



# Innovative Intersections Program



**Fact Sheets**

**SEPTEMBER 2024**



## REDUCED CONFLICT U-TURN (RCUT)

Here are some key points to emphasize when discussing the Reduced Conflict U-Turn (RCUT) intersection.

### WHAT IS A RCUT INTERSECTION?

Also known as a superstreet, a RCUT is divided roadway whose major intersections are modified to eliminate left turns and straight-through traffic on roads that intersect a main roadway.

### WHAT ARE THE TYPICAL DESIGN CHARACTERISTICS OF A RCUT INTERSECTION?

The RCUT design converts traffic flow at minor intersections into right-in/right-out movements (i.e., traffic can only turn right onto or from those streets). Turnarounds are placed in a median and are used to facilitate vehicle left turns and crossovers via U-turn movement (Figure 8).

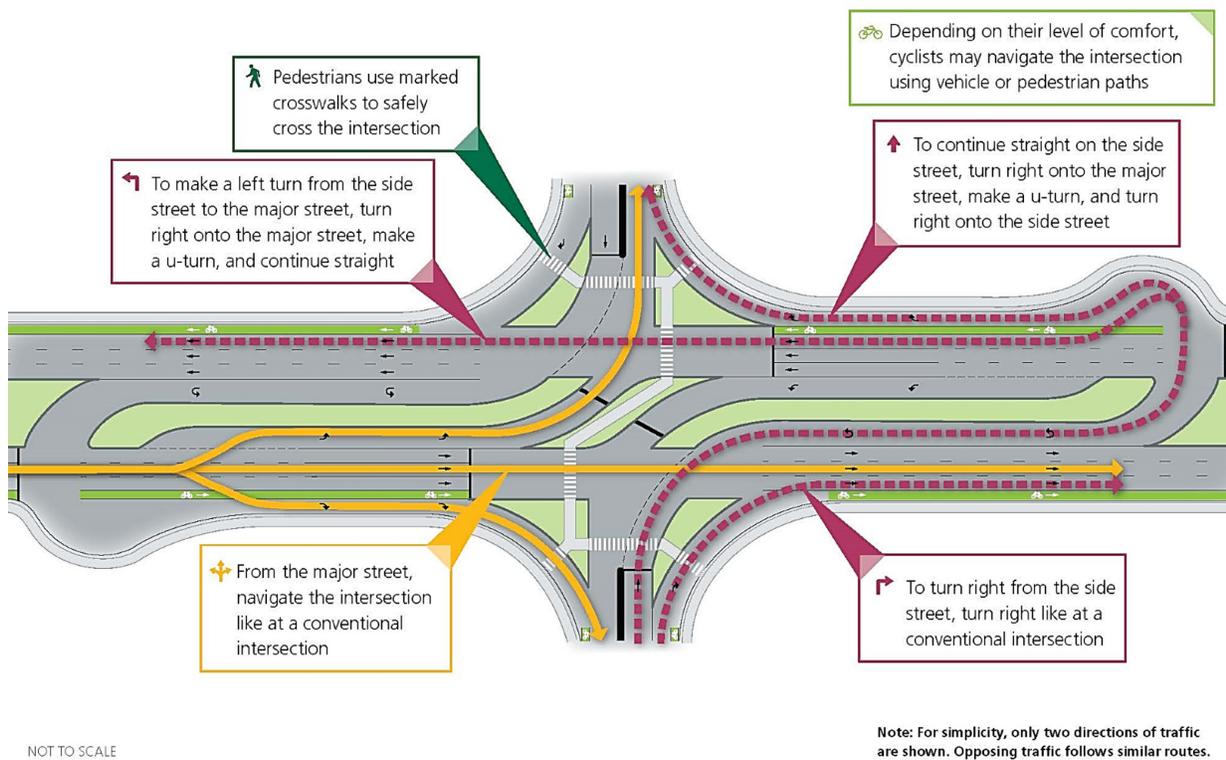


FIGURE 8 - RCUT INTERSECTION

### WHAT ARE THE BENEFITS OF USING RCUT INTERSECTIONS?

This design reduces vehicle conflict points while simplifying the decision process for drivers approaching a RCUT intersection. When a driver approaches a traditional four-legged intersection to make a left-turn, a driver must assess at least two different directions of traveling vehicles: crossing traffic and opposing traffic.

