



Innovative Intersections Program



Fact Sheets

SEPTEMBER 2024



MODERN ROUNDABOUT

Here are some key points to emphasize when discussing modern roundabout intersections.

WHAT IS A MODERN ROUNDABOUT?

A modern roundabout is a circular intersection to move traffic in a counterclockwise direction around a central island. Traffic entering a roundabout must yield to traffic already circulating in the roundabout.

WHAT ARE THE TYPICAL DESIGN CHARACTERISTICS OF A MODERN ROUNDABOUT?

The modern roundabout design may use one of the following configurations: mini, single-lane and multi-lane (Figure 6). Based on traffic volumes and project constraints or impacts, the roundabout design can be used in both urban and rural settings. This intersection type can be adjusted to facilitate traffic bypass (via a channelized right-turn design) or accommodate large vehicular traffic (a traversable central island or use of a split islands design approach).

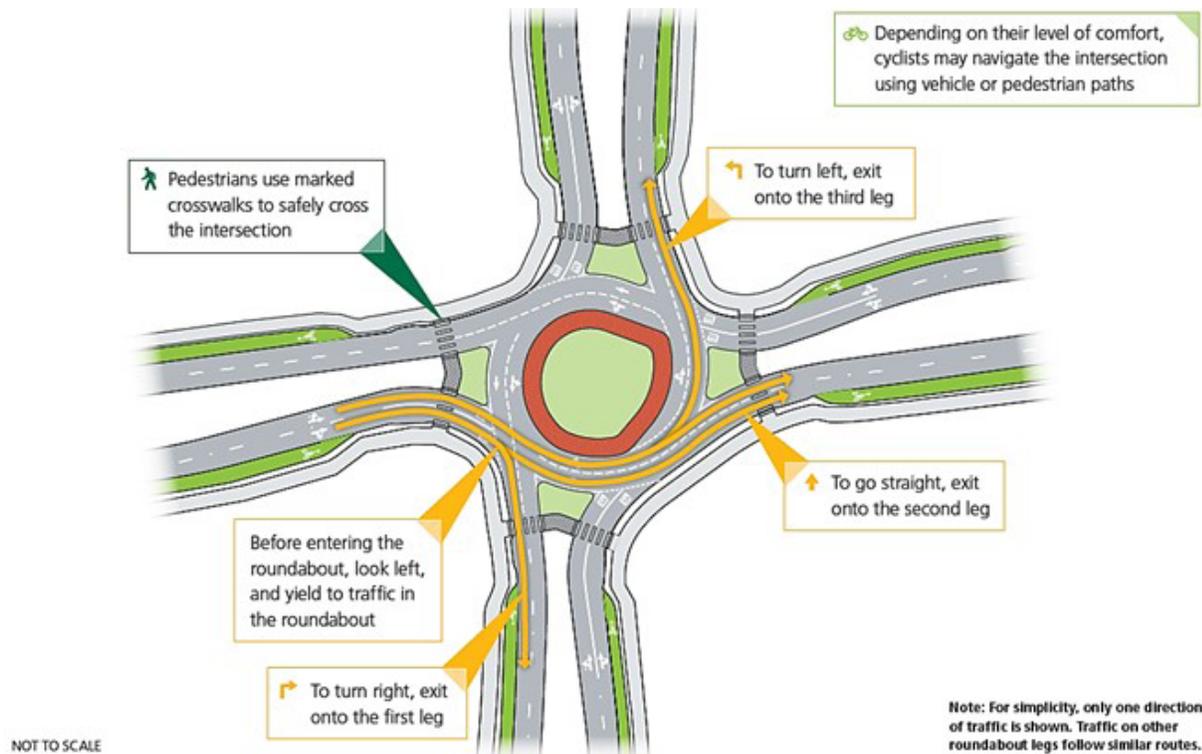


FIGURE 6 - MULTI-LANE ROUNDABOUT

WHAT ARE THE BENEFITS OF USING MODERN ROUNDABOUTS?

This design improves safety by promoting lower speeds, reducing conflict points and minimizing head-on and right-angle collision potential as a result. The low number of conflict points also make roundabouts bicyclist and pedestrian friendly. In addition, modern roundabouts reduce traffic delays and vehicle back-ups by distributing traffic volume across two intersections instead of one. Modern roundabouts are not signalized, and as a result, they reduce potential maintenance costs relative to a signalized intersection. The roundabout design also allows for landscaping and beautification.



CONFLICT POINTS

Here are some useful safety facts and concepts to keep in mind when discussing conflict points.

WHAT ARE CONFLICT POINTS?

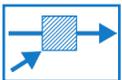
A conflict point is a location where the paths of two or more road users (for example, vehicles, pedestrians and cyclists) interact with one another, such as at road intersections. There is a strong correlation between the number of collisions that occur at an intersection and the number and severity of conflict points it contains.

WHAT ARE THE DIFFERENT TYPES OF CONFLICT POINTS?

There are three distinct types of conflict points for road intersections. The diagram below compares conflict points at a traditional intersection and a roundabout.



1. **Crossing** conflicts occur when road users cross paths with one another. Collisions that occur at crossing conflict points are commonly known as right-angle crashes and are typically the most severe.



2. **Merging** is a conflict point type scenario in which road users are traveling in the same direction in different lanes simultaneously merge into the same lane. These crashes are typically referred to as sideswipes and are less severe than crossing conflicts.



