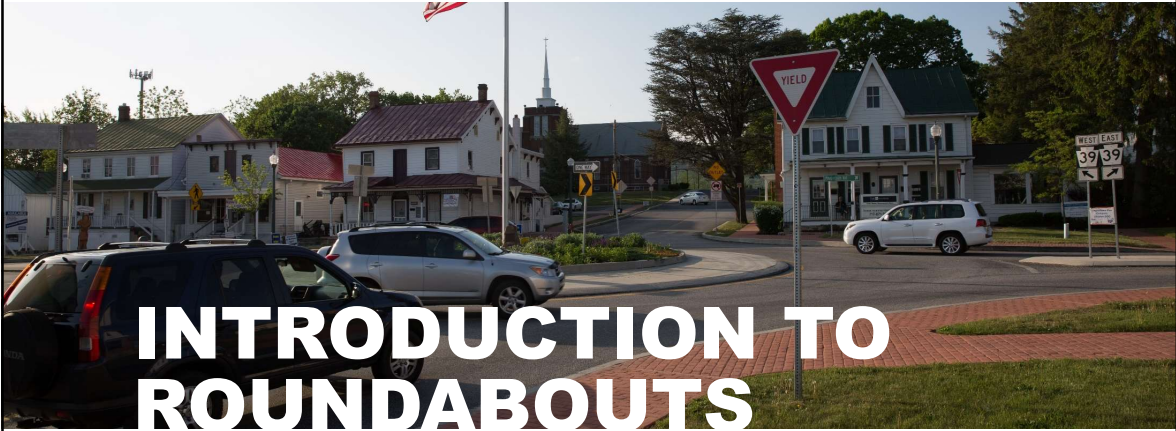


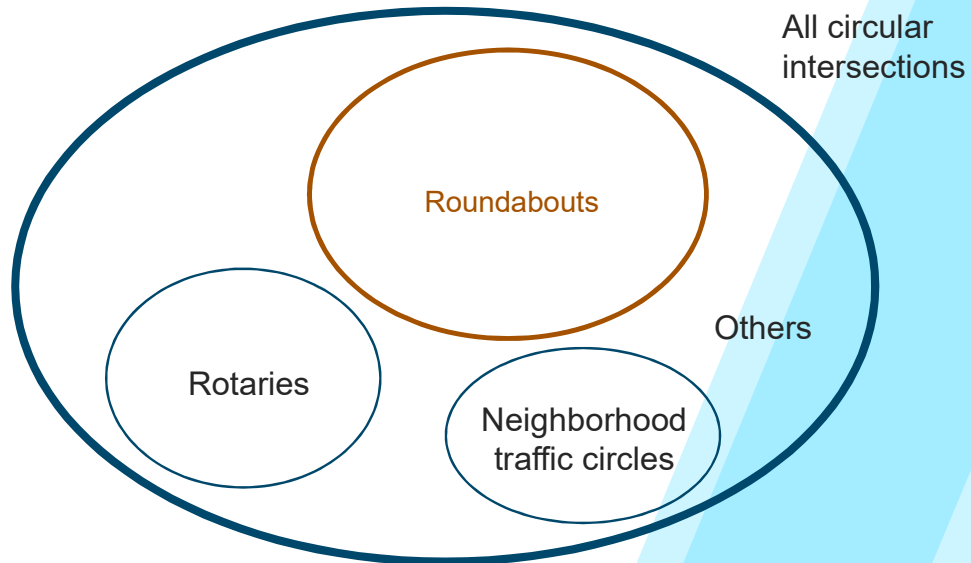
DATE 1/27/2021



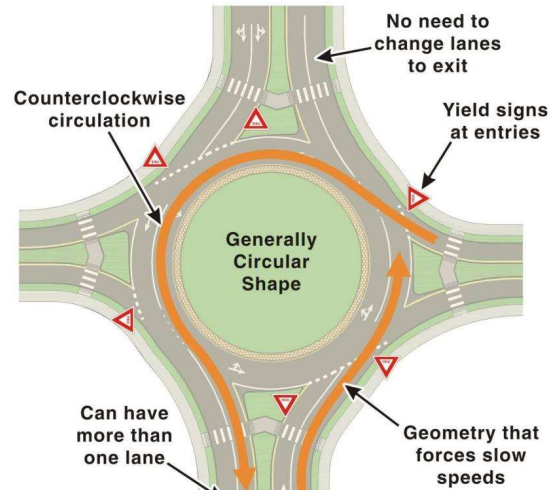
TRANSPORTATION COMMISSION



Types of Circular Intersections



What is a roundabout?



NCHRP Report 672, Exhibit 1-1



Some examples...

Lafayette, CA

Olympic Blvd / Pleasant Hill Rd



Sedona, AZ

Hwy 179 / Morgan Rd



Why build roundabouts?

- Roundabouts are being considered as viable or even preferred alternatives due to potential benefits:
 - Safety performance
 - Lower delay
 - Environmental benefits (emissions, fuel savings)
 - Access management
 - Operations and maintenance costs
 - Aesthetics



Safety Performance

- 90-100% reduction in fatalities
- 75% reduction in injuries
- 35% reduction in total crashes
- Very little reported pedestrian and bicycle crash experience

Source: *NCHRP Report 572: Roundabouts in the United States*



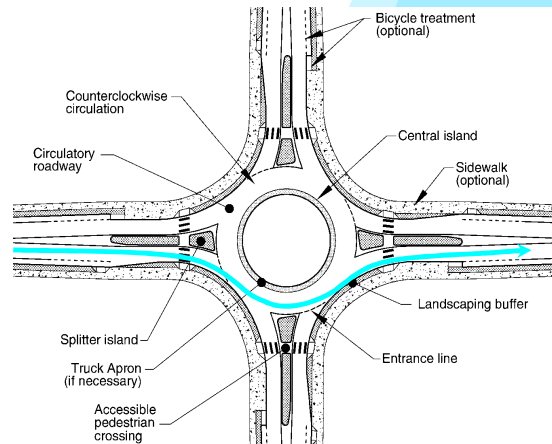
Photo: Lee Rodegerdt



Vehicle Speeds: Reduced

- “Fastest Path” speed control through roundabouts
 - 25 mph for single-lane
 - 30 mph for two-lane

