City of Hamilton
Protected Intersection Guidelines

Accessibility Committee for Persons with Disabilities

May 13, 2025

Protected Intersections and Project Overview

What is a protected Intersection? Why are they important?

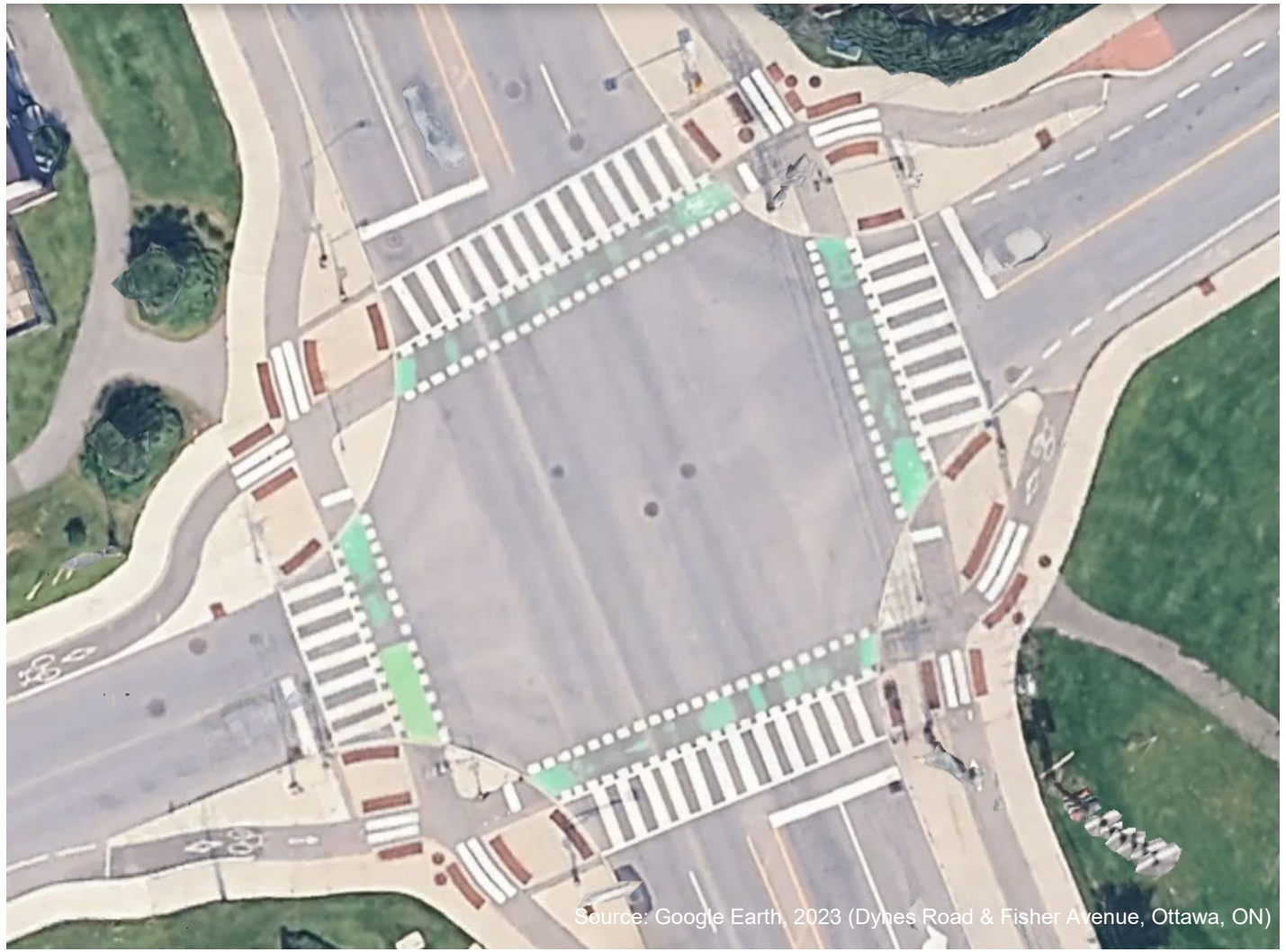
Project Scope & Key Tasks

- City of Hamilton is developing guidelines for protected intersections
- Key tasks as part of this project:
  - Conducting **background and best practices research**
  - **Collecting feedback** from stakeholders
  - Developing **criteria and prioritizing where protected intersections** should be implemented
  - Preparing **guidelines for specific design features**
  - Preparing **functional designs** for several locations

What is a Protected Intersection?

