



# Advancements in Ottawa's Pedestrian & Cycling Infrastructure

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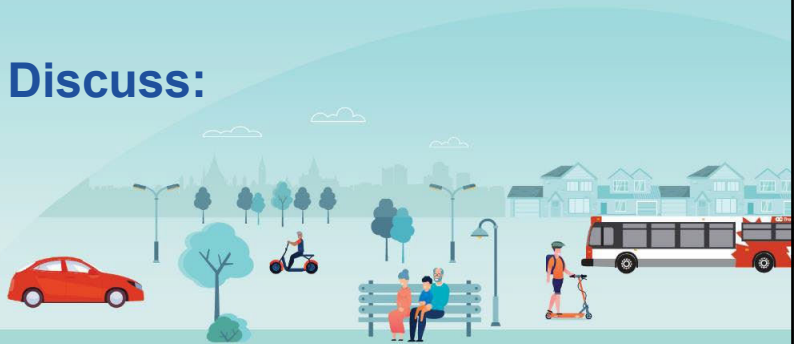


## Two Focus Areas:

- 1) Protected Intersections
- 2) Speed Management

## Each Focus Area to Discuss:

- A. Why?
- B. Design Evolution
- C. Standardization



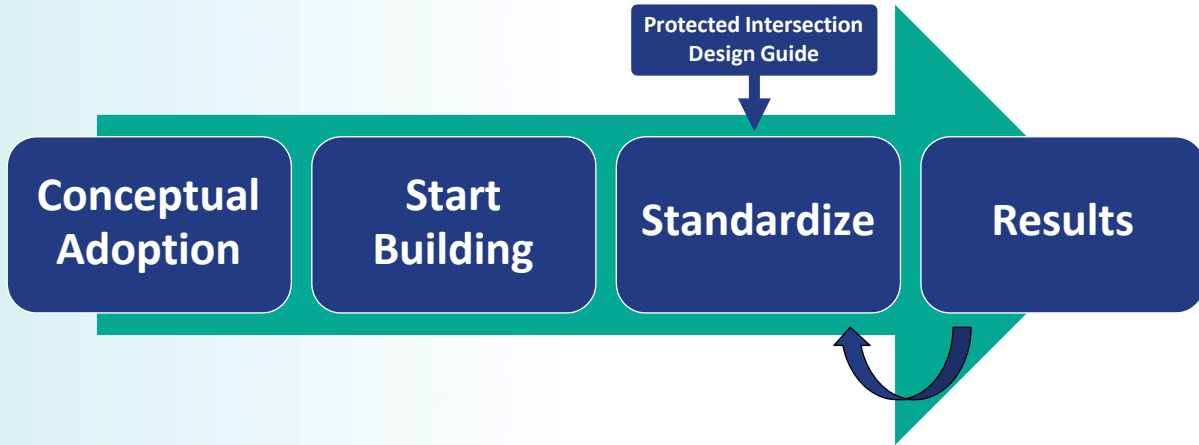
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# Part 1: Protected Intersections and Why Ottawa Has Built So Many



## Conceptual Adoption: Why Protected Intersections?

- Combine best practices from the Netherlands and North America
- **Improve safety** for vulnerable road users (pedestrians and cyclists)
- **Improve comfort** and "perceived safety" of cyclists
- Increase cycling modal share by **attracting "interested but concerned" cyclists**

Ottawa's Conceptual Development / Internal Buy-In Occurring 2013-2016





**Big Policy Move 2:** By 2046, the majority of trips in the city will be made by sustainable transportation.

The overarching mobility goal of the Official Plan is that by the end of its planning horizon, more than half of all trips will be made by sustainable transportation such as walking, cycling, transit or carpooling.