- Slow intersection speeds =
 - Increased time for driver reaction
 - Decreased chance for injury or fatality



Aesthetic and Green Infrastructure Opportunities



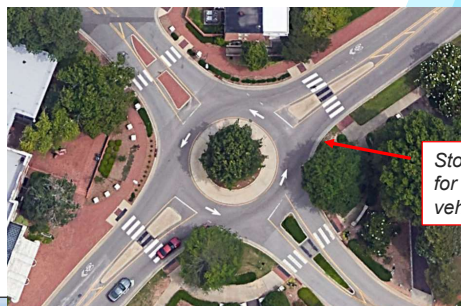
Where to Consider Roundabouts?

| Advantageous | Potentially Challenging |
|---|---|
| <ul style="list-style-type: none"> • Identified safety concern • High delays (Two-way or all-way stop capacity exceeded) • Closely spaced intersections • Unusual geometry • Aesthetic/gateway treatment desired • Near Schools | <ul style="list-style-type: none"> • Physical or geometric constraints • Frequent large vehicles: Routes or land uses generating oversized loads • Nearby Preemption needs (e.g., nearby rail crossing) • Location along a coordinated signal network |



Roundabouts and Pedestrians

- **Benefits:**
 - Slow vehicle speeds
 - Two-stage crossing
- **Considerations:**
 - Crosswalk alignment
 - Width of splitter island
 - Space for exiting vehicles to yield to pedestrians



Storage space
for exiting
vehicles



Roundabouts and Pedestrians

Considerations for Visually Impaired:

