Modern Roundabouts 101

KENTUCKY TRANSPORTATION CABINET

BURGESS & NIPLE

Engineers ■ Surveyors ■ Planners

Modern Roundabout 101

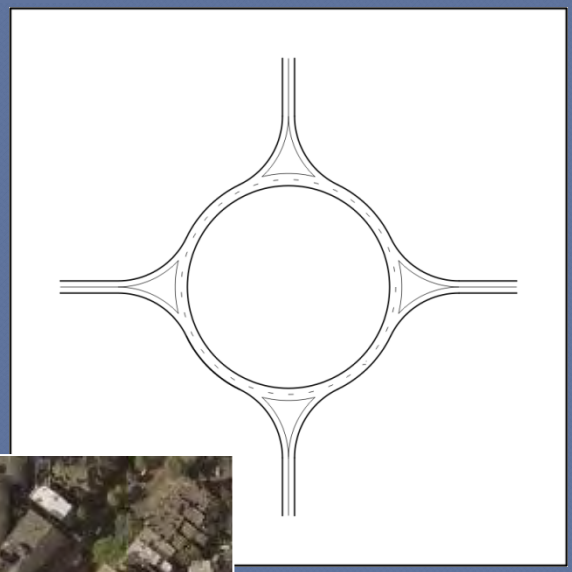
The next slides walk through what a roundabout is, how to drive through a roundabout, and give some examples of roundabouts recently constructed in the U.S.

