



## Roundabouts point to safer, less congested intersections

Roundabouts—a type of circular intersection used in place of stop signs or traffic signals—can offer many benefits. Studies show that the number of crashes and serious injuries plunge when roundabouts are installed, and congestion, fuel consumption, and emissions fall significantly, too. So why don't we see more of them in the United States, and what's needed to spur their use?

Speakers shared their ideas at the Minnesota Roundabouts Conference, held April 5 and 6 in Brooklyn Center. It was hosted by CTS and facilitated by the University's College of Continuing Education.

The conference, which drew more than 300 people from across the country, opened with remarks by Mn/DOT deputy commissioner Doug Differt. Roundabouts are a promising approach, he said, and might serve as another tool in the state's Toward Zero Deaths (TZD) toolbox. (TZD is a multipartner effort including CTS; see [www.tzd.state.mn.us](http://www.tzd.state.mn.us) to learn more.)

Next, Susan Ferguson of the Insurance

Institute for Highway Safety (IHHS) presented "The Case for Roundabouts: What the Research Shows." Ferguson began by explaining how the approach can improve safety. In roundabouts, all vehicles travel in the same direction at low speeds (15 to 20 mph), eliminating the potential for serious collisions. "Broadside crashes pretty much go away," Ferguson said.

In contrast, signalized intersections are often built on wide streets with long crossing distances in an attempt to reduce congestion and delays. This sort of intersection, however, can be a major contributor to crashes and devastating injuries, as drivers often stop abruptly at red lights or speed up to cross on yellow.

These views were borne out in the Institute's 2001 study of 23 U.S. sites, which found that converting intersections from signals or stop signs to roundabouts reduced injury crashes by 80 percent and all crashes by 40 percent. Roundabouts are also generally safer for pedestrians, Ferguson said.

Despite their promise, roundabouts face

Roundabouts continued on page 4

## Inside

- Bike symposium ..... 2
- Guidestar workshop ..... 3
- ITS Minnesota meeting ..... 3
- Pothole moment ..... 3
- New research reports ..... 3
- Gravel road toolkit ..... 4

## Utility project receives FHWA award

Mn/DOT's "Utility Manual Accommodation Policy Rewrite and Training Delivery" project, which CTS helped coordinate, received the inaugural Federal Highway Administration (FHWA) 2006 Excellence in Utility Relocation and Accommodation Innovation Award. The award recognized a collaborative effort to develop an improved utility coordination process to minimize project delays, construction costs, and contractor claims; foster consistent application of the process for Mn/DOT, state-aid, and consultant projects; and strengthen cooperation with utility owners.

A CTS support team, led by Associate Director Cheri Marti, assisted Mn/DOT with the utility project, which consisted of the 15-step process, a comprehensive manual, related training, and a project implementation plan. The project was initiated at the request of Mukhtar Thakur, director of Mn/DOT's Office of Technical Support, and Janet Blacik, preletting director (now retired).

The project was recognized May 1 in Baltimore at the 2006 American Association of State Highway and Transportation

Utility continued on page 2

## International visitors tour U of M research labs

Officials from 17 countries across the globe—from Norway to Uganda, Japan to New Zealand—came to Minnesota in April for a meeting of the Performance of Roads Administration Committee of the World Road Association (known as PIARC). Mn/DOT and CTS hosted the meeting.

PIARC is a world leader in the exchange of knowledge on roads and road transportation policy and practices within an integrated, sustainable transportation context.

Randy Halvorson, Mn/DOT division director for program management, is the U.S. representative on the committee. Also participating in the meeting was Mark Larson, director of measurement with Mn/DOT's Office of Measurement and Evaluation. Stephanie Jackson of CTS provided program support.

In addition to the meeting, the group spent a day on a technical tour visiting 3M, the Minnesota Regional Transportation Management



Craig Shankwitz led a tour of the TechnoBus.

Center, and the University of Minnesota. At the University, Craig Shankwitz, director of the Intelligent Vehicles Lab, gave an overview of the lab's activities, including a demonstration of driver-assistive technologies on the TechnoBus. Mike Manser, research associate for the HumanFIRST program, provided an overview of the University's driver behavior research and provided a demo of the driving simulator. CTS

## Symposium shares findings of U of M bike and pedestrian safety research

In recent years, pedestrian and bicycle safety has become an important issue both on the national and state level. The University of Minnesota's Hubert H. Humphrey Institute of Public Affairs, in collaboration with the Minnesota Department of Transportation (Mn/DOT), is researching critical dimensions of pedestrian and bicycle safety, including crash reporting protocol, non-motorized crash awareness, and factors leading to increased pedestrian and bicycle crashes.