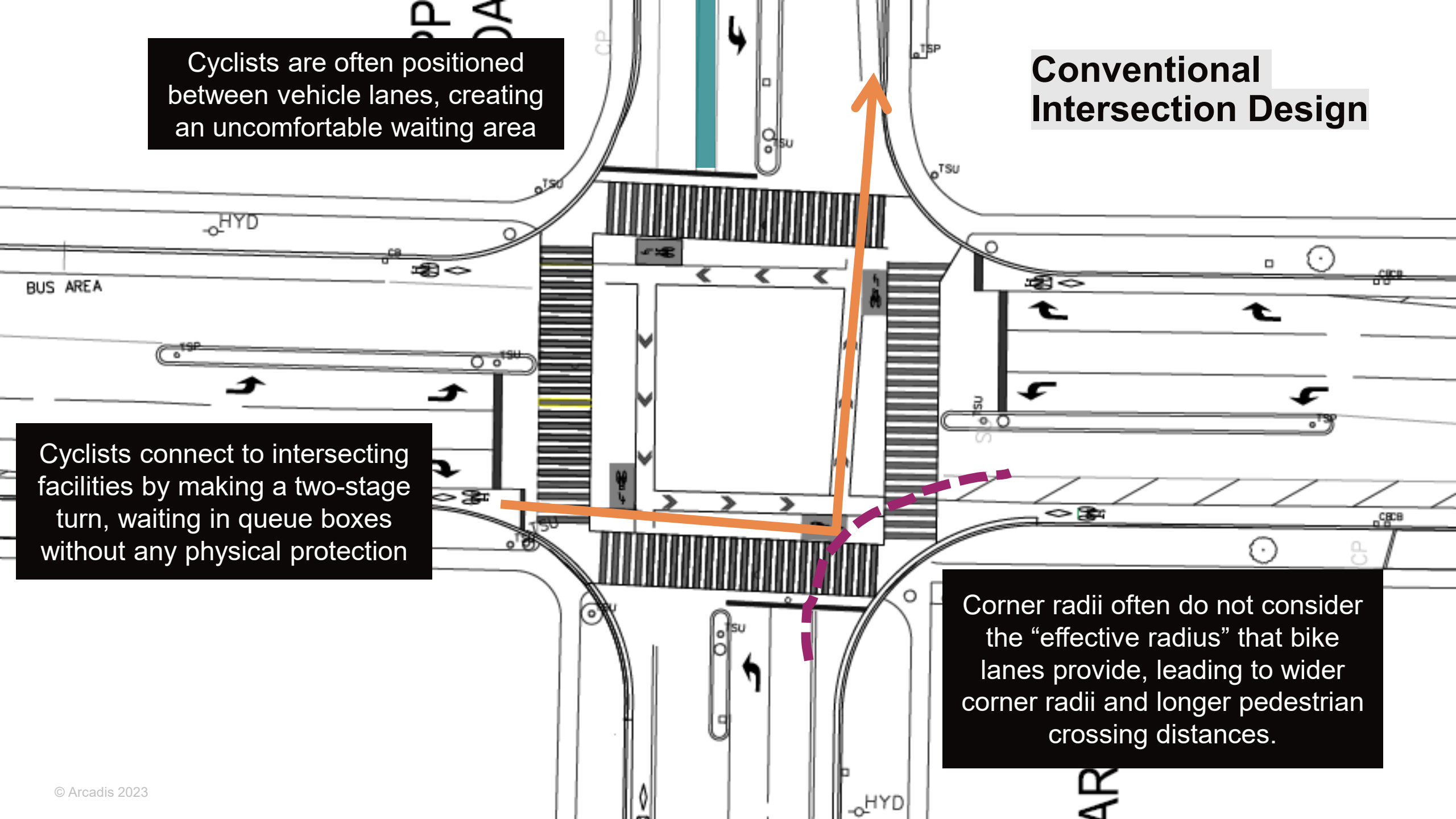
Protected intersections are intended to **improve safety** by:

- Making pedestrians and cyclists more **visible** to drivers
- Reducing **vehicle speeds**
- Providing **dedicated waiting spaces** for cyclists and pedestrians
- Reducing pedestrian **crossing times / distances**
- Incorporating AODA features to improve **accessibility**



Source: Google Earth, 2023 (Dynes Road & Fisher Avenue, Ottawa, ON)

