Nashville Road at University Boulevard

Intersection Improvement Project

KENTUCKY TRANSPORTATION CABINET

BURGESS & NIPLE
Engineers ■ Surveyors ■ Planners

Purpose and Need

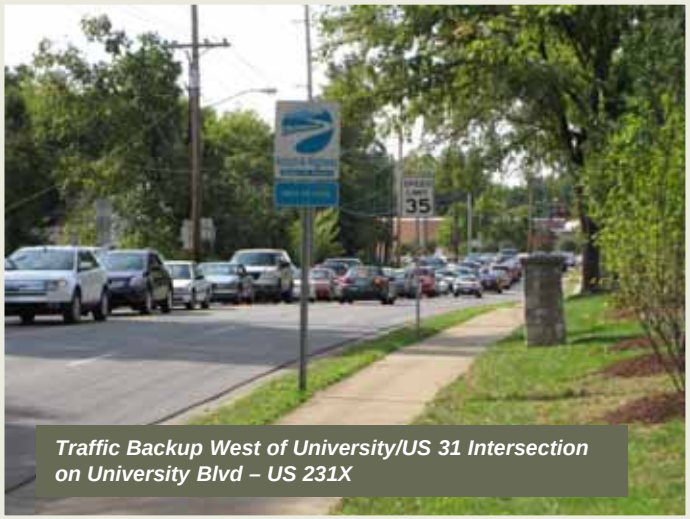
The purpose of this project is to explore methods to improve the safety and capacity of the intersection.

- **Improve Left-turn movement from Chestnut St.**
- **Reduce congestion at University Boulevard and US 31W / Nashville Road**
- **Integrate pedestrian facilities to the corridor**
- **Improve the capacity to accommodate future traffic volumes**
- **Identify a cost effective solution**

Existing Site Conditions

Traffic Backup East of Normal Intersection on University Blvd – US 231X

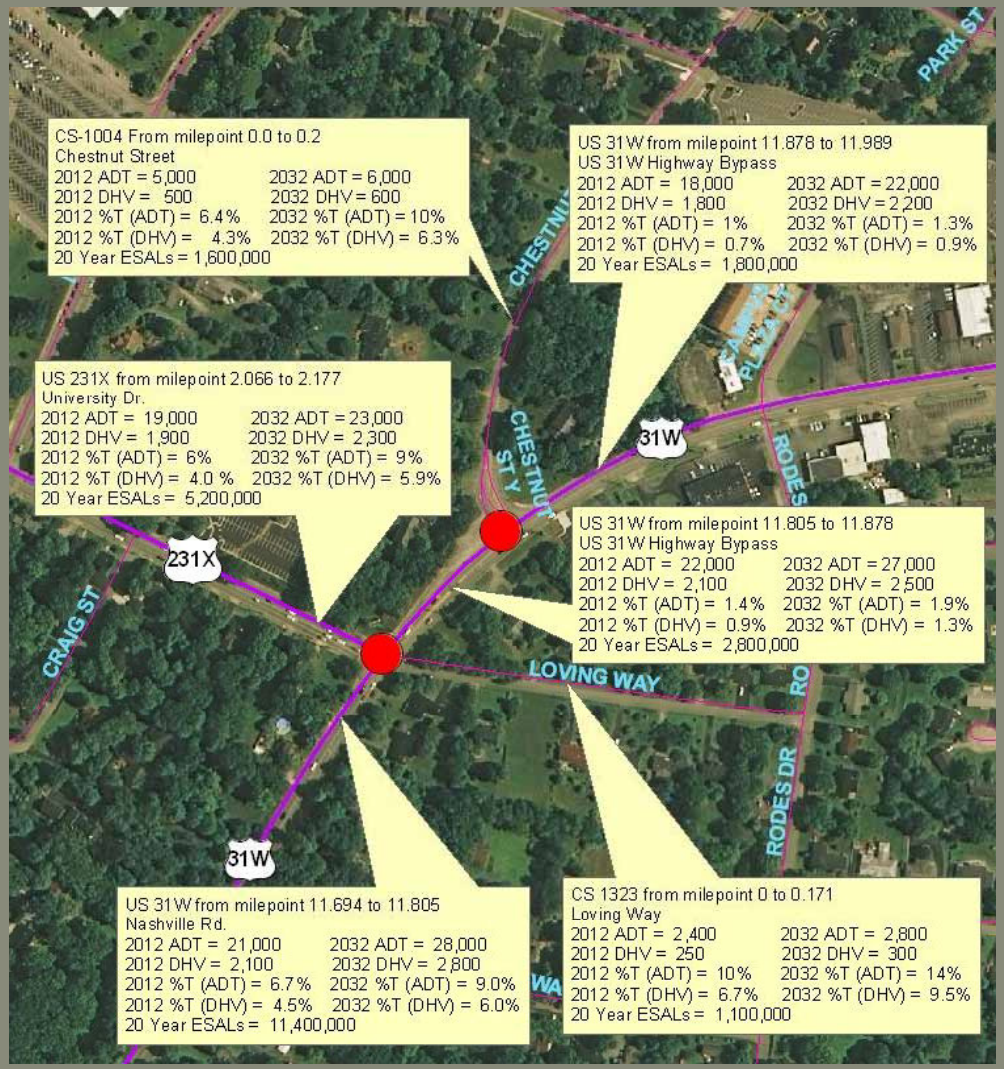
Traffic Backup North of Chestnut Street on Nashville Road – US 31W



