



Wisconsin Traffic Engineering Council

Issue Paper 3 – Traffic Signals or Roundabouts

How are Agencies Choosing?

Background / Overview

A modern roundabout has three major characteristics compared to its predecessors, traffic circles and rotaries

First, the roundabout gives vehicles in the circular travel way the right-of-way.
Second, roundabouts are small, generally from 70 to 160 feet in diameter compared to 300 to 400 feet and more for traffic circles and rotaries.
Third, roundabouts have a raised entry "splitter" island that slows down or constrains speed just before entry, duplicating in a way the curvature the driver will experience within the roundabout itself.

Similar to other parts of the country, interest in the roundabout has increased significantly in Wisconsin. Traffic engineers throughout the state need to understand when and where to select the proper traffic control device.

Current National Practices

The modern roundabout, which dates from 1963 in England, arrived in the United States in 1990 in Summerlin, a major Las Vegas residential subdivision. Leif Ourston was the main designer. When the first roundabout freeway interchange in the nation was built in 1995 (also designed by Leif Ourston)--at the I-70 interchange in Vail, Colorado--roundabouts then numbered about a dozen nationally. Avon, Colorado, the next I-70 interchange after Vail, in 1998 installed five roundabouts between the I-70 interchange and the Beaver Creek Mountain ski resort. Several other roundabouts have since been constructed in practically every state including Alaska and Hawaii.

Today, the number of modern roundabouts in the USA has leaped to around 1,000 (as of January 2006).

Current Wisconsin Practices

- Nearly 30 roundabouts will be in use on state highways by the end of the 2007 construction season
- Another 130 roundabouts are planned on state highways within the next five years
- At least 25 roundabouts are in use on local roads throughout the state
- WisDOT has developed roundabout design guidance in the Facilities Development Manual

Technical Issues

Consistent Impact Assessment:

- Residential Access
- Community Enhancements
- Environmental Impact
- Pedestrians and Bicycles
- Right of Way

- Safety
 - Crash Frequency
 - Crash Severity
 - Number of Conflict Points
 - Number of driver decisions
 - Severity of driver errors
 - Traffic Calming
- Traffic Operations
 - Capacity
 - LOS
 - Truck Operations
- Maintenance
 - Signing and Marking
 - Plowing
 - Electrical Costs
- How to compare results from different software
 - Signals
 - HCS
 - TEAPAC
 - Synchro
 - Roundabouts
 - RODEL
 - aaSIDRA
 - VISSIM
 - Paramics
 - Other
- Standardization of software

Additional Resources

- FHWA – Roundabouts: An informational Guide: <http://www.fhrc.gov/safety/00068.htm>
- Insurance Institute For Highway Safety: <http://www.iihs.org/research/topics/roundabouts.html>
- Wisconsin Roundabout Design Information: <http://www.dot.wisconsin.gov/safety/motorist/roaddesign/roundabout-design.htm>
- Traveling Maryland's Roundabouts: <http://www.sha.state.md.us/safety/oos/roundabouts/index.asp>
- Wisconsin Roundabout Pictures: <http://www.roundaboutsusa.com/wisconsin.html>