

Research Spotlight

Project Information

REPORT NAME: Improving Drivers' Ability to Safely and Effectively Use Roundabouts: Educating the Public to Navigate Roundabouts

START DATE: November 2009

REPORT DATE: March 2011

RESEARCH REPORT NUMBER:
RC-1542

TOTAL COST: \$199,649

COST SHARING: 20% MDOT, 80% FHWA through the SPR, Part II, Program

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Roundabouts: How to get around a safer intersection

In the past several years, MDOT has constructed a number of roundabouts throughout the state as a safer alternative to traditional intersections. Gaining public support for this relatively new type of intersection and helping the traveling public learn new "rules of the road" is vitally important. MDOT used the results of this project to develop materials to educate residents about the safe and effective use of roundabouts.

Problem

MDOT, like many transportation agencies throughout the country, is turning more frequently to roundabouts as a safer and more efficient alternative to traditional signalized or stop-controlled intersections.

Michigan's first roundabout was constructed in 1996. Today, drivers on Michigan's roadways are traveling through approximately 100 roundabouts. Research clearly indicates that roundabouts can reduce both the frequency and especially the severity of crashes. However, their relative novelty can leave road users feeling unsure of how to appropriately use a roundabout. And in some cases, unfamiliarity with this type of intersection configuration can result in a temporary increase in crashes immediately following installation.

Approach

MDOT undertook a research project to better understand roundabout driver behavior and effective educational countermeasures to improve safety and efficiency. Research results will inform the development of



This roundabout at the I-75/M-81 interchange in Saginaw County is one of the approximately 100 roundabouts constructed in Michigan since 1996.

educational materials that can be used by MDOT and local transportation agencies.

Researchers began with a survey of other state DOTs and local agencies to identify successful public information and education campaigns related to roundabouts. To better understand the behavioral issues affecting safety and operations, researchers then analyzed Michigan State Police roundabout crash data from 2009 to

“More roundabouts are being built each year. This project addresses the need to educate the public on how to use them.”

Kimberly Lariviere, P.E.
Project Manager

identify the common causes of crashes and driver behaviors in need of correction. The crash investigation was supplemented by field studies of driver behavior at a sample of roundabout locations. Finally, a state-wide road user survey solicited feedback on general perceptions of roundabouts, positive and negative experiences, and points of confusion as seen from the user's perspective.

Research

The prevalence of roundabouts around the country is underscored by the survey results, which indicate that most of the other state DOTs and more than half of the local agencies surveyed are constructing roundabouts. Many state DOTs conduct public information campaigns, usually prior to construction of a specific roundabout.

Researchers drew conclusions about public perceptions from a literature review and a survey of almost 12,000 road users, mostly from Michigan. Findings indicate that many drivers and residents are skeptical of roundabouts during the planning stages, though over time their support for them grows. Drivers generally become more supportive after roundabouts are built, with exposure increasing their comfort and enhancing their perceptions of roundabout safety. Consensus building and effective public information and education efforts can improve public support.

After examining the roundabout crash and behavioral data and findings from prior research, researchers identified these factors frequently associated with roundabout crashes:

- Difficulty in understanding which driver should yield at entry and exit points.
- Excessive speed when entering a roundabout.
- Confusion about lane selection and lane changes in multilane roundabouts.
- Failure to recognize pedestrians and bicyclists.

Results

Information gathered for this project about problematic driver behaviors and public perceptions guided researchers in the development of an array of educational materials.

- A PowerPoint presentation describes the operational and safety characteristics of roundabouts. MDOT and local agency staff can use this presentation to support outreach efforts in communities where roundabouts are proposed.
- Trifold brochures about the advantages of roundabouts offer step-by-step instructions for pedestrians, bicyclists and drivers when using a roundabout. Bicyclists and drivers are advised on how to make a slow, safe entry, stay in their lanes, and remain alert to other roundabout users.
- Animated videos demonstrate the interaction of vehicles, pedestrians and bicyclists in roundabouts in real time. These videos are expected to appear in the rotation of video advertising at Michigan's 14 Welcome Centers and may be posted on YouTube.
- Posters show how to use a roundabout and provide examples of roundabouts in Michigan.

Many of these educational materials will be available on the MDOT Web site at www.michigan.gov/roundabouts.

Value

This project's carefully designed public education campaign will help improve a road user's ability to use roundabouts safely and smoothly. Through continued outreach by MDOT and local transportation agencies, Michigan residents will gain a better understanding of roundabouts as a safe and effective alternative to traditional intersections. Research provided the information and resources to accomplish this important goal.



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This final report will be available online soon at

[www.michigan.gov/mdot/0,1607,7-
151-9622_11045_24249---,00.html](http://www.michigan.gov/mdot/0,1607,7-151-9622_11045_24249---,00.html).

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