



Roundabouts!

→ More than just an intersection



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The pursuit for safer roads

2.5M

people killed or injured on
roadways in 2023 in the US
according to the UD Department
of Transportation



40%

of collisions occur at
intersections

50%

serious injury
collisions occur at
intersections



9th

leading cause of death for all people
According to SaferAmerica
March 25, 2021

20%

of fatal collisions occur at intersections



Roundabout Basics

→ Just because it's round, doesn't mean it's a roundabout



What modern roundabouts are not



Rotary

Traffic Circle

Neighborhood Calming Circle

What modern roundabouts are

Every roundabout should be unique and customized design. One size does not fit all.

Location! Location! Context is key!

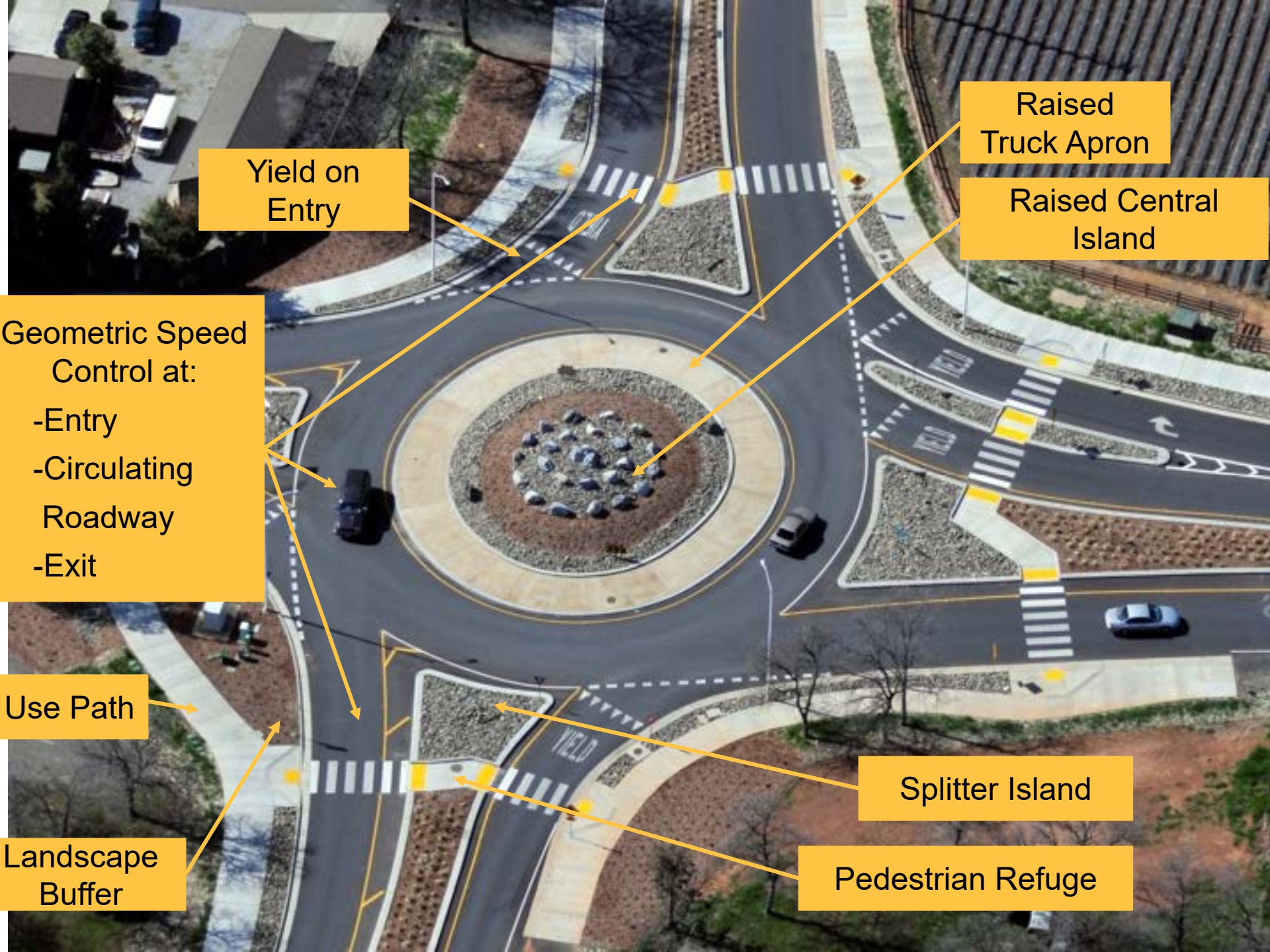
Key Features of a modern roundabout:

- Circular in nature (not a true circle)
- Not based on standards – but principals
- Provide a safe systems approach to design
- Set drivers up for success
- Accomodate various design vehicles
- Accommodate all roadway users



Example of a single lane roundabout, with right turn lane and shared use pathway.

