

## Chapter 1 Introduction

**Circular intersections were first introduced in the U.S. in 1905.**

Traffic circles have been part of the transportation system in the United States since 1905, when the Columbus Circle designed by William Phelps Eno opened 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 circles led to rotaries falling out of favor in America after the mid-1950's. Internationally, the experience with traffic circles was equally negative, with many countries experiencing circles that locked up as traffic volumes increased.

**The modern roundabout was developed in the United Kingdom in the 1960's.**

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 sufficient gaps in circulating traffic. In addition, smaller circular intersections were proposed that required adequate horizontal curvature of vehicle paths to achieve slower entry and circulating speeds.

**Modern roundabouts provide substantially better operational and safety characteristics than older traffic circles and rotaries.**

These changes improved the safety characteristics of the circular intersections 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. The modern roundabout represents a substantial improvement, in terms of operations and safety, when compared with older rotaries and traffic circles (1, 2, 3). Therefore, many countries have adopted them as a common intersection form and some have developed extensive design guides and methods to evaluate the operational performance of modern roundabouts.