In a RCUT intersection, the driver only considers one direction of traveling vehicles at a time, such as left-turn movement by vehicles traveling in the opposite direction. The RCUT's simplified driver experience also reduces travel time through the intersection.



## CONFLICT POINTS

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

### WHAT ARE CONFLICT POINTS?

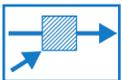
A conflict point is a location where the paths of two or more road users (for example, vehicles, pedestrians and cyclists) interact with one another, such as at road intersections. There is a strong correlation between the number of collisions that occur at an intersection and the number and severity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

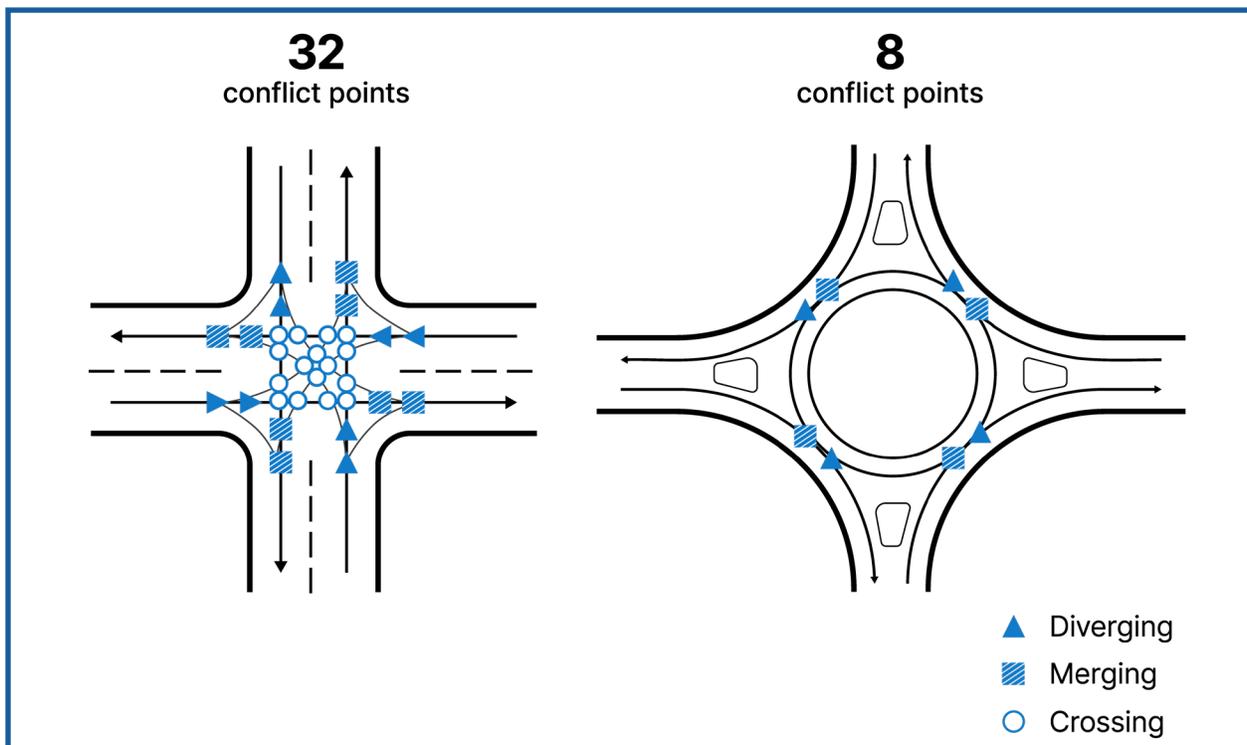


FIGURE 1 - TRADITIONAL (LEFT) AND ROUNDABOUT (RIGHT) INTERSECTION CONFLICT POINTS



## 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
ROUNDAABOUT	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
ROUNDAABOUT	0	6	6	12
TWO ROUNDAABOUTS (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)