Mini Roundabouts:  
An Introduction and Applications in Iowa

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SHIVEHATTERY  
ARCHITECTURE + ENGINEERING

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What is a Mini Roundabout

Modern Roundabout
Mount Vernon, Iowa
What is a Mini Roundabout

Traffic Circle
Photo Courtesy of Federal Highway Administration
What is a Mini Roundabout

Mini Roundabout
Photo Courtesy of Federal Highway Administration
Benefits of Mini Roundabouts

- Traffic calming effect
- Traffic safety
- Operational efficiency
- Compact size
Benefits of Mini Roundabouts

- Environmental
- Short construction durations
- Funding availability
  - Traffic Safety Improvement Program (TSIP)
  - Iowa Clean Air Attainment Program (ICAAP)
Benefits of Mini Roundabouts

- Open to Traffic
- Two-week Construction

*Photos Courtesy of Federal Highway Administration*
Benefits of Mini Roundabouts

Video Courtesy of Federal Highway Administration
Benefits of Mini Roundabouts

Video Courtesy of Federal Highway Administration
Ideal Locations

- Intersections with
  - High delays, but do not meet signal warrants
  - Minimum 10% side street volume
  - Less than 15,000 vehicles entering daily
  - Speeds less than 35 mph

- Residential neighborhoods

- Right-of-Way constraints

- Three lane approaches
Locations Not Recommended

- High truck-turning traffic
- High number of U-Turn traffic
- One-way and multilane streets
- Vertical curve constraints
Planning Process

- ADT volumes
- Turning movement counts
- Conflicting flow
Planning Process

Conflicting Flow
Planning Process

- Macroscopic traffic analysis
- Conceptual design
- Microscopic traffic simulation modeling
Planning Process

Microscopic Traffic Simulation Modeling
Planning Process

• Public education
Design Considerations

Pavement Markings and Signing

Figure 6: Sample Pavement Marking Plan for a Mini-Roundabout (*MUTCD*)

Figure 7: Sample Signing Plan for a Mini-Roundabout (*MUTCD*)
Design Considerations

Pedestrian facilities
Design Considerations

- Splitter and central islands
- Stormwater
- Lighting
Design Considerations

Lighting
Maintenance

- Snow Removal
- Pavement Markings
Case Study: 12th Avenue at Holiday Road, Coralville
Case Study: 12th Avenue at Holiday Road, Coralville

Conceptual layout
Case Study: 12th Avenue at Holiday Road, Coralville

Existing PM Peak
Case Study: 12th Avenue at Holiday Road, Coralville

Paving Plan
Case Study: 12th Avenue at Holiday Road, Coralville

Pavement Marking and Signage Plan
Case Study: 12th Avenue at Holiday Road, Coralville

Turning Movements
Case Study: Marion

Location
29th Avenue
35th Street

Indian Creek Road

Project Location

29th Avenue

35th Street
Case Study: Marion

Conceptual layout
Case Study: Multiple Mini Roundabouts
Case Study: Multiple Mini Roundabouts

Conceptual layout
Case Study: Multiple Mini Roundabouts

Conceptual layout
Case Study: 18th Street Cedar Rapids
Case Study: 18th Street Cedar Rapids

Conceptual layout
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