

## RESEARCH SERVICES



# ACCELERATOR

*Putting your ideas in motion*

## Your New View into MnDOT Research

Welcome to Research Services' *Accelerator*, a new publication that brings you the latest news about research and innovation at MnDOT. Here you can find out about the latest transportation research results as well as implementation efforts, achievements and upcoming events.

This newsletter is designed to provide information you can use in a format that's short and to the point. Our goal is always to see our research results implemented, and we encourage you to use this newsletter as a resource to discover new practices and technologies that can help you in the field.

Thanks for reading!



Linda Taylor  
Director of Research Services

In an effort to improve our communication and outreach efforts, MnDOT Research Services has made many changes this year. *Accelerator* is only the latest addition. Here's a look at some of our other new offerings:

### TAP Videos

Technical advisory panels play a crucial role in transportation research. This spring, Research Services unveiled a new video series designed to help clarify the roles and responsibilities of TAP members. To learn more about serving on a TAP, visit our TAP Web page at [mndot.gov/research/taps.html](http://mndot.gov/research/taps.html) and watch the videos.



### New Website

In March, Research Services launched a revamped website featuring improved navigation, a mobile-friendly design and a new main page with a list of recent publications. See for yourself at [mndot.gov/research](http://mndot.gov/research). (Don't forget to bookmark us!)

### 'Crossroads' Blog

Research Services has teamed up with our partners at the University of Minnesota's Center for Transportation Studies to launch "Crossroads," our joint transportation research blog. Visit it on the Web at [mntransportationresearch.org](http://mntransportationresearch.org).

### Email List

Research Services can now deliver our latest research publications, upcoming events and other news directly to your inbox. Sign up for MnDOT's "Research and innovation updates" list via [Constant Contact](#).

### Familiarization Tours

If you want to learn more about what we do and how we can help you, there's no better way than to let us tell you in person! [Contact Research Services](#) directly to schedule a presentation for your office or district.

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## Implementation Projects

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*“The SMART-SIGNAL system takes all the data we have in the traffic signal cabinet and turns it into usable information for traffic engineers to assess how their signals are operating.”*

—Steve Misgen, Traffic Engineer, MnDOT Metro District

### Improving Traffic Signal Timing with the SMART-SIGNAL System

**Traffic & Safety** — The Systematic Monitoring of Arterial Road Traffic and Signals system collects arterial traffic data using existing traffic signal infrastructure such as in-pavement sensors at vehicle-activated stoplights. Investigators updated the SMART-SIGNAL system by making field hardware more compact and easier to install. They also developed a Web-based interface for traffic control center software, which can generate real-time arterial performance measures and historical statistical reports. Investigators implemented the refined system at 13 intersections along Trunk Highway 13 in Burnsville, Minn. [Technical Summary 2013-06](#)

### ADA Transition Plan for Public Rights of Way

**Multimodal** — Investigators developed a guide for local agencies to create transition plans to bring their public rights of way into compliance with the Americans with Disabilities Act, as required by law. The guide includes a step-by-step process, model transition plans and supporting documents. [Technical Summary 2012RIC01](#)

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## Research Projects

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### Saving Money with Energy-Efficient Streetlights

**Traffic & Safety** — Investigators installed 55 energy-efficient streetlights along a section of 46th Street in south Minneapolis to evaluate the cost-effectiveness and lighting quality of both LED and induction light technologies and compare products from several manufacturers and vendors. LED streetlights were found to provide adequate lighting quality with lower life-cycle costs. This technology may soon be cost-effective for general use. [Technical Summary 2013-04](#)

### Do Roundabouts Create Risk for Pedestrians and Bicyclists?

**Multimodal** — Pedestrians have expressed concerns about safety at newly installed roundabouts. Thousands of pedestrian and bicyclist crossings observed in this project, however, showed no evidence of reduced levels of safety, while wait times for pedestrians were significantly shorter than at signalized intersections. [Technical Summary 2012-28](#)

