



A SAFER COMMUTE

Township Dinner
February 23, 2023

National Crash Stats

6,700,000 Crashes

38,000 Fatalities

- 7,500 peds & bikes

2,700,000 Injuries

- 140,000 peds & bikes

USA ranks near bottom

Butler County Crash Stats

8,000 Crashes

- 60 ped (54 in 2019, 97 in 2017)
- 35 bike (23 in 2021, 51 in 2017)

30 Fatal

- 5 ped (8 in 2021, 1 in 2019)
- 1 bike

2,000 Injury

- 50 ped (~85%)
- 30 bike (~90%)

Crash Severity



Kinetic Energy

The energy of motion

$$\text{K.E.} = \frac{1}{2} m \times v^2$$

Where m = mass

v = velocity

Managing Crash Kinetic Energy



**Managing
speed**

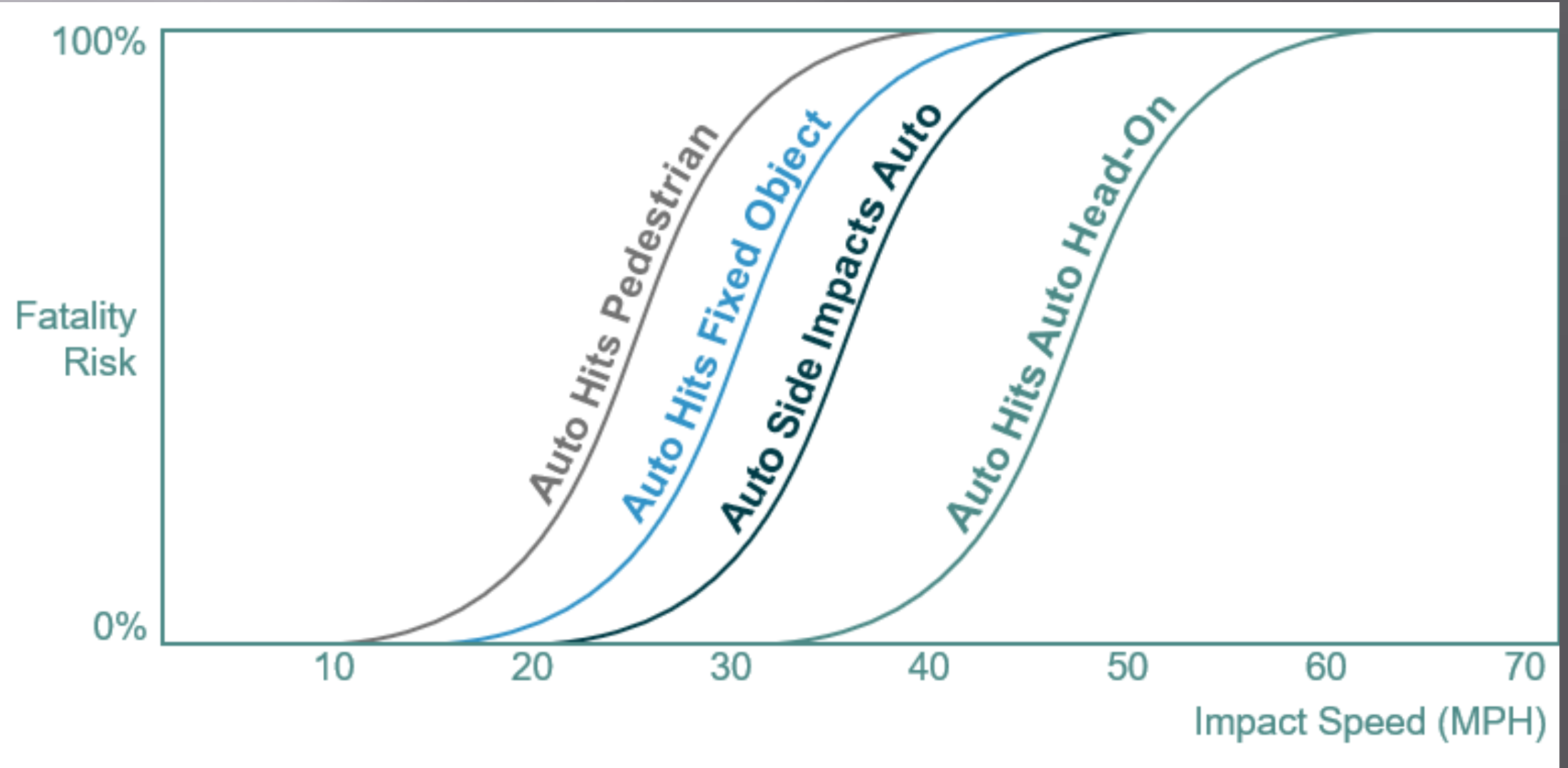


**Manipulating
mass**



**Manipulating
crash angles**

Speed vs Fatality Risks



Source: FHWA

Speed vs Fatality Risks

▣ Vulnerable Users

- 10% @ 23 MPH
- 50% @ 42 MPH
- 90% @ 58 MPH

Motor Vehicle Crash Costs

2nd most preventable injury-related death

Average Human Capital Costs

- Death = \$1,980,500
- Injury = \$45,000 - \$177,000

Average Comprehensive Societal Costs

- Death = \$6,733,380
- Injury = \$73,500 - \$357,040

Why Roundabouts?