1. Well defined walkway edges
2. Separated walkways
3. Aligned detectable warnings
4. Perpendicular crossings
5. Contrasting crosswalk markings

Performance assessment detailed in NCHRP Report 834



11

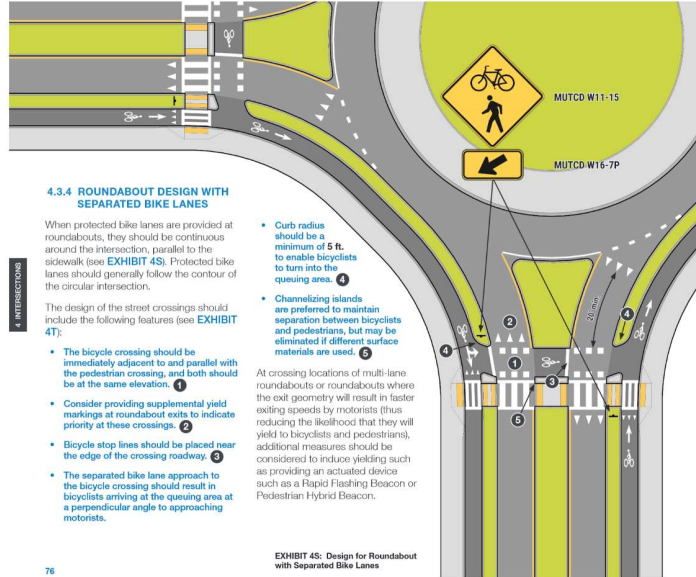


Roundabouts and Bicyclists

- Roundabouts slow vehicles to speeds compatible with bicycles
- Give bicyclists option of traveling as vehicle or pedestrian
 - Serve different users based on their level of comfort
- MUTCD does not allow bicycle lanes within circulatory roadway
- Guidance for off-street paths is emerging



Separate Bike/Ped Options



Roundabouts and Large Vehicles

- “Design” versus “accommodate” larger vehicles
- Accommodations include:
 - Truck aprons
 - Placement of landscaping
 - Reinforced curbs



Cost Considerations

- Similar initial costs to a signal in some contexts
 - New intersection
 - When both require rebuilding an existing intersection
- Higher initial costs (i.e., construction) when replacing a signal with a roundabout
- Lower ongoing maintenance and operation costs relative to a signal
- Expected reduction in crashes can factor into life cycle costs



Roundabout Work

- Roundabout peer review
- Mobility Element updates
- Citywide screening for potential roundabout locations using following criteria:
 - Locations on High Injury Network
 - Locations along bus routes
 - City's social vulnerability index
 - Planned and existing bikeways
 - Geographic equity
- Develop best practices for mini-roundabouts or neighborhood traffic circles



Questions?

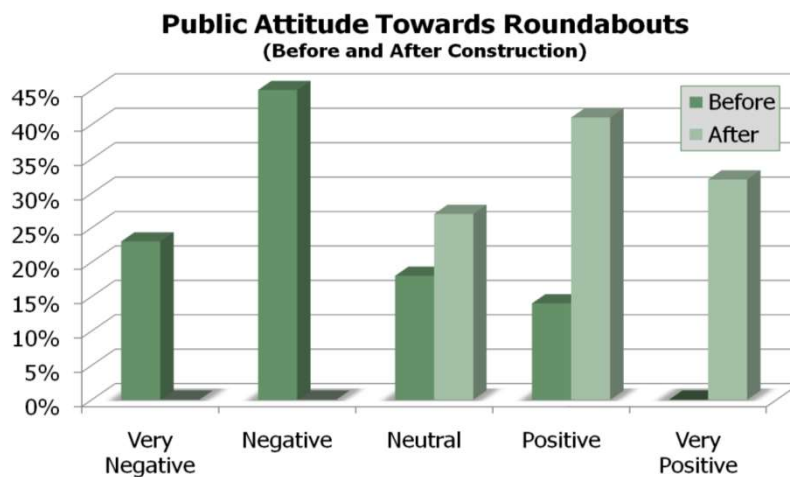


Neighborhood Traffic Circles

- Generally smaller
- May use other control
- Large vehicles may pass in front of central island