### When Should We Stop Plowing After a Storm? A Data-Driven Method for Determining Road Recovery Times After Snowfall

**Maintenance Operations & Security** — MnDOT took the first step toward developing an automated procedure to use traffic flow data—rather than snowplow driver observations—to determine when roads are clear enough to stop plowing after a snow event. This procedure could provide service at reduced costs by deploying snowplows more efficiently. While promising, the procedure is not yet ready for wide deployment. [Technical Summary 2012-40](#)



## Working from Home Lightens Traffic, But is It Profitable?

**Policy & Planning** — Researchers attempted to validate flexible workplace policies from a business perspective through three employer case studies. Both employees and managers described the policies as resulting in reduced turnover and improved productivity with increased employee satisfaction. Although economic benefits can be inferred from these factors, they were not directly observed. [Technical Summary 2013-07](#)

## National News

### RAC National Meeting

At the national meeting of the AASHTO Research Advisory Committee, July 14-18, Director of Research Services Linda Taylor presented the findings of a recent report for MnDOT about best practices for determining the value of research results. “We need to make sure we’re tracking where and how research results are benefiting our citizens,” said Taylor, who serves as co-chair of the RAC Task Force on Value of Research.

### SHRP 2 Implementation

MnDOT and its MnROAD program will serve as “lead adopters” in demonstrating new technologies and practices for pavement preservation recently developed through the second Strategic Highway Research Program. Their efforts will include a national workshop on pavement preservation for high-volume roads to be held in summer 2014. SHRP 2 is a nine-year, \$223 million research effort aimed at increasing safety and reducing congestion on the nation’s highways.

Read two-page Technical Summaries of these projects at [mndot.gov/research](http://mndot.gov/research).



## How Does Transportation Affect Quality of Life?

**Policy & Planning** — MnDOT sought Minnesota citizen input through focus groups and mail surveys to define quality of life, identify the role transportation-related factors play in it and investigate how well MnDOT is performing with regard to those factors. Accessibility, safety, maintenance and mobility were rated the most important factors. Overall, Minnesota residents were fairly well-satisfied with MnDOT services, with 84 percent rating performance at least 5 on a 7-point scale. [Technical Summary 2013-05](#)



## Transit Adoption During (and After) Construction Projects

**Multimodal** — Researchers examined how transit could be used to mitigate the impact of a major and highly disruptive road construction project in Duluth, Minnesota, as well as the factors that determine whether people who switch to transit during the construction project continue using it when the project is completed. Research indicated that once a disruptive event induced drivers to try transit, they tended to stay with it as long as that service remained adequate to their needs. [Technical Summary 2013-13](#)

## National Pooled Fund Project

### Updating Precipitation Frequency Estimates

**Environmental** — This ongoing study has updated decades-old precipitation frequency estimates for Midwestern states that are used by practitioners to design small drainage structures such as inlets, storm drains and small culverts. In some cases, precipitation estimates have changed significantly and will have a marked impact on the way MnDOT designs hydraulic infrastructure. [Pooled Fund TPF-5\(187\)](#)

Want to learn more ... about what Research Services can do for you?  
Call us to schedule an in-person presentation.



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## Calendar

- 9/17 FY15 Research Proposals Due
- 9/18 LRRB Research Implementation Committee Meeting
- 9/18 – 20 Upper Midwest Planners Conference
- 9/26 LRRB Meeting
- 10/2 – 3 Minnesota Fall Maintenance Expo
- 10/15 – 16 Water Resources Conference
- 10/16 ITS Minnesota Fall Industry Forum
- 10/16 – 17 Transit GIS Conference
- 10/27 – 30 39th International Forum on Traffic Records & Highway Information Systems
- 10/30 LRRB Meeting

**Find more events on our website.**

## Contact

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## Follow Us Online

**Website:** [mndot.gov/research](http://mndot.gov/research)

**Blog:** [mntransportationresearch.org](http://mntransportationresearch.org)



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