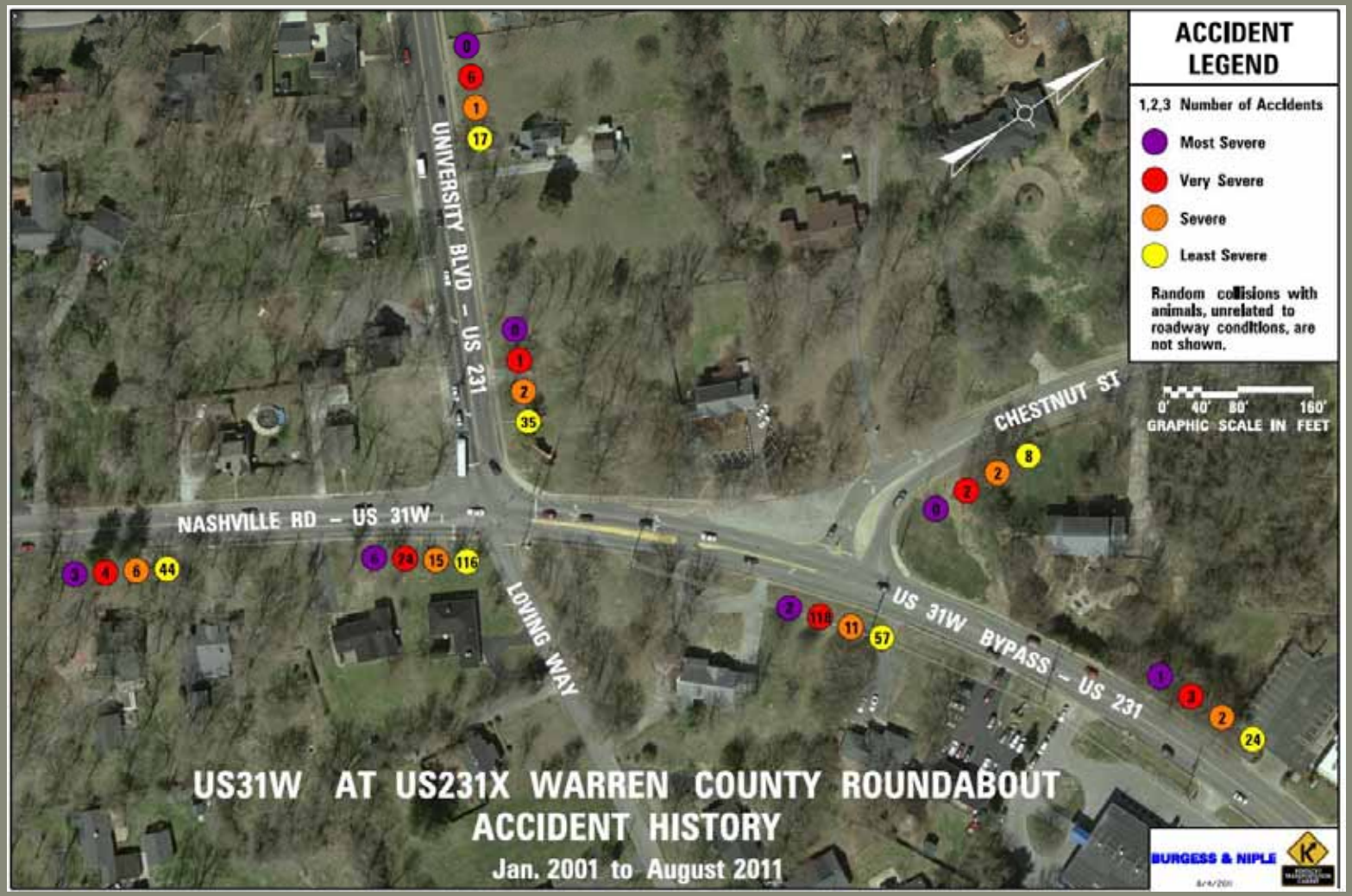
Traffic Backup West of University/US 31 Intersection on University Blvd – US 231X