Kevin Krizek

To share recent findings, the Humphrey Institute hosted a half-day symposium on April 14 titled "New Dimensions in Pedestrian and Bicycle Crashes in Minnesota." The event included reports from other national experts along with focus groups and breakout sessions to further explore these topics.

The workshop was sponsored by Mn/DOT and hosted by the Active Communities/Transportation (ACT) Research Group, CTS, and the Humphrey Institute's State and Local Policy Program (SLPP). ACT is a collection of students, faculty, and researchers at the University of Minnesota conducting research on land-use and transportation policies and programs relating to active communities and transportation. It is directed by Kevin Krizek, assistant professor in the Humphrey Institute and a CTS Faculty Scholar.

Krizek and Gavin Poindexter, SLPP research fellow, kicked off the symposium with the presentation "Standards and Best Practices for Reporting Pedestrian and

Bicycle Crashes...and What Do We Know?" Relative to other states, they said, Minnesota's motor vehicle accident report form is superior in providing options to describe pedestrian and bicyclist behavior. Still, additional data is needed from other sources such as hospitals and medical providers. The researchers also advise pedestrian and bicycle advocacy groups to educate members and others about the importance of reporting crashes to the Department of Public Safety.

In their study of Hennepin County (which includes Minneapolis and its suburbs), Krizek and Poindexter found clear links between urban form and crashes. While the county has about 23 percent of the state's population, it is the site of roughly 40 percent of pedestrian and bike crashes. Pedestrian crashes are positively correlated with characteristics such as average speed limit, population density, and number of intersections. Such crashes are negatively correlated—in other words, when one value increases, the other decreases—with annual average daily traffic, retail employment density, number of cul-de-sacs, and length of off-street bicycle facilities.

Kelly J. Clifton and Carolina Burnier of the University of Maryland, College Park presented their research into the influence of environmental factors on pedestrian-vehicular crashes and pedestrian risk exposure. Echoing Krizek and Poindexter, their research indicates that urban areas with higher household and road density

and greater commercial accessibility have a higher risk exposure. Greater transit accessibility and more mixed-use land use and parks also translate into higher risk exposure.

Paul Hess of the University of Toronto shared findings from his study of pedestrian safety in transit corridors in King County, Washington. His preliminary conclusions are that transit usage is a significant predictor of pedestrian collisions. DOTs are increasingly designing facilities for transit, he said, but not for pedestrians accessing transit; transit agencies are responsible for people within vehicles, but not for getting them to bus stops. He believes highways that are important transit routes and activity corridors need to provide safe environments for many kinds of users.

The growing interest in bicycle/pedestrian safety is motivated in part by passage of SAFETEA-LU, the transportation funding bill passed by Congress last year. SAFETEA-LU (the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users) created the Safe Routes to School program, which is designed to enable and encourage children to walk and bicycle to school. In Minnesota, Mn/DOT's Toward Zero Deaths initiative, a multipartner program including CTS, is another factor spurring interest.

For more information about pedestrian and bicycling safety, visit the ACT Web site at [www.tc.umn.edu/~kjkkrizek/Act.htm](http://www.tc.umn.edu/~kjkkrizek/Act.htm), or the Mn/DOT Library at [www.dot.state.mn.us/library/bike\\_safety.html](http://www.dot.state.mn.us/library/bike_safety.html). CTS

Utility from page 1

Officials/FHWA Right of Way and Utilities Subcommittee meeting. This year's subcommittee meeting was the first to formally recognize efforts in the utility relocation process, said Marilyn Remer, Mn/DOT Utilities Engineer and the project champion. Remer accepted the award for the project team at the meeting.

"The new process builds on successful Mn/DOT and national best practices to strengthen communications and cooperation among all parties whose work impacts utility coordination," Remer said. "The goal is to optimize the project development process with greater emphasis on early

coordination, thereby limiting unexpected utility issues occurring late in a transportation project's design or construction resulting in extra cost, time, and effort."

Mn/DOT launched the new process with six statewide training sessions—facilitated by CTS—for internal staff, utilities, and consultants. "By the spring of 2007, we expect to fully adopt the new process for all of our projects," Remer said.

Mn/DOT, with the support of CTS, has assembled a Utility Coordination Implementation Team of internal and external stakeholders to support the implementation of the process within Mn/DOT as well as

with consultants, local agencies, contractors, and utility owners. "Implementation of the new process isn't left to chance; instead, a proactive effort to identify and address emerging needs will enable the change to be adopted more quickly so that the benefits are realized sooner," Marti explained.