Safety, Safety, Safety

- Conventional intersections = 10x fatality rate (FHWA)
- 90% reduction in fatal crashes
 - 8,550 lives saved
- 80% reduction in injury crashes
 - 540,000 fewer injury crashes

Traffic calming = Slower speeds

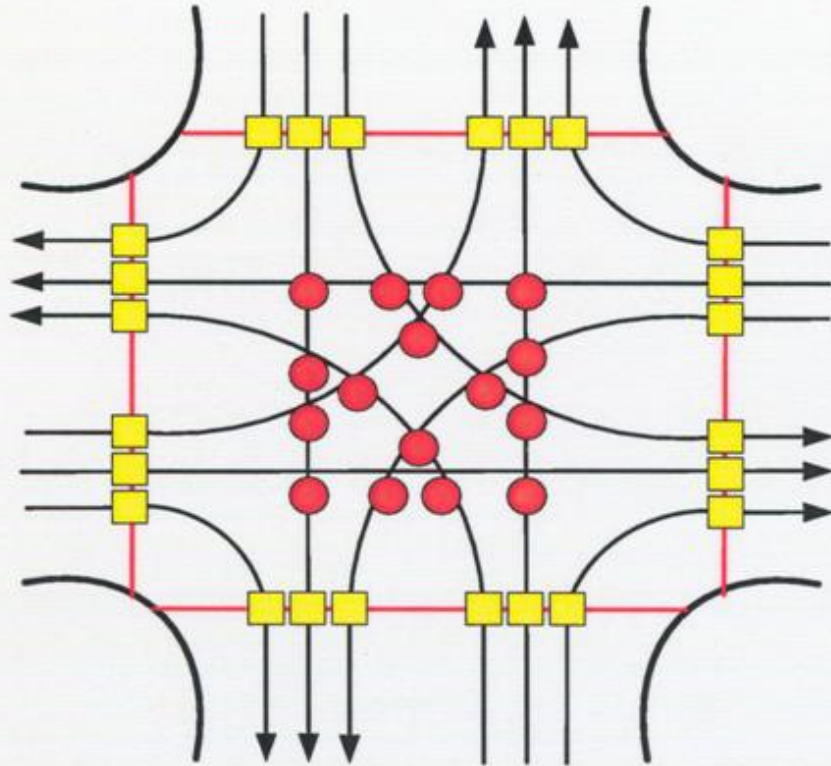
Efficient - 50% more traffic than traffic signal