A closer look at the features of a modern roundabout



Yield on Entry

Raised Truck Apron

Raised Central Island

Geometric Speed Control at:

- Entry
- Circulating Roadway
- Exit

Shared Use Path

Landscape Buffer

Splitter Island

Pedestrian Refuge

What modern roundabouts do



- Provide redundancy in safe speeds by managing speeds during entry, circulation, and exit
- Lower speed leads to decreased collision intensity
- Prevent broadside and head-on accidents
- Decrease conflict zones
- Shorten pedestrian crossing distances
- Support both road and recreational cyclists
- Separate decision points for drivers
- Align capacity with demand

Who can roundabouts be designed for?

→ Everyone!



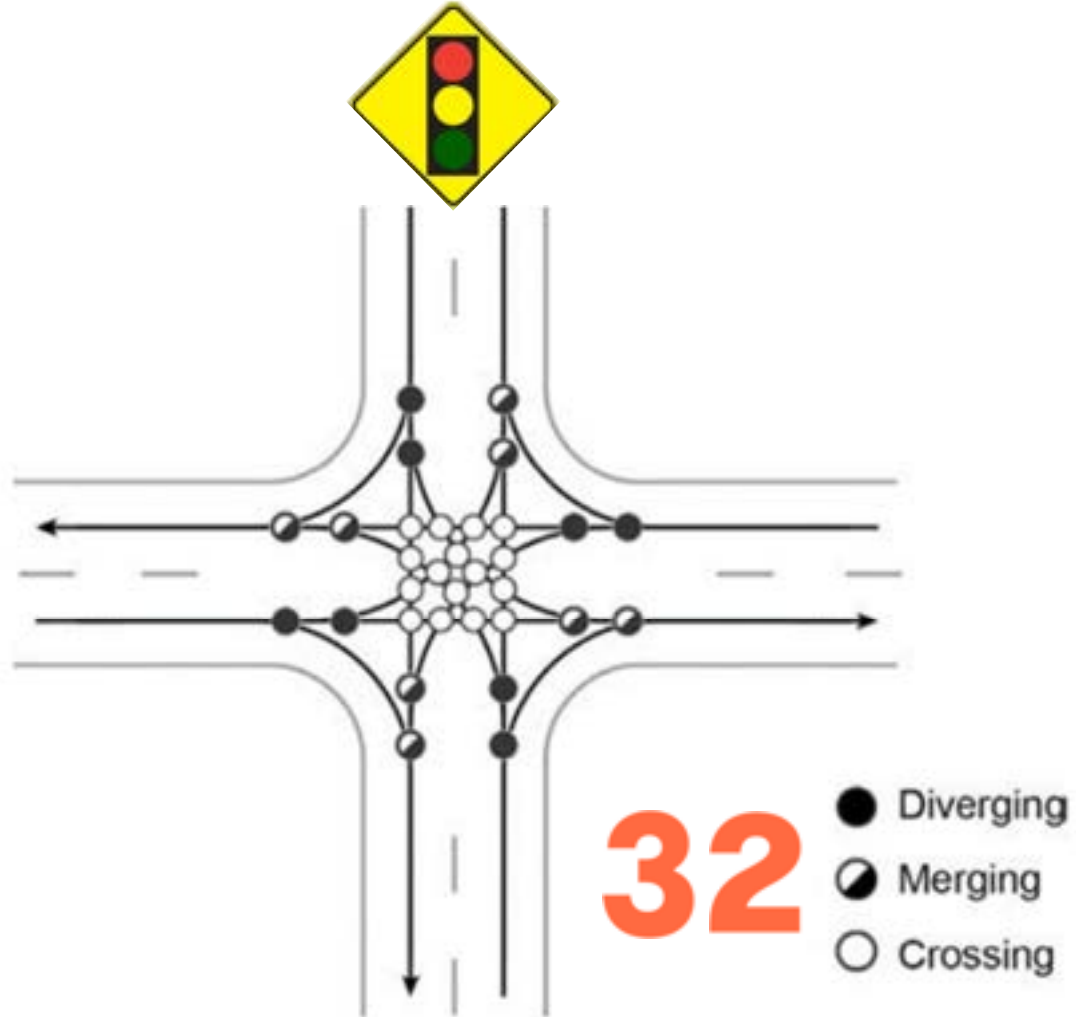
Improving Safety For All

→ A look at the statistics



Vehicle-vehicle conflict points

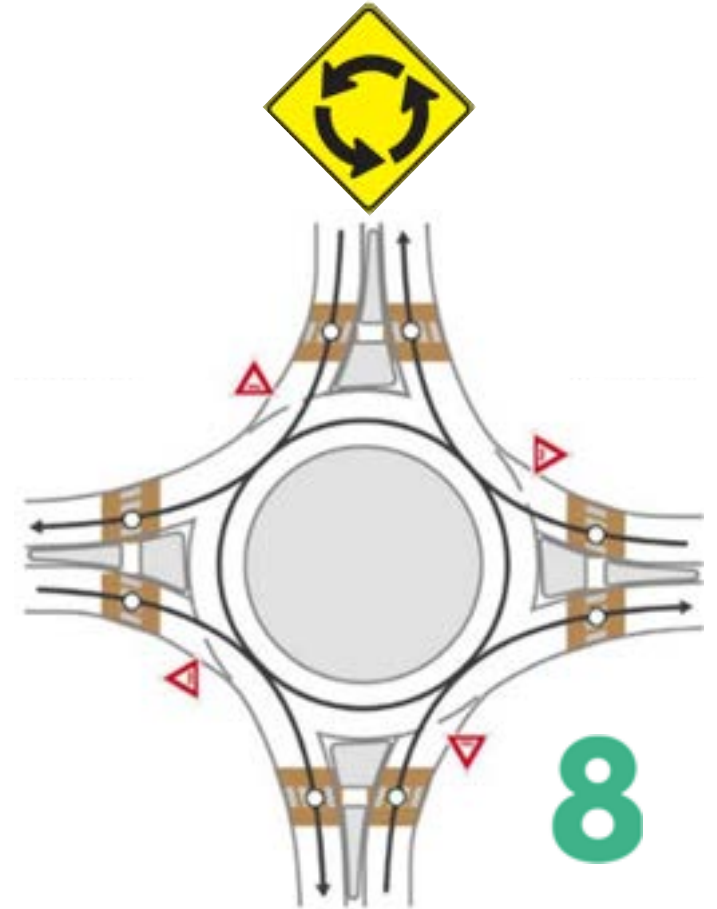
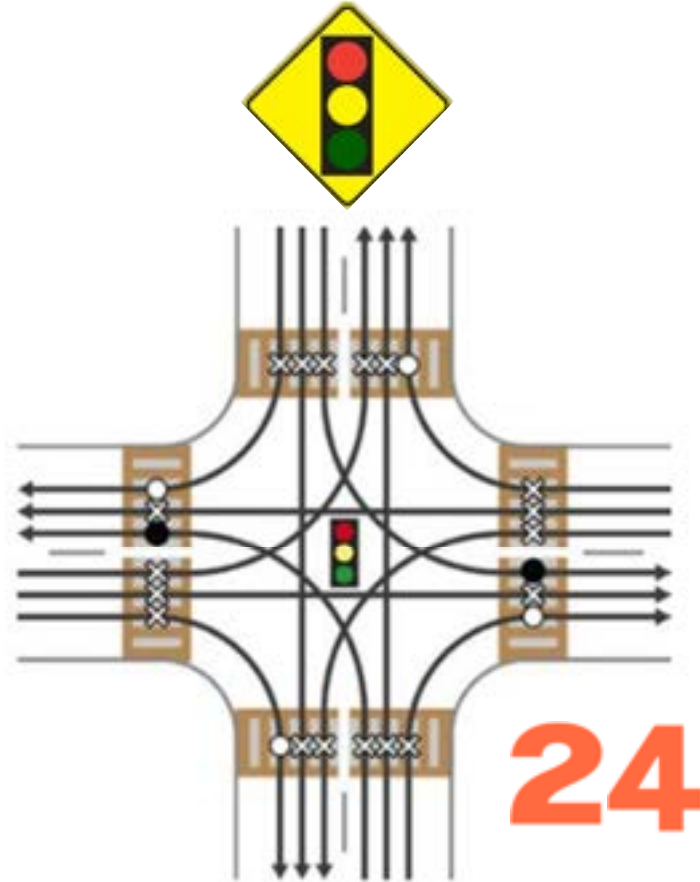
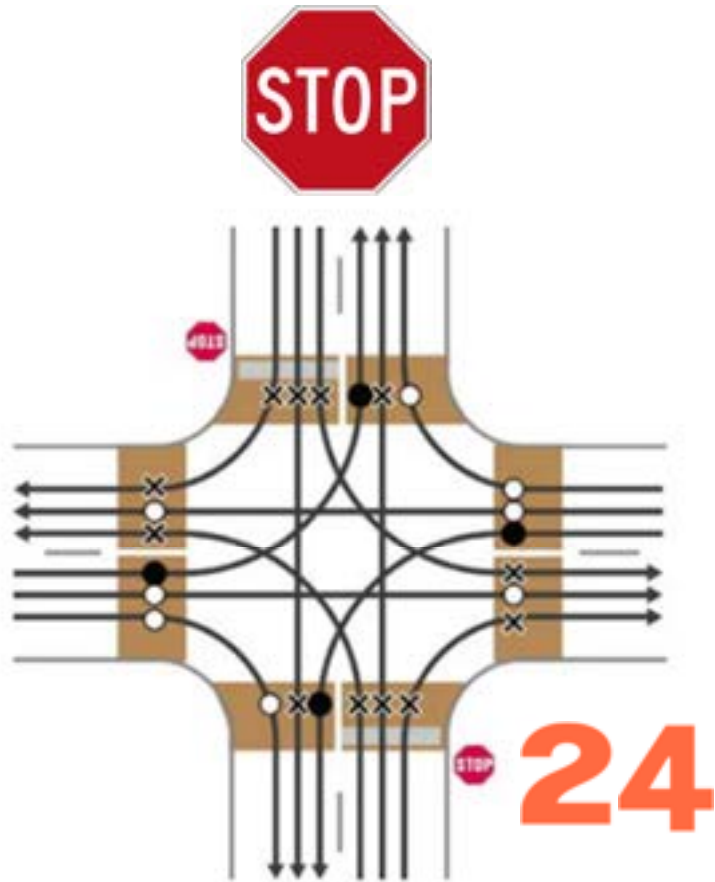
Signal or Stop Control



