

REPORT

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

April 2002

Heightened security among issues at ITS Minnesota meeting

Researchers, regulators, consultants, and others interested in the future of transportation in Minnesota gathered March 21 for ITS Minnesota's Eighth Annual Meeting and Information Exchange. Presentations and panel discussions covered a broad range of transportation issues, from heightened security concerns in the wake of September 11 to increasing public awareness of the benefits of intelligent transportation systems (ITS) technologies.

Following a welcome by ITS Minnesota president **Doug Differt**, **Al Steger** of the Federal Highway Administration (FHWA) began his opening remarks by highlighting activities currently underway related to the upcoming reauthorization process for TEA-21, the national funding bill. The present administration, Steger said, is likely to favor incentives rather than mandates to encourage the development and adoption of ITS technologies.

The first session of the day, moderated by **Gary Thompson** of Mn/DOT, focused on the role of ITS technologies in the effort to

ITS Minnesota Forum continued on page 2



Among the participants at the groundbreaking were Robert Johns (second from left), Mark Yudof (sixth from left), and Christine Maziar (front right).

Yudof, faculty break ground for MAST facility

University of Minnesota president **Mark Yudof** and several regents, deans, and faculty broke ground February 28 for the new facility to house the Multi-Axial Subassembly Testing (MAST) system, which will test structures for their ability to

MAST continued on back

CTS annual research conference:

Highlights to include transit sessions, legislative update

The preliminary program (with registration form) for the CTS Thirteenth Annual Transportation Research Conference has been mailed. The conference will be held May 22–23 in Touchstone Energy@Place at RiverCentre in St. Paul. Following is a brief preview of conference highlights.

- The conference will open with a “National Transportation Policy Update” by **Frederick “Bud” Wright**, executive director of the Federal Highway Administration. Wright will offer an update on current national transportation policy issues including funding, homeland security, and initial policy directions for the reauthorization of TEA-21, scheduled for 2003.
- The May 22 conference luncheon will feature **Bruce Katz**, senior fellow at the Brookings Institution, presenting “The New Metropolitan Reality.” His speech will focus on the trends and patterns fac-

ing cities and metro areas, in particular on transportation issues and policy opportunities.

- Transit will be a cross-cutting topic among the concurrent sessions. Six sessions will feature one or more presentations related to transit: Planning and Design for Commuter Rail; The Twin Cities 2000 Travel Behavior Inventory—Preliminary Findings; Parking Management and Transit Incentives—Best Practices; SMART Transit Initiatives for the 21st Century; Corridors: A Better Way to Measure Impacts?; and Engineering Aspects of Light Rail Transit.
- May 23 will begin with a general session titled “Recap of 2002 Legislative Session,” with invitees **Dean Johnson**, state senator; **Carol Molnau**, state representative; and **Pamela Wheelock**, commissioner, Minnesota Department of Finance.
- Researchers from the Center’s Intelligent

Transportation Systems (ITS) Institute will discuss implementation and impacts of recently completed ITS-related research at an ITS Institute Research Showcase May 23. The presentations will focus on research findings, implementation, and impacts.

- A Transportation and Regional Growth Study workshop May 23 will allow attendees to hear what the study’s researchers have learned about the root causes for the patterns of change we see in the land use and transportation dynamics of the Twin Cities metropolitan area. They will also discuss what can be expected in the future.

For extra programs call **Shirley Mueffelman**, 612-624-4754, or e-mail smueffel@cce.umn.edu. The program is also on the CTS web site at www.cts.umn.edu/events/rescon/rescon2002.pdf. **ITS**

reduce Minnesota's traffic death toll to zero. **Kathy Swanson** of the Minnesota Department of Public Safety outlined this bold initiative, presenting the results of a June 2001 workshop titled "Connecting the Minnesota Safety Agenda: Towards Zero Deaths." The workshop, hosted by CTS, brought together transportation and public safety experts from the United States, Europe, and Australia. Proceedings are available from CTS.

Nic Ward of the University of Minnesota spoke on his laboratory's work in understanding human factors in transportation safety. Ward is the director of the HumanFIRST Program (www.humanfirst.umn.edu), which uses advanced simulation techniques to study driver performance and road safety.