Environmentally Friendly

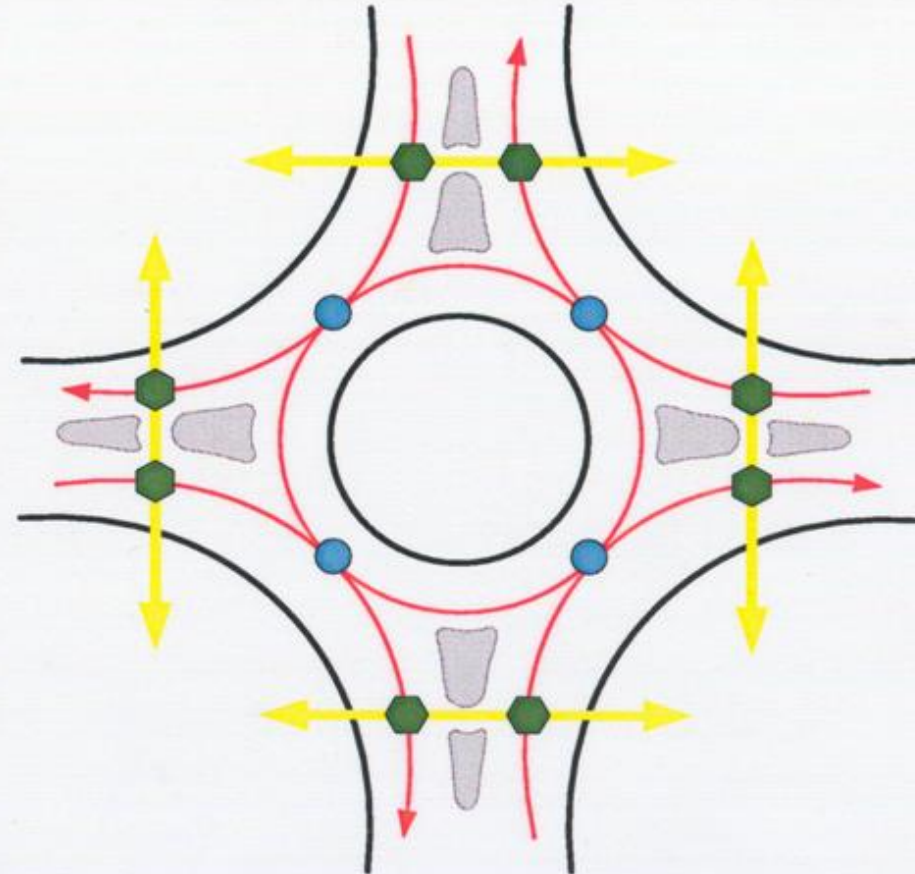
- Reduces emissions & saves fuel



No power outages

Conflict Points Comparison

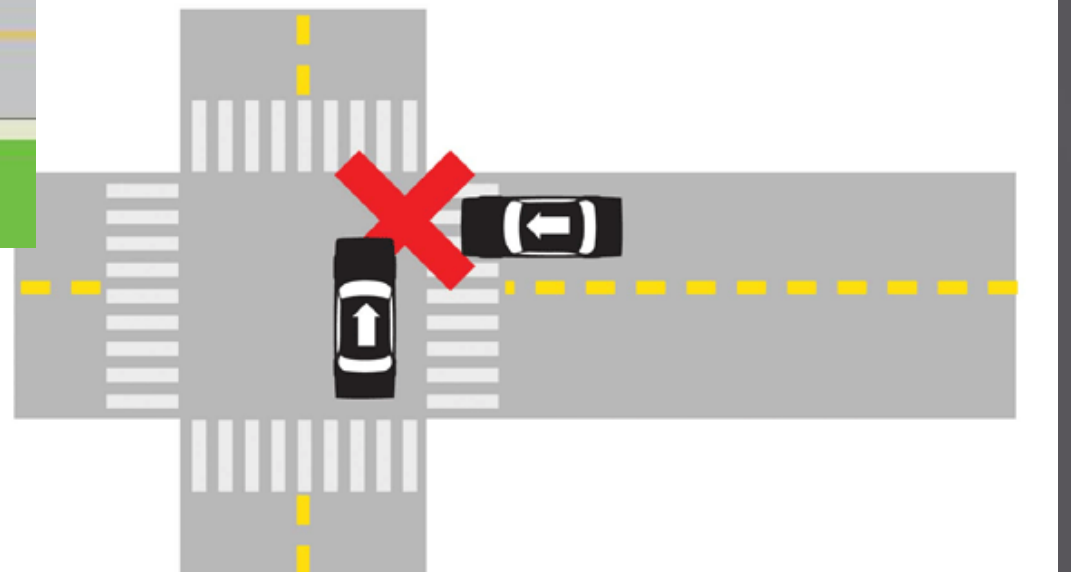
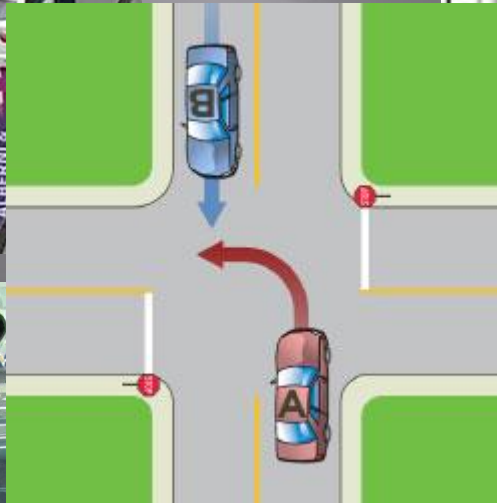
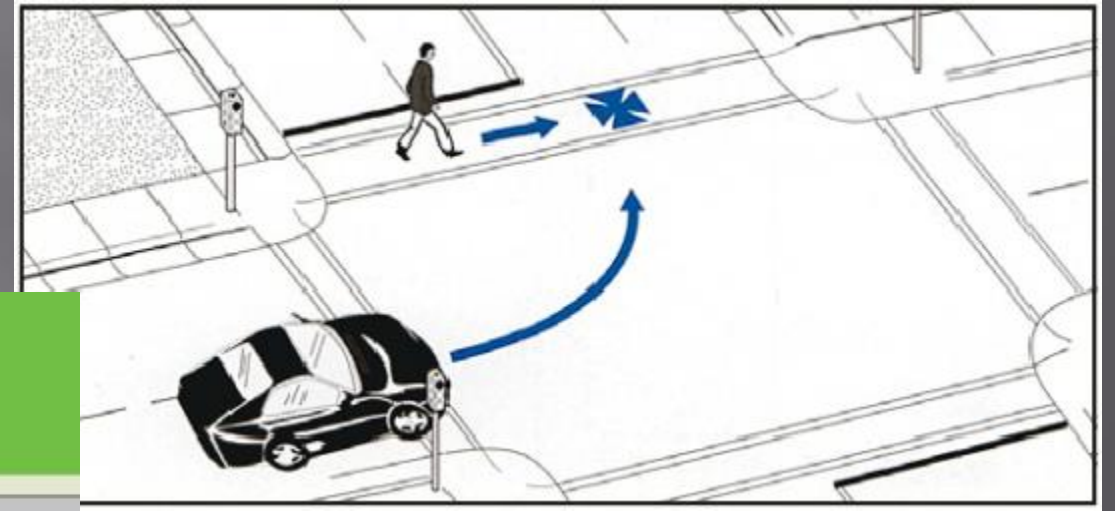


	Vehicle to Pedestrian	24
	Vehicle to Vehicle	16



	Vehicle to Pedestrian	8
	Vehicle to Vehicle	4

Roundabouts Eliminate



Butler County Roundabout Stats

- ▣ Nationally, roundabouts have 40% fewer crashes, 80% fewer injuries, 90% fewer serious and fatal injuries (FHWA)
- ▣ BCEO Data (thru 2021)
 - 15 Single-Lane Modern RABs (24 total)
 - 61% reduction in overall crashes
 - 83% fewer injury crashes
 - 100% reduction in serious and fatal crashes

Butler County Roundabout Stats

OVERALL TOTALS								
15 Single-Lane Roundabouts								
	ADT	Dates	Years	All Crashes	Crash/year	Injury	Inj/year	Fatal
Before Data		2003-2019	73.17	286	3.9	93	1.3	2
After Data		2008-2021	107.40	163	1.5	23	0.2	0
% Reduction					61%		83%	100%
Comments:								

Quiz

What does this line mean?



