

Avoid curbed traffic islands where the approach operating speeds are 80 kph or greater. Mountable curbs should be used at curbed islands except where barrier curbs are provided for greater pedestrian protection.

407 ROUNDABOUT DESIGN

There are three main types of roundabouts, Normal, Mini and Double. There are other forms of roundabouts but they are variations of these basic types. They are Ring Junctions, Grade Separated and Signalized Roundabouts. More information about the use and design of these and other roundabouts can be found in the *Geometric Design of Roundabouts*. When reading this design manual the designer should be aware that the manual was written for left-hand running traffic and appropriate modifications should be made for when adapting these standards to right-hand running traffic patterns.

The roundabout is used at intersecting streets with low capacity and low design speed. Roundabouts should be considered when they are cost effective or increase safety over standard intersection designs.

Advantages: There are several advantages to roundabout design versus conventional three and four leg intersections.

- Roundabouts are more efficient than signals on balanced traffic demand intersections.
- Roundabouts allow for continuous traffic flow.
- Roundabouts can reduce traffic speeds in existing intersections.

Disadvantages: There are several disadvantages to roundabouts that make them less favorable than conventional designs.

- Driver comprehension to right-of-way with respect to yielding to traffic flow.
- Roundabouts are prone to large congestion problems when traffic exceeds design capacity.
- It is difficult to redesign an existing roundabout to increase its capacity. Redesign requires adding more lanes which greatly increases the land required for the intersection. This increase in diameter also increases the design speed through the

roundabout. For these reasons roundabouts tend to be removed and replaced with conventional signalized intersections instead of being modified.

- Roundabouts require more land than conventional intersections.
- Roundabouts are not well suited for pedestrian traffic, because pedestrians are not able to walk in a clear path through the intersection. In areas of high pedestrian traffic, pedestrians can cause major problems with illegal crossings.

Normal Roundabouts: The normal configuration of a roundabout is made up of a one-way road around a circular curbed island 4m or more in diameter. The approaches are usually flared to allow multiple vehicle entries. The number of entries should be limited to three or four arms. The efficiency and driver comprehension decreases as the number of arms is increased. The minimum radius of curvature also increases with additional arms which can raise circulatory speeds. Double roundabouts can be an alternative under these conditions. See Figure 400.08.

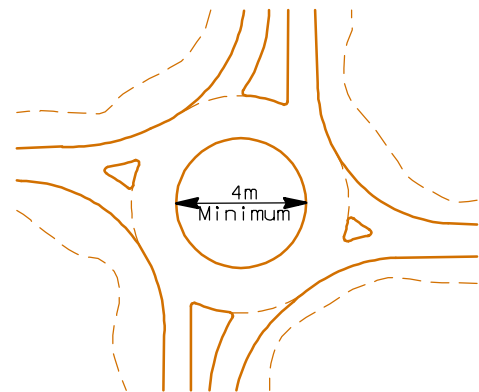


Figure 400.08
Normal Roundabout

Mini Roundabouts: The mini-roundabout is similar to the normal roundabout except the diameter of the island is less than 4m. Instead of a curbed island a raised, reflectorized dome is used for driver recognition of the high spot. The mini-roundabout is a good alternative for existing roads with extremely low traffic volumes that have high safety and delay problems. Where physical deflection of approaching traffic is not