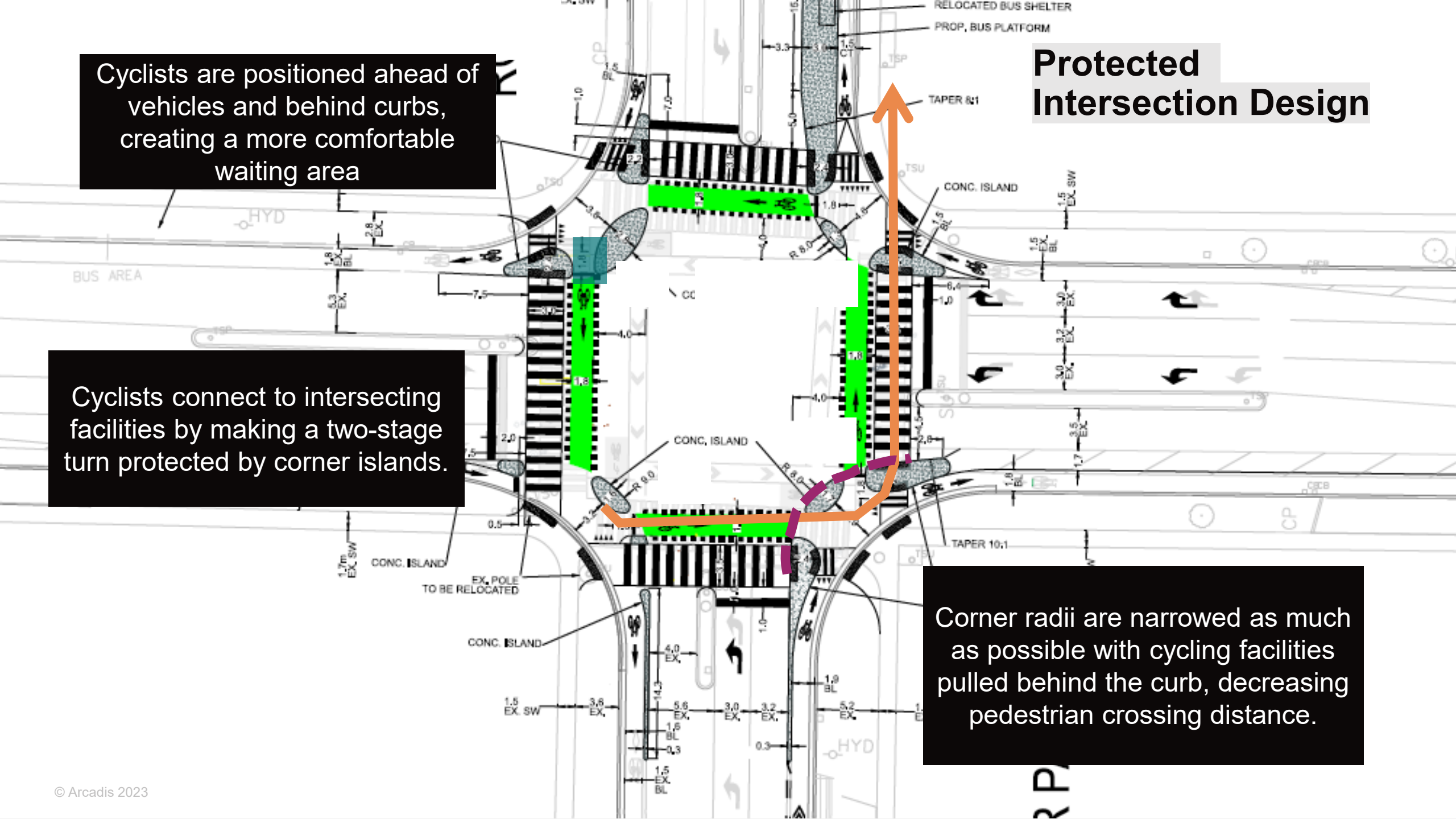
Conventional Intersection Design



Protected Intersection Design

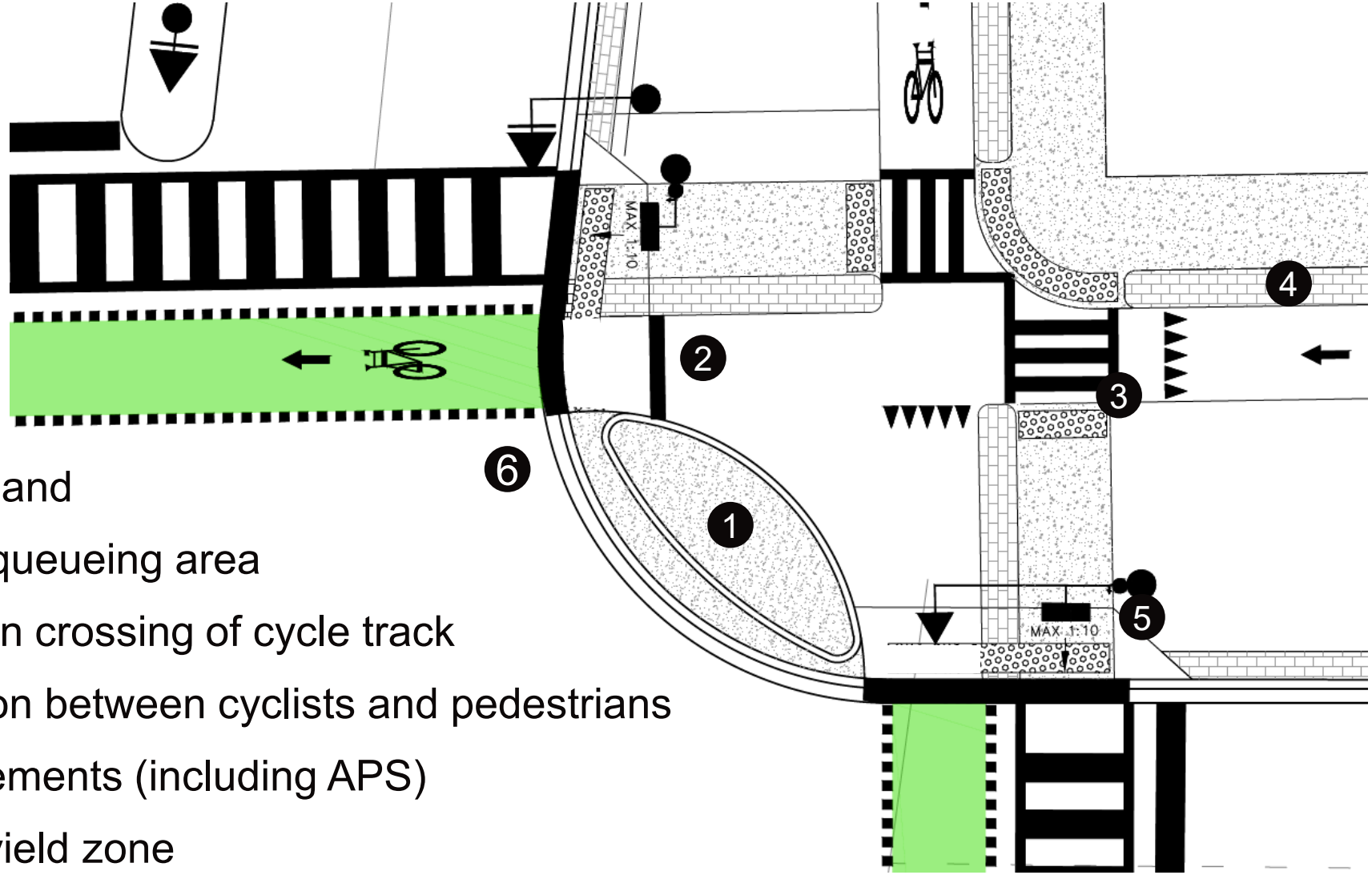
Cyclists are positioned ahead of vehicles and behind curbs, creating a more comfortable waiting area

Cyclists connect to intersecting facilities by making a two-stage turn protected by corner islands.



Corner radii are narrowed as much as possible with cycling facilities pulled behind the curb, decreasing pedestrian crossing distance.