Traffic Backup South on Nashville Road - US 31W

Traffic Study: Projecting Future Volumes



Traffic Accidents

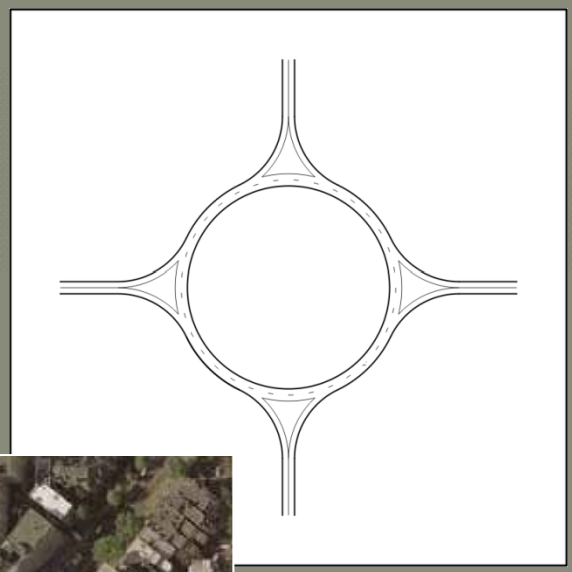


Modern Roundabout 101

- **Unsignalized One-way Circular Intersection Engineered to Maximize Safety and Minimize Delay**
- **NOT a Traffic Circle**
- **NOT a Rotary**
- **NOT a Neighborhood Traffic Calming Circle**

Traffic Circles/Rotaries

- Large Diameter (>300 feet)
- High Speed (>30 mph)
- Entering Priority
- Equal Merge
- Weaving