The morning's second session highlighted several ITS technologies currently being implemented in Minnesota, emphasizing how ITS innovations can improve safety and save lives.

Keynote speaker **Neil Schuster**, president of ITS America, took the podium to deliver his assessment of the state of ITS in America. Among the challenges facing the ITS community in the coming year is a lack of public awareness of ITS technologies and their impacts. Everyone involved in ITS, he said, should make an effort to keep ITS and its goals on the public agenda. To help this effort, ITS America released a ten-year plan in January detailing priorities in several key areas.



Neil Schuster

Schuster said that while the past ten years of ITS development have seen the emergence of many important technologies, the coming decade is likely to be characterized by these technologies converging to form integrated networks of transportation information that will underlie ambitious ITS deployments. Schuster also praised the Minnesota effort to reach zero traffic deaths. A grand vision, he said, is necessary to reach such an ambitious goal, and the state should consider all progress towards reaching that goal a significant achievement.

The final plenary session of the day, moderated by **Marthand Nookala** of Mn/DOT, was dedicated to updates on Minnesota ITS projects including traveler information systems and the evolution of the metropolitan freeway ramp metering system. ITS Institute director **Max Donath** concluded the session with a survey of the Institute's future directions and plans for development.

Incoming ITS Minnesota president **Jim Kranig** delivered the closing remarks. Minnesota will host the ITS America national conference in 2003. **CTS**

Transportation needs in today's global economy: what do we need?

Will we ever ship wheat by air? It's not hard to imagine that the question would inspire a round of soft chuckles as it did at the March 21 Agri-Growth forum on transporting food in a global economy. But the idea really might not be so far-fetched.

"Never say never," says **Barry Prentice**, director of the Transport Institute at the University of Manitoba. Prentice, who delivered a keynote presentation about the impact of technology on food supply chains, displayed a few images of mammoth cargo zeppelins already in service or in development just to whet the imagination of the more than 100 forum participants.

Indeed, a bittersweet compote of technology, security, economics, and an aging infrastructure have prompted both transportation professionals and farmers alike to welcome a wide range of new food transportation ideas to America's table.

Prentice identified four main technological changes affecting the future of agricultural supply chains: falling information costs (due to things like bar codes, computerization, and the Internet), falling containerization costs (resulting from the use of larger ships and double-stacked trains), increasing product diversity (from organics and GMOs, for example), and a concentration of agricultural production in larger, more sophisticated farms. In the end, an improved supply chain will garner higher prices for producers and lower prices for consumers. "The more radical the change," Prentice says, "the bigger the impact."

More than a dozen regional and national transportation professionals and academics joined Prentice to pack a variety of presentations into a day-long series of panels at the ag transportation policy forum. The

Minnesota Agri-Growth Council, the University of Minnesota's College of Agricultural, Food and Environmental Sciences, and the Center for Transportation Studies were the main sponsors of the event, titled "Transportation Needs in Today's Global Food Economy: What Do We Need?"

Some of the hot topics to emerge during the forum included the challenge of determining environmental and social costs of transportation systems development, the growing Mexican grain market, and shifting from commodity- to product-oriented agriculture. Panelists included **Jerry Fruin** and **Gerard McCullough**, associate professors of applied economics at the University of Minnesota; **Davis Helberg**, executive director of the Duluth Seaway Port Authority; **Fred Corrigan**, executive vice president of the Minnesota Transportation Alliance; and **Tim Worke**, director of government relations with the Minnesota Department of Transportation. In addition, **Robert Johns**, director of CTS, moderated a panel discussing carrier-shipper business relations, and **Tim Penny**, chair of the Minnesota Freight Advisory Committee, moderated a panel about balancing environmental and social concerns with development needs.

Fruin detailed the movement of the state's major commodities, 70 million tons of which are carried annually over rural Minnesota roads. He also showed huge regional differences between the modes of transportation used. Rail, for instance, is used most of the time in the southwestern part of the state, and trucks are greatly preferred in the southeast.

Fruin also mentioned the growing importance of the Mexican market for



Allen Anderson introduces speakers Bill Shrack, Jerry Fruin, Davis Helberg, and Dan Mack.

Minnesota commodities shipped by rail, a point later echoed by **Lou Thompson**, a railways adviser with the World Bank. The state has become a large grain supplier to the country only in the past ten years, he said, primarily because of NAFTA and because of the privatization of the Mexican rail system (with World Bank assistance).