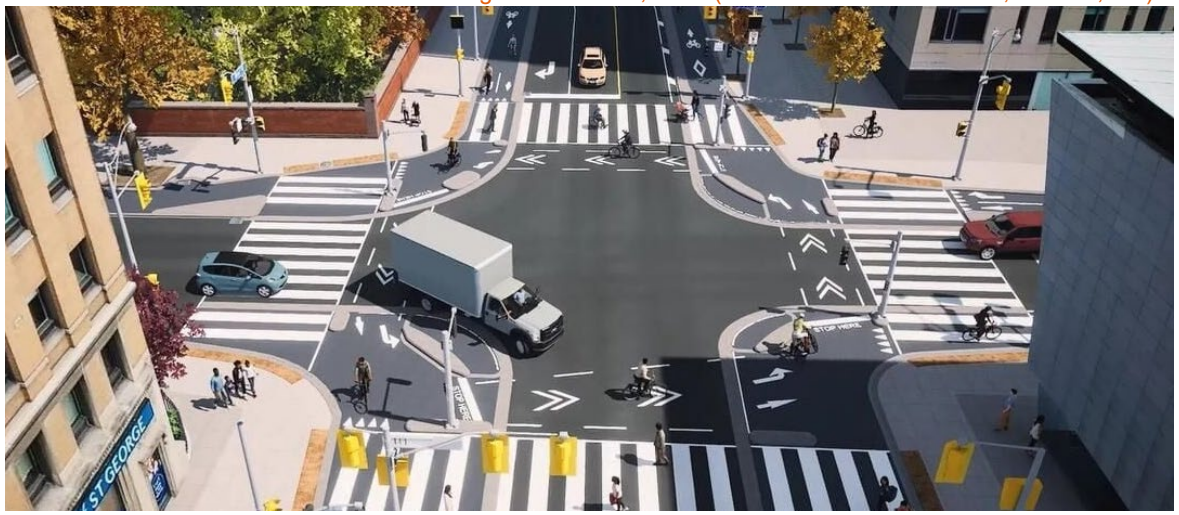
Elements of a Protected Intersection



1. Corner island
2. Forward queueing area
3. Pedestrian crossing of cycle track
4. Delineation between cyclists and pedestrians
5. AODA elements (including APS)
6. Motorist yield zone

Examples of Protected Intersections

Source: Google Street View, 2023 (Colborne St & Central Ave, London, ON)



Source: City of Toronto, 2022 (Bloor St W & St. George St, Toronto, ON)

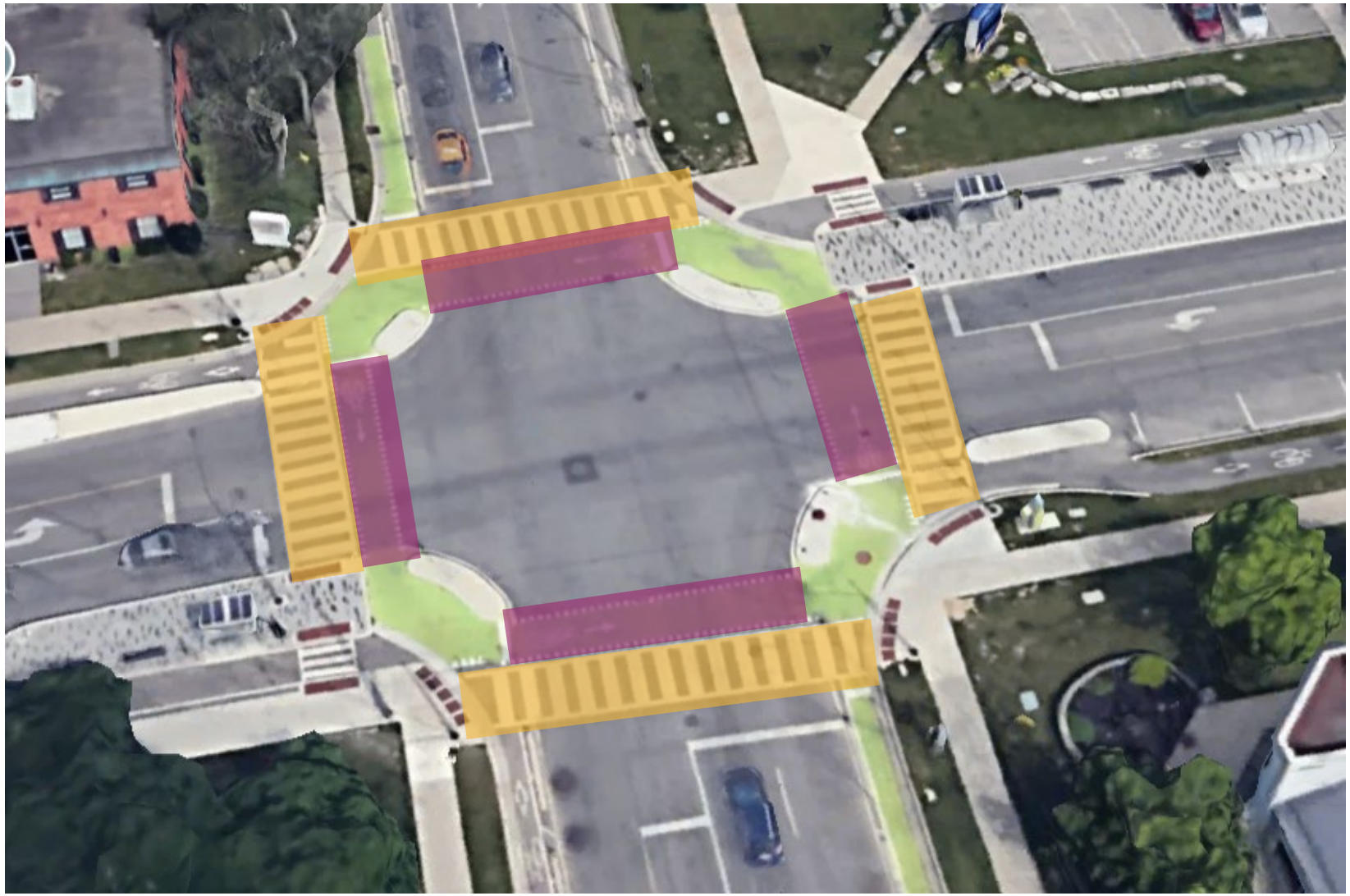
Source: Google Street View, 2023 (Longfields Dr & Highbury Park Dr, Ottawa, ON)