Dupont Circle, Washington, DC

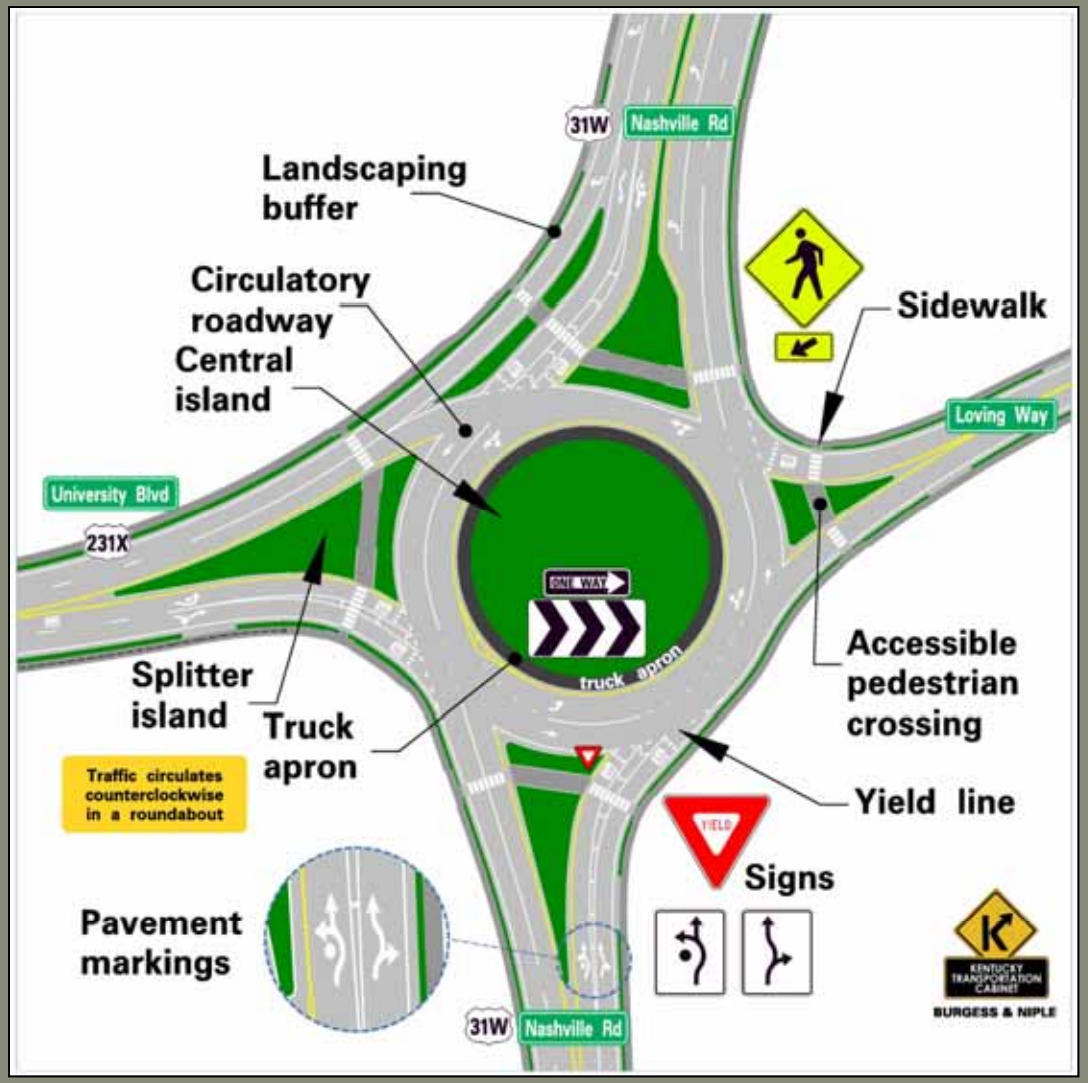
Neighborhood Traffic Calming Circles

- Small Diameter
- Stop Control
- Multi-directional
- Low Volume
- Residential Streets
- No Raised Channelization

Modern Roundabout Distinguishing Characteristics

- **Yield at Entry**
- **Traffic Deflection with Pavement Markings and Raised Islands**
- **Geometric Curvature for Reduced Speeds (45-200 ft. Diameter & 15-25 mph Operating Speeds)**
- **One-way Counterclockwise Circulation**
- **Pedestrian Access**
- **No Parking**