- Climate change goals
- Healthier city
- More equitable and inclusive city
- Safety
- Vibrant communities
- Financially sustainable

- Increase cycling modal share by attracting “interested but concerned” cyclists



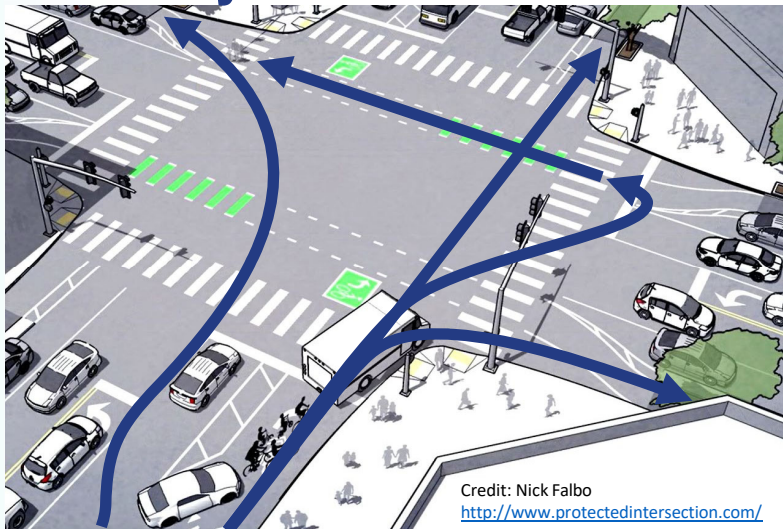
Ottawa’s Conceptual Development / Internal Buy-In Occurring 2013-2016



## Conceptual Adoption: Why Protected Intersections?

### Traditional Intersection:

- Confusion, multiple possible cycling movements!
- Little protection for cyclists
- Not comfortable



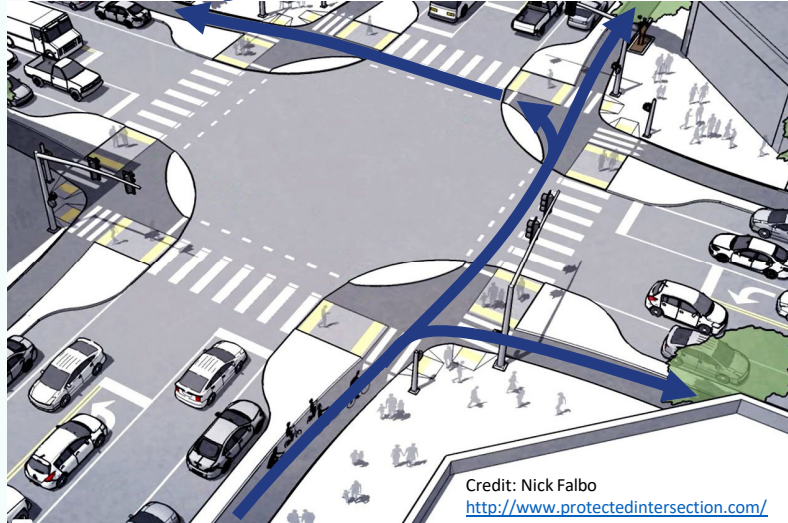
Credit: Nick Falbo  
<http://www.protectedintersection.com/>



# Conceptual Adoption: Why Protected Intersections?

## Protected Intersection:

- Cycling movements consolidated
- Safety features:
  - Corner safety island
  - Forward stop bar
  - Crossside and crosswalk setback
- Comfortable



# Start Building!

2011: Laurier Avenue



2014: Churchill Avenue





# Start Building!

## 2017: Main Street & Riverdale

BEFORE



AFTER



# Start Building!

## 2019: Dynes and Fisher

BEFORE



AFTER





# Start Building!

## 2019: St. Laurent & Donald

BEFORE

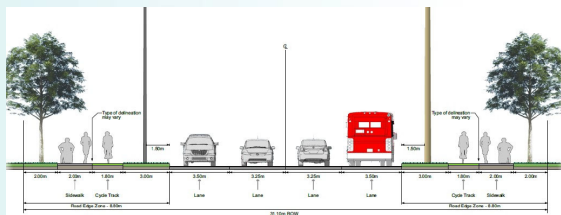


AFTER



# Standardize: Requirement of Renewal & New Roads

- 2017: Arterial Road Cross-Sections
- 2019: Designing Neighbourhood Collector Streets
  - Page 27 notes that *“Regardless of intersection type, protected features must be provided for active transportation users.”*