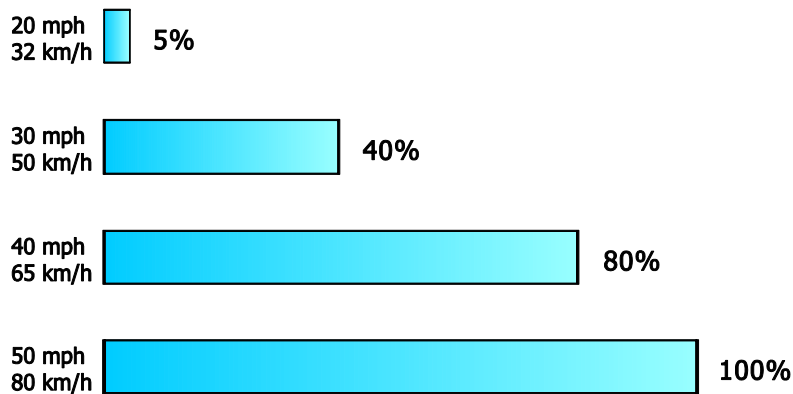


Why an introduction to roundabouts?



Lower speed is safer for pedestrians

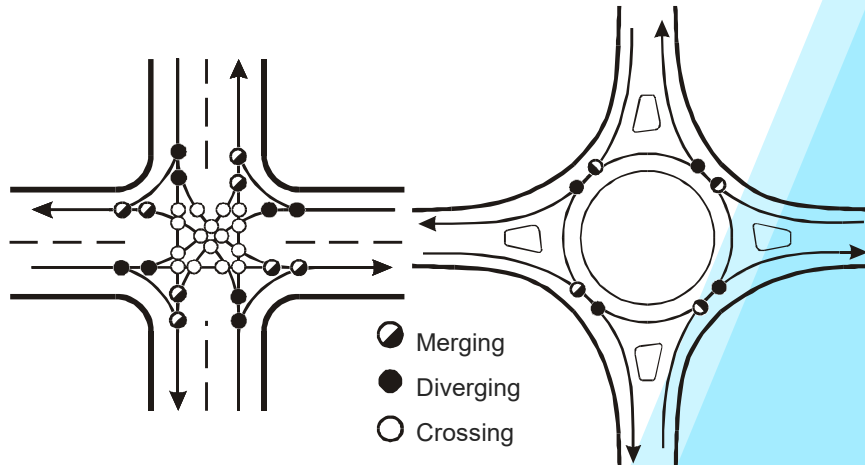
Chance of pedestrian death if hit by a motor vehicle



NCHRP Report 672, Exhibit 5-15



Vehicle Conflict Points: REDUCED



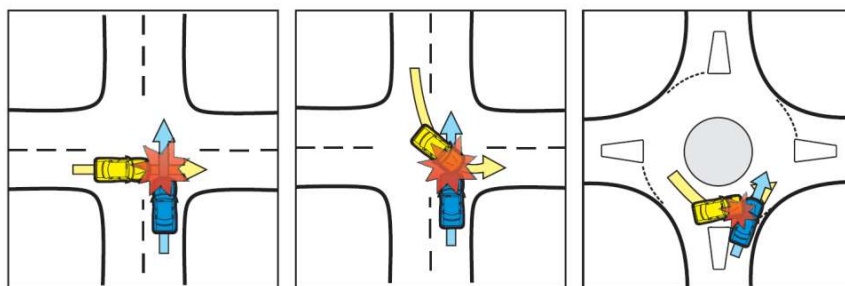
Crossing conflicts eliminated at roundabout

NCHRP Report 672, Exhibit 5-2



Severity of Vehicular Conflicts: REDUCED

- Severity related to relative velocities of conflicting streams



Kansas Roundabout Guide, Second Edition