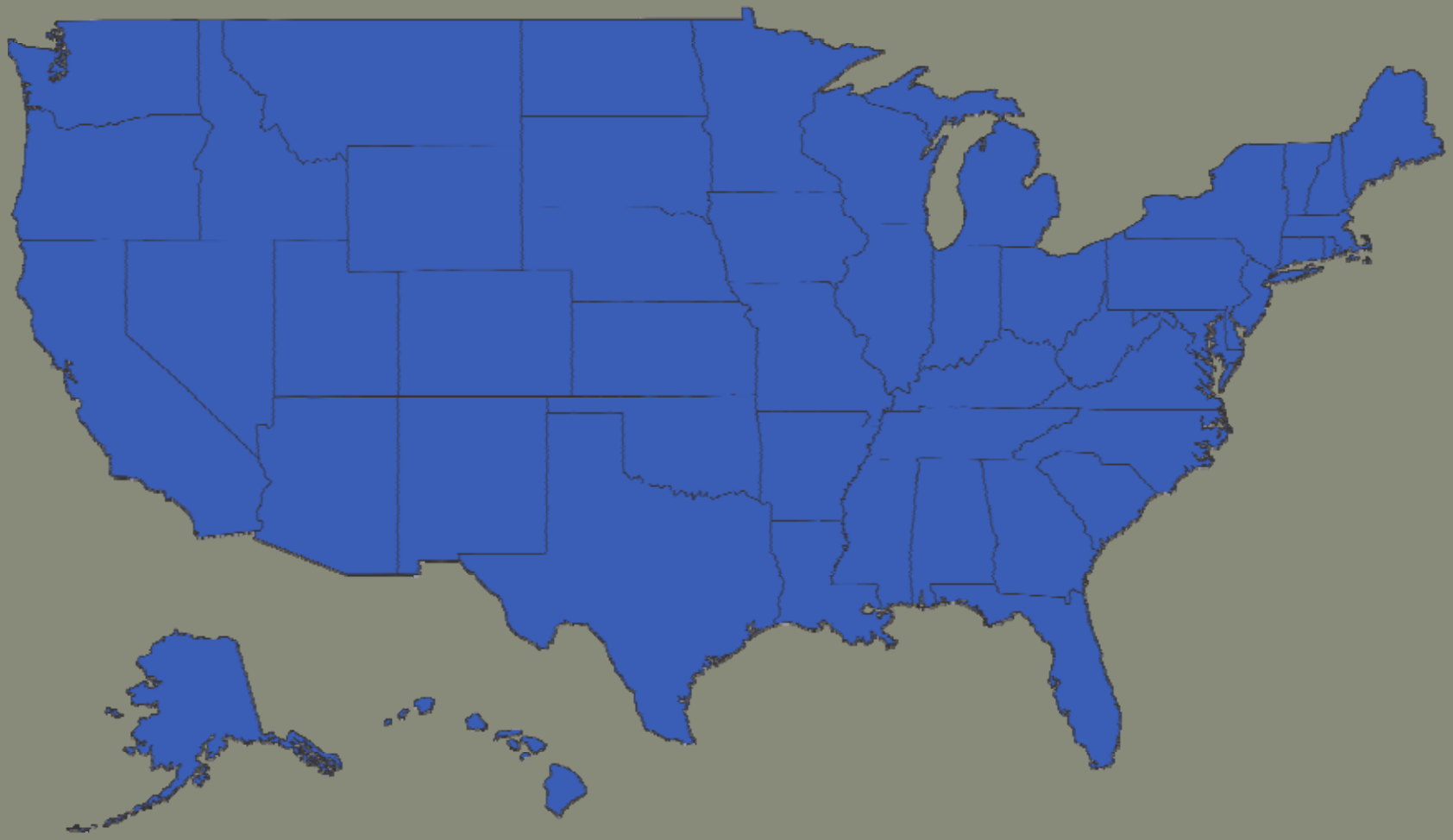
Key Modern Roundabout Features



Circular Intersection History

- 1900's – 1940's Rotaries and Traffic Circles Used
- 1950's Circular Intersections Fell Out of Favor
- 1963 Great Britain Redesigns the Circular Intersection
- 1980's Modern Roundabout Used Throughout Europe and Australia
- 1990's Modern Roundabout Used in the United States
- Greater than 3,000 Modern Roundabouts now Built in the United States with an Estimated 150 to 250 Built Each Year

Where Are Modern Roundabouts in the United States?



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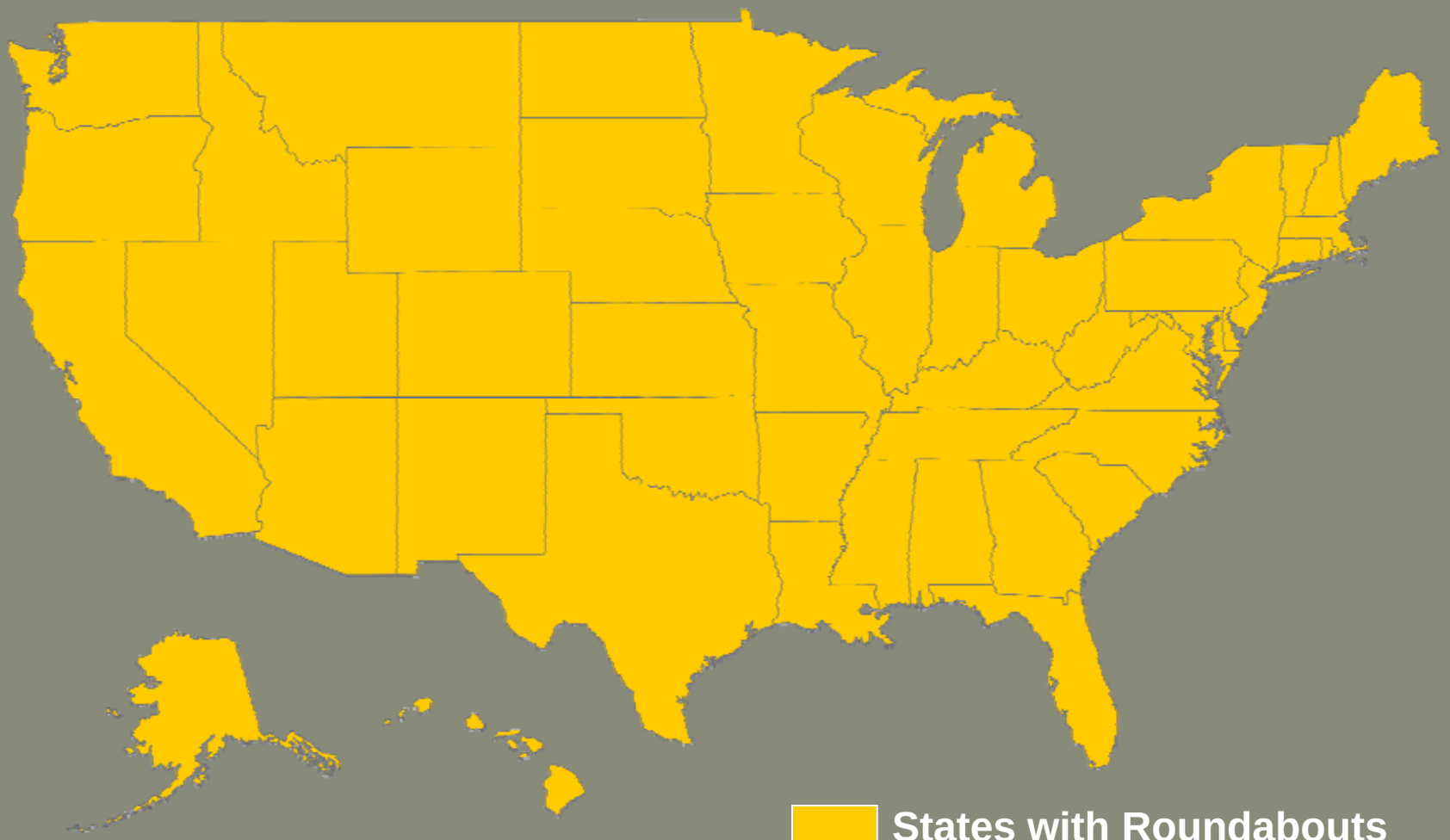