Lane Drop Marking

When a through lane
terminates into a turn lane

MULTI-LANE ROUNDABOUTS

An aerial photograph of a large, multi-lane roundabout interchange. The roundabout has multiple lanes and a central landscaped area. To the right of the roundabout is a large Costco store with a white roof and a large parking lot filled with cars. The surrounding area includes some residential houses and a water tower in the distance.

Wayne Madison
& Trenton Road

SR 129/Veterans
Blvd & Cox
Road

Veterans Blvd.
at Costco (x2)



S.R. 129 / COX ROAD / VETERANS BLVD.

S:\Design\Projects\LibertyWay\1337000959\5A\Plan_Reviews\Final\Files_112420\11 - Project_Index\BUT-104195-CADD\Files\BUT-104195-CADD\Files\Design\Traffic\Basemaps\SR129_C1\day to Cox Traffic MJL 11-16-2022.dgn 11/16/2022 2:31:48 PM mless



MULTI-LANE ROUNDABOUTS

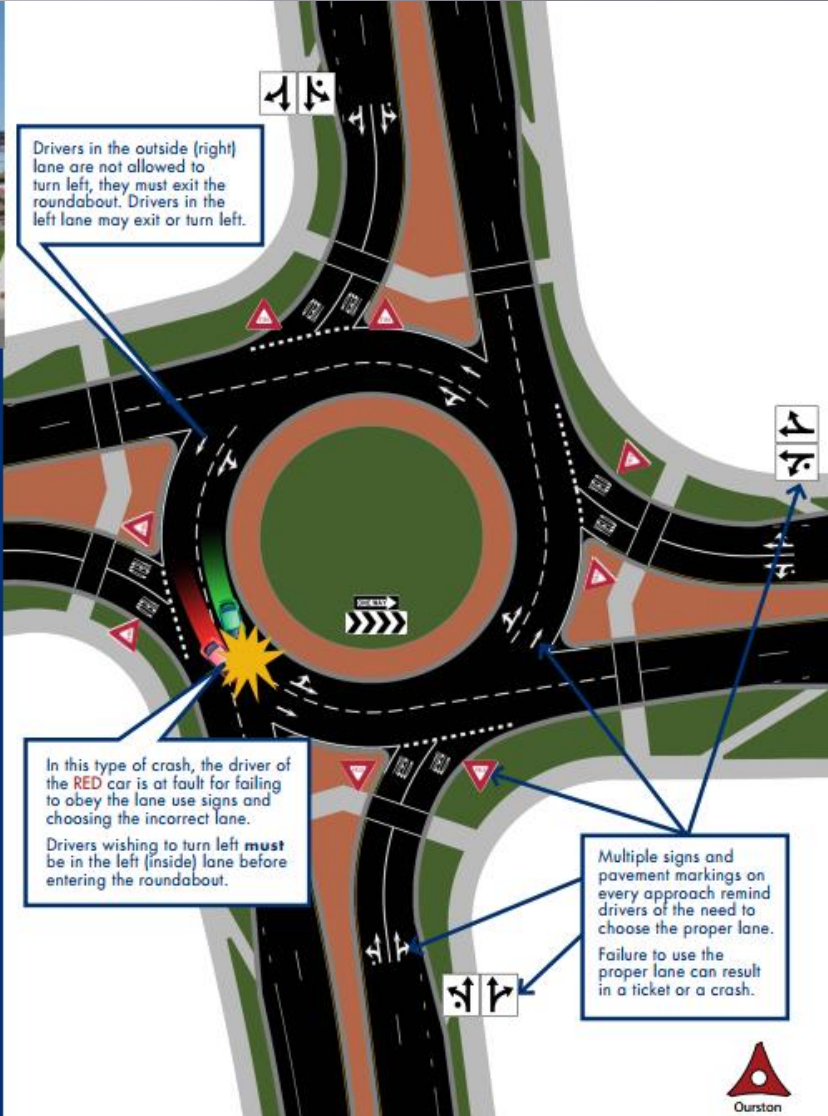


As with any other intersection, the proper lane must be chosen before entering a roundabout.

In advance of the roundabout, signs and pavement markings will always indicate which lanes may be used for the direction you want to go.

Keep left to turn left through the roundabout and keep right to turn right.

Never change lanes within a roundabout.



Observe all standard road rules, including yielding for pedestrians in crosswalks.

To safely and efficiently drive a roundabout:

- Slow down.
- Read advance signing and choose correct lane.
- Yield to traffic in all lanes on your left before entering.
- Stay in your lane to your exit.



Factsheet courtesy of
 Ourston

ALWAYS OBEY THE SIGNS AND MARKINGS

As you get closer to the roundabout entrance, it is very important to observe the signs and arrows to determine which lane to use before entering a roundabout. Signs above the road and white arrows on the road will show the correct lane to use.



Roundabout ahead, slow down.



Guide signs near the entry to a roundabout show lane designations.