## Standardize: Need for a Protected Intersection Design Guide

With more protected intersections being built, Ottawa needed a design guide that was...

- ✓ **Detailed**
- ✓ **Specific to Ottawa** context and experience
- ✓ **Transparent** City of Ottawa practice for external engineers/designers and public
- ✓ **Consistent** for designers and users
- ✓ **Universally Accessible**
  - Guide development with Alta Planning + Design (2020-2021)



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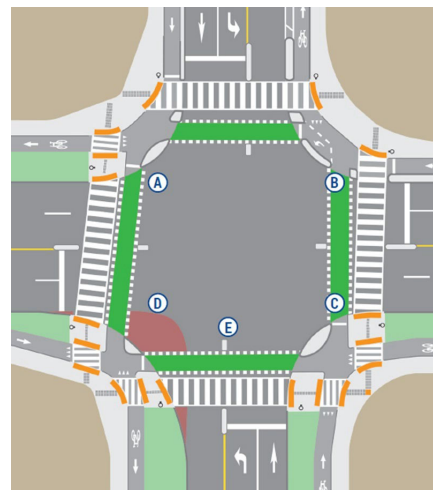
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## Standardize: Protected Intersection Design Guide

Guide is a framework for developing protected intersections and is therefore organized into steps of the design process.

- **Chapter 2: Guiding Principles**
- **Chapter 3: Functional Planning** – context, constraints, and corner radius
- **Chapter 4: Protected Corner Selection** – types and selection process – 7 different corner types in Guide



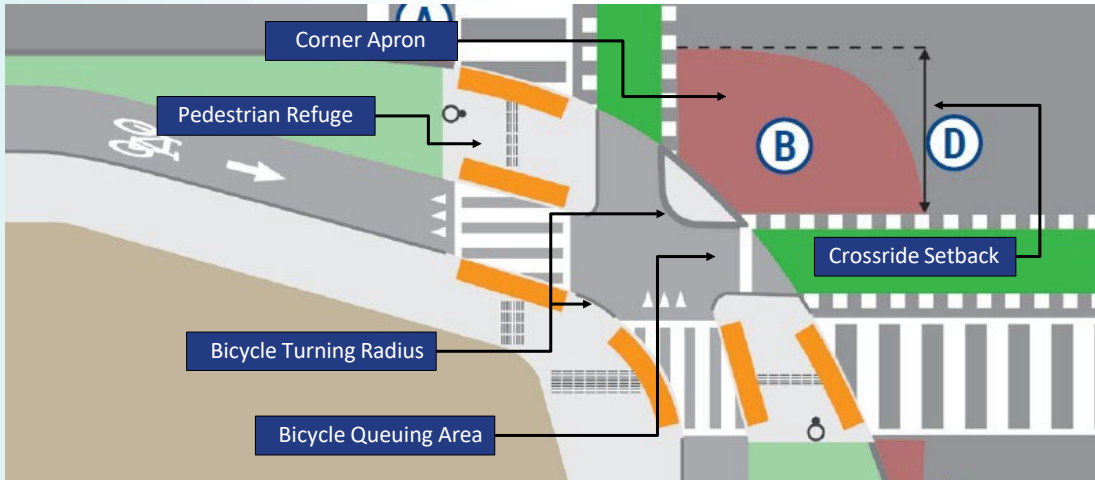
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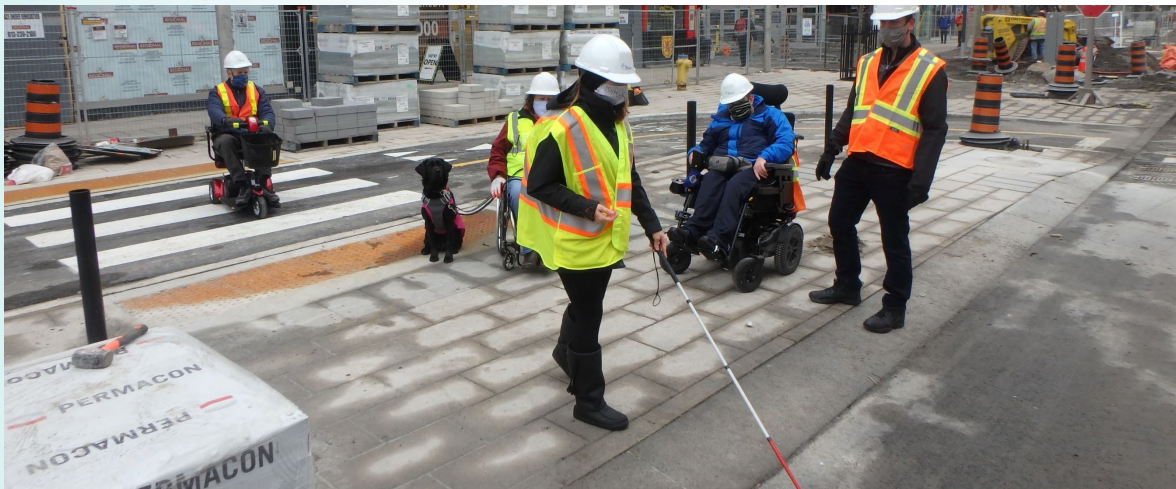
## Chapter 5: Functional Design – Corner Elements