Roundabout Examples Around the U.S.

Hilliard Triangle
Hilliard, Ohio

High Volume Multi-Lane Roundabout

Roundabout Examples Around the U.S.

Richland Avenue/SR 682 At Ohio University
Athens, Ohio

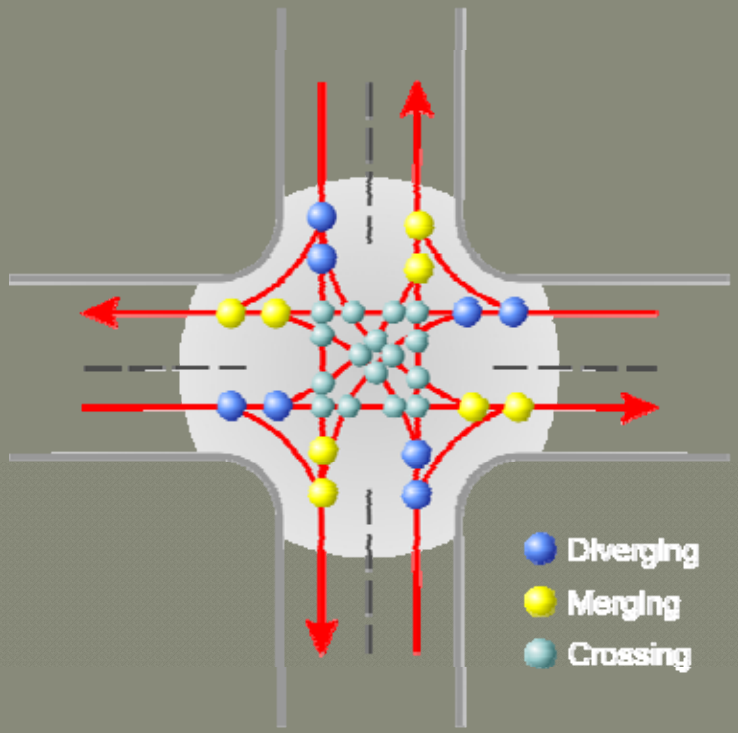
Multi-Lane Roundabout With Shared-Use Path

Why Are Roundabouts Being Considered?