McCullough's presentation, "Managing the Bad Effects of Freight Transportation," examined the effects of congestion, accidents, air pollution, energy consumption, noise, and infrastructure development upon society. "The social cost relative to the benefit [of transportation services]," he concluded, "is not that large."

Still, Penny pointed out later that those costs ultimately have to be paid by someone. Factored into such calculations, too, are projections that freight volume in Minnesota is expected to double in the next 20 years.

Jean Michaels, an Olmsted County commissioner and member of Penny's panel, brought up the DM&E railroad expansion (across the southern part of the state) as an example of the type of chal-

lenge that often arises with growth and infrastructure development. Growth, she said, should pay for itself, rather than socializing the cost over future generations. Worke, taking a break from a legislative session focused on belt-tightening, brought mixed news to the forum. Transportation funding, he estimated, falls approximately \$800 million short each year in meeting the needs of the state.

"The existing funding systems do not always generate adequate funds to meet existing priorities," the Transportation Alliance's Corrigan observed. Moreover, according to Corrigan, a significant portion of transportation revenues, which total about \$700 million annually, are paid for by truckers. In 1998, trucks hauled 88 percent of Minnesota's freight.

Though both Corrigan and Worke acknowledged the legislature is beginning to understand the funding problem, the task of finding adequate support among taxpayers to proceed with much-needed infrastructure improvements could be difficult. "It's obvious," Worke noted, "the public won't stand for project delivery projections of 8, 16, or more years."

Nevertheless, Worke feels the situation still can be corrected, which is not always the case. In Atlanta or Los Angeles, for example, costs have grown beyond the point of acceptability by the public. "We're in a position where we can actually do something," Worke said. **CTS**

AirTAP Briefings enclosed

Included in this issue of the *CTS Report* is a copy of *Briefings*, a publication of the Airport Technical Assistance Program (AirTAP).

AirTAP is a statewide assistance program for aviation personnel that offers practical instruction by knowledgeable and experienced trainers, as well as a range of information resources. The program seeks to help both public- and private-sector airport professionals improve the safety, quality, and efficiency of airport operations and increase the use of new materials, practices, and technology. AirTAP's efforts include providing training programs, technical assistance, access to experts, and printed materials. AirTAP was developed through the joint efforts of Mn/DOT, the Minnesota Council of Airports (MCOA), and CTS.

Briefings is published as a quarterly insert in the MCOA newsletter. To be added to the mailing list for this publication, contact CTS at 612-626-1077. To receive more information about AirTAP, contact **Jim Grothaus**, CTS technology transfer engineer, at 612-625-8373, or **Jeff Stewart**, program consultant, at jstewart@wsbeng.com. **CTS**

CTS seeking "Friends of the CTS Councils"

CTS is currently seeking additional individuals who would like to become more involved in our activities and initiatives to serve as "Friends of the Council" in the five CTS Councils: Transportation and the Economy, Transportation and the Environment, Safety and Traffic Flow, Transportation Infrastructure, and Education and Outreach.

The CTS Councils provide a forum for diverse interests to exchange information on current

Friends continued on back

LRRB funds research projects

The Minnesota Local Road Research Board (LRRB) selected the following projects for funding at its November and March meetings:

- **Mihai Marasteanu** and **Gene Skok**, Civil Engineering (CE), "Development of Simple Asphalt Test for Determination of RAP Blending Chart" and "Recycled Asphalt Pavement (RAP) Effects on Binder and Mixture Quality."
- **Kathleen Harder** and **John Bloomfield**, Architecture and Landscape Architecture, "Guidelines for Rumble Strips."
- **David Levinson**, **Mihai Marasteanu**, **Vaughan Voller**, and **Robert Dexter**, CE, "Cost/Benefit Study of Increased Winter Loads and Spring Load Restrictions." Mn/DOT is providing some match funds.
- **Bruce Wilson**, Biosystems and Agricultural Engineering, "Risk Assessment Tool for Selection of Erosion Control Practices." Mn/DOT is providing some match funds. **CTS**

CTS faculty seminar: modeling drainage in layered systems

Ever wonder what it takes for a roadway drainage system to become saturated with water? Ask civil engineering professor **Vaughn R. Voller**. Voller is developing a new predictive software tool for designing edge drain systems that considers the specific combination of layers used as well as variable rates of water flow.