3. **Diverging** conflicts occur when a road user diverges from one path to another. These diverging crashes often involve rear end crashes as the front vehicle slows to turn.

Figure 1 illustrates conflict point locations and types for both traditional and roundabout intersections.

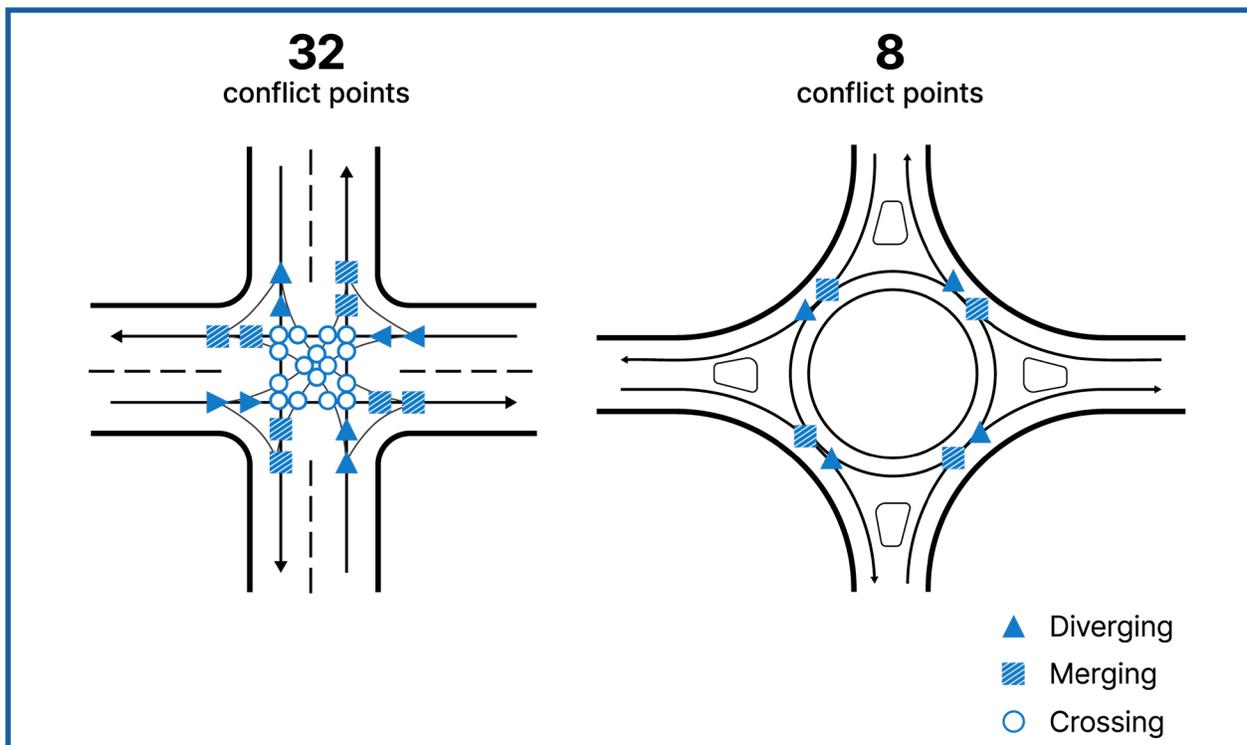


FIGURE 1 - TRADITIONAL (LEFT) AND ROUNDABOUT (RIGHT) INTERSECTION CONFLICT POINTS



HOW MANY CONFLICT POINTS EXIST AT INNOVATIVE INTERSECTIONS?

Innovative intersections (Table 1) and interchanges (Table 2) contain fewer conflict points than are found at traditional intersections or interchanges.

TYPE OF INTERSECTION	CROSSING	MERGING	DIVERGING	TOTAL
CONVENTIONAL INTERSECTION (FOUR-LEG INTERSECTION)	16	8	8	32
ROUNDBABOUT	0	4	4	8
DISPLACED LEFT TURN (FULL)	12	8	8	28
DISPLACED LEFT TURN (PARTIAL)	14	8	8	30
MEDIAN U-TURN (FULL)	4	6	6	16
MEDIAN U-TURN (PARTIAL)	6	8	8	22
RESTRICTED CROSSING U-TURN	2	8	8	18
QUADRANT ROADWAY / SINGLE LOOP	6	8	8	22
CONVENTIONAL INTERSECTION (THREE-LEG INTERSECTION)	3	3	3	9
CONTINUOUS GREEN-T	3	3	3	9

TABLE 1 - CONFLICT POINTS (BY INTERSECTION DESIGN)

TYPE OF INTERCHANGE	CROSSING	MERGING	DIVERGING	TOTAL
CONVENTIONAL DIAMOND	10	8	8	26
SINGLE POINT URBAN	8	8	8	24
ROUNDBABOUT	0	6	6	12
TWO ROUNDBABOUTS (ONE AT EACH RAMP TERMINAL)	0	8	8	16
CLOVERLEAF	0	8	8	16
DIVERGING DIAMOND	2	8	8	14
PARTIAL CLOVERLEAF (PARCLO A4)	2	4	6	12
PARTIAL CLOVERLEAF (PARCLO B4)	2	6	4	12
DISPLACED LEFT TURN	6	8	8	22

TABLE 2 - CONFLICT POINTS (BY INTERCHANGE DESIGN)