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## Chapter 5: Functional Design – Accessibility



Angled curb testing on Rideau Street during Nov. 30<sup>th</sup> on-site workshop

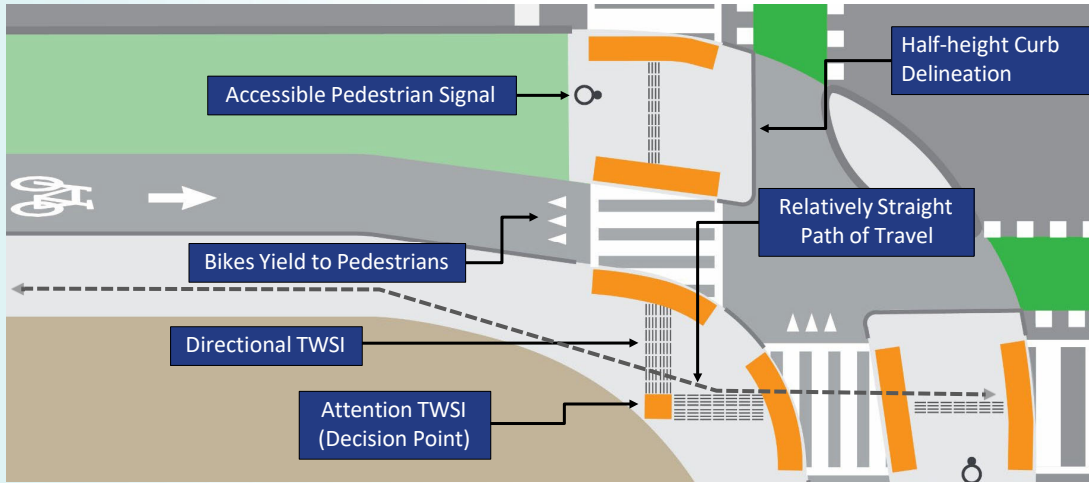
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## Chapter 5: Functional Design – Accessibility