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

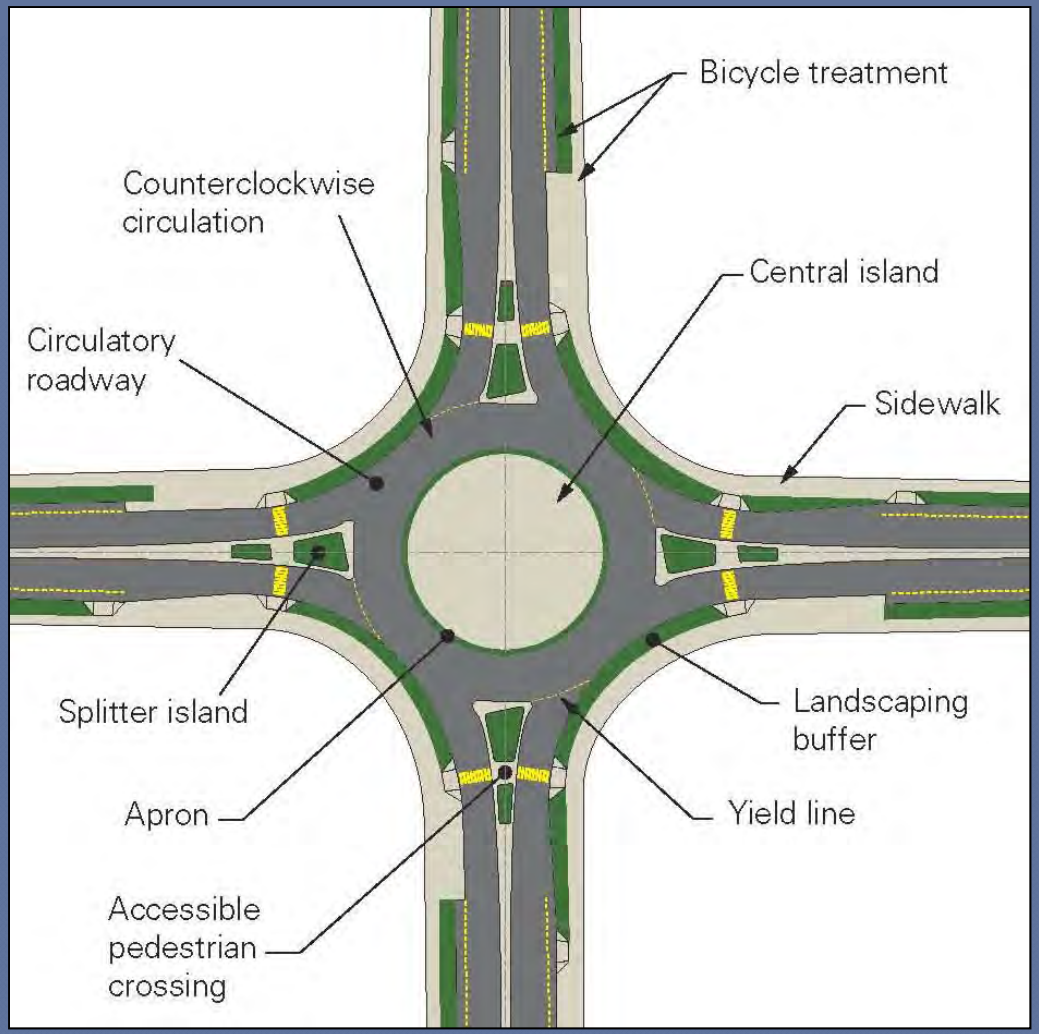
Neighborhood Traffic Calming Circles

- 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

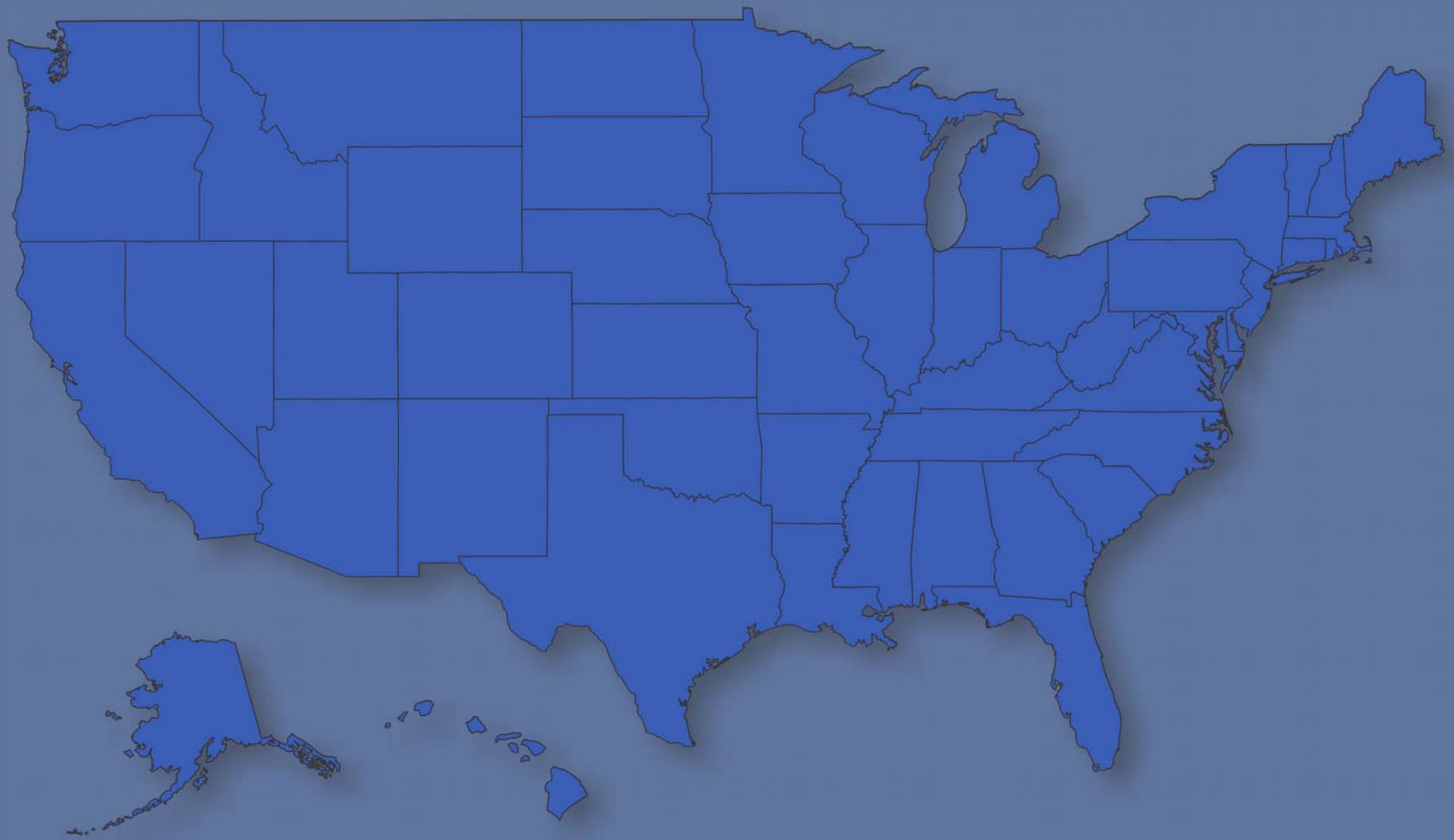


Courtesy of Federal Highway Administration (FHWA)

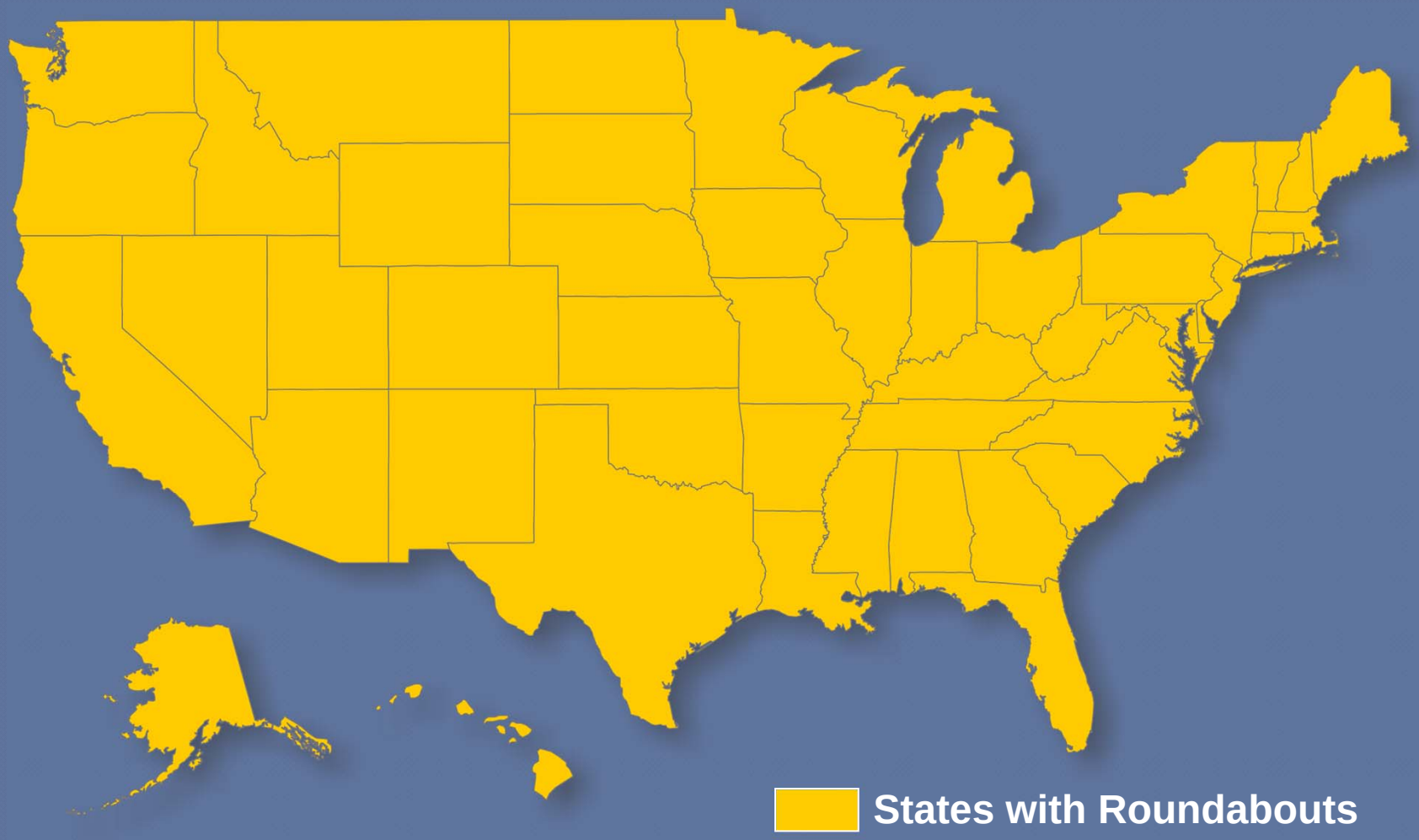
Circular Intersection History

- 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?



Where Are Modern Roundabouts in the United States?



Roundabout Examples Around the U.S.

North Bend Road (KY 237)
Boone County, Kentucky

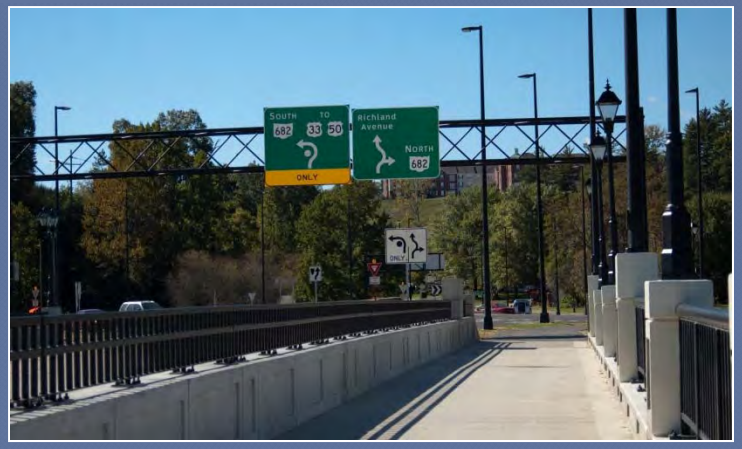
Single Lane Roundabout

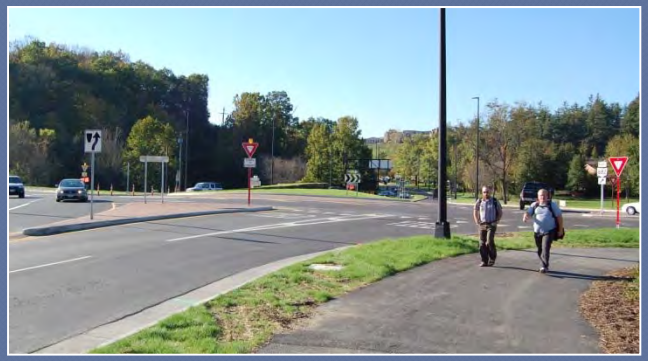
Roundabout Examples Around the U.S.