For information about the utility process, contact Remer at [Marilyn.Remer@dot.state.mn.us](mailto:Marilyn.Remer@dot.state.mn.us) or visit the Mn/DOT Web site for utility coordination resources, including the Utilities Manual, at [www.dot.state.mn.us/tecsup/utility/index.html](http://www.dot.state.mn.us/tecsup/utility/index.html). CTS

## CTS contributes to Minnesota Guidestar strategic planning workshop

Three representatives from CTS contributed to the Intelligent Transportation Systems (ITS) Strategic Planning Workshop, held February 28 through March 1 by the Minnesota Guidestar Board of Directors. The purpose of the workshop was to review Minnesota's ITS accomplishments and to establish a strategic direction and priorities for continued Guidestar programs.

Cheri Marti, associate director of education and outreach at CTS, led the workshop facilitation. CTS director Robert Johns, who is a member of the Guidestar board, and Professor Max Donath, director of the ITS Institute at CTS, joined

about 35 other participants for the workshop.

Minnesota Guidestar is the state's ITS program. It is administered by Mn/DOT's Office of Traffic, Security and Operations (OTSO) in partnership with the Federal Highway Administration (FHWA), CTS and the ITS Institute, numerous other public and private partners, and ITS Minnesota, the state chapter of ITS America.

The Minnesota Guidestar Board, chaired by Mn/DOT deputy commissioner Doug Differt and 3M's Rich Sachse, provides strategic direction and advice for statewide application of advanced technology and information systems in transportation to

save lives, time, and money. The board serves as a catalyst for innovative partnerships and resource investment to achieve desired outcomes.

A summary of the workshop is online at [www.dot.state.mn.us/guidestar/about.html#deployment](http://www.dot.state.mn.us/guidestar/about.html#deployment). One of the report's recommendations is to give greater emphasis to deployment of new technologies and products developed through research.

Current Minnesota Guidestar initiatives include improving traveler information, improving safety at rail crossings, testing systems on vehicles to assist drivers, and creating statewide operations centers for managing the transportation system. **CTS**

## Intersection, evacuation research featured at ITS Minnesota annual meeting

ITS Minnesota's 12<sup>th</sup> Annual Meeting and Information Exchange featured a range of presentations highlighting new technologies under development to improve safety and efficiency. CTS is a founding member of ITS Minnesota, the state chapter of the Intelligent Transportation Society of America.



Craig Shankwitz

The day-long event featured presentations by researchers and professionals from the University of Minnesota, Mn/DOT and other state transportation agencies, and the Federal Highway Administration. In addition, attendees had the opportunity to meet with vendors and consultants involved in ITS-related transportation fields throughout the day.

The first session of the day focused on the federal government's Vehicle Infrastructure Initiative (VII), which aims to integrate in-vehicle sensors and displays with infrastructure-based systems to improve safety. Craig Shankwitz, director of the Intelligent Vehicles Laboratory at



Shashi Shekhar

the University of Minnesota, showed a VII application in the Intersection Decision Support (IDS) system being developed by his group in cooperation with other state departments of transportation.

Greg Larson of Caltrans highlighted VII efforts under way in California, and Dick Schnake of technology vendor TransCore outlined technical issues involved in making VII a reality.

The next session explored the implications of the new federal transportation package, SAFETEA-LU, for ITS research and operations. Jim McCarthy, traffic operations engineer in the FHWA's Minnesota office, was joined at the podium by Assistant County Administrator Marthand Nookala of Hennepin County.

In the luncheon presentation, ITS America chairman Martin Capper praised the Minnesota ITS community as a national leader in developing new tools and techniques and putting them into practice on a statewide level.

After lunch, evacuation planning and traffic management took center stage, with University of Minnesota computer science and engineering professor Shashi Shekhar explaining his newly developed evacuation planning algorithm, which promises to make emergency evacuations of large numbers of people faster. John Barton of the Texas DOT gave a firsthand account of the tremendous challenges faced by state agencies on the Gulf Coast during hurricanes Katrina and Rita. Finally, Daryl Taavola showcased the latest developments in Minnesota's evacuation traffic management plan, including the incorporation of Shekhar's recent findings.

In the final session, three Mn/DOT speakers reviewed implementations of ITS technology under the Minnesota Guidestar program. Nick Thompson gave an update of the successful MnPASS automated tolling system now in use on I-394; Mark Nelson presented ITS deployments in several Mn/DOT districts outside the Twin Cities metro area; and Ray Starr told how Mn/DOT is participating in several federal ITS initiatives. **CTS**

## Potholes are topic of 'U of M Moment'

Mihai Marasteanu was the featured speaker in the April 17 "U of M Moment." Marasteanu, a civil engineering professor, says this past winter's abundance of freeze-thaw cycles were to blame for the spring pothole outbreak, which some

experts called the worst in years.

U of M Moments are free daily radio features that highlight University experts. Produced by the University News Service, the segments are available to radio stations around the state. **CTS**

### New research reports available

Research reports published since December 2005 by CTS and Mn/DOT are listed on the enclosed insert. **CTS**

Roundabouts from page 1

impediments. Local residents and elected officials may oppose them, and questions exist about the relevance of international research and design practices to U.S. experience.