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## Chapter 6: Detailed Design

- Pedestrian Guidance
- Delineation
- Directional guidance
- Elevations and Drainage
- Seasonal Maintenance
- Materials and Construction
- **Chapter 7: Signalization Measures**



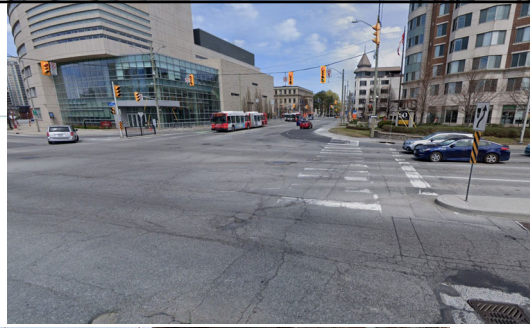
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BEFORE



# Results!

## 2022: Nicholas & Laurier

AFTER

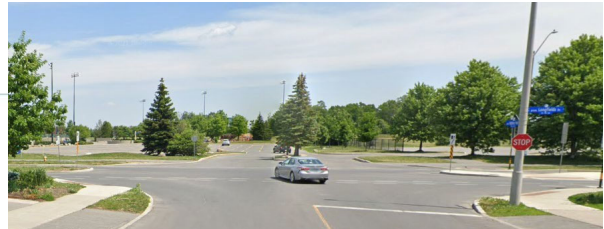


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# Results!

## 2023: Longfields & Highbury Park

AFTER



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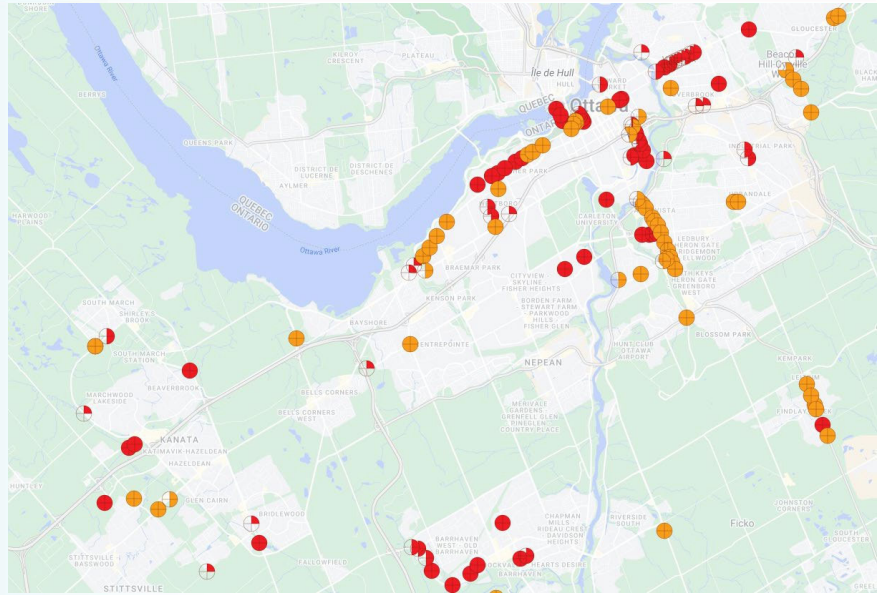


# Results!

- Existing (37+)
- Existing "reverse" (~7)
- In construction/design (60+)

