

Roundabouts

Roundabouts are circular intersections characterized by channelized approaches and counterclockwise traffic flow around a center island.

Design Features

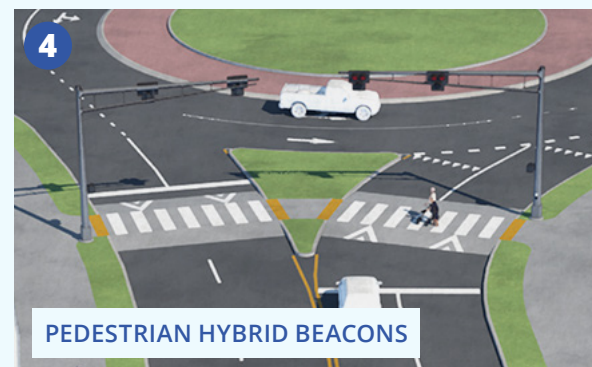
- Traffic approaching the roundabout yields to traffic already in the circular roadway.
- Splitter islands on each leg deflect approaching vehicular traffic and encourage slower speeds and driver yielding.
- Entries at roundabouts are yield-controlled and exits are uncontrolled. Consequently, pedestrian and bicycle crossings at both entries and exits must be carefully assessed to maximize the conditions for yielding. This is particularly important for making crossings accessible to pedestrians with low or no vision.
- While roundabout geometry encourages lower motorist speeds, bicyclists typically cannot accelerate at the same rates as motor vehicles. Riding in mixed traffic adds some complexity to the task of biking through a roundabout and may not be comfortable for bicyclists of all ages and abilities.
- Install overhead lighting to illuminate bikeway and pathway networks and in advance of all intersection crossings.

Benefits

- Roundabouts are highly adaptable and have been proven to work across a range of contexts, from high-speed rural to low-speed urban.
- The splitter islands serve as pedestrian (and, potentially, bicyclist) refuge islands, allowing pedestrians to cross one direction of vehicular traffic at a time.
- Modern roundabout geometry encourages slower motor vehicle approach speeds of around 15-25 mph.
- Roundabouts can potentially reduce the total number of lanes to cross at the intersection because of improved operational performance.



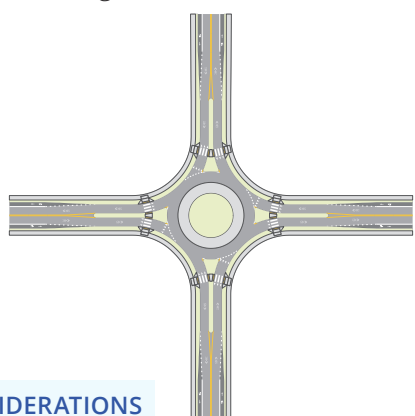
All graphics source: FHWA



Intersection Types

SHARED LANE

This single-lane roundabout features sidewalks with crosswalks for pedestrians and bike lanes for bicyclists. The bike lanes end shortly upstream of the roundabout entry, and bicyclists merge with motor vehicle traffic to navigate the intersection before returning to the bike lane after exiting.

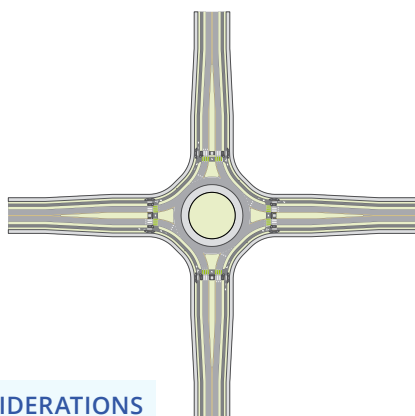


CONSIDERATIONS

- The crosswalks are perpendicular to the motor vehicle traffic that is deflected by the geometry of the roundabout circular roadway and splitter islands.
- Another bicycle facility option would be to provide a ramp from the bike lane onto a sidepath in advance of the roundabout and another ramp from the sidepath to the bike lane following the roundabout.

SEPARATED BIKE LANE

This single-lane roundabout design features separated bike lanes with bicyclist crossings parallel to the marked pedestrian crosswalks.

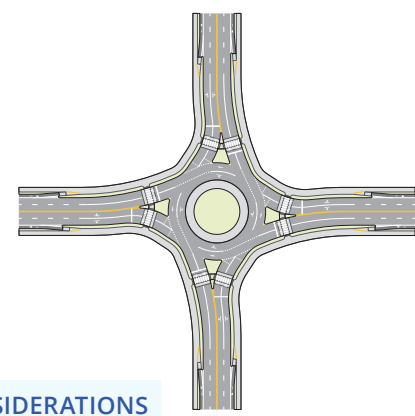


CONSIDERATIONS

- This design consolidates pedestrian and bicyclist activity to the same areas, improves driver visibility of crossing pedestrians and bicyclists, and minimizes conflict points between pedestrians and bicyclists.
- The interface between the separated bike lanes, bicycle crossings (marked here with green colored pavement), and pedestrian crosswalks are designed to provide enough room for bicyclists and pedestrians to maneuver separately.

SIDEPATH

This multilane roundabout design transitions bike lanes to sidepaths upstream of the roundabout entrance.



CONSIDERATIONS

- Bicyclists have the option to transition from the bike lane to the sidepath or merge with motor vehicle traffic to continue through the roundabout.
- The multilane design increases crossing distances over the single-lane design.
- This design may also include raised crosswalks and Pedestrian Hybrid Beacons (PHBs) across the entering and exiting lanes of the roundabout. These are features that can be added to lower vehicle speeds and improve driver yielding behavior.
- Shared facilities may be appropriate even where only low volumes of bicyclists and pedestrians are expected to use the intersection.

References

Rodegerdts, L., Bansen, J., Tiesler, C., Knudsen, J., Myers, E., Johnson, M., ..., & O'Brien, A. Roundabouts: An Informational Guide, Second Edition [NCHRP Report 672]. National Academies of Sciences, Engineering, and Medicine, Washington, DC. Retrieved from <https://www.trb.org/Publications/Blurbs/164470.aspx>.

Schroeder, B., Rodegerdts, L., Jenior, P., Myers, E., Cunningham, C., Salamati, K., ..., & Bentzen, B.L. (2016). *Crossing Solutions at Roundabouts and Channelized Turn Lanes for Pedestrians with Vision Disabilities* [NCHRP Report 834]. National Academies of Sciences, Engineering, and Medicine, Washington, DC. Retrieved from <https://www.trb.org/Main/Blurbs/175586.aspx>.



For more information refer to *Improving Intersections for Pedestrians and Bicyclists Informational Guide* [FHWA-SA-22-017].