To help overcome these obstacles, Ferguson's organization has conducted research in a number of areas in recent years. Studies reported improvements in traffic flow ranging from 13 to 89 percent following conversion to roundabouts; by improving traffic flow, roundabouts also decrease fuel consumption—by about 30 percent—and vehicle emissions by 20 to 40 percent.

Another IIHS study found the number of drivers who support roundabouts rose from 36 percent before construction to 70 percent a year later. (For more about IIHS research, see [www.iihs.org/research/qanda/roundabouts.html](http://www.iihs.org/research/qanda/roundabouts.html).)

Several Minnesotans were on hand to share their experiences with roundabouts. Chuck Ahl, Maplewood city engineer, said his city's first use of roundabouts ignited some controversy at a public hearing. "It was a huge issue at the end [of the process]," he said. Now that two roundabouts are in use in the city, however, the view of them is quite positive. Traffic flows better and the number of accidents has fallen. "Local businesses think they're the greatest thing and want more," Ahl said.

David Thomalla, Maplewood police chief, added that his staff sees fewer crashes as people get more comfortable with roundabouts.

**By improving traffic flow, roundabouts decrease fuel consumption by about 30 percent and vehicle emissions by 20 to 40 percent.**

Bill Killian, a Richfield city council member, described the process used to choose a roundabout for 66<sup>th</sup> Street and Portland Avenue. Of the options considered, the two-lane roundabout is expected to provide the shortest traffic delays, best safety improvement, and most access for businesses, according to Killian. The roundabout is also coming in at the low end of the budget because of fewer takings and lower construction costs. "It's win-win-win," Killian said.

Cory Slagle of Washington County said a public education campaign for roundabouts should start early and be directed to a large audience—local, county-wide, and regional—including residents, businesses, schools, public safety agencies, trucking firms, and commuters. Slagle also suggested key messages to share in the campaign: what a modern roundabout is, how roundabouts work, how to drive around them, and their benefits.

Bernie Arseneau of Mn/DOT's Office of Traffic, Security, and Operations said roundabouts fit into the state's vision of making transportation systems safer through the state's Comprehensive Highway Safety Program and TZD. **CTS**

## National roundtable features Minnesota toolkit

A gravel road toolkit developed by the Minnesota Local Technical Assistance Program (LTAP) was the topic of a national LTAP Knowledge Roundtable on April 19. Knowledge roundtables are free conference calls organized by the LTAP Clearinghouse in Washington, D.C., to help the nationwide network of LTAP and TTAP (Tribal Technical Assistance Program) centers learn and share ideas and information.

The key component of the toolkit is a new DVD, *Gravel Road Maintenance: Meeting the Challenge*. The DVD can serve either as a stand-alone tutorial or as an instructor's tool to introduce the topics of gravel road maintenance.

During the roundtable, Jim Grothaus, Minnesota LTAP director, and Mike Marti, principal with SRF Consulting Group and a member of the CTS Education/Outreach Council, discussed how other LTAP centers can get the most out of the toolkit to train their own customers.

Minnesota LTAP, housed within CTS, created the DVD in partnership with SRF Consulting Group with funding from Mn/DOT's State Aid for Local Transportation Division. You can view it on the Minnesota LTAP Web site: [www.mnltap.umn.edu](http://www.mnltap.umn.edu).

To obtain a recording of the roundtable (an MP3 file on CD), e-mail the LTAP Clearinghouse at [ltap@apwa.net](mailto:ltap@apwa.net). **CTS**



## Upcoming events

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

July 16–18 2006 Midwest Regional & Shortline Railroad Annual Conference, Alexandria. Call Patrick Murray, 651-556-9024, [pmurray@mandklaw.com](mailto:pmurray@mandklaw.com), or see [www.minnesotarailroads.com](http://www.minnesotarailroads.com).

July 26 Minnesota Statewide Bus Roadeo, U of M Duluth campus. Contact Lynn Frank, 651-296-1610, [lynn.frank@dot.state.mn.us](mailto:lynn.frank@dot.state.mn.us).

Oct. 4–5 Minnesota Fall Maintenance Expo, St. Cloud. Contact Kathy Warren, 651-351-7432, [kwarren@usinternet.com](mailto:kwarren@usinternet.com).

Oct. 11–12 AirTAP Fall Forum, Breezy Point. Contact Mindy Carlson at 612-625-1813, [carlson@cts.umn.edu](mailto:carlson@cts.umn.edu). **CTS**

### Mark your calendars:

Toward Zero Deaths Conference  
Nov. 2–3 Duluth  
See enclosed announcement.