"General codes may not be specific enough [to meet design needs]," Voller says, and "specific codes may not be appropriate."

Voller presented his latest findings at a March 4 CTS faculty seminar titled "Modeling Drainage in Layered Systems." Voller's drainage modeling research is sponsored by the Minnesota Department of Transportation (Mn/DOT) and the Minnesota Local Road Research Board (LRRB).

At the seminar, Voller gave an overview of his current project to



Vaughn Voller

develop software for edge-drain design. The goal is to identify required characteristics for pavement-related applications and create a quick, easy-to-use interface. He has been developing the tool using Fortran and Excel software.

Voller also addressed the difficulty in accounting for drainage between two dissimilar soil layers when developing the modeling software. He then demonstrated his new approach for dealing with drainage in

layered soils, which is based on control volume finite elements.

In addition to "Designing Pavement Drainage Systems," sponsored by the LRRB, Voller's other research projects have included "Measurement of Moisture in Aggregate Stock Piles," sponsored by Mn/DOT, and "Modeling of the Freezing and Thawing of Soils and its Application to the Progressive Lifting of Shallow Sewers," sponsored by the LRRB and CTS. **CTS**

Friends from page 3

transportation issues and trends. They bring together University faculty and staff with practitioners from the public and private sectors to recommend direction and partici-

Kozlak is new chair of Environment Council

Connie Kozlak of the Metropolitan Council is replacing **Charleen Zimmer** as chair of the CTS Transportation and the Environment Council. The change in leadership was made when Zimmer became chair of the CTS Council Coordinating Committee. Kozlak has been a long-time member of the Environment Council and also serves on the Program Management Team for the Transportation and Regional Growth Study. **CTS**

MAST from front

withstand earthquakes, explosions, high winds, and other stresses.

The MAST system was funded by the National Science Foundation (NSF) this past February through a \$6.5 million grant awarded to the Department of Civil Engineering (CE). Professor **Catherine French** of CE, who has conducted bridge research through the CTS research program, was the leader of the team that submitted the proposal to the NSF.

The facility's research is expected to benefit transportation. "We hope to use this facility for bridge research to improve transportation," said **Robert Johns**, CTS director. He added that the facility is a great leadership opportunity for students. The facility is scheduled to be operational in 2004. **CTS**

pate in improving the Center's research, education, and information/outreach programs.

Friends are informed of the activities of the council and given an opportunity to participate in council activities. Council meetings are open, and Friends are encouraged to attend. New council members are drawn from Friends who have been active in council activities.

Interested individuals should complete the Council Interest Form included with this *Report* and return it to CTS by Friday, May 3. The CTS Councils will next meet in September at the beginning of their annual cycle of activities, and new Friends are encouraged to attend. **CTS**

Still interested in the Report? Please return enclosed update card
CTS uses the *CTS Report* mailing list, which now includes about 4,000 persons, to distribute a number of publications. Once again we ask that you complete and return the enclosed postage-paid, pre-addressed card so that we may update our mailing list and keep you informed of our activities.
CTS

T²/LTAP offering context sensitive design workshop

The brochure is enclosed for a new T²/LTAP Program workshop on "Context Sensitive Design for Local Governments." Subsidized by Mn/DOT, the FHWA, and the LRRB, the workshop will be held at four locations: Detroit Lakes on May 29, St. Paul on June 3, Rochester on June 5, and Duluth on June 13.

The workshop provides transportation practitioners with the tools needed to develop projects that better balance safety and mobility with community and environmental goals. It also provides an opportunity for participants to apply the principles of context sensitive design through working case studies. The instructor is **Charleen Zimmer** of Zan Associates, who is also the lead instructor for the three-day version of the workshop previously hosted by CTS and sponsored by the FHWA and Mn/DOT.

In other T²/LTAP workshop news, the "Roadside Vegetation and Erosion Control" workshop in St. Paul has been rescheduled for May 20 (it was previously scheduled for April 18).