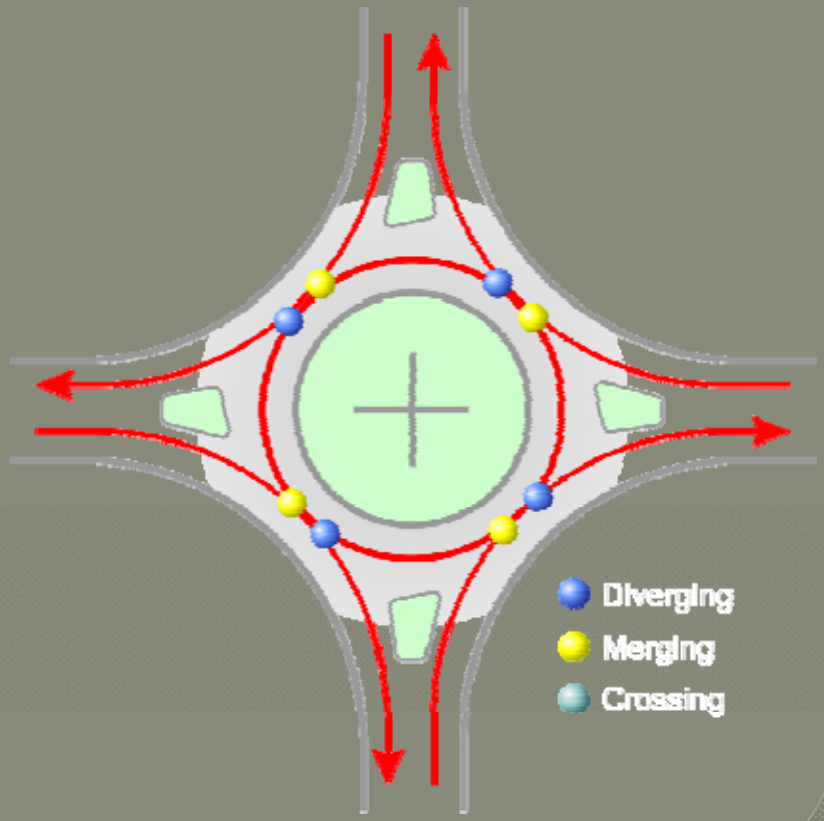
- **Safety for All Modes of Traffic (Roundabouts are the safest at grade intersection)**
- **High Capacity / Low Delay**
- **Geometric Flexibility**
- **Traffic Calming**
- **Environment**
- **Aesthetics**

Why Roundabouts?
Safety

- **Reduces Vehicular Conflict Points from 32 at a Standard Intersection to 8 with a Modern Roundabout**



Standard Intersection



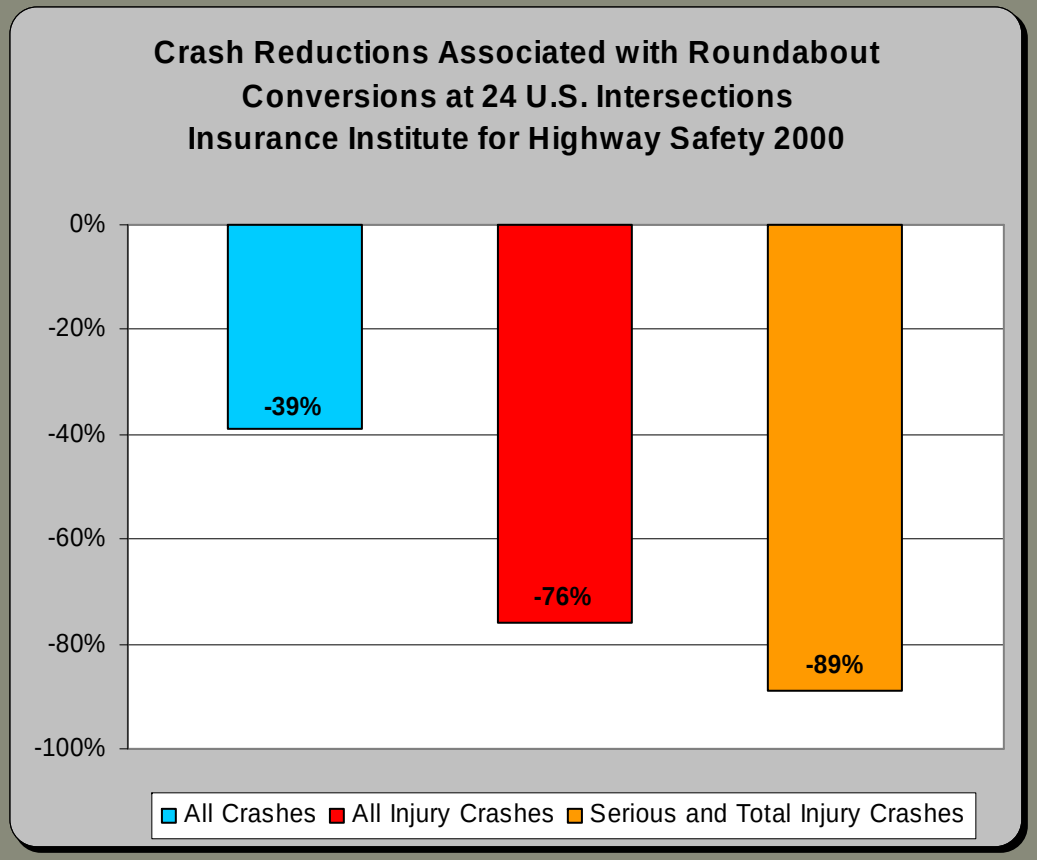
Modern Roundabout

Why Roundabouts? Safety

- **Collision angle between vehicles is more parallel, which reduces the severity of crashes.**
- **No head-on or T-bone collisions at roundabouts**