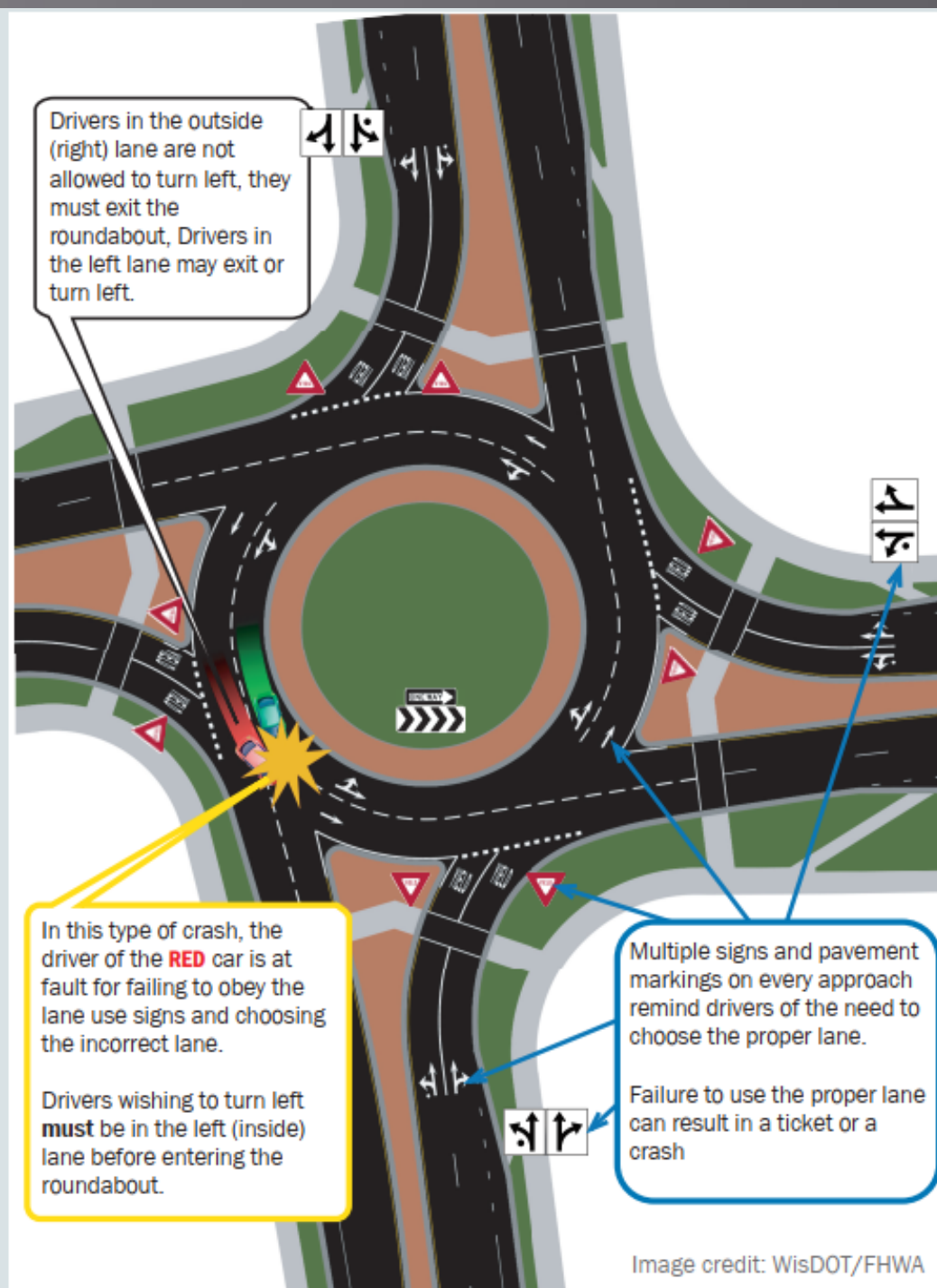
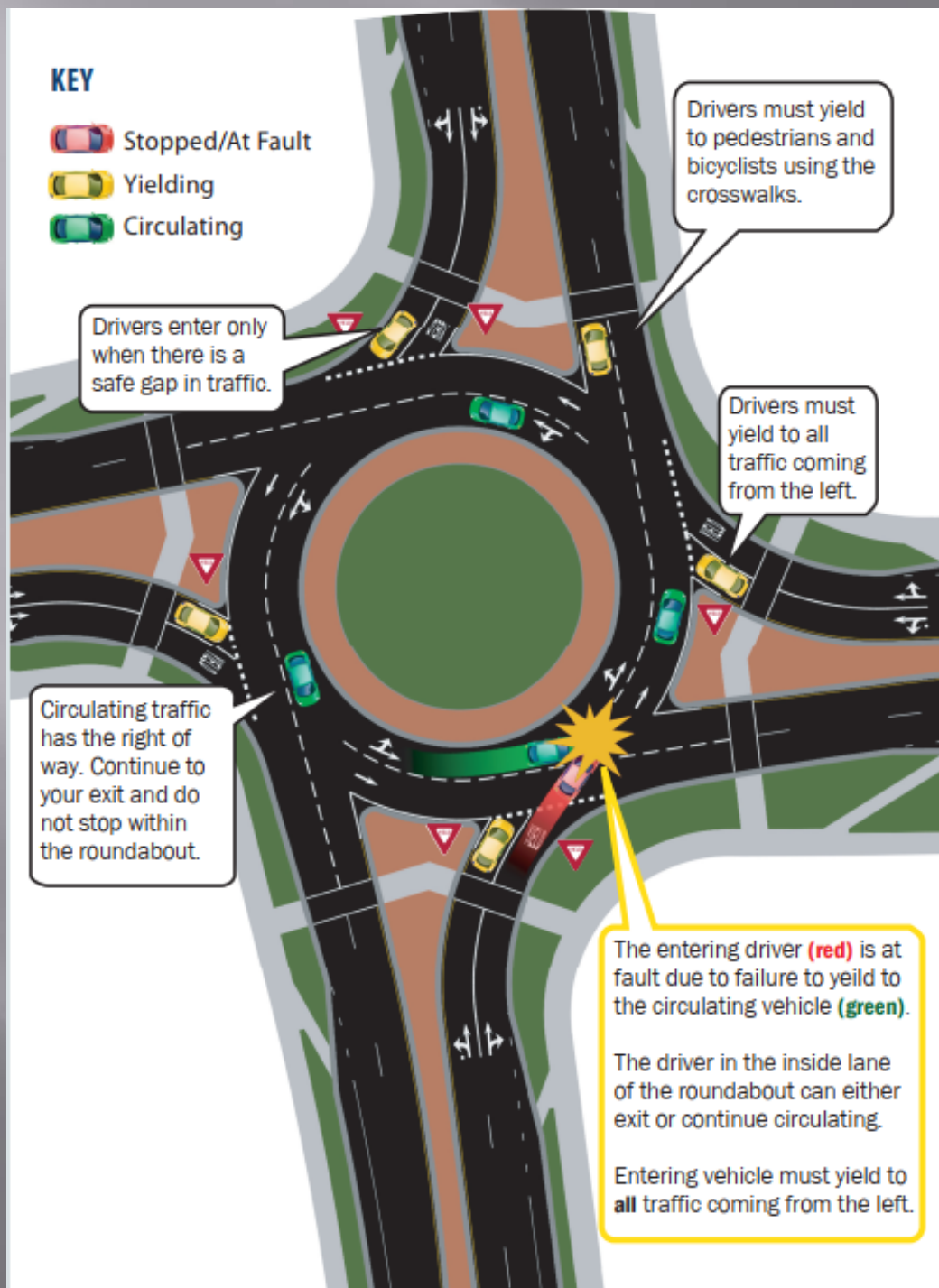
Yield to all traffic in the roundabout.