Design Features: Crossing Locations

- 4-6m of space between motor vehicle lanes and pedestrian / cyclist crossings
- Makes pedestrians and cyclists more visible to motor vehicles

Design Features: Bicycle and Pedestrian Crossings

- Separate bicycle and pedestrian crossings (cross-ride and cross-walk)
- Pedestrian crossing located on outside of bicycle crossing to reduce crossing conflicts

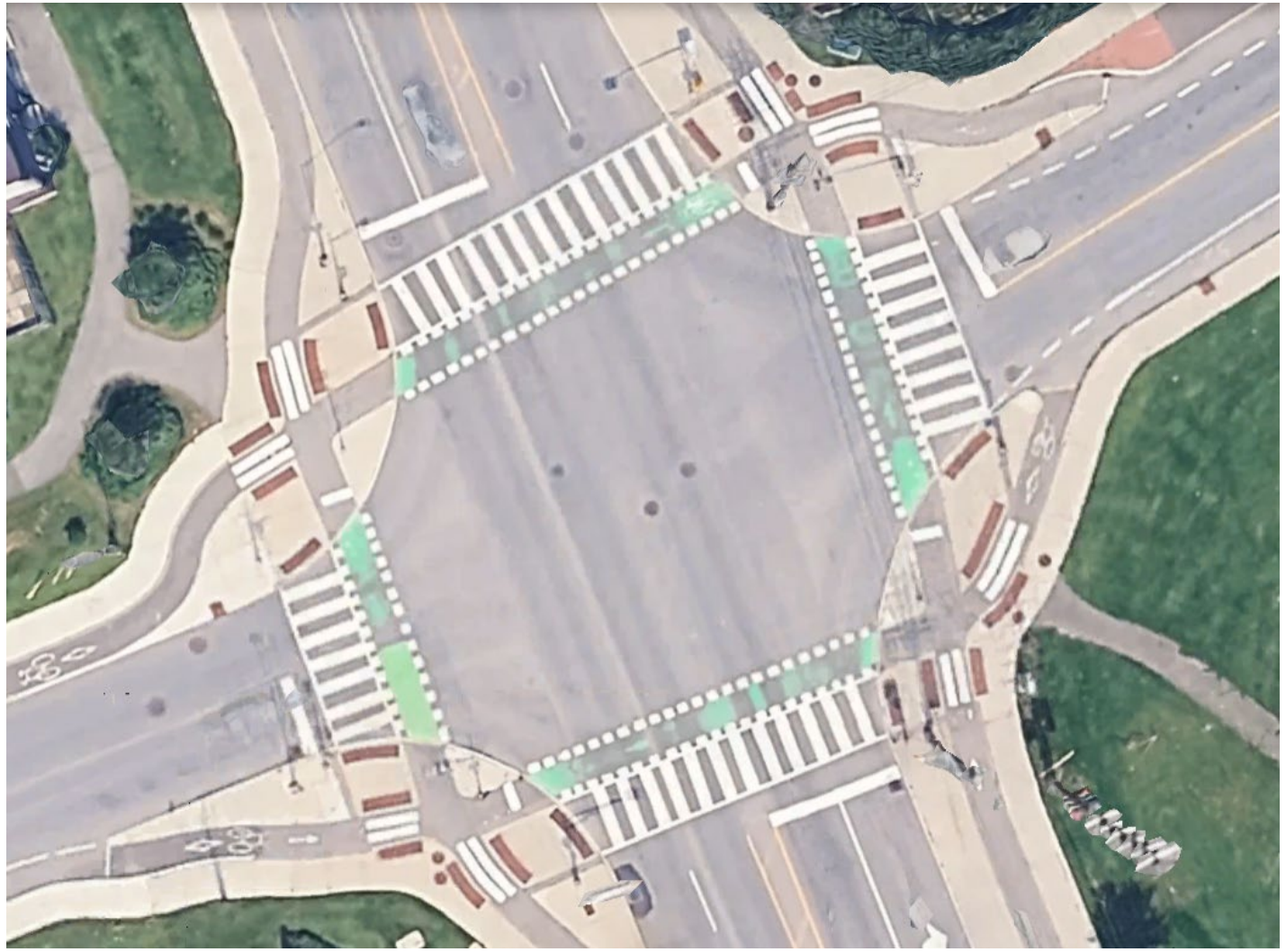


Design Features: Bicycle Movements

- Free right turn – not legally part of the intersection, but yield controlled
- Two-stage left turn for cyclists – adds waiting time, but time is made up on right turns
- Signal phasing is important to minimize waiting times for left-turning cyclists

Benefits of Protected Intersections

- Pedestrians and cyclists are **more visible** to drivers and their movements through the intersection are **more predictable**
- Crosswalks are set back further, making them **shorter** and **decreasing pedestrian crossing times**
- Corner **islands reduce vehicle speeds and position drivers so that vulnerable road users are visible** in the passenger window rather than the side view mirror
- Cyclists can opt for a two-stage left turn with a **dedicated queuing area**