Hilliard Triangle
Hilliard, Ohio

High Volume Multi-Lane Roundabout

Roundabout Examples Around the U.S.



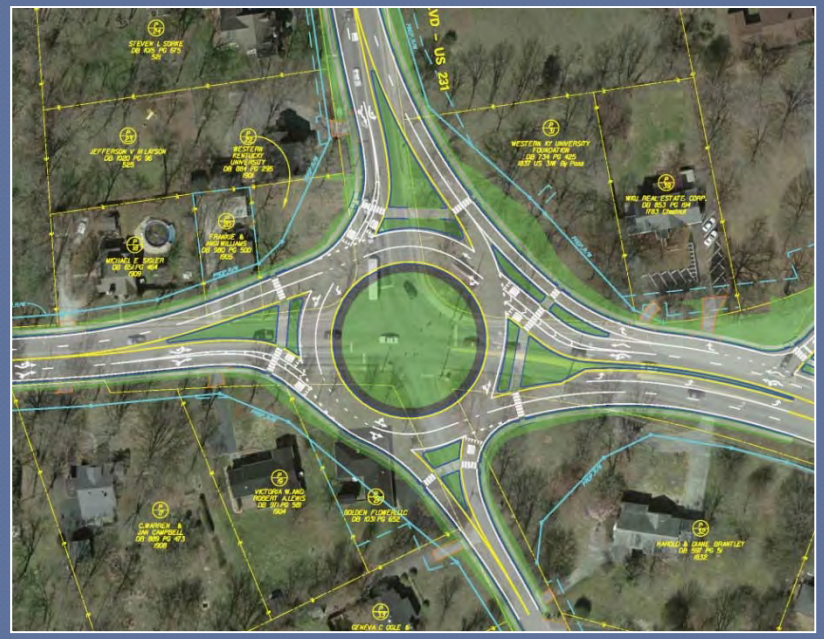


Richland Avenue/SR 682 At Ohio University
Athens, Ohio

Multi-Lane Roundabout With Shared-Use Path

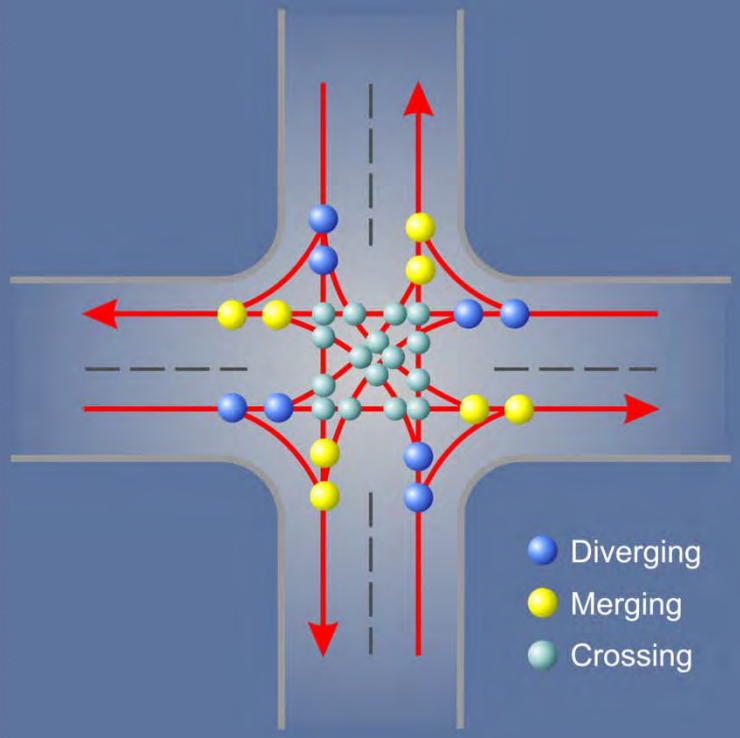
Why Are Roundabouts Being Considered?

