation infrastructure needs that must be met to ensure that these opportunities can happen. In essence, the project will provide the Northern Great Plains region with the opportunity to think proactively about its economic future and then recommend strategic actions the region can take to ensure a healthy economic future. The results will be the creation of an effective decision-making tool that state departments of transportation and trade can use as they make strategic decisions regarding investments in transportation infrastructure and international trade activities that will advance the economic interests of the region.

A unique aspect of this project is the signing of a memorandum of understanding by the DOTs from Minnesota, North Dakota, South Dakota, Iowa, Nebraska, and Manitoba, Can., stating a desire to work together toward the success of this project. “This is the first time that I’m aware of that a group of states and a Canadian province will look at trade in such a broad perspective,” says **Mark Berndt** from Mn/DOT’s Office of Freight, Railroads, and Waterways. Berndt and **Barbara Mattson** from the Minnesota Department of Trade represented Minnesota in the signing.

CTS and U Libraries Offer Free Access to TRANSPORT Database

CTS and the University of Minnesota Libraries have teamed up to make TRANSPORT, a major transportation database resource, available to the University community.

“Having this resource available through the University Libraries will make it so much easier on our researchers,” says CTS librarian **Eric Hinsdale**. “In the past we could only search TRANSPORT by using Dialog, a fee-based service, or by connecting to the Minnesota Department of Transportation Library over a modem in the CTS Library. Now faculty and students conducting transportation research can search this database from their desks for free.”

The major component of TRANSPORT is the Transportation Research Information Services (TRIS) database, compiled by the Transportation Research Board. This database contains citations and abstracts of journal articles, research reports, conference proceedings, and other documents. Additionally, TRANSPORT includes entries from two international transportation databases. Altogether, almost 500,000 records are included. Users can conduct both simple and advanced searches, and may download, print, or e-mail search results through the Web interface.

Both CTS and the University Libraries contributed funds toward

the acquisition of TRANSPORT. It will be included in the list of indexes on the University Libraries' Web site and also linked to the CTS Web site.

TRANSPORT will be accessible to anyone searching in any of the University Libraries, to anyone connecting through a University of Minnesota network connection, or to any University student, faculty, or staff member connecting from off-campus.

For more information, or to arrange training, please contact Hinsdale at 612-626-1023.

Users may connect to TRANSPORT at the following Web addresses:

- webspirs.silverplatter.com:8000/c139468?
(Netscape 3.01 or higher and Internet Explorer 4.0 or higher with Java enabled; be sure to include the "?"), or
- webspirs.silverplatter.com/cgi-bin/customers/c139468/c139468.cgi
(Netscape or Internet Explorer Versions below the above)

A full listing of indexes available through the University Libraries is located at:

- www.lib.umn.edu/web-bin/indexes.cgi

The Center for Transportation Studies Web site is:

- www.umn.edu/cts

LRRB's Web Site Features Range of Products

“Making a difference ... supporting and sharing the latest in research applications with the state’s city and county engineers,” is the mission of the Local Road Research Board (LRRB). This mission is being advanced by the recent completion of the LRRB’s new Web site: www.lrrb.gen.mn.us.

The site was developed by the LRRB in conjunction with staff from Mn/DOT’s Office of Research Services—**Micky Ruiz**, in particular—to help communicate research results to city and county agencies. The site contains a searchable database of transportation research findings. Users may search the database to identify research undertaken in a number of technical fields and view short abstracts of each finding. Links to critical national and state transportation-related sites are provided as well.

One of the primary links is to the Mn/DOT Library at www.dot.state.mn.us/trim/library/libhome.htm. Copies of all LRRB materials can be borrowed from the library for a three-week period. Otherwise, personal copies of videos, CD-ROMs, Research Implementation Series (RIS) materials, and reports, published in the current or previous year, can be obtained at the LRRB site by filling out a short form on line. These materials and services are free to all Minnesota public agencies.

The site is also linked to the CTS and Minnesota Technology Transfer (T²) Center pages. The LRRB is one of the cosponsors of Minnesota T².

Emissions Tests Have Done Little, ME Faculty Tell Senate Panel

At a March hearing, doctoral candidate **Huel Scherrer** and Professor **David Kittelson** of Mechanical Engineering testified

to the Minnesota Senate Environment and Natural Resources Committee about the effectiveness of the Twin Cities' emissions-testing program.

The engineers told the committee that the eight-year-old program has done little to reduce carbon monoxide emissions in the Twin Cities. Scherrer and Kittelson have studied air quality measurements before and after the program began. They found that carbon monoxide levels decreased at the same rate for the first two years after inspections began as they did for the five years before the program started.

Both experts said the decrease is due primarily to improvements in car engines. "The test has not done its job," said Kittelson. "What has done its job is the turnover of vehicles."

Kittelson is the director of the University's Center for Diesel Research and has conducted numerous research projects through the CTS research program.