Roundabout traffic travels one-way.

KEY

-  Stopped/At Fault
-  Yielding
-  Circulating



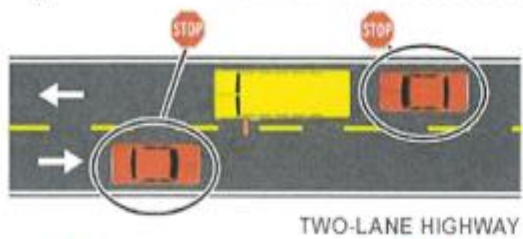


Quiz

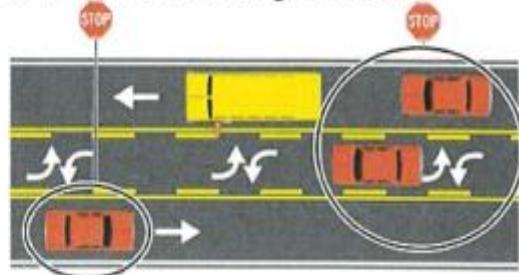
When to stop for a School Bus in Ohio?

ORC 4511.75

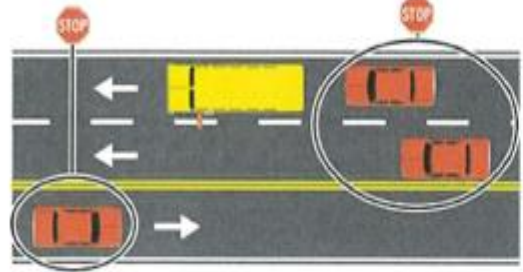
On a road with fewer than four lanes, all traffic approaching a stopped school bus from either direction must stop at least 10 feet from the front or rear of the bus and remain stopped until the bus begins to move or the bus driver signals motorists to proceed.



TWO-LANE HIGHWAY

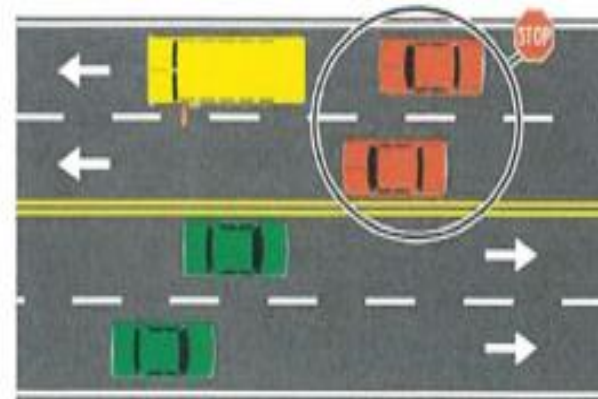


TWO-LANE HIGHWAY WITH CENTER TURN LANE

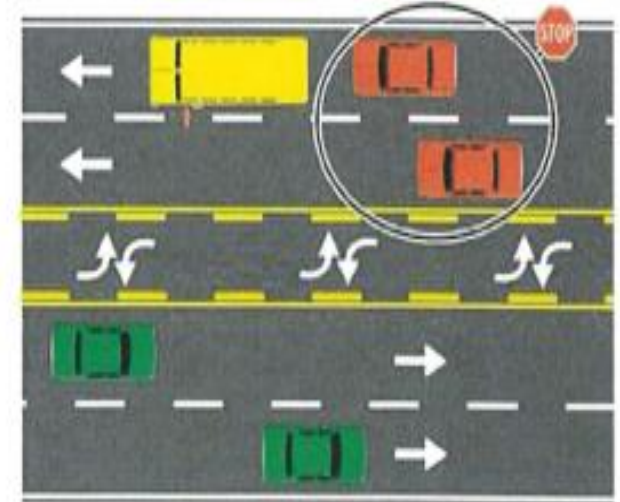


THREE-LANE HIGHWAY

If the bus is stopped on a street with four or more lanes, only traffic proceeding in the same direction as the bus must stop.