Roundabout



Vehicle-pedestrian conflict points

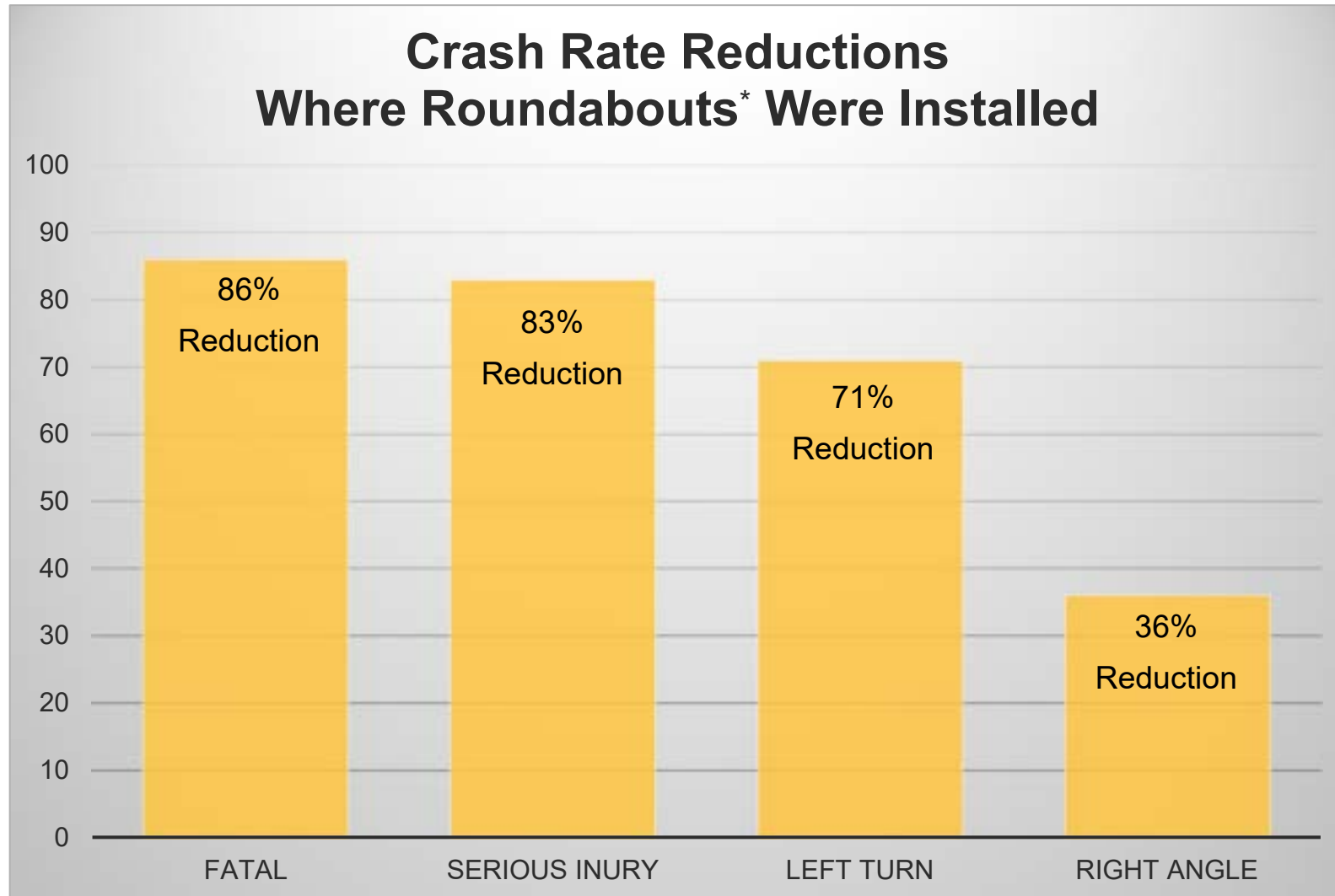


- Uncontrolled, no driver gap seeking
- Uncontrolled, coincident with driver gap seeking

- ⊗ Controlled, no driver gap seeking
- ✕ Controlled, coincident with driver gap seeking

Conflict area

Traffic safety



*Single, hybrid and
multilane roundabouts

Source: A Study of the Traffic Safety at Roundabouts in Minnesota Amended 8-2-18

Bicycles, pedestrians & roundabouts! Oh My!