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

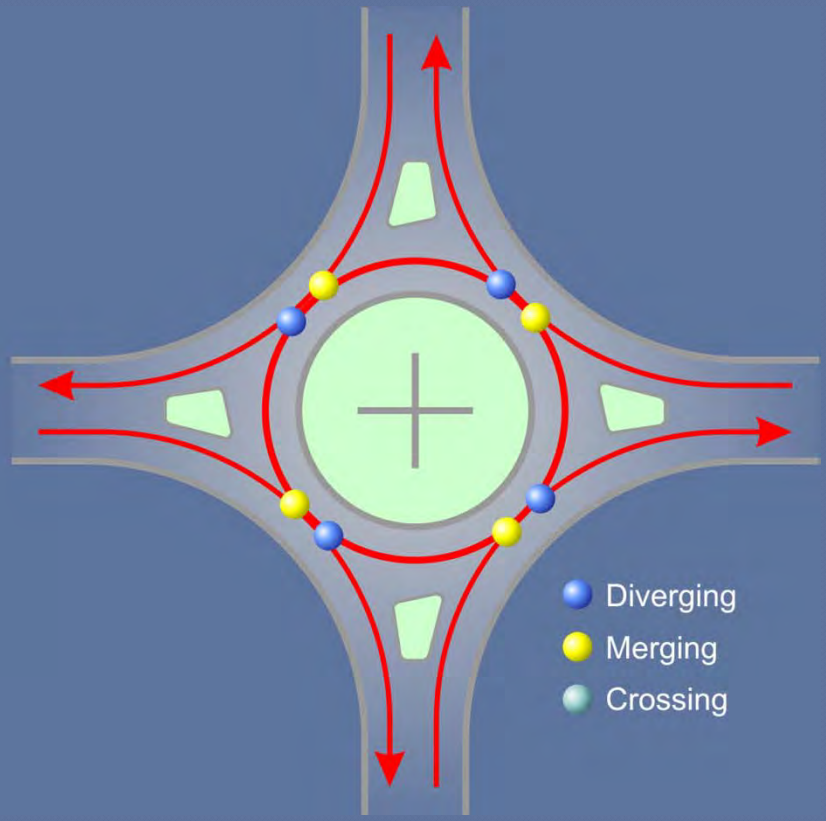


Why Roundabouts?
Safety

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



Standard Intersection



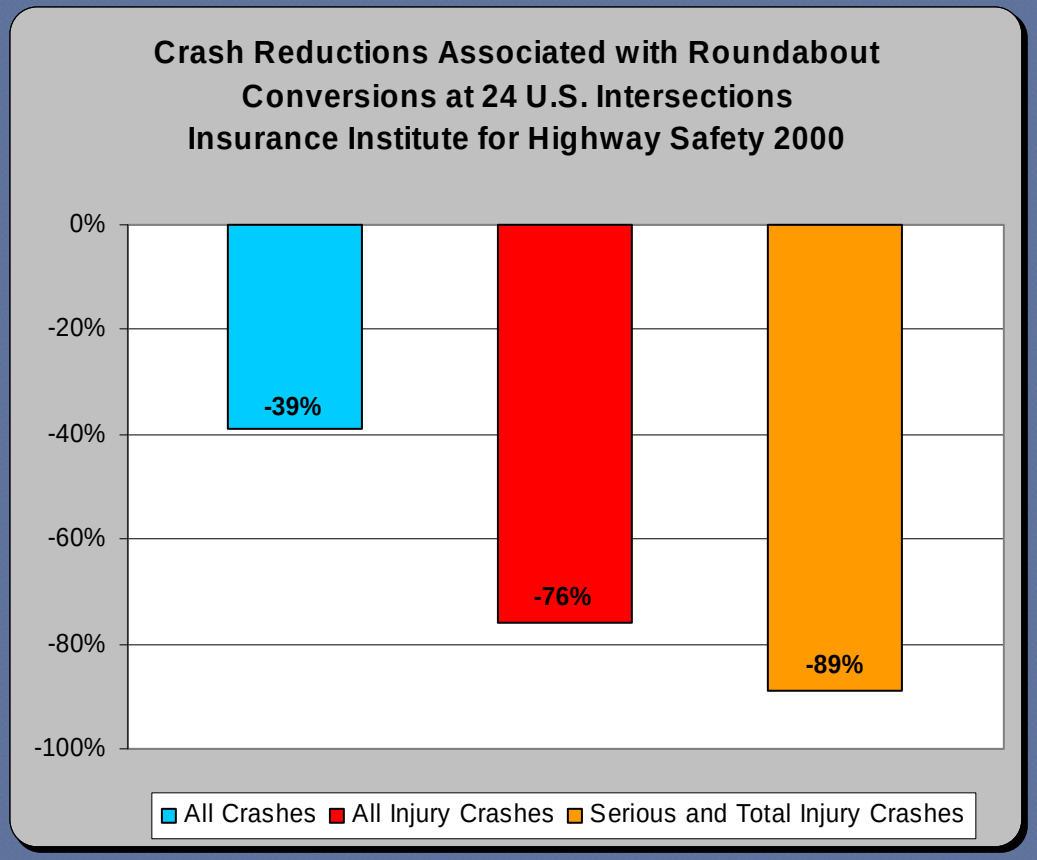
Modern Roundabout

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

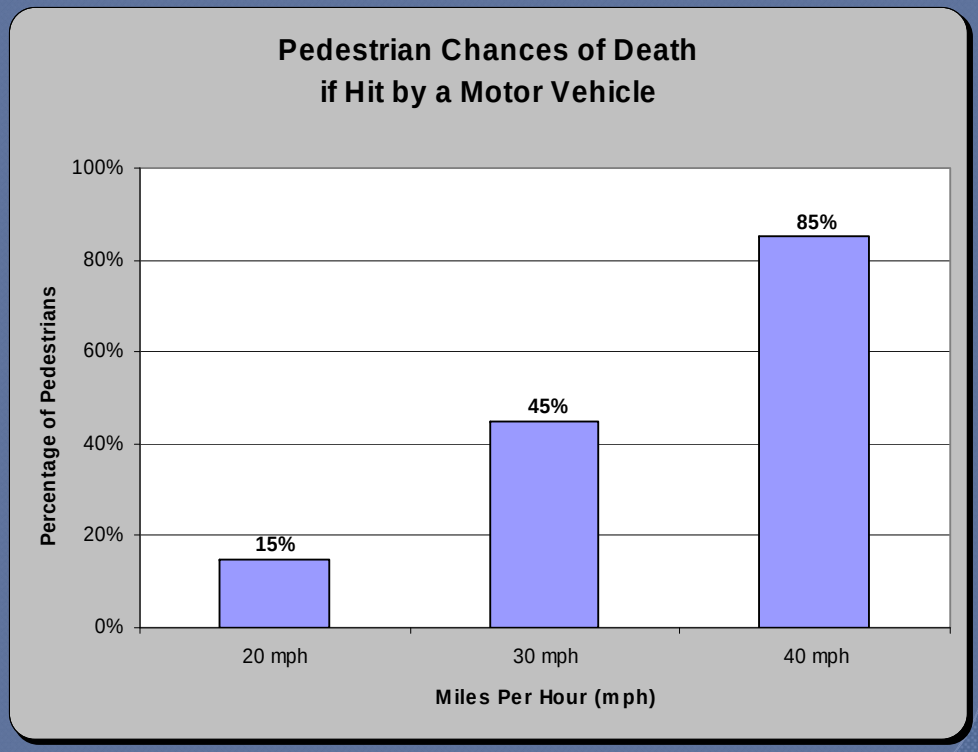
- **Crash Reductions at Intersections Converted to Roundabouts:**
- **39% Reduction in Total Crashes**
- **76% Reduction in Injury Crashes**
- **89% Reduction in Serious Injury / Fatal Crashes**



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**

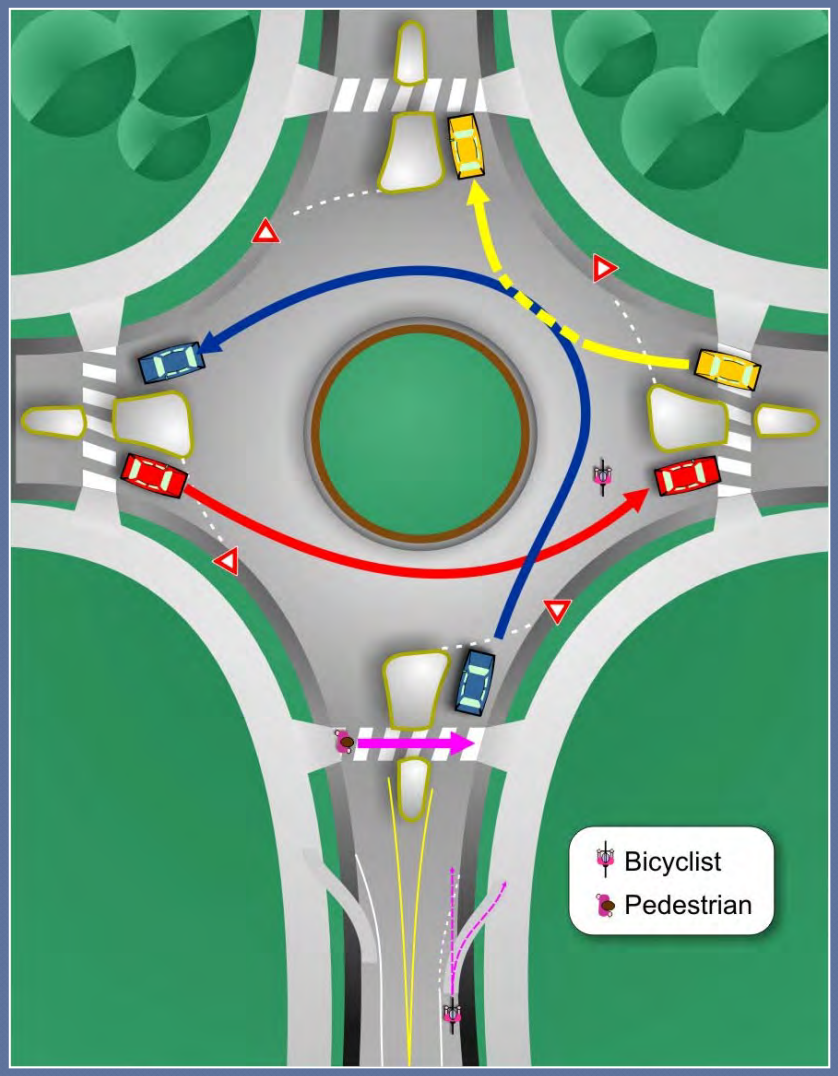
What Are People Saying About Roundabouts?

