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CTS Research E-News brings you the latest research project milestones, published reports, and seminar coverage.

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**Upcoming Events****Policy & Planning****On the riverfront: Weighing the future of a barge shipping facility**

The Minneapolis Upper Harbor, located on the Mississippi River near downtown Minneapolis, occupies an increasingly valuable slice of riverfront real estate. The potential of the property to be converted to alternative uses has fueled an ongoing debate over its future. With sponsorship from the [Minnesota Department of Transportation](#), University of Minnesota professor **Jerry Fruin** and graduate student **J. Keith Fortowsky** of the [Department of Applied Economics](#) analyzed the complex transportation issues involved in repurposing the facility, especially impacts on the road network.

The Upper Harbor offered Fruin, whose research often focuses on transportation-related issues, a good window into local/regional freight movements. Because it is the only harbor beyond the last set of locks on the Mississippi River, tracking freight volumes is relatively simple. Also, the small number of facilities at the Upper Harbor made intensive interviews with operators possible.

To the researchers, a key consideration in closing the Upper Harbor would be the fate of freight traffic that currently moves by barge into and out of the area. Rather than simply disappearing with the loss of barge access, the researchers expect the freight to be mode-shifted to truck transport. The increase in the number of heavy trucks moving through the central Twin Cities must be taken into account when calculating the impacts of closing the Upper Harbor.

The issue of modal shifts highlights the complex relationships between different segments of the Twin Cities' transportation system. Many of these relationships were examined in the recently completed [Transportation and Regional Growth Study](#), managed by CTS. Reports from that study covering related topics include *The Full Cost of Transportation in the Twin Cities Region* (2000) and *The Distribution of Transportation Costs in the Twin Cities Region* (2003).

Visit *Modal Shifts from the Mississippi River and Duluth/Superior to Land Transportation* (Mn/DOT 2004-28) at [www.research.dot.state.mn.us/detail.asp?productID=1923](http://www.research.dot.state.mn.us/detail.asp?productID=1923).

**Safety****Report analyzing intersection crash data published by Mn/DOT**

Collisions occurring at intersections where high-speed rural highways cross minor roads are a frequent cause of death and serious injury in rural areas. Researchers at the [Intelligent Transportation Systems Institute](#), housed within CTS, are working on new technologies to make these intersections safer—without impeding traffic flow on the main highways.

Intersection Decision Support (IDS) is an innovative new approach to reducing crashes at uncontrolled rural through-stop intersections, building on recent advances in intelligent transportation systems technology. The ITS Institute is currently engaged in two interrelated research projects aimed at developing a deployable IDS system for rural areas.

The first research report from the IDS research program, covering the analysis of rural intersection crash data, has been published by the [Minnesota Department of Transportation](#). This report provides a foundation for understanding rural intersection crashes and also serves to

identify specific intersections that could benefit from IDS deployment.

Lead authors **Howard Preston** and **Richard Storm** of engineering firm CH2M Hill analyzed crash data from thousands of intersections across the state. Using critical crash rate as an indicator, they were able to sift out 23 unusually "dangerous" intersections; at these locations, right-angle collisions accounted for approximately 50 percent of total crashes—compared to 28 percent for all rural through-stop intersections examined. ITS Institute director **Max Donath** and IDS researcher **Craig Shankwitz** of the University of Minnesota [Department of Mechanical Engineering](#) also contributed to the report.

The researchers' work also provided a methodology for selecting a suitable intersection for testing a prototype IDS system. This location is currently instrumented for data collection using the proposed IDS detector network. Data gathered at the test intersection will, in turn, expand the IDS team's understanding of rural intersection use.

The report, *Review of Minnesota's Rural Intersection Crashes: Methodology for Identifying Intersections for Intersection Decision Support (IDS)* (Minnesota Department of Transportation 2004-31) is available on the ITS Institute's [Intersection Decision Support](#) Web pages.

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## TZD conference to share latest in road safety initiatives



"Toward Zero Deaths: Integrating Minnesota's Traffic Safety Agenda," will be held September 13–14 at the St. Cloud Civic Center. Sponsors are the [Minnesota Department of Public Safety](#), the [Minnesota Department of Transportation](#), and the Minnesota [Toward Zero Deaths](#) Program. The conference is being coordinated and hosted by CTS.

The conference will serve as a forum to share information on best practices in the areas of engineering, enforcement, education, and emergency services, and to identify new approaches to reducing the number of fatalities and injuries on Minnesota roads.

This event includes both the Safe & Sober and Child Passenger Safety conferences.

Registration for the conference is \$65. A brochure with detailed program schedule and registration materials will be distributed in July. For additional information contact Shirley Mueffelman, 612-624-4754, [smueffel@cce.umn.edu](mailto:smueffel@cce.umn.edu), or visit [www.minnesotatzd.org](http://www.minnesotatzd.org).