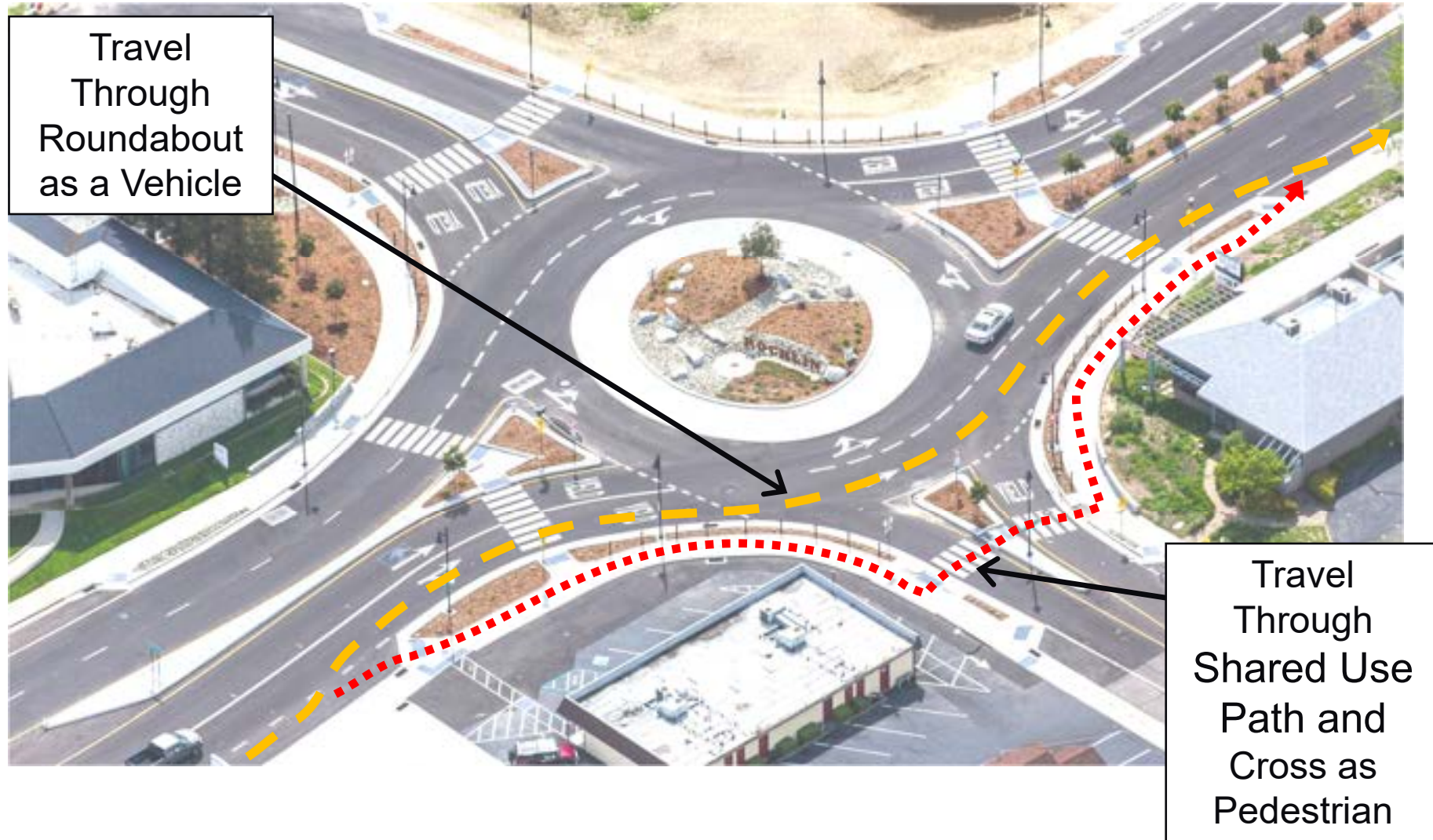


Pedestrian safety



1. Shorter crossings
2. Pedestrian refuges
3. Slower traffic
4. Separation from traffic (landscape buffer)
5. Guided crossings
6. Vehicle-pedestrian conflict zone separated from vehicle-vehicle conflict zone

Bicycle safety for all cyclists



Bicycle and Pedestrian Safety

» ROUNDABOUTS & SAFETY

Bicycles at Roundabouts

Studies Show:

3.5% fewer bicycle
crashes at roundabouts



Pedestrians at Roundabouts

Studies Show:

57.9% fewer pedestrian
crashes at roundabouts



Source: A Study of the Traffic Safety at Roundabouts in Minnesota
Dated 10-30-17 | Amended 8-2-18

GHD's bike friendly roundabouts in action!



GHD's bike friendly roundabouts in action!