Accessibility Features

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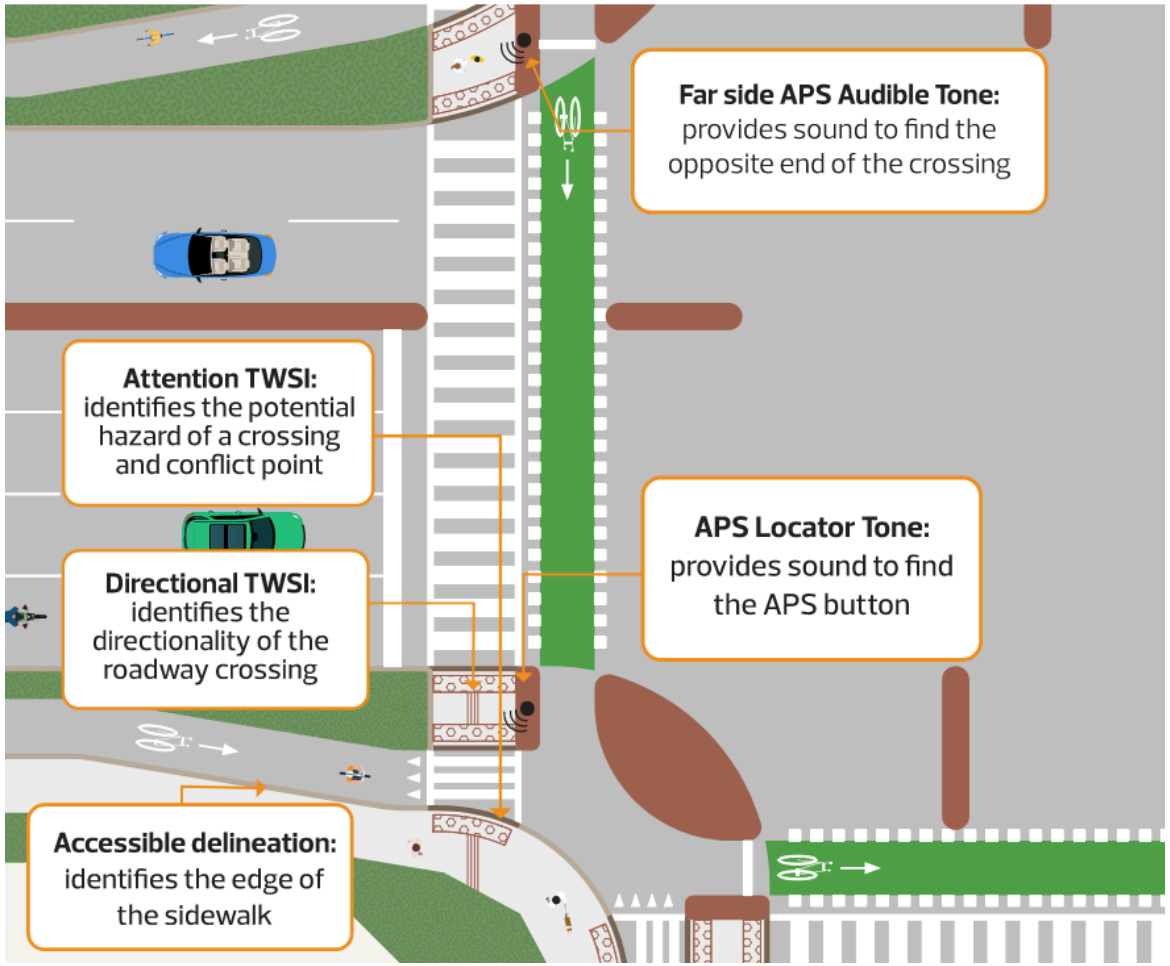
Key Features

1. Overview of accessibility features
2. Delineation between sidewalk and cycle tracks
3. Pedestrian crossing of cycle tracks
4. Directional indicators

Overview of Accessibility Features

- Attention TWSI (mandatory) & Directional TWSI (optional)
- APS Push Button & audible tone
- Pedestrian / Cyclist Delineation
- Curb ramps / depressed curbs

Source: City of Hamilton Complete Streets Design Guidelines



Source: Ontario Traffic Council Protected Intersection Guide

Delineation between sidewalk and cycle track

- On intersections approaches there are many ways to separate pedestrians and cyclists:

Furnishing Zone

Source: City of Hamilton Complete Streets Design Guidelines

Urban Braille

Source: City of Hamilton Complete Streets Design Guidelines

Bevelled Curb

Source: York University Accessibility-Focused Site Visits (pg. 15), 2022 (Murray Ross Multi-use Trail, Toronto, ON)