HOWARD, WISCONSIN

THE FOLLOWING ARE TAKEN FROM :
http://www.co.brown.wi.us/Planning/forms/lineville_roundabout_study.pdf

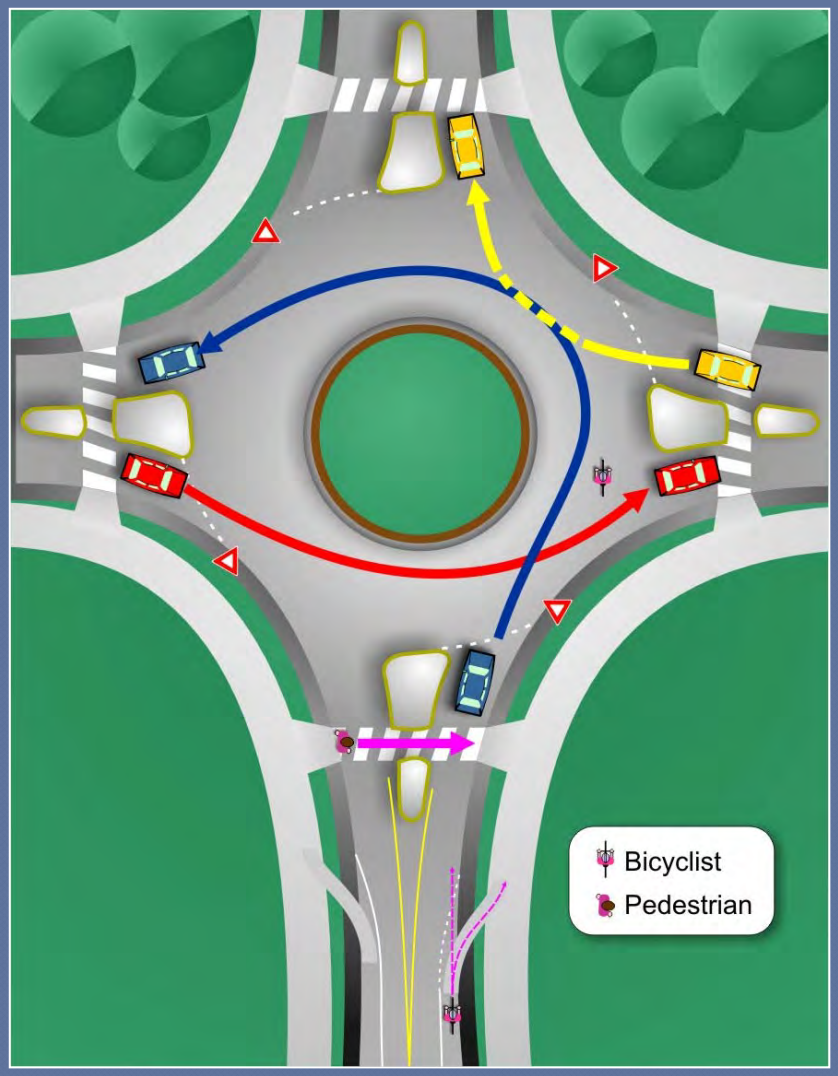
- **Bicycling has been made safer, and students are now allowed to bike to school. The president of the Bicycle Federation of Wisconsin also believes the roundabouts are safe and convenient for bicyclists and supports their construction throughout the state.**
- **Reportable vehicle crashes have virtually disappeared from the two intersections and injuries have been eliminated. This occurred in spite of the introduction of hundreds of inexperienced drivers to Lineville Road's existing traffic load after the new high school opened in August of 2000.**
- **The director of the Brown County Sheriff's Department's Patrol Division and the principal of Bay View Middle School both believe that traffic congestion and speeding have been significantly reduced along Lineville Road. The patrol director and principal also believe that safety has been greatly enhanced by the roundabouts.**
- **Semi-trailer trucks, school buses, fire trucks, and other large vehicles can easily pass through the roundabouts. The manager of the school bus company that serves the Howard-Suamico School District even stated that he would recommend roundabouts in other school districts.**

Navigating a Modern Roundabout
Motor Vehicles



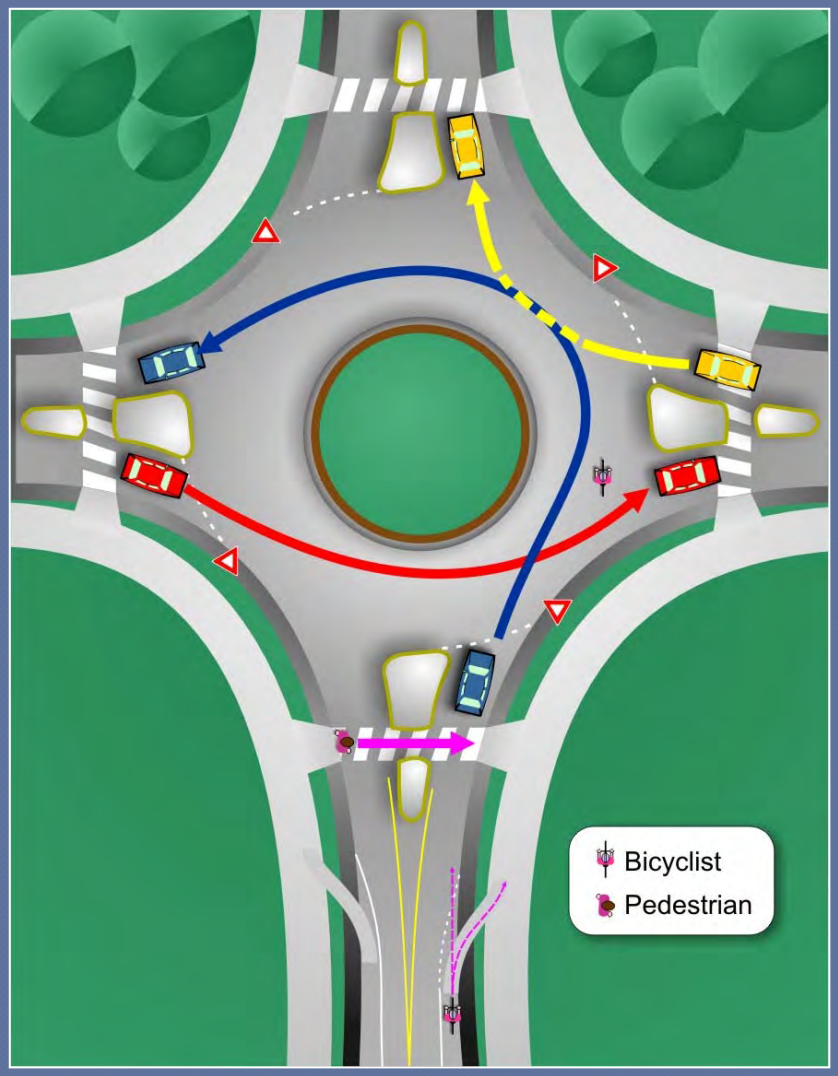
- When approaching the roundabout, slow down and yield to pedestrians in the crosswalk.
- Approach the yield line, look to the left, and enter the roundabout when there is an adequate gap in the circulating traffic flow. Remember, traffic in the roundabout has the right-of-way.