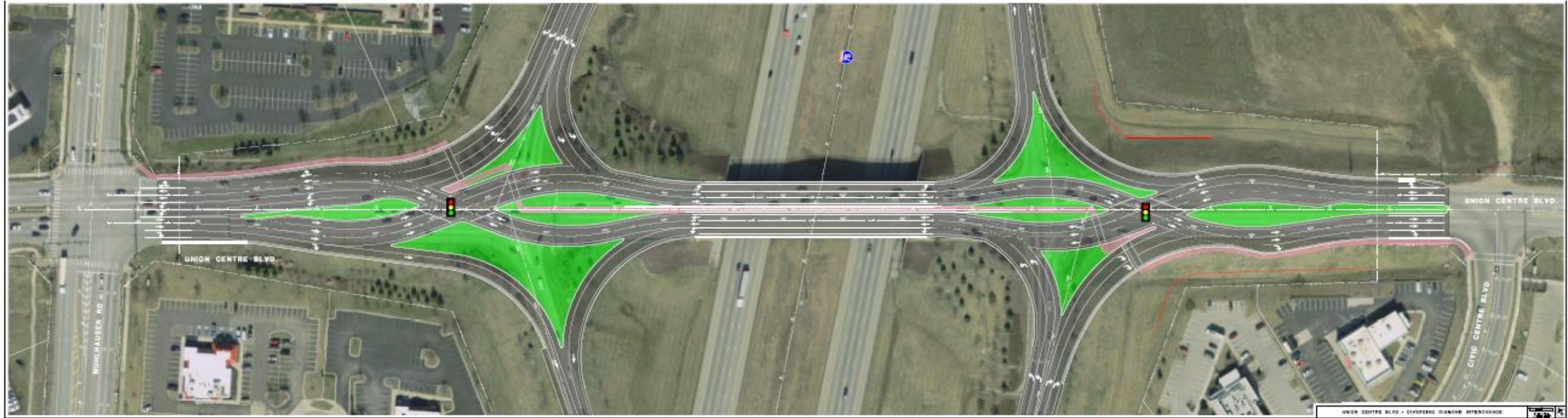


FOUR-LANE HIGHWAY



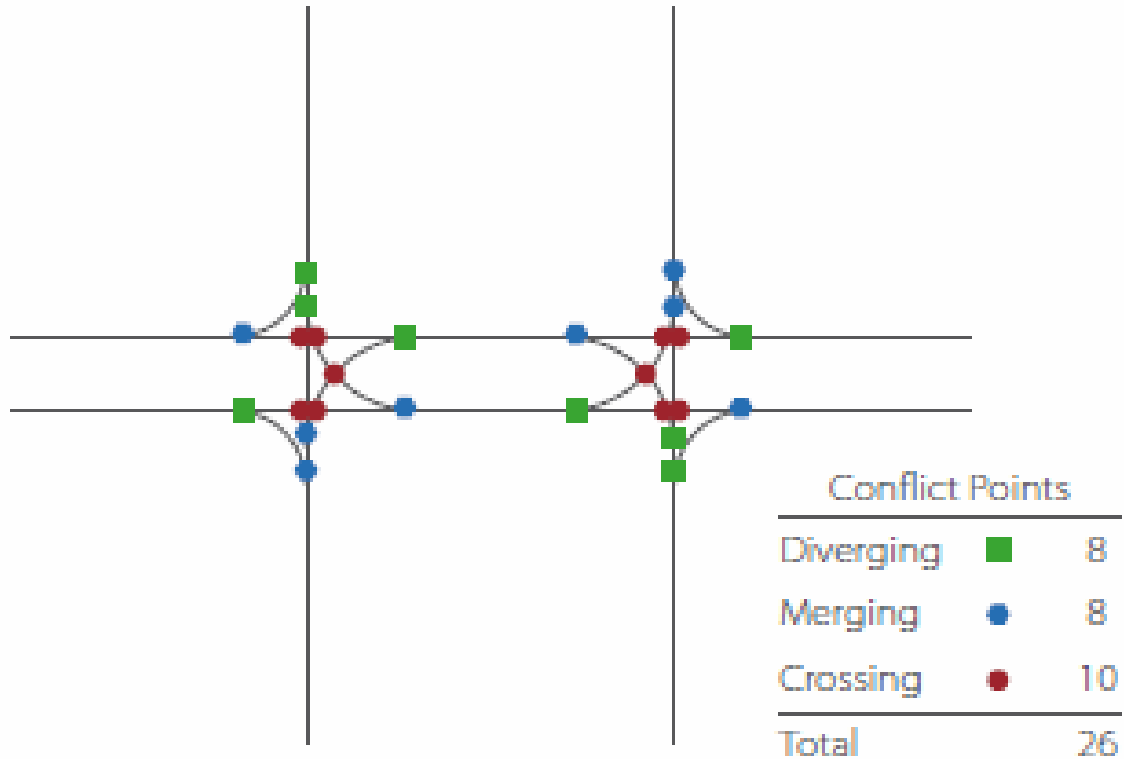
FOUR-LANE HIGHWAY WITH CENTER TURN LANE

Diverging Diamond Interchange (DDI)