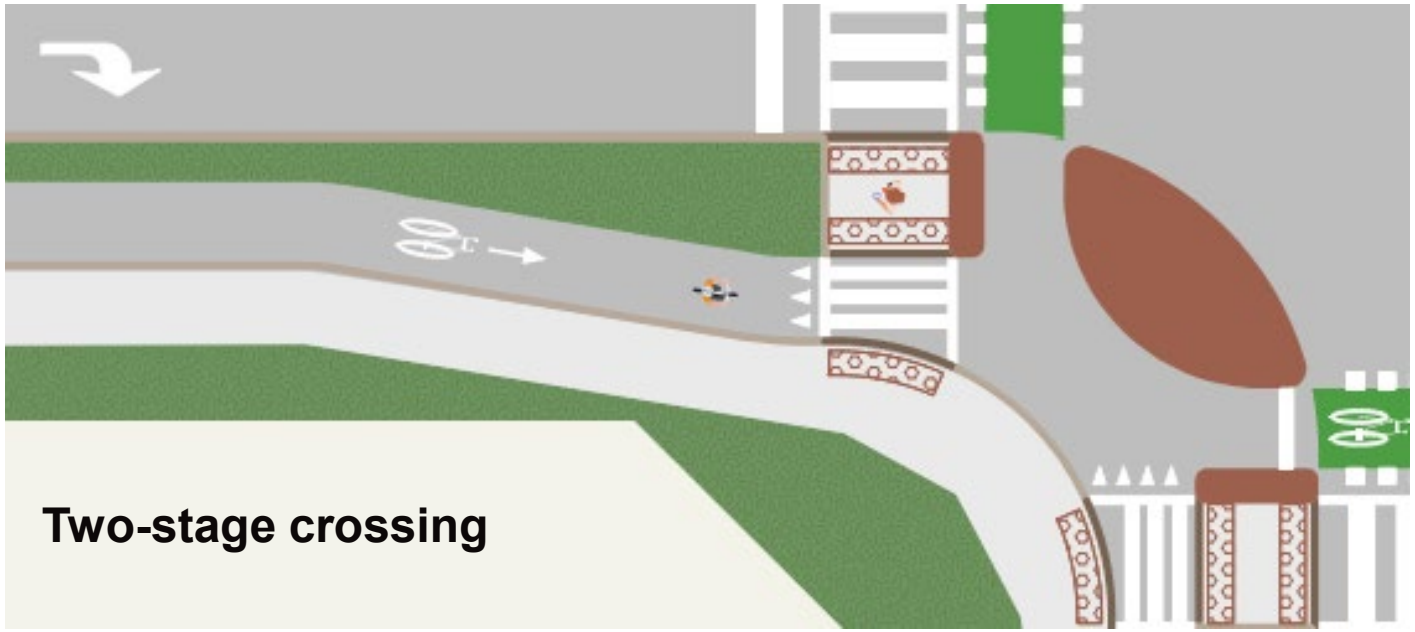
Full-height Curb

Source: Ontario Traffic Council Protected Intersection Guide

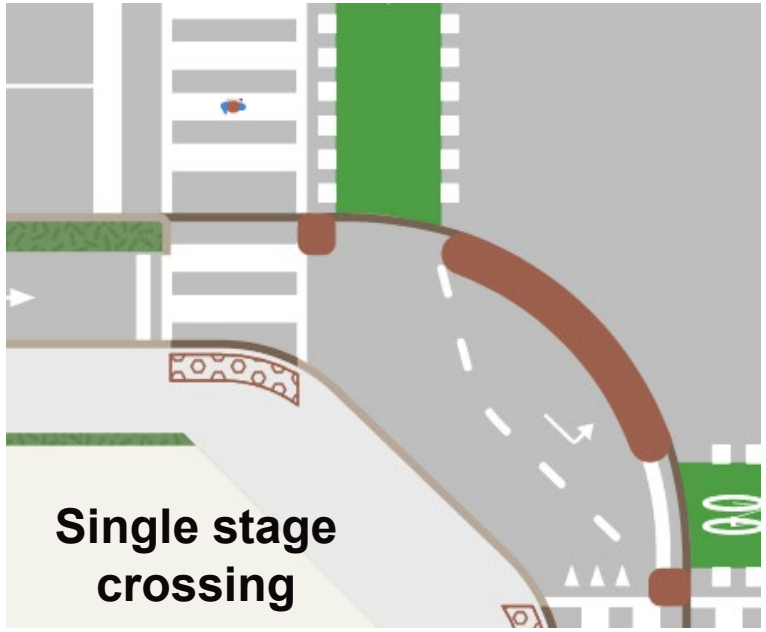
Which options do you prefer? Why?

Pedestrian Crossings of Cycle Tracks

- Depending on the space available for a protected intersection, there are **single stage or two-stage pedestrian crossing** scenarios
- In a two-stage pedestrian crossings**, pedestrians cross the cycle track first to a refuge island** before crossing the road



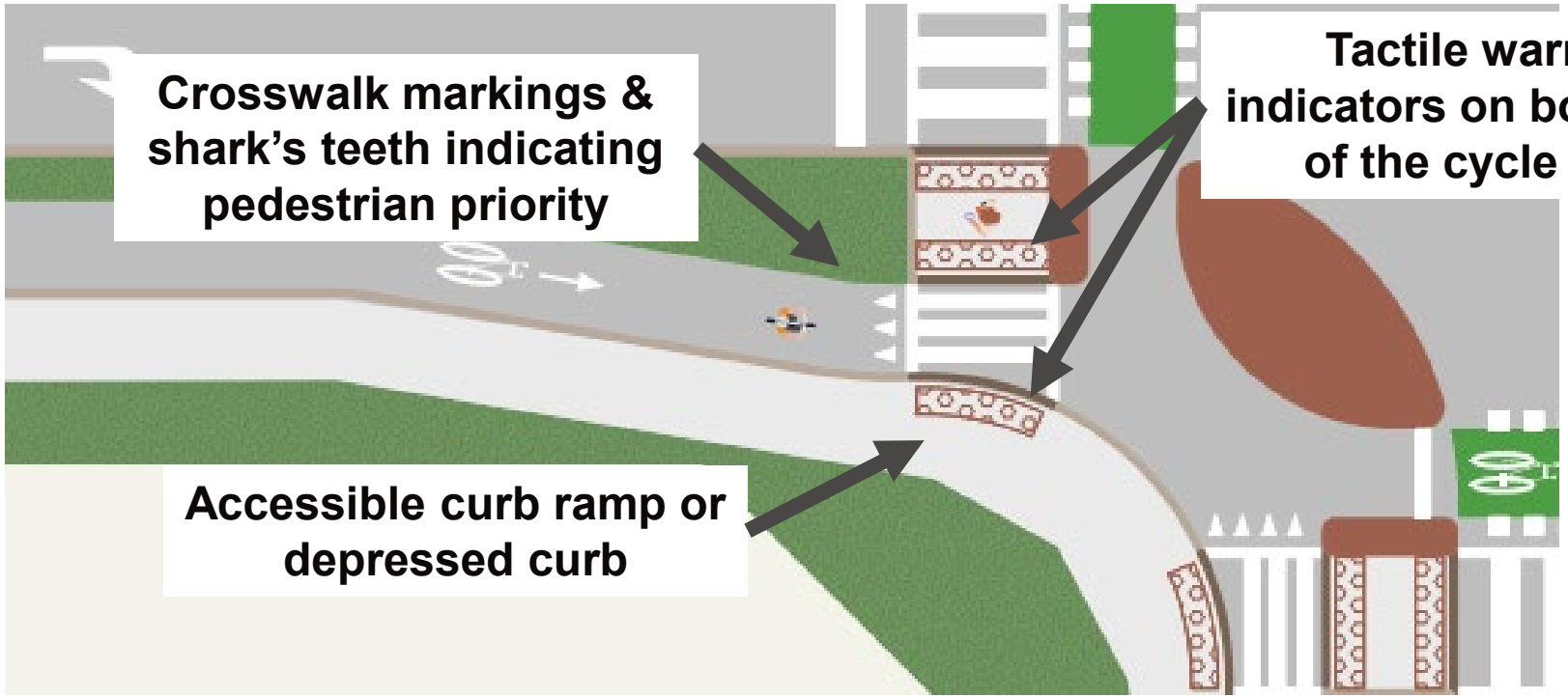
Source: Ontario Traffic Council Protected Intersection Guide