Navigating a Modern Roundabout
Motor Vehicles (Continued)



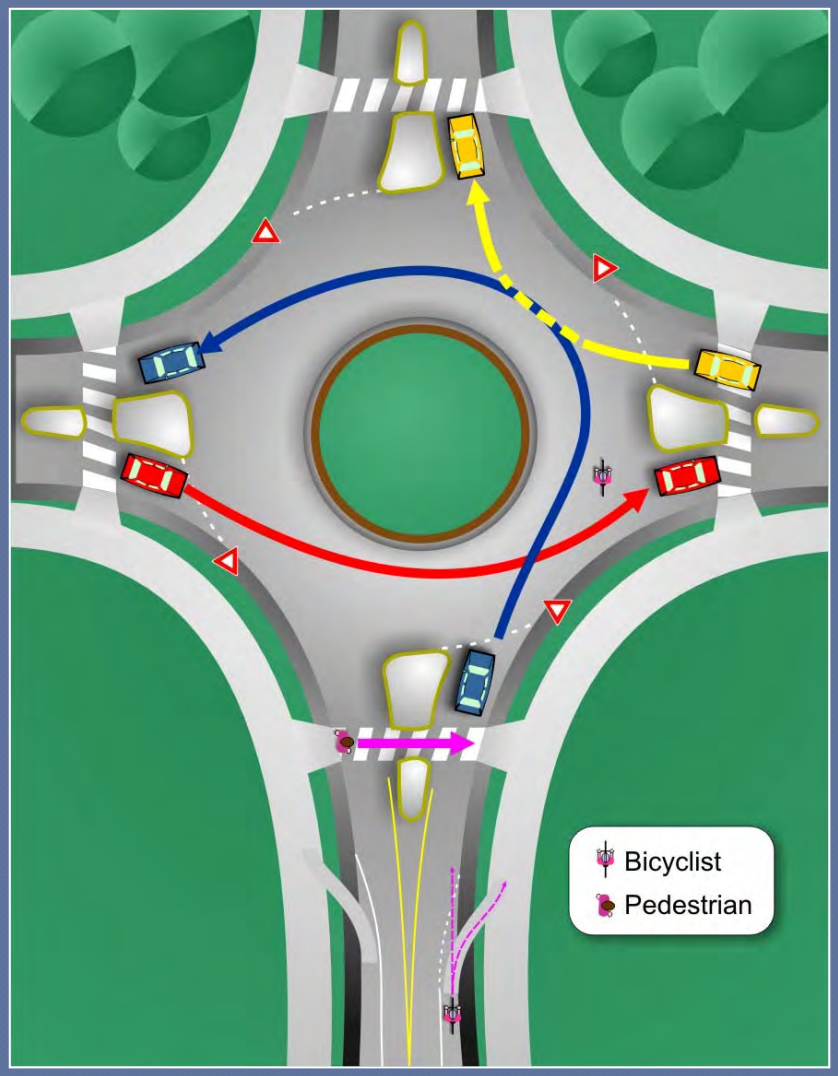
- Keep your speed low and proceed counter-clockwise to your exit. Remember you now have the right-of-way and never stop in the roundabout.
- As you approach your exit, turn on your right turn signal and exit the roundabout, yielding to pedestrians in the crosswalk. Do not accelerate until after crossing the pedestrian crosswalk.

Navigating a Modern Roundabout Motor Vehicles (Continued)



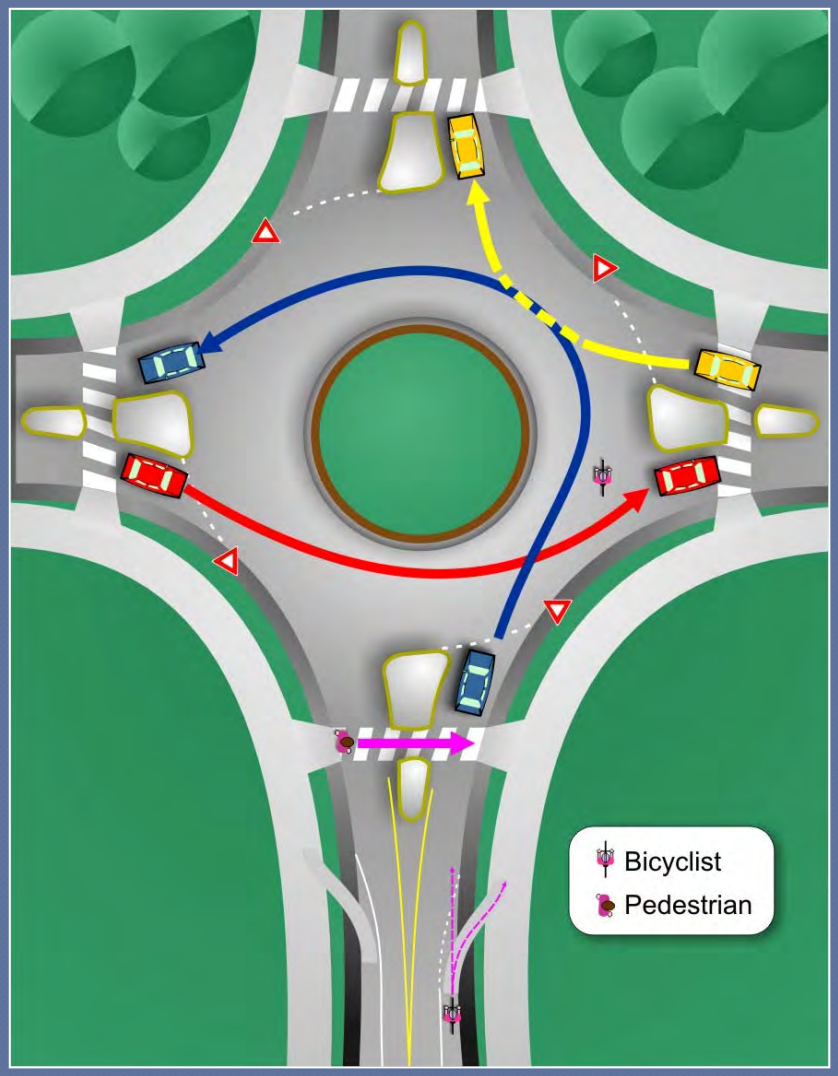
- **Bicyclists are permitted to ride within the roundabout and shall be treated as another vehicle. Do not pass a bicycle in the roundabout.**