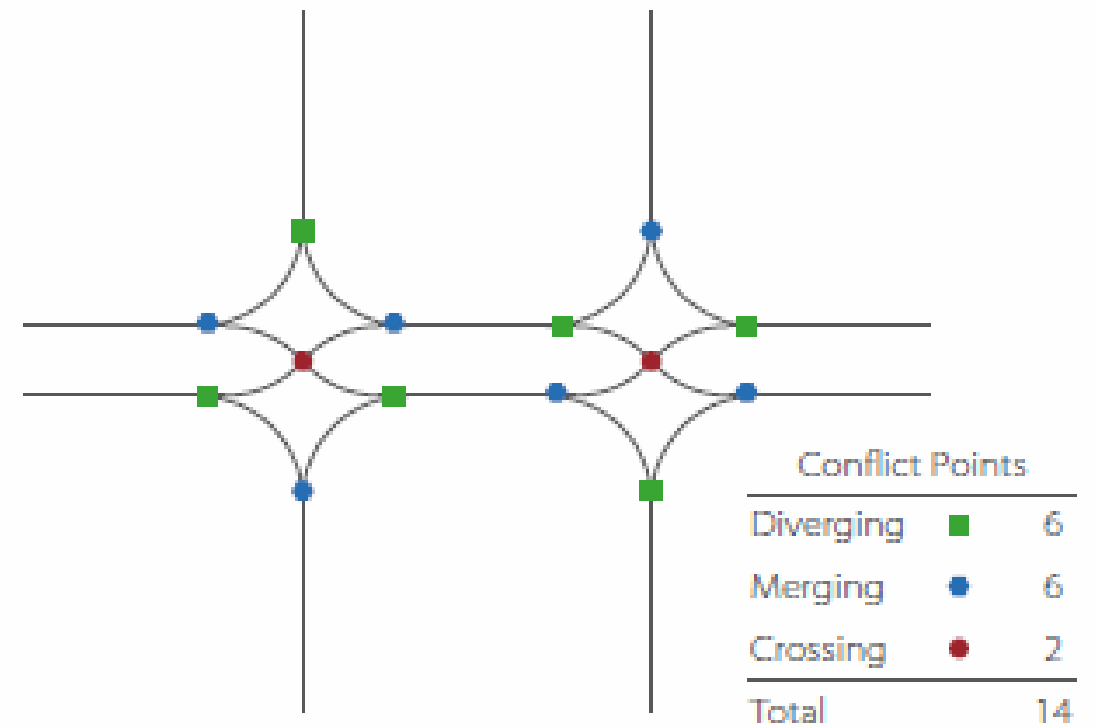


Conflict Points Comparison

Diamond interchange



DDI interchange









BUTLER COUNTY ENGINEER'S OFFICE



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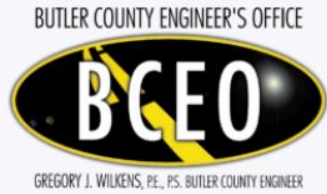
PAST

CURRENT

FUTURE

PROJECTS MAP



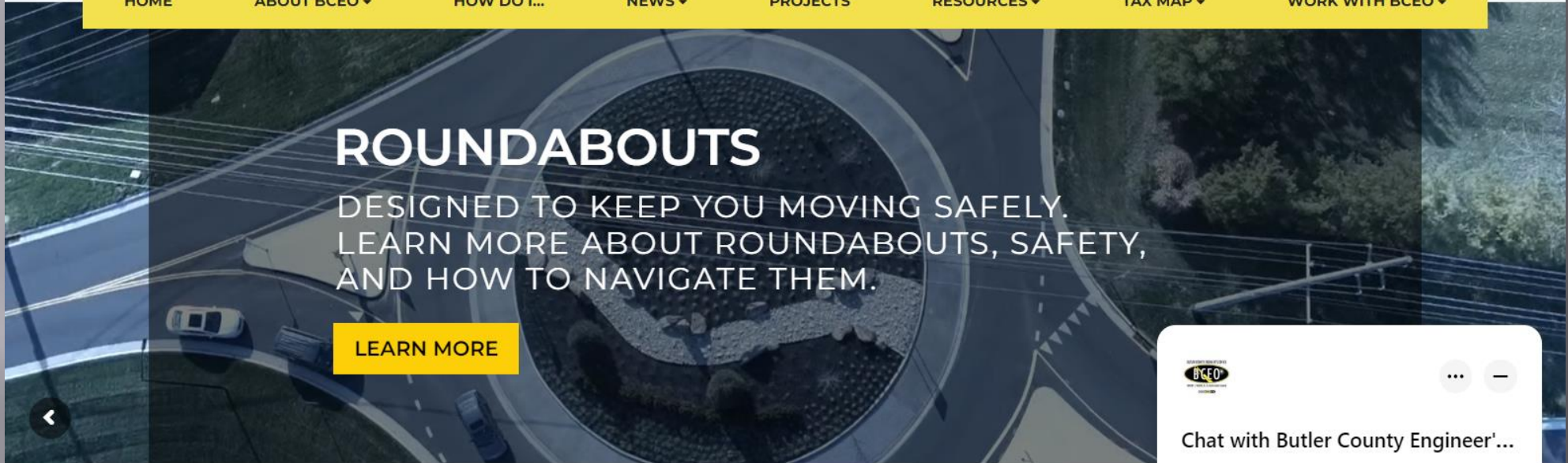


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ROUNABOUT**
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2023 BLACK MAT
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