Separated bike lane in a roundabout



City of Davis
→ Russell Blvd/Arlington Blvd Roundabout

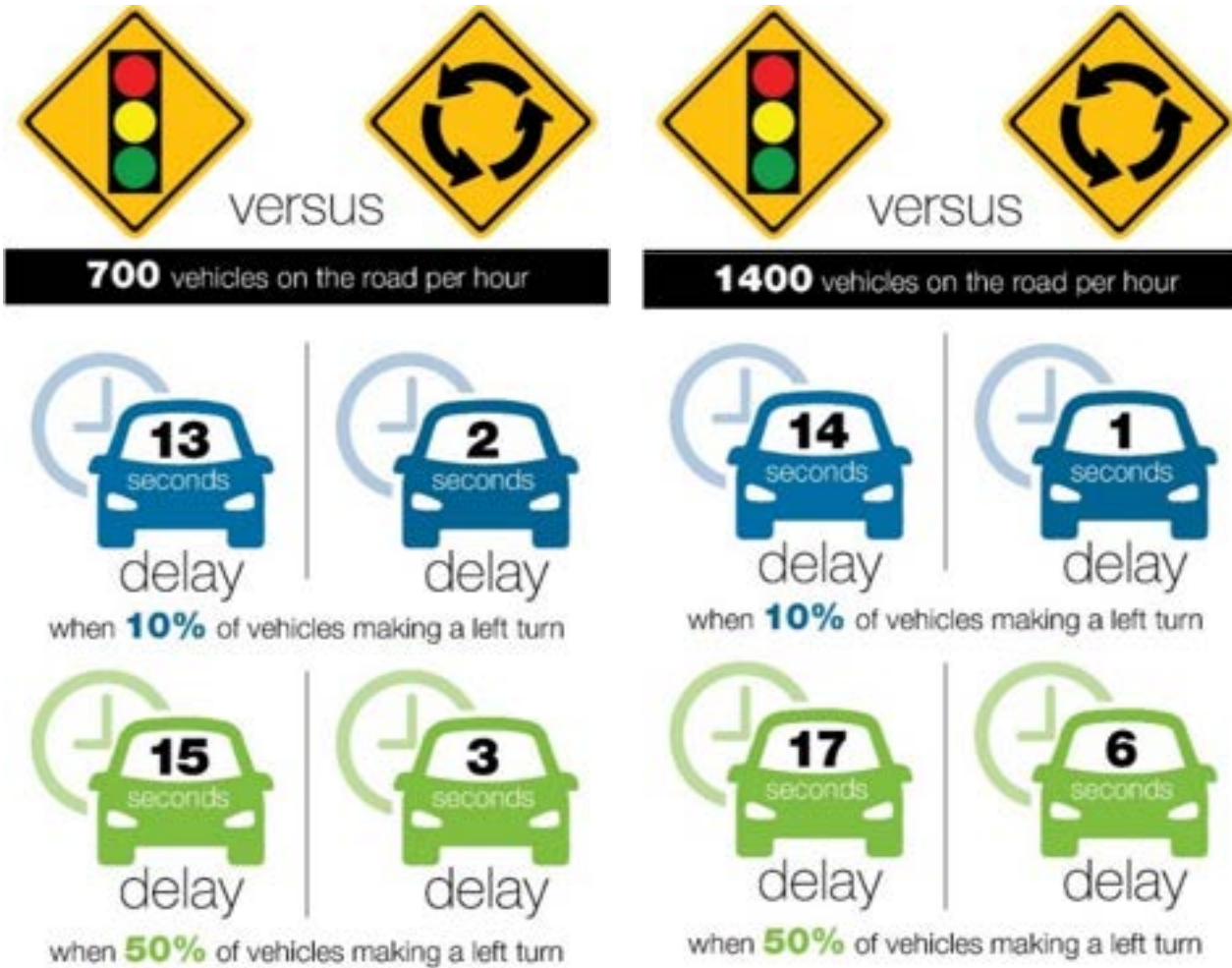


Operations, environment & more

→ Other benefits of roundabouts



Operational benefits



Less Delay = Less Time Idling
Less Emissions
Less Fuel Consumption



Reduction in emissions



38-45%

- Carbon monoxide

55-61%

- Carbon dioxide

44-51%

- Nitrogen Oxides

62-68%

- Hydrocarbons

Large vehicles & emergency vehicles







Emergency Vehicles Circulating Through Roundabout
Courtesy of City of Clearwater, FL