Online registration is available for T²/LTAP workshops. For a complete list of dates and locations call **Teresa Washington** at 612-624-3745, e-mail twashing@cce.umn.edu, or visit www.cts.umn.edu/t2/. **CTS**

Upcoming events

To publicize your event, call CTS at 612-626-1077; fax 612-625-6381; or e-mail snopl001@tc.umn.edu. Visit the CTS web site—www.cts.umn.edu—for more comprehensive event information, including schedules for ITS Institute and CTS seminars.

Apr.–May League of Minnesota Cities Insurance Trust (LMCIT) 2002 Safety & Loss Control Workshops, cities across Minnesota. Call **Chris White** at 651-215-4069 or 800-925-1122.

Apr. 29 Oberstar Forum, Radisson Metrodome Hotel, Minneapolis. Contact **Teresa Washington** at 612-624-3745, twashing@cce.umn.edu.

May 15–17 2002 WTS National Conference, Minneapolis Hilton. For more information go to www.wtsnational.org.

May 22–23 13th Annual CTS Transportation Research Conference, RiverCentre, St. Paul. Call **Shirley Mueffelman**, 612-624-4754, or e-mail smueffel@cce.umn.edu.

July 14–16 2002 Midwest Regional & Shortline Railroad Annual Conference, Holiday Inn, New Ulm, Minn. Call **Angela**, 651-228-9757, or e-mail AAnderson@MandKLaw.com.

Sept. 18–20 "Tools of the Trade," 8th TRB National Conference on Transportation Planning for Small and Medium-Sized Communities, Crowne Plaza Hotel, Cincinnati, Ohio. Contact **Kathy Briscoe** at 652-296-1614 or kathy.briscoe@dot.state.mn.us. **CTS**

Reminder: The first CTS Oberstar Form is April 29. For a brochure or to register call Teresa Washington, 612-624-3745.



CAREERS IN TRANSPORTATION

Transportation Jobs and Internships

April 1, 2002

APPLICANTS: If you are interested in these positions, please contact the person(s) listed.

EMPLOYERS: If you have job opportunities related to the field of transportation, CTS will help you publicize them. You can obtain a submission form from the CTS web site at www.cts.edu.umn/education/employfm.pdf or by calling 612-625-6687. Please send your text by mail, fax, or e-mail; we must receive your text by the 25th of each month in order to list it in the next *CTS Report*. Send submissions to:

Careers in Transportation
Center for Transportation Studies
University of Minnesota
200 Transportation and Safety
Building
511 Washington Avenue S.E.
Minneapolis, MN 55455
Phone: 612-625-6687
Fax: 612-625-6381
E-mail: snop1001@tc.umn.edu

Students interested in civil engineering positions can check the Civil Engineering Department's site at: www.ce.umn.edu/empopp/.

Accuracy of ads is the responsibility of the employer. CTS reserves the right to edit ads for length and format. Unless otherwise notified, CTS will run announcements until the application deadlines expire. Ads without a deadline will be run for three consecutive issues, unless otherwise arranged.

The University of Minnesota is committed to the policy that all persons shall have equal access to its programs, facilities, and employment without regard to race, color, creed, religion, national origin, sex, age, marital status, disability, public assistance status, veteran status, or sexual orientation.

This publication is available in alternative formats upon request. Recycled paper with 20% postconsumer waste.

ENGINEERING AND TECHNICAL

Ramsey County

Engineering/Environmental Aide

Ramsey County is seeking an Engineering/Environmental Aide to perform office or field duties in the areas of public works or public health/environmental health.

Applicants must also possess knowledge of public health laws, ordinances, and regulations, as well as strong communication and organization skills. The ability to prepare reports, do mathematical and trigonometric computations, and lift 50 pounds is also a requirement.

Applicant must be a high school graduate currently enrolled in or having completed a post-secondary program relevant to the department assigned. Applicants must also be skilled in drafting, surveying, inspection, and office equipment.

Interested applicants may send resumes or contact Pamela Thompson via e-mail pamela.thompson@co.ramsey.mn.us.

Parsons Brinckerhoff Quade & Douglas, Inc.

Senior Bridge Design Engineer

Applicants should have experience on Mn/DOT bridge projects and ability to serve as a task leader as well as experience in steel and concrete design. MicroStation and GEOPAK experience desirable. Must have PE or ability to obtain registration, a bachelor's degree, and at least five years of experience.