Federal Relations Director Leaves University

Thomas A. Etten, director of federal relations at the University for seven years, has been appointed executive director of government relations for the Johns Hopkins Institutions, a new position responsible for contact with federal, state, and local governments.

Etten takes to Hopkins 13 years of experience in university government relations, first as director of legislative affairs at Penn State and, since 1992, as director of federal relations at Minnesota. While in Minnesota he worked closely with several CTS staff—including **Gerard McCullough, Robert Johns, Max Donath, and Cheri Trendera**—to secure funding for CTS, the ITS Institute, and the Minnesota T² Center.

"We all enjoyed working with Tom and wish him the best at Johns Hopkins," says McCullough.

Staff News

Dave Lynch, CTS contract and grant manager since 1994, moved to a position in the University's Human Factors Research Lab. Lynch will work with HFRL staff on external funding opportunities. CTS wishes him well in his new role.

In other personnel news, CTS is seeking a full-time editor to write and edit newsletter articles, reports, Web material, and other publications. The position also will handle production of various publications, work with graphic designer(s) on layout, and assist in the planning and development of publication projects. Requirements include a BA/BS in journalism, English, or a related field; two years' previous editorial experi-

ence (additional equivalent work experience may be substituted for the degree); excellent written and oral communication skills; and ability to work independently on multiple projects. Experience editing technical/scientific documentation is a plus. For further information call **Cindy Holton**, 612-625-0044.

A listing of transportation-related student jobs is also attached with this issue of the *Report*.

Upcoming Transportation and Related Events

To publicize an event contact **Pamela Snopl**, 612-624-0841; fax 612-625-6381; e-mail snopl001@tc.umn.edu. Visit the CTS Web site—www.umn.edu/cts/—for more comprehensive information.

- Apr. 18-21 1999 North American Snow Conference, Duluth. Sponsor: APWA. Call 1-816-472-6100 or see www.apwa.net/conferences/snow.htm.
- Apr. 19-22 ITS America Ninth Annual Meeting and Exposition, Marriott Wardman Park Hotel, Washington, D.C. Call 202-484-3483 or visit www.itsa.org.
- Apr. 27 Back to the Future: Mixed-Use Development, Minneapolis Convention Center. Sponsor: Federal Reserve Bank of Minneapolis. Call 612-204-5075.
- Apr. 29 Road Rage Summit, Minneapolis Convention Center. Contact **Daron VanHelden**, AAA, 612-707-4985; daron.vanhelden@mn-ia.aaa.com.
- Apr. 30 Minnesota Sustainable Communities Conference—Taking the Next Step Toward a Sustainable Future, Minneapolis Convention Center. See www.moea.state.mn.us.
- May 4 Minnesota World Trade Association (MWTA) Annual Trade Conference and Expo, Minneapolis Convention Center. Call MWTA, 612-339-3144.
- May 12-14 1999 Minnesota Safety & Health Conference, Minneapolis Convention Center. Call the Minnesota Safety Council, 1-800-444-9150, or visit www.mnsafetycouncil.org.
- May 12-14 Minnesota Public Works Association Spring Conference, Rutgers Bay Lake Lodge. Call **Kathy Warren**, 651-351-7432.
- May 18-19 CTS Tenth Annual Transportation Research Conference, RiverCentre, St. Paul. Call **Catherine Ploetz**, 612-626-2259.
- June 2 ITS Minnesota quarterly luncheon on "Public Safety." Contact **Mike Sobolewski**, 651-582-1602; mike.sobolewski@dot.state.mn.us.
- June 14 Third Annual CTS Symposium on the Impacts of Logistics on the Upper Midwest Economy, Carlson School of Management—Honeywell Auditorium. Call **Catherine Ploetz**, 612-626-2259.
- July 11-13 1999 Midwest Regional & Shortline Railroad Annual Conference, Duluth. Sponsor: Minnesota Regional Railroads Association.
- Aug. 3-5 Red River Trade Corridor Trade Summit, Sioux Falls, S.D. Call NGP, 218-281-8450.
- Sept. 29-30 Minnesota Fall Maintenance Expo, St. Cloud Public Works Facility. Call **Kathy Warren** of MPWA, 651-351-7432.
- Oct. 21-22 Minnesota Association for Pupil Transportation Fall Conference, Radisson Inn, Duluth. Call **Jim Engstrom**, 612-885-8571; e-mail jengstro@bloomington.k12.mn.us.
- Oct. 27-28 25th Annual Minnesota Public Transit Conference, RiverCentre, St. Paul. Call Mn/DOT's Office of Transit, 651-296-3379, or check the Web: www.dot.state.mn.us/trim/transit/events/99MPTC.



Tom Etten (center) holds a mini SAFETRUCK given to him by Robert Johns (left) and Max Donath, in appreciation of Etten's efforts to help secure continued funding in TEA-21 for the ITS Institute.