Transportation, it seems, has never been more visible in the news. Road fatalities, driver distraction, traffic congestion, environmental sustainability, economic development, and privacy—these are among the many issues included in current debates over transportation policy and technology. The work of the ITS Institute touches all of these themes.

The past year has been a period of positive transition for the ITS Institute. A number of important research initiatives have moved from development to implementation and testing. At the same time, researchers have initiated new projects that promise to open up significant new directions for ITS research at the University of Minnesota.

The Institute’s ability to create innovative partnerships with transportation stakeholders in the public and private sectors, and between researchers in different disciplines, continues to be the foundation of our success. The benefit of this partnership model can be seen in the breakdown of sponsoring organizations that have funded ITS Institute research over the last five years (see list, opposite page). During FY10, the Institute has leveraged $3.5 million of UTC funding from the U.S. Department of Transportation’s Research and Innovative Technology Administration (RITA) to attract additional funding of $3.5 million from other federal sources and $4.1 million from non-federal sources. The University of Minnesota and the Minnesota Department of Transportation (Mn/DOT) have been critical in supporting the ITS Institute, especially considering that we must match our UTC funding with non-federal funds. Our success was possible only because of the hard work, innovation, and creativity of all of our university constituents.

One of the Institute’s key research and development efforts reached an important milestone in January, as the rural intersection decision support (IDS) system entered field operational testing. The Stop Sign Assist (SSA) system has been installed at two rural highway intersections with high crash rates, and installation at two more sites will be completed in the coming months.

Conceived as a response to the persistent problem of crashes at rural highway intersections and representing a new approach to intersection crash reduction, the SSA system has taken another significant step toward its goal of national deployment. The SSA system has been critical in supporting the ITS Institute, especially considering that we must match our UTC funding with non-federal funds. Our success was possible only because of the hard work, innovation, and creativity of all of our university constituents.

In Alaska, a driver-assistive system designed to allow snowplows to operate safely in conditions of extremely low visibility has won kudos from Alaska’s DOT. Plows equipped with the Minnesota-designed system are deployed at Thompson Pass, where annual snowfall averages 81 feet, wind gusts approach 80 mph, and temperatures fall to -60°F. This past October, a video crew followed the operators and their snowplows during a three-day storm—one of the largest ever recorded in the area in terms of snowfall. The resulting program, which aired on the Speed Channel in March 2010, showed the effectiveness of the driver-assistive system under the most extreme weather conditions and featured positive reports from plow operators. The Alaska DOT reports that the reliability and efficiency of the system has exceeded their expectations, and funding has been allocated for additional units.

Pavement research is an area not commonly associated with intelligent transportation systems, but research recently initiated at the University’s Duluth campus has the potential to make pavements smarter as well as stronger by incorporating carbon...
nanotubes into concrete. This approach aims to turn the road surface itself into a sensor by utilizing the unique mechanical and electrical properties of carbon nanotubes. Panels of this advanced material could one day replace conventional pressure sensors and pavement-embedded inductive loop detectors in many applications. The Duluth researchers associated with the Northland Advanced Transportation Systems Research Laboratories were successful in winning highly competitive funding from the FHWA and National Science Foundation for this research, which was featured in the February 2010 issue of Popular Science magazine.

The Institute’s work on managing traffic at Denali National Park, featured in past annual reports, will continue with a new multi-year contract to help Denali and the National Park Service use traffic models developed by the Minnesota Traffic Observatory (MTO) to evaluate options contained in a new park transportation plan that maximizes human access to the park while protecting the area’s natural beauty and wildlife.

In the realm of education, the ITS Institute maintains its focus on training the next generation of transportation engineers and policy leaders, equipping undergraduate and graduate students with the skills to innovate and solve problems in an increasingly interconnected transportation world. This year’s ITS Institute Student of the Year, Fay Cleaveland, earned a master’s degree in Urban and Regional Planning and made important contributions to research on nonmotorized transportation and travel behavior. She is currently working as a transportation planner with Mn/DOT.

Outreach to pre-college students continues to expand, with new curriculum components and activities aimed at encouraging interest in transportation issues and building the skills necessary for success in higher education. The Gridlock Buster online traffic control game, developed by the MTO and launched last year, has proved exceedingly popular with secondary and post-secondary students, teaching principles of urban traffic management in a fun and interactive way.

I would like to take this opportunity to thank departing members of the ITS Institute Board for their contributions to our success. These include Major Mike Asleson of the Minnesota State Patrol; Sue Lodahl, Mn/DOT Assistant State Maintenance Engineer; Bob Winter, Mn/DOT District Operations Director; Tim Henkel, Mn/DOT Modal Planning and Program Management Director; Vincent Valdes, FTA Associate Administrator; and Mn/DOT Commissioner Tom Sorel.

Last but not least, I would also like to acknowledge Robert C. Johns, former director of the Center for Transportation Studies and chair of the ITS Institute Board, who left the University of Minnesota in October 2009 to become director of the USDOT’s John A. Volpe National Transportation Systems Center. Since his appointment as CTS director in 2001, Bob’s leadership and wise counsel contributed greatly to the success of the ITS Institute and all its activities.

Max Donath, Director
ITS Institute

**ITS Institute Funding Sources**

**Federal Partners**
Research and Innovative Technology Administration
Federal Transit Administration
Federal Highway Administration
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National Science Foundation
U.S. Department of Homeland Security
U.S. Department of the Interior–National Park Service
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