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## Transit & Alternative Modes

### National Transit News

#### Journal of Public Transportation

The *Journal of Public Transportation*, Vol. 7, No. 2, 2004, published by the [National Center for Transit Research](#) at the University of South Florida, includes these articles, available at [www.nctr.usf.edu](http://www.nctr.usf.edu):

- ◆ An Evaluation of the Role of Marketing in Public Transit Organizations
  - ◆ Transit Price Elasticities and Cross-Elasticities
  - ◆ Modeling Generalized Cost of Travel for Rural Bus Users: A Case Study
  - ◆ Pedestrian Safety and Transit Corridors
  - ◆ Will Smart Bikes Succeed as Public Transportation in the United States?
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## Transportation & the Environment

### Detention ponds reduce pollutant runoff from roads

Pollution caused by motor vehicles is most often thought of as air pollution due to exhaust gases. However, stormwater runoff from paved roads—which may include various heavy metals as well as nutrients (phosphorous) and chloride from winter road salt—is a significant source of water pollution. Recently, detention ponds and constructed wetlands have generated a lot of interest in the transportation community due to their ability to remove contaminants carried by runoff.

[Civil engineering](#) associate professor **Miki Hondzo** and graduate student **Jeffrey D. Weiss** studied the capability of detention ponds to remediate stormwater contamination, in consultation with the [Minnesota Department of Transportation](#) (Mn/DOT). Three wetland grass species were evaluated for their ability to absorb target contaminants. In addition, researchers determined uptake rates of the target contaminants by pond sediments.

The researchers also used their findings to develop an analytical model of contaminant removal processes, which could be used to determine critical parameters for the design of detention ponds to meet specified effluent guidelines. In this model, the removal rates determined for phytoremediation (pollutant uptake by plants) are combined with the removal rates for absorption by sediments to simulate removal mechanisms for complete ponds.

*Ed. Note: Handling stormwater runoff from roads and other types of transportation infrastructure has been the subject of previous work by researchers at the University of Minnesota; see "Better ditches mean cleaner waters" (CTS Research E-News vol. 2 no. 6, June 2004).*

*Laboratory Measurements of Stormwater Quality Improvements in Detention Ponds* (Mn/DOT 2004-21) is available online at [www.research.dot.state.mn.us/detail.asp?productID=1928](http://www.research.dot.state.mn.us/detail.asp?productID=1928).

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## Upcoming Events

Visit the CTS Web site, [www.cts.umn.edu/events](http://www.cts.umn.edu/events), for more comprehensive event information.

**August 22–25, 2004**

**2004 National Rural Intelligent Transportation Systems Conference**, Duluth.  
Visit the ITS Minnesota Web site at [www.itsmn.org](http://www.itsmn.org).

**September 13-14, 2004**

**Toward Zero Deaths conference, "Integrating Minnesota's Traffic Safety Agenda."** St. Cloud Civic Center. Contact Shirley Mueffelman, 612-624-4754, [smueffel@cce.umn.edu](mailto:smueffel@cce.umn.edu), visit [www.tzd.state.mn.us](http://www.tzd.state.mn.us), or register [online](#).

**September 26-29, 2004**

**Second International Conference on Accelerated Pavement Testing**, Minneapolis. Contact Julie Grazier, 612-624-3044, [jgrazier@cce.umn.edu](mailto:jgrazier@cce.umn.edu), visit [www.cce.umn.edu/engineering/accelerated\\_pavement](http://www.cce.umn.edu/engineering/accelerated_pavement), or register [online](#).

**October 6-7, 2004**

**Minnesota Fall Maintenance Expo & Snow "Roadeo,"** St. Cloud. Contact Kathy Warren, 651-351-7432, [kwarren@usinternet.com](mailto:kwarren@usinternet.com).

**November 4-5, 2004**

**AirTAP Fall Forum**, St. Cloud. Contact Mindy Carlson, 612-625-1813, [carlson@cts.umn.edu](mailto:carlson@cts.umn.edu).

**November 8-9, 2004**

**Access to Destinations: Rethinking the Transportation Future of Our Region**, Coffman Memorial Union, University of Minnesota. Visit [www.cts.umn.edu/events/atdcon](http://www.cts.umn.edu/events/atdcon) or contact Teresa Washington at 612-624-3745, email [twashing@cce.umn.edu](mailto:twashing@cce.umn.edu).

**December 3, 2004**

**CTS Annual Freight and Logistics Symposium**, Four Points Sheraton Hotel, Minneapolis. Contact Heather Dorr, 612-625-5267, [hdorr@umn.edu](mailto:hdorr@umn.edu) or visit the [CTS events calendar](#).

**February 17, 2005**

**Minnesota Pavement Conference**, Continuing Education Conference Center (formerly Earle Brown), St. Paul. Visit [www.cts.umn.edu/events/](http://www.cts.umn.edu/events/) or contact Teresa Washington at 612-624-3745, email [twashing@cce.umn.edu](mailto:twashing@cce.umn.edu).

**April 26-27, 2005**

**16th Annual CTS Transportation Research Conference**, RiverCentre, St. Paul.

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