Navigating a Modern Roundabout Motor Vehicles (Continued)



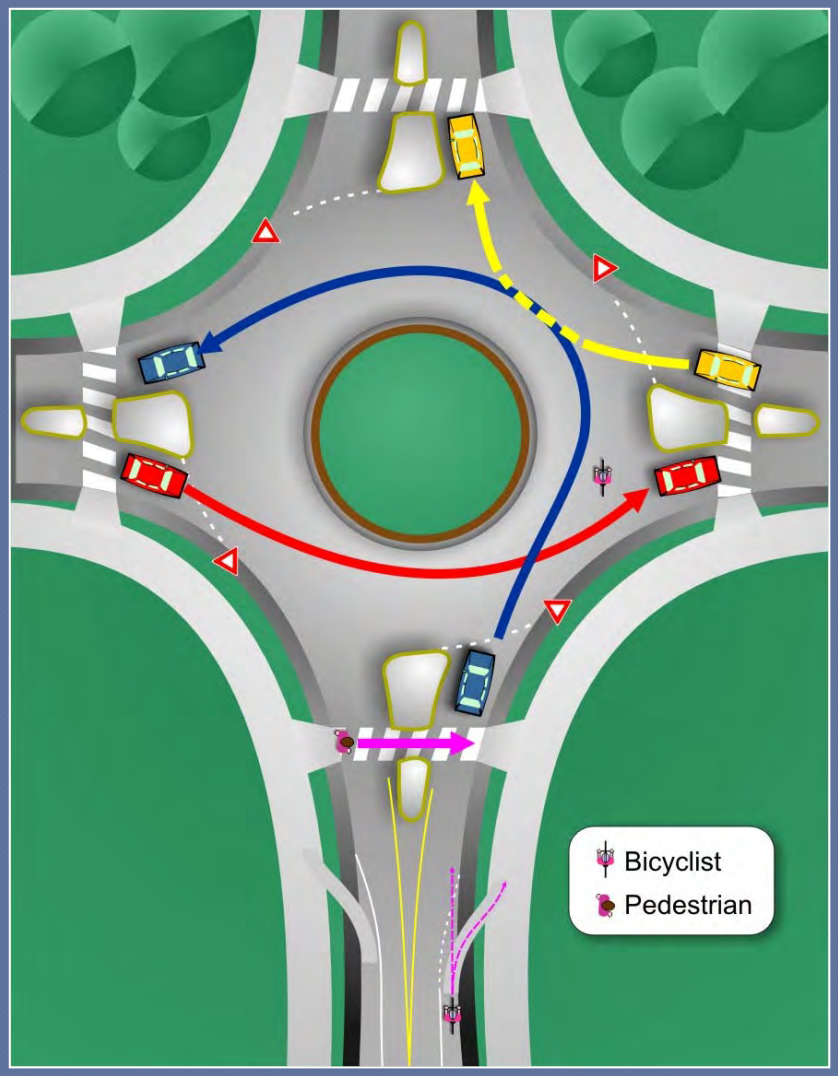
- **Drivers should behave in the same manner as they would on any other road if an emergency vehicle approaches, move as far right as possible to let the emergency vehicle pass. Do not enter the roundabout when an emergency vehicle approaches from another leg of the intersection. Allow vehicles in the roundabout to clear in front of the emergency vehicle.**

Navigating a Modern Roundabout
Trucks and Emergency Vehicles



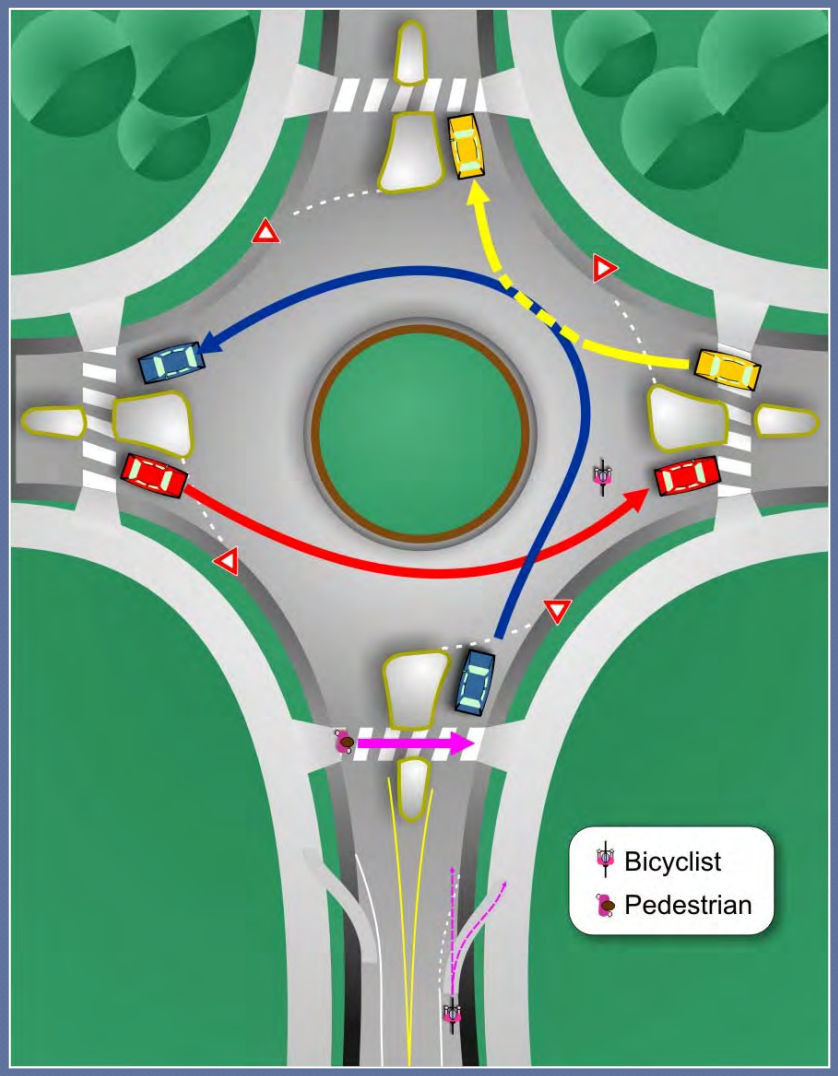
- **Large trucks and emergency vehicles drive on the circulatory roadway the same as other motor vehicles except they may use the provided truck apron to negotiate the tight turning radius of the roundabout. Generally, only the trailing wheels will track over the raised pavement of the truck apron.**

