

ACCELERATOR

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Putting your ideas in motion

Can We Simplify Permitting for Oversize/Overweight Vehicles?

Hauling equipment to highway or large construction sites regularly involves wider and heavier loads than roads were designed to accommodate. To minimize pavement damage and ensure the safety of transport personnel, transportation agencies issue permits to haulers after reviewing proposed routes to work sites.

Most routes of this sort involve multiple local roadway authorities — state, county, city or township — each of which may have different procedures for applying for a permit. Some permits may take weeks to process, which only encourages haulers to simply risk ignoring the requirement.

To simplify the permitting process, MnDOT and the Local Road Research Board teamed up to explore the feasibility of a unified permitting process.

Researchers produced a proof-of-concept (Report 2017-26) for developing a one-stop permitting process that would allow commercial haulers to plan a travel route and secure all required permits from a single source. MnDOT is working to develop a first-of-its-kind, unified permitting process to consolidate the requirements of every jurisdiction in the state into a single, quick-response platform that meets the needs of haulers.



In addition to simplified permit application procedures, roadway authorities may have different signage or flagging requirements for oversize loads.

Online Systems for Oversize/Overweight Freight Permitting

In addition, MnDOT commissioned a Transportation Research Synthesis to survey other state departments of transportation on the software systems they are using to manage freight permits and motor carrier credentials. The survey investigated various topics, including how other states issue permits online, and whether permitting and credentialing can be accomplished using a single, integrated system.

This very detailed survey was administered to 11 selected agencies expected to have experience with these systems. Questions covered system functional and reporting capabilities, costs, benefits and drawbacks. Seven of the states reported offering some online permitting, but no agency currently uses a single system to manage both permitting and credentialing. As usual, MnDOT is ahead of the curve in pursuing this kind of innovation.



The new queue warning system involved two sets of changeable message boards attached to gantries above I-35W and I-94.

Queue Warning Systems Reduce Crashes

TRAFFIC AND SAFETY — Active traffic management has been deployed on two Twin Cities freeways. This technology involves intelligent lane control signals placed over selected lanes at half-mile increments to warn drivers of incidents ahead.

As an enhancement to this system, MnDOT has now developed and tested warnings to alert drivers to slow traffic ahead. This innovation should reduce rear-end collisions, the most fre-

quent type of freeway crash. Over three months, in locations where the new messages were used, there was a 22 percent decrease in crashes and a 54 percent decrease in near-crashes as compared to 2013. These results are extremely promising, but a longer trial period will still be needed to ensure that these benefits are sustainable.

TECHNICAL SUMMARY 2017-20



Drivers who participated in the study operated a simulator, which provided realistic control feedback through brake power assistance and resistance-based steering.

Could Smartphone Messages Warn Drivers About Work Zones?

TRAFFIC & SAFETY — How can we best warn drivers that they need to slow down when approaching a work zone? MnDOT puts up signs, but could warnings also come from inside cars, just as smartphones currently issue warnings about dangerous weather conditions? MnDOT administered a survey to drivers about this possibility and developed a driving simulation study to see whether

these in-vehicle messages would distract drivers. Findings indicated that drivers were open to the idea and that their performance actually improved following delivery of audiovisual phone messages. The messages were definitely more effective than signs alone. The project is ready to advance to field testing on a test track and on real roadways.

TECHNICAL SUMMARY 2017-19

Reducing Driver Errors at Two-Lane Roundabouts

TRAFFIC & SAFETY — Roundabouts are definitely safer than traffic signals, but multilane roundabouts have proven more hazardous than single-lane roundabouts, with drivers sometimes failing to yield or exiting the roundabout by turning directly from the inner lane. Investigators tried different signage and lane marking strategies and, using video observation, were able to identify some signs as particularly confusing to drivers. The study identified effective solutions for reducing turn violations, but did not determine how to get drivers to yield properly. This latter task will require trying more traffic control strategies with more observations; a pooled fund effort involving several states may be one option.

TECHNICAL SUMMARY 2017-30

Effective Multimodal Planning: Optimizing Bike Lanes for Traffic and Safety

MULTIMODAL — Minnesota cities and counties want to promote bike use, and MnDOT's [Complete Streets](#) program encourages using roadway space for bicycle facilities. But how do cars and bikes really interact on roadways? How do different bike lane designs affect traffic? For 51 days, investigators video-monitored nine sites that involved various bike lane configurations like striped bike lanes, shared-use arrows, signed shared lanes and shoulders of various widths. An analysis of this footage found that using striped or buffered bike lanes is more effective than other strategies at keeping drivers from encroaching on adjacent bike lanes. The most problematic situations occur when cars line up behind bicyclists, and this happened most often on roads without bicycle facilities and on roads with shared facilities but no marked lanes.

TECHNICAL SUMMARY 2017-23



Bicycle lanes marked with solid lines or separated by buffers are much more likely than signs to promote safer driver behavior around bicyclists.

Designing Park-and-Ride: How Far are Transit Users Willing to Walk?

MULTIMODAL — Park-and-ride lots throughout the Twin Cities metro area provide parking for commuting suburban transit users. But how far can one of these lots reasonably be located from the bus or rail hub without annoying its transit users?

Investigators surveyed over 500 park-and-ride users about their travel habits and about various aspects of areas they might have to walk through to reach the transit station: How safe are the intersections? Are there sidewalks and benches? What do the buildings look like? The study found that users are generally willing to walk about three blocks (0.3 mile), but could be induced to walk 1.8 blocks farther in an environment with safe intersections, adequate snow removal and street lighting, and a good sidewalk network.

TECHNICAL SUMMARY 2017-29

A Uniform Process for Quantifying the Benefits of Transportation Research

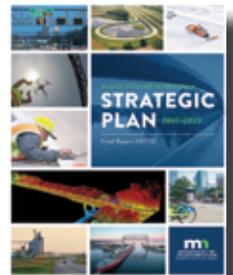
POLICY & PLANNING — Researchers worked with MnDOT technical experts to develop a method for identifying the financial and other benefits of research projects. This seven-step process for quantifying benefits was applied to 11 recent projects, and the research cost of \$1.98 million for the projects is expected to save an estimated \$68.6 million for MnDOT and Minnesota cities and counties over a three-year period, for a benefit-to-cost ratio of about 34-to-1. The expected savings will be enough to pay for the research budget for six or seven years.



TECHNICAL SUMMARY 2017-13

A New Five-Year Strategic Plan for MnDOT's Research Program

MnDOT has developed a new plan for 2017-2022 to focus its research strategy in support of MnDOT's vision and mission given the latest transportation trends. The plan development involved extensive stakeholder engagement and a review of best practices for transportation research programs. A communication strategy was also adopted for conveying the value of our research and promoting statewide adoption of innovations.



Read the full plan at mndot.gov/research/reports/2017/201712.pdf.

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Calendar

- 11/1 TRIG Fall Meeting
- 11/2 28th Annual CTS
Transportation Research
Conference
- 11/16-17 APWA-MN Fall Conference
- 11/20 LRRB RIC Meeting
- 11/28-29 TRIG Winter Meeting
- 12/6-7 LRRB Winter Meeting

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Simplifying the Permitting Process for Overweight/ Oversize Vehicles

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