



TECHNICAL SUMMARY

Questions?

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TOTAL PROJECT COST:

\$348,994

LRRB COST:

\$174,497



A portable driving simulator allowed visitors at the 2019 Minnesota State Fair to virtually navigate an RCUT.



Increasing Support for Innovative Traffic Solutions

What Was the Need?

Public transportation agencies are constantly on the lookout for ways to reduce the number and severity of traffic crashes. One such solution is the Restricted Crossing U-turn, or RCUT, which has proven to be a safer alternative to traditional intersections on four-lane divided highways.

When drivers on rural side roads approach a typical intersection at a divided highway and attempt to cross all four lanes or turn left, they must wait for a gap in both directions of high-speed traffic. Deadly or severe T-bone crashes happen frequently at these locations and put all road users at risk.

RCUTs, also known as reduced conflict intersections, are designed to significantly reduce these hazards by directing drivers to turn right first and then make a U-turn in a designated center lane. With an RCUT, drivers have only one direction of traffic to consider at a time.

Already constructed at more than a dozen sites in Minnesota, RCUTs can reduce traffic fatalities by as much as 70%. However, despite the overwhelming evidence of the design's ability to save lives, Minnesota's communities are often resistant to installing RCUTs.

What Was Our Goal?

When considering safety improvements for dangerous highway intersections, local decision-makers often prefer to install traffic signals instead of an RCUT—even with data showing that signalized intersections cost more to construct, reduce travel times and are less safe. To support Minnesota's city and county engineers as they make the case for RCUTs or other novel infrastructure designs where practical, this research sought to develop clear and reproducible strategies for increasing public engagement and acceptance.

What Did We Do?

First, researchers conducted a review of published literature on messaging strategies that effectively influence decisions and attitudes. Next, the team assessed driver perceptions and behaviors regarding RCUTs through simulated driving experiments.

The researchers then evaluated the impacts of various educational communications and messaging on the perceptions of different stakeholder groups in Minnesota. Through an online survey and interviews, participants—including government officials and other decision-makers from nearly every district in the state—described their level of familiarity with these designs. They also reviewed a variety of materials designed to convey the benefits of RCUTs, including short video testimonials from people sharing personal stories and opinions, and educational slides with hard data and facts. The participants rated the effectiveness of the materials and their perceptions of RCUTs before and after the experience.

Finally, the team prepared a brief presentation using the most effective communications and showcased its influential power at a virtual community event hosted by MnDOT to discuss a planned RCUT installation.

When a transportation innovation shows potential for significantly increasing safety, implementation may seem like the obvious next step. But without public support, a project can be met with resistance that results in delays, additional costs and a lost opportunity to save lives.

“Improving safety is a central component of our mission at MnDOT. By increasing awareness and public support for life-saving road designs, we’ll be able to install more of these designs and make roads safer across the state.”

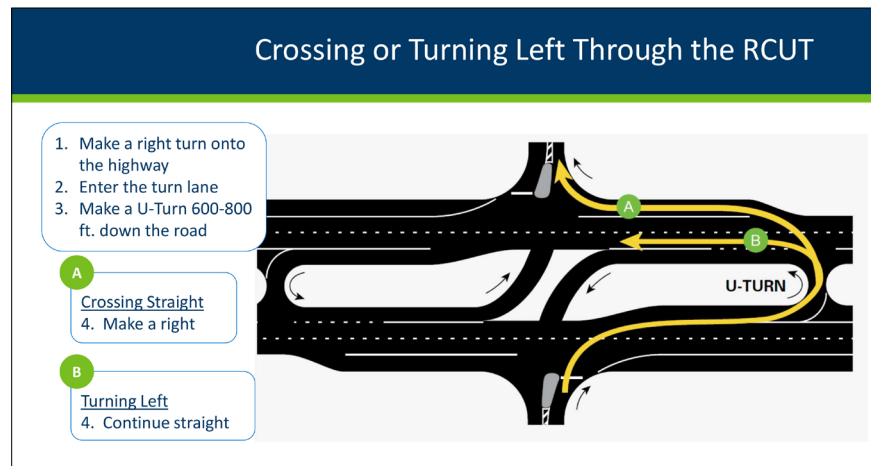
—Scott Thompson,
Traffic Engineer,
MnDOT District 7

“Public engagement is important for building trust between a transportation agency and the community, and encourages people to become part of the decision-making process.”

—Nichole Morris,
Director, University of
Minnesota HumanFIRST
Program

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This graphic illustrates how drivers should navigate an RCUT.

What Did We Learn?

Most Minnesota drivers have yet to experience an RCUT, and the simulated driving experiments showed that those navigating an RCUT for the first time made some common errors. In addition, too much signage can be confusing. Fewer signs than are typically used in RCUT designs can actually improve driver performance. Increasing exposure and familiarity can mitigate these issues and result in more efficient navigation, but the simulations alone were not enough to boost drivers’ perceptions of the RCUT design.

Generally, public engagement and support for RCUTs can be increased through most types of communication, though the degree of the messages’ impact varied by geographic location and an individual’s personal experience with crashes and close calls. Older adults and audiences in rural areas tend to be more skeptical of the benefits of RCUTs while people who feel a personal connection to traffic safety and have witnessed the consequences of crashes are more accepting of the designs. Testimonials and immersive, thoughtful storytelling can be very effective strategies, particularly when the speaker is perceived to be credible or trustworthy.

To improve how RCUTs are perceived and increase stakeholder support, researchers recommended the following:

- RCUTs should be designed with a moderate level of signage, which is less than typically used.
- Simulations and other immersive engagement activities can help drivers become more comfortable and confident in navigating RCUTs.
- Prior to introducing an RCUT proposal, local public transportation agencies should consider customizing their messaging to the audience’s demographics.
- A combination of testimonials and educational materials illustrating safety statistics and other benefits should be used to communicate upcoming roadway design changes.
- Personal investment is key to securing public support. Before introducing educational information, agencies should provide heartfelt narratives and stories to increase these connections.

What’s Next?

With a greater understanding of how RCUTs and other novel designs should be introduced and effectively communicated to engage stakeholders and increase public support, Minnesota’s city and county engineers will be better equipped to implement these life-saving solutions when and where they’re most needed.

This Technical Summary pertains to Report 2022-31, “Establishing a Repeatable Method for Presenting Non-Traditional Traffic Treatments to Maximize Stakeholder Support,” published June 2023. The full report can be accessed at