Why Roundabouts? Safety

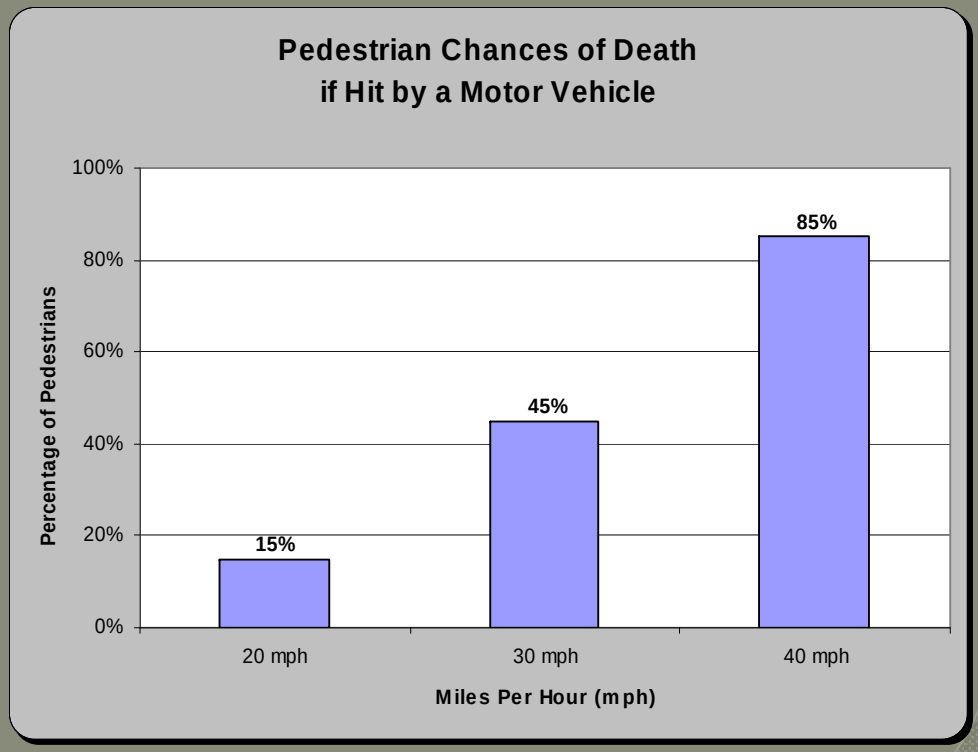
- **Crash Reductions at Intersections Converted to Roundabouts:**
- **39% Reduction in Total Crashes**
- **76% Reduction in Injury Crashes**
- **89% Reduction in Serious Injury / Fatal Crashes**



Source: Insurance Institute for Highway Safety (IIHS)

Why Roundabouts? Pedestrian Safety

- **Reduces Pedestrian Conflict Points from 24 at a Standard Intersection to 8 with a Roundabout**
- **Easy for Pedestrians to Determine Gaps**
- **Cars Coming from Only One Direction**
- **Fewer Lanes to Cross**
- **Splitter Island Provides Refuge**



Source: Insurance Institute for Highway Safety (IIHS)

Why Roundabouts?
High Capacity / Low Delay

- **Roundabouts Increase Traffic Capacity of an Intersection by 30 – 50%**
- **Traffic Always on the Move which Reduces Delay by Allowing Motorists to Yield Rather Than Stop**

Source of Statistics: Federal Highway Administration (FHWA)

Why Roundabouts? Environment

- **Improved Traffic Flow and Reduced Need for Storage Lanes Provide a Substantial Reduction in Pollution and Fuel Use**
- **No Signal Equipment to Repair, Maintain, and Operate Saves Electricity and Maintenance Costs**

Why Roundabouts? Aesthetics

- **Aesthetic Treatments Can Be Incorporated into a Design**
- **Roundabouts Can Serve as a Gateway to the Community, a Development, or Neighborhood**

Martha Avenue Roundabout
Akron, Ohio

What Are People Saying About Roundabouts?

- **Public Resistance is Common**
- **Before Construction: 3 to 2 Against a Roundabout**
- **After Construction: 4 to 1 in Favor of a Roundabout**
- **Education is Crucial**