Better solution in a emergency evacuation

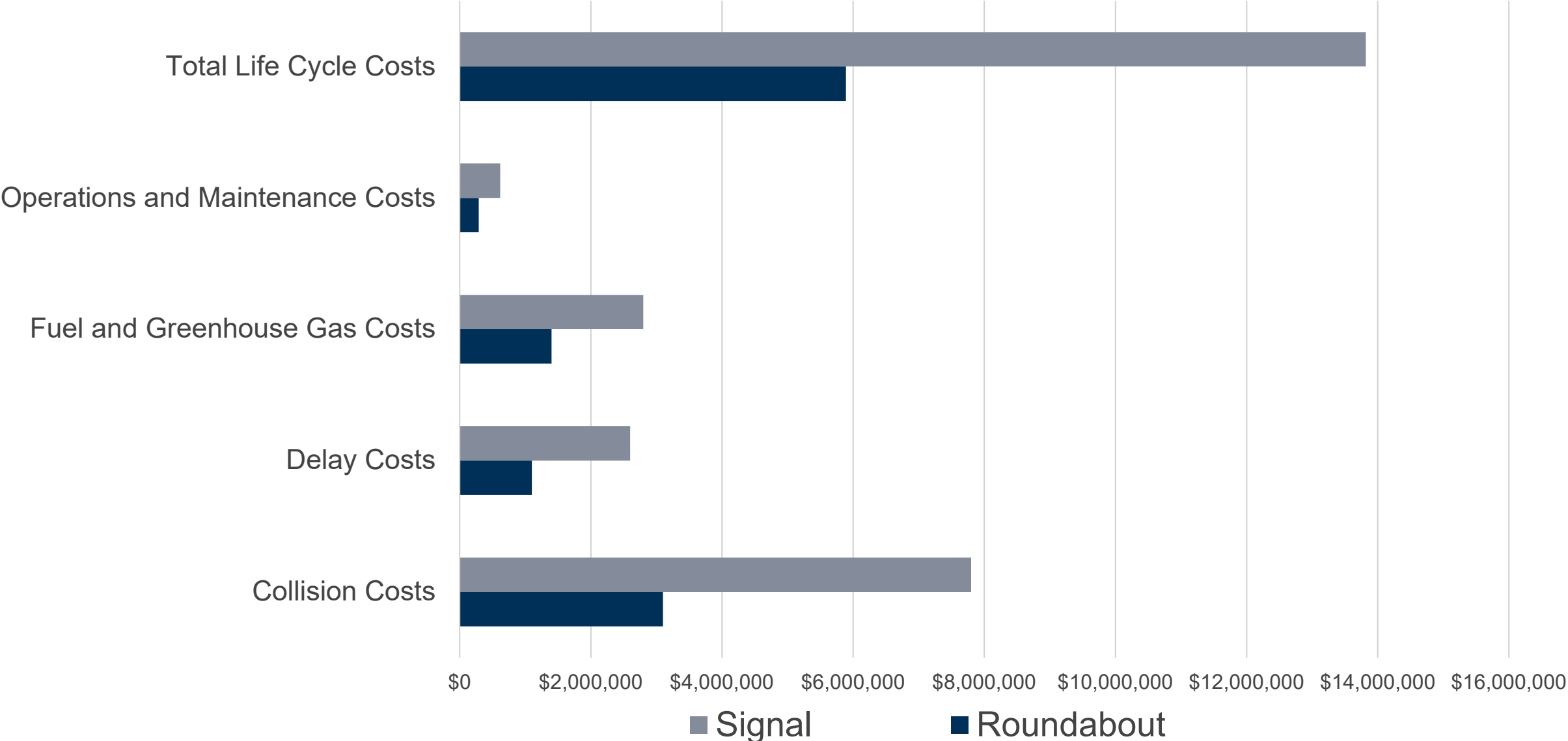


Signal during evacuation during the Corvallis fire



Temporary roundabout after Hurricane Florence

Real project life cycle cost evaluation



Costs obtained from an Intersection Control Evaluation and Traffic Operations and Analysis Report

Context is key!

- A look at constructed roundabouts and how they fit with the context of their location



Neighborhood Roundabouts

Retrofit of an existing intersection with:

- Driveways to homes within the roundabout
- Slope/sight distance challenges
- Existing utilities
- Limited right of way
- Drainage challenges
- Rose Parade Route

← Reality

Rendering ↓



Roundabout on grade



Roundabouts in high tourist areas

Entrance to Pebble Beach Golf Course



Entrance Downtown Napa



Compact roundabouts



Roundabouts with Rail



Creating a way of life

→ More than a roadway





Before



After



Before



California Blvd Roundabouts at
First and Second Streets

After

Transforming corridors



Before



After



The versatility of roundabouts



The versatility of roundabouts



Context

Right-sizing your roundabout

2016



Context

Right-sizing your roundabout

2017



Context

Right-sizing your roundabout

2018



Context

Right-sizing your roundabout

2025



Roundabouts are versatile

Right-sizing your roundabout



Roundabouts are versatile

Phasing and planning for the future



Roundabouts are versatile

Phasing and planning for the future





Questions?



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Don't just take our word for it

“*The benefits of the La Quinta Complete Streets Projects is more than an active transportation road project. It provides a safe place for residents and visitors alike to walk and bike through our beautiful village area, while enhancing the connectivity of our businesses and neighborhoods. It will have a lasting, positive impact for our community.*”

→ **Linda Evans,**
Mayor of the City of La Quinta
(La Quinta Complete Streets Project)