Bridge Design Engineer

Experience on Mn/DOT bridge projects as well as MicroStation and GEOPAK experience are desirable. A bachelor's degree, EIT, and at least two years of related experience are required.

Senior Highway Design Engineer

Applicants must have experience on Mn/DOT roadway projects and ability to

serve as a task leader. MicroStation and GEOPAK experience desirable. Traffic operations planning and design experience a plus. Must have PE or ability to obtain registration, five years of experience, and a bachelor's degree.

Highway Design Engineer

Experience on Mn/DOT roadway projects, and experience with MicroStation and GEOPAK are desirable. A bachelor's degree, EIT, and two years of related experience are required.

To apply for any of the Parsons Brinckerhoff Quade & Douglas positions, send cover letters and resumes to Linda Minten, Parsons Brinckerhoff Quade & Douglas, Inc., 510 First Avenue South, Minneapolis, MN 55403; fax to 612-371-4410; or e-mail to minten@pbworld.com.

SRF Consulting Group, Inc.

Senior Civil Engineer

Licensed civil engineer to manage highway/municipal projects. Requirements include a bachelor's degree in civil engineering with five or more years of transportation or municipal design experience and strong written and verbal skills. Project management experience is also desired.

Send resumes to SRF Consulting Group, Inc., One Carlson Pkwy. N., #150, Plymouth, MN 55447; fax to 763-475-2429, or e-mail hr@srfconsulting.com.

LHB Engineers & Architects

Civil Engineer / EIT

The Duluth office of LHB Engineers & Architects is currently seeking a civil engineer to work with the public works group on transportation projects.

All applicants should have a bachelor's degree in civil engineering and a desire to learn MicroStation and GEOPAK.

Interested applicants should send cover letters and resumes to: HR



Manager, LHB Engineers and Architects,
21 West Superior Street, Suite 500,
Duluth, MN 55802; e-mail
MarkR.Anderson@LHBCorp.com.

MISCELLANEOUS

INTERNSHIPS

Telematics Research Group

Telematics Intern

Telematics Research Group is seeking an intern with related knowledge and interests in areas of automotive industry research, data compellation, and data-entry of information.

Experience with the Internet, MS Tools, and MS Access is a plus. The position offers competitive pay and flexible hours, with the possibility of future full time opportunities.

To apply, contact Phil Magney, Principal Analyst, Telematics Research Group, Inc.; phone 952-935-0400; fax 952-935-0405; or e-mail pmagney@telematicsresearch.com

Anoka County Highway Department

Civil Engineering Internship

The Anoka County Highway Department seeks a student enrolled in a civil tech program or civil engineering degree program to fill a paid civil engineering internship position.

The position includes assisting the Project Inspector and the Construction Surveyor on construction projects, collecting and recording documentation of supplies, and assisting the Design Engineer with AutoCAD and spreadsheet designs.

Applicants must be willing to work Saturdays and overtime, provide their own transportation, supply their own safety attire, and be able to lift 50 lbs.

Deadline for application is May 1, 2002. Salary ranges from \$10.50-\$11.50 per hour. Interested applicants may contact Lyndon Robjent, Assistant County Engineer, 1440 Bunker Lane Blvd, Andover, MN 55304; phone 763-862-4237; fax 763.862.4201; or e-mail Lyndon.Robjent@co.anoka.mn.us.

American Road and Transportation Builders Association

2002 Student Paper Competition

ARTBA will award an undergraduate and graduate student a trip to the ARTBA Midyear Meeting in New York City or the ARTBA Annual Convention in Washington, D.C., for writing the top two research papers.

Paper topics may cover design, engineering, construction, economic, operations, or policy issues involve airports, highways, public transit or railroads, or may be on any other area related to transportation construction or investment.

Any junior, senior, or graduate student enrolled at a college or university with an ARTBA-member faculty member is eligible to enter. Papers are rated based on quality and relevance of content, clarity of composition, presentation, and originality.

Papers must be double spaced, should not exceed 3,000 words in length (including illustrations), and must include an abstract of no more than 300 words.

Interested students must send their papers via the faculty member of ARTBA to ARTBA headquarters no later than Wednesday, May 15, 2002. Students may also submit papers on disk using MS Word or WordPerfect formats, or e-mail wuebchner@artba.org.