Source: Ontario Traffic Council Protected Intersection Guide

Pedestrian Crossings of Cycle Tracks

- For a two-stage crossing, typical design treatments for the pedestrian crossing the cycle track include: tactiles on either side of the cycle track and pavement markings and signage to reinforce that cyclists must yield to pedestrians

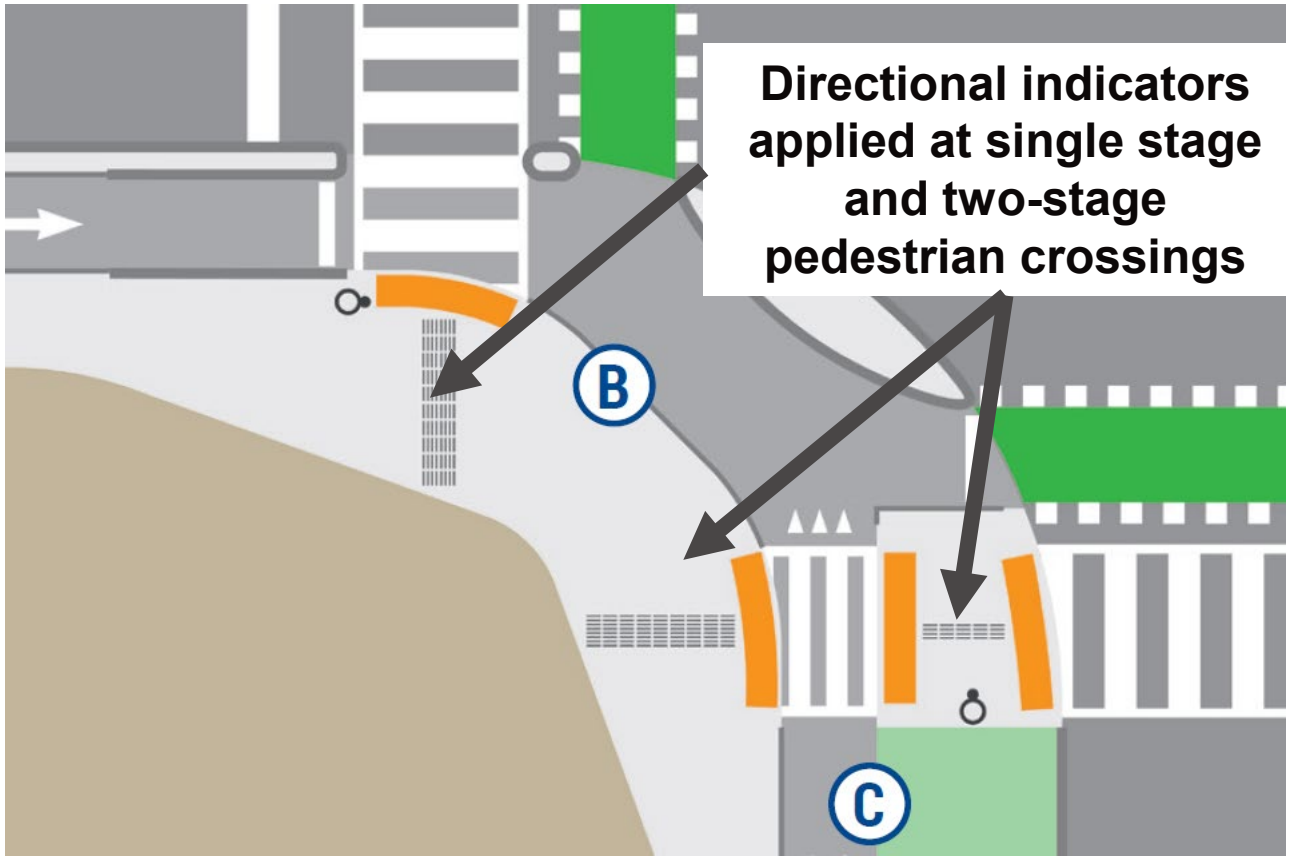


Source: Ontario Traffic Council Protected Intersection Guide

Do these features seem appropriate to you? Why or why not?

Directional Indicators

- Municipalities have experimented with directional indicators to help guide pedestrians through intersections, including protected intersections



Source: City of Ottawa Protected Intersection Design Guide

Do you think directional indicators are useful? Why or why not?

Questions? Ideas?

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