

Protected Intersections

Description

Protected intersections involve the implementation of a number of design features that minimize conflict between drivers and vulnerable road users by separating their intersection movements through space, and also through time.

How it Works

Protected intersections include four main features:

- Raised corner islands physically protect cyclists from right-turning drivers. With these islands, cyclists who are turning right do not interact with motor vehicle traffic at all if there is a protected bicycle lane on the cross street;
- The threshold between the sidewalk and the road is placed past the stop line for motor vehicle drivers. The effect is that pedestrians and cyclists are positioned in front of (rather than beside) drivers, which improves drivers' ability to see these vulnerable road users;
- The pedestrian crosswalk and cyclist crossing is placed at least 6 metres to the right of the right-most vehicle lane. This setback creates a refuge space for right-turning vehicles to stop outside of the traffic stream, and allows for better visibility of people biking and walking when they are about to enter the crosswalk or intersection bike lane; and
- Traffic signal timing is set to minimize conflicting driver movements when vulnerable road users cross the street. The most effective way of doing so is by implementing dedicated signal phases to prevent drivers from moving when pedestrians and cyclists are crossing, and vice-versa. An alternative is to use leading pedestrian/cyclist intervals (page 17) to give vulnerable road users a head start when they cross the road.

Studies have shown that:

- Crashes involving pedestrians and cyclists frequently occur when they are crossing intersections with the right-of-way and are struck down by drivers turning right or left. Protected intersections address this type of driver error effectively.

Best results occur when:

- Protected intersections are implemented at the intersection of major roads;
- This strategy is integrated with protected and connected bicycle lanes (page 12);
- At a signalized intersection, the zebra markings should be replaced with parallel lines for the pedestrian crossings;
- Where high percentages of large freight trucks are present, consider mountable aprons; and
- A local bylaw should be enacted to give legal meaning to elephant's feet.

