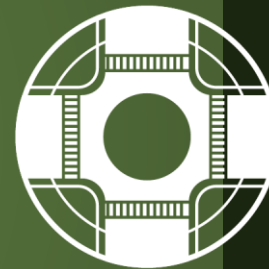


Conversion of Signalized Intersection into Single- or Multi-lane Roundabout



Convert signalized intersections to roundabouts to reduce severe crashes and improve flow at high-crash or congested locations.

Implementation Strategy

How and Where to Apply

- Suitable for both urban and rural areas under various traffic conditions
- Useful for speed management and transitions at interchanges or high-speed rural roads
- **MUTCD** recommends roundabouts as a proven safety countermeasure for intersection control, emphasizing appropriate signage, pavement markings, and geometric design to ensure safe and efficient operations.

Key Stakeholders

State DOT, Local enforcement, active road users

Proactive Implementation

Identify high-crash signalized intersections or locations with delay and speed issues, especially near schools, interchanges, or rural highways, and evaluate their suitability for roundabout conversion based on traffic volume, geometry, and crash history before problems escalate.

Use in a Safe System Approach

Roundabouts lower the kinetic energy involved in a car crash by removing intersection crossing conflict sites, reducing vehicle speeds, and adjusting impact angles. Furthermore, roundabouts may have pedestrian refuge areas and only permit one lane of traffic at a time, limiting the amount of time that pedestrians are exposed to incoming automobiles.

Countermeasure Overview

Objective: Reduce frequency and severity of intersection conflicts through geometric improvements

Strategy: Construct special solutions

Targeted Solution



CONTRIBUTING FACTORS

- Limited visibility
- Failure to yield



TARGET CRASH TYPE

- Angle
- Rear-End Turning



ROAD FACILITY TYPE

- Not Specified



AREA TYPE

- Urban

Safety Linkage



NCHRP 500 Series

Signalized Intersection



AASHTO'S TOWARD ZERO DEATHS

Safer Infrastructure



SAFE SYSTEM APPROACH

Safe Roads

SAFE SYSTEM ROADWAY DESIGN

TIER 1
TIER 2
TIER 3
TIER 4

Tier 1

Selected Related Countermeasures

- CM1 High-visibility signage and lighting
- CM2 Access Management
- CM3 Gateway treatments

Cost: \$ (High)

Service Life: 20 years

Benefit-Cost Ratio: 1:1

Intersection into a roundabout. Source: SSA

BEFORE (2015)



Highway 24 in St. James before construction

AFTER (2021)



Highway 24 in St. James after construction, showing mini-roundabout, back-in angle parking, and improved crosswalks

Safety Benefits

74%

Reduce crashes of all types and severities¹

35%

Reduce fatal and severe crashes¹

¹ CMF ID: 212

² CMF ID: 209

Resources

- [Proven safety countermeasures](#)
- [FHWA Roundabout](#)
- [Safe System Roadway Design Hierarchy.pdf](#)