Navigating a Modern Roundabout Pedestrians



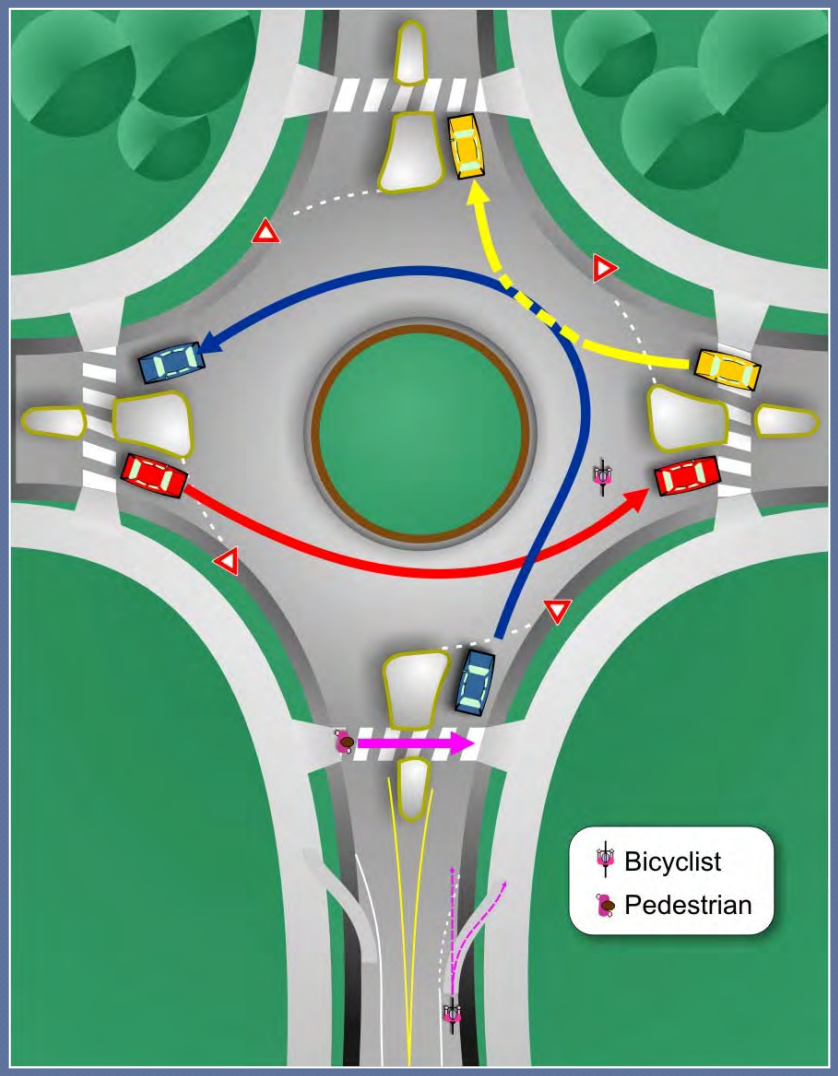
- **Stay on the designated walkways at all times and never cross the circular roadway to the central island.**
- **Cross the crosswalk one lane at a time, using the splitter island as a refuge before crossing the next lane.**

Navigating a Modern Roundabout Pedestrians (Continued)



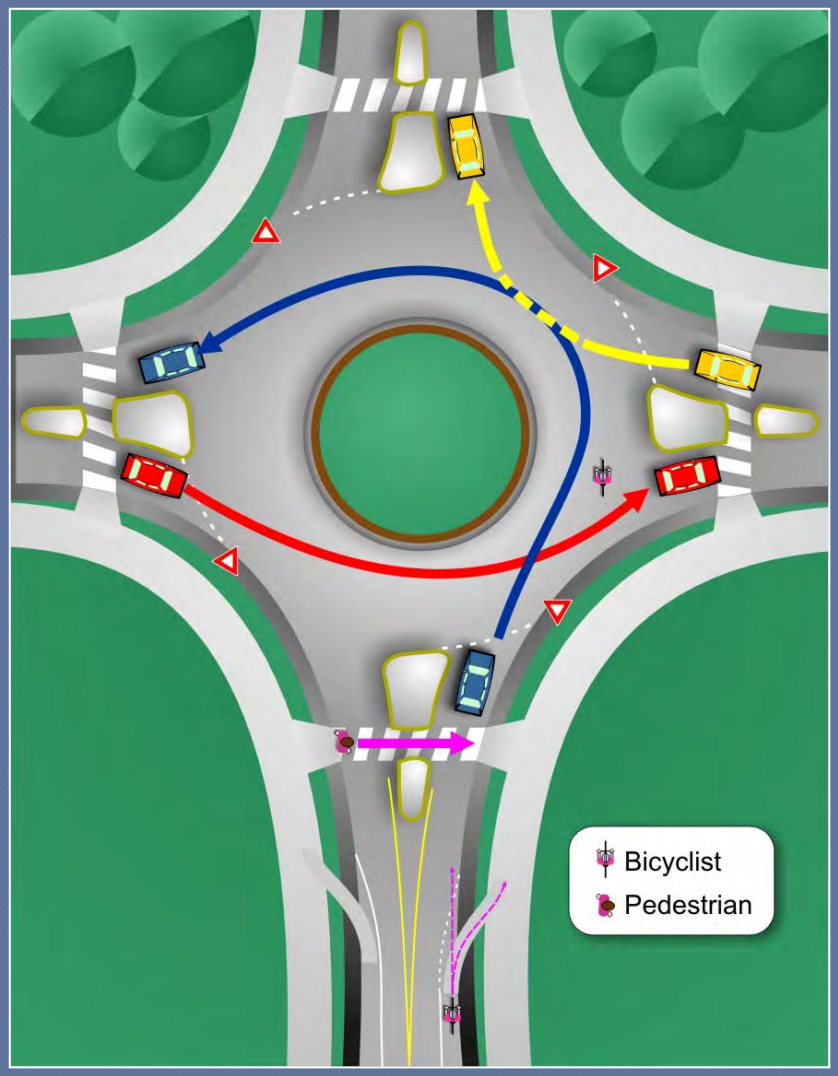
- When crossing the street from curbside, look to your left for oncoming traffic. You have the right-of-way, but be careful, making sure drivers can see you and stop for you.
- When crossing the street from within the splitter island, look to your right for oncoming traffic.

Navigating a Modern Roundabout
Bicyclists



- **Bicyclists can continue through the roundabout taking the travel lane like a motor vehicle or exiting and using a crosswalk as a pedestrian.**
- **Bicyclists using the circulatory roadway shall follow the same rules as a motorist. Ride at the speed of the circulatory roadway to discourage cars from passing you and use a hand signal when exiting.**

Navigating a Modern Roundabout Bicyclists (Continued)



- **If you are unsure or uncomfortable using the roundabout, exit, dismount, and walk your bike as a pedestrian at the designated crosswalks.**

Special Thanks To:

- The Kentucky Transportation Cabinet (KYTC)
- The Federal Highway Administration (FHWA)
- The Insurance Institute for Highway Safety (IIHS)

U.S. Department of Transportation
Federal Highway Administration

INSURANCE INSTITUTE FOR HIGHWAY SAFETY
HIGHWAY LOSS DATA INSTITUTE

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