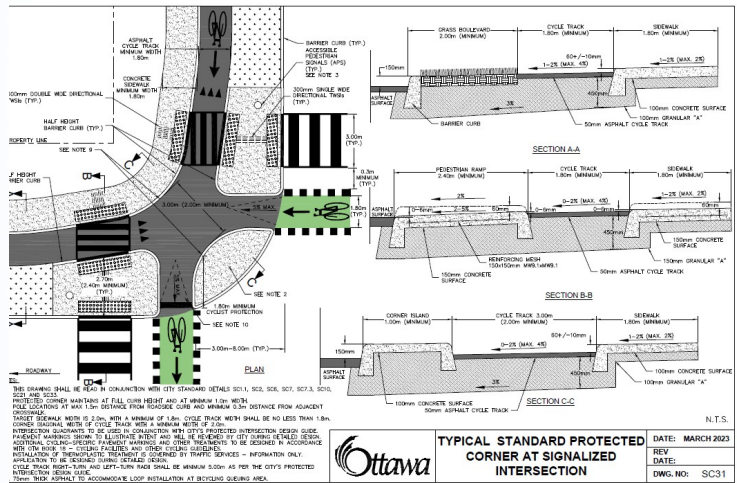
### Recognition:

- 2022 TAC Mobility Achievement Award
- 2022 OTC Project of the Year Award



# Feedback Loop – Refine Standards: (2022-2023)

- Standard detail drawings (2023)
- Ontario Traffic Council's Protected Intersection Guide (2023)





## Part 2: Speed Management (Through Design!)



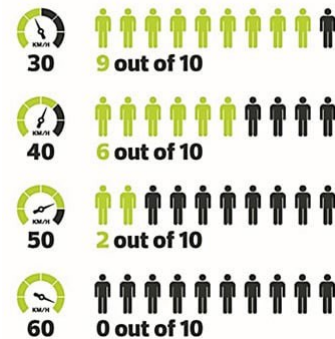
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## Why Speed Management?

- Policy 9-9 of 2023 Transportation Master Plan: **Reduce Operating Speeds through Changes in Street Design**
  - “Streets with slower operating speeds **are safer for vulnerable users** and **encourage active transportation** while continuing to allow for the provision of high-quality transit service.”
  - 30km/h – Local residential streets
  - 50km/h or less – “Access” streets
  - 60km/h or less – “Flow and capacity” streets

Approximate survival rate if hit by a vehicle at the following speeds.



Source: The Canadian Association of Road Safety Professionals

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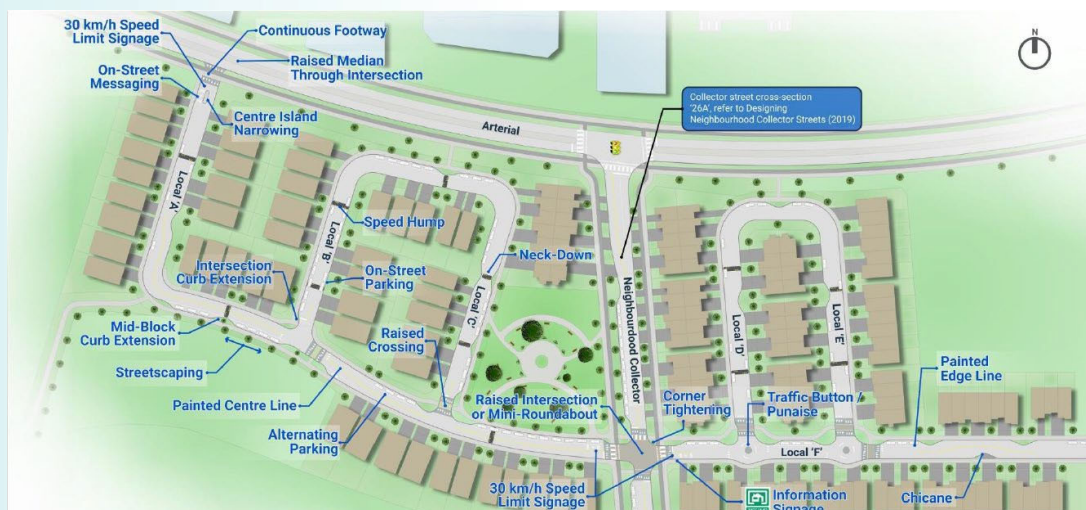
## Standardizing Speed Management

- Design Guidelines & Policies:
  - 2019 *Traffic Calming Design Guidelines*
  - 2019 *Strategic Road Safety Action Plan Update*
    - “all new local residential streets, constructed within new developments, or when reconstruction occurs on local residential streets, be designed for a 30 km/h operating speed.”
  - 2019 *Designing Neighbourhood Collector Streets*
  - 2021 *Local Residential Streets 30km/h Design Toolbox*

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## Standardizing Speed Management

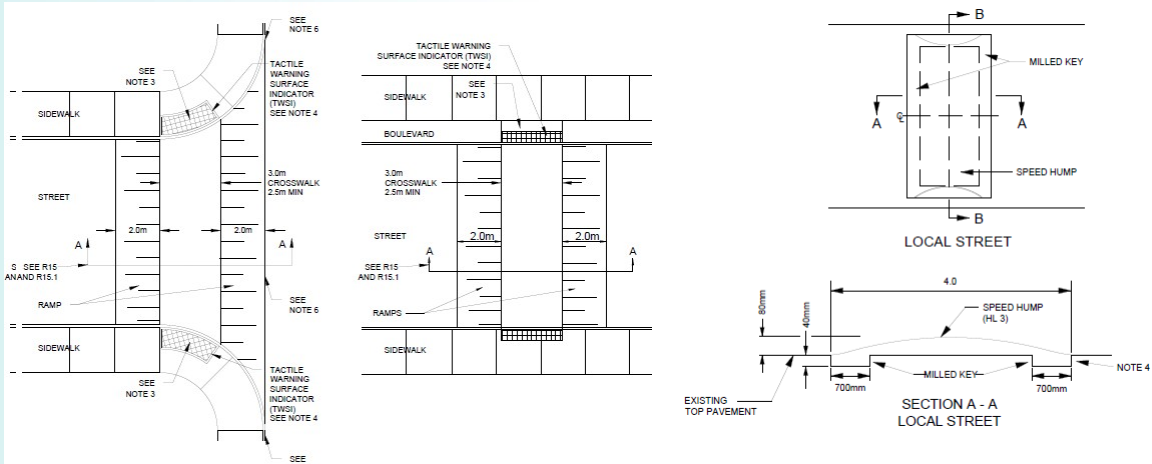


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# Standardizing Speed Management



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# Collector Streets – Then and Now

Esprit Drive (Constructed ~2005)



- 11m curb-to-curb width
- 1.5m-wide sidewalks
- No cycling facilities

Derreen Avenue (Constructed 2023)



- 9.4m curb-to-curb width with...
  - 7.0m-wide road narrowings
- 2.0m-wide sidewalks
- 1.8m-wide cycle tracks

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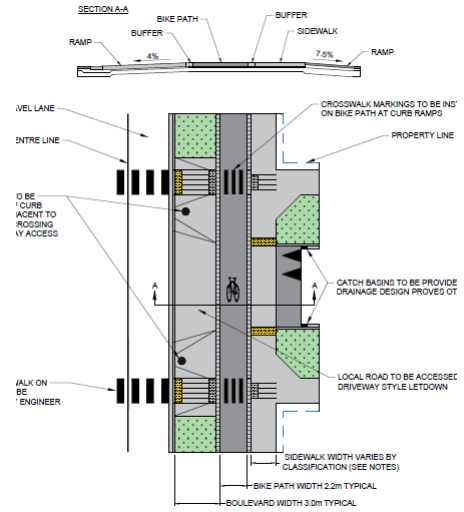


## Spotlight: Continuous Sidewalks and Bikeways

- Inspired by the Netherlands, as well as Canadian Cities like Nanaimo, BC.
- Included as an “Emerging Measure” in the City of Ottawa ‘Local Residential Streets 30km/h Design Toolbox’.



City of Nanaimo Engineering Standards & Specifications - 2020



## O'Connor Bikeway – Challenge & Opportunity

- O'Connor Street is one-way southbound
- Bidirectional protected bike lane added to east side of the street in 2016
- Left-hook risk where O'Connor intersected with unsignalized one-way eastbound streets



Emergency responders assess a cyclist who was hit on the bike lane on Tuesday, the day of its official opening ceremony. (Submitted)



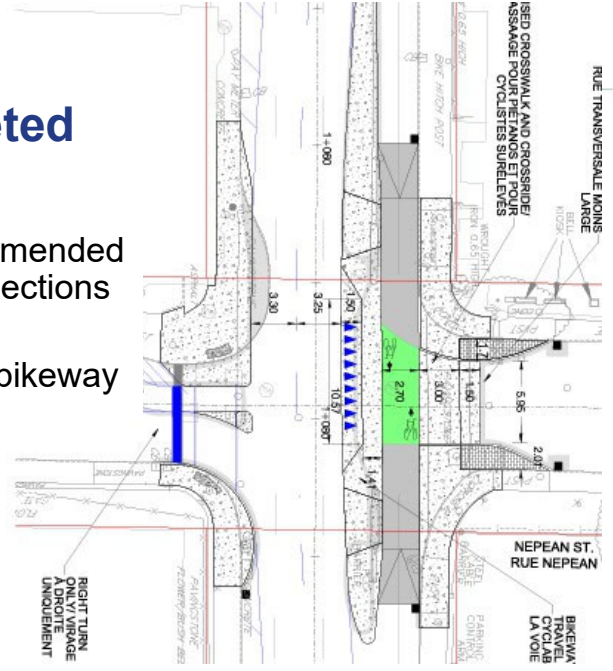
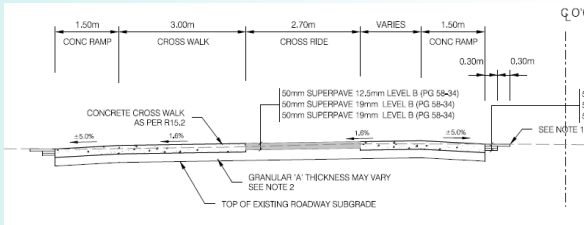
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Mobycon Safety Review – 2018  
Following the opening of the facility in October of 2016, three highly publicised collisions occurred within 16 days, which drew attention to the potential to improve safety of the facility. The City of Ottawa has therefore asked Mobycon to conduct a review of the current design and provide recommendations for safety improvements. SBI and EBT conflicts identified as high-risk raised crossings at unsignalized intersections recommended as a countermeasure.

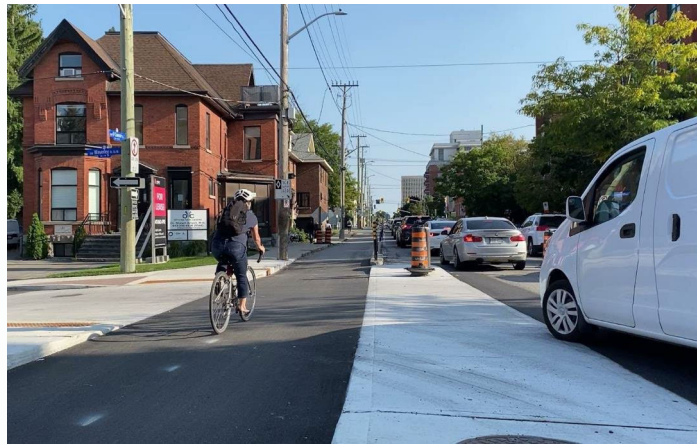


# O'Connor Bikeway – Targeted Safety Improvements

- Safety review (Mobycon, 2018) recommended raised crossings at unsignalized intersections as a countermeasure
- Opportunity for continuous sidewalk / bikeway project



# O'Connor Bikeway – Targeted Safety Improvements: Substantially Complete

