Roundabout Design

An Online Continuing Education Course for Engineers

Course Number: T-2025

Credit: 2 Hours / 2 PDH / 2 CPD

Roundabout Design

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- **F. Geometric Elements**
    1. **Inscribed Circle Diameter**
    2. **Entry Width**
    3. **Circulatory Roadway Width**
    4. **Central Island**
    5. **Entry Curves**
    6. **Exit Curves**
    7. **Pedestrian Crossing Locations and Treatments**
    8. **Splitter Islands**
    9. **Stopping Sight Distance**
    10. **Bicycle Provisions**
    11. **Sidewalk Treatments**

VI. Traffic Design

- **A. Signing**
    1. **Rural and Suburban Signing Considerations**
- **B. Pavement Markings**
    1. **Approach and Entry Pavement Markings**
    2. **Yield Lines**
    3. **Pavement Word and Symbol Markings**
    4. **Circulatory Roadway Pavement Markings**

VII. Illumination

VIII. Landscaping

- **A. Advantages**
- **B. Central Island Landscaping**
- **C. Splitter Island and Approach Landscaping**

I. Introduction

Traffic circles have been a part of the transportation system in the United States since 1905. The original design was the work of William Eno and was built on Columbus Circle in New York City. Subsequently, many large circles or rotaries were built in the United States. The prevailing designs enabled high-speed merging and weaving of vehicles. Priority was given to entering vehicles, facilitating high-speed entries. High crash experience and congestion in the circle led to rotaries falling out of favor in the mid-1950s.

The modern roundabout was developed in the United Kingdom to rectify problems associated with these traffic circles. In 1966, the United Kingdom adopted a mandatory "give-way" rule at all circular intersections, which required entering traffic to give way, or yield, to circulating traffic. This rule prevented circular intersections from locking up, by not allowing vehicles to enter the intersection until there were enough gaps in circulating traffic.

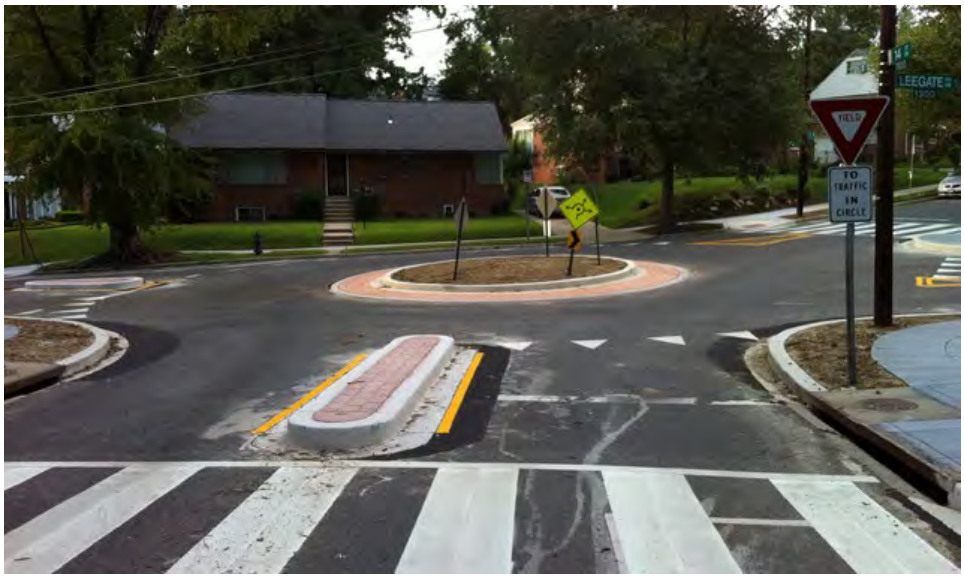
These changes improved the safety characteristics of the circular intersection by reducing the number and particularly the severity of collisions. Thus, the resultant modern roundabout is significantly different from the older style traffic circle both in how it operates and in how it is designed.

A. Types of Circular Intersections

A roundabout is a type of circular intersection, but not all circular intersections can be classified as roundabouts. In fact, there are at least three distinct types of circular intersections:

- *Rotaries* are old-style circular intersections common to the United States prior to the 1960s. Rotaries are characterized by a large diameter, often in excess of 300 feet. This large diameter typically results in travel speeds within the circulatory roadway that exceed 30 mph. They typically provide little or no horizontal deflection of the paths of through traffic and may even operate according to the traditional "yield-to-the-right" rule, i.e., circulation traffic yields to entering traffic.

- *Neighborhood traffic circles* are typically built at the intersections of local streets for the purposes of traffic calming and/or aesthetics. The intersection approaches may be uncontrolled or stop-controlled. They do not typically include raised channelization to guide the approaching driver onto the circulatory roadway. At some traffic circles, left-turning movements are allowed to occur to the left of (clockwise around) the central island, potentially conflicting with other circulating traffic.



- *Roundabouts* are cir… …fic control features, including yield cont… …and appropriate geometric curvature to ensure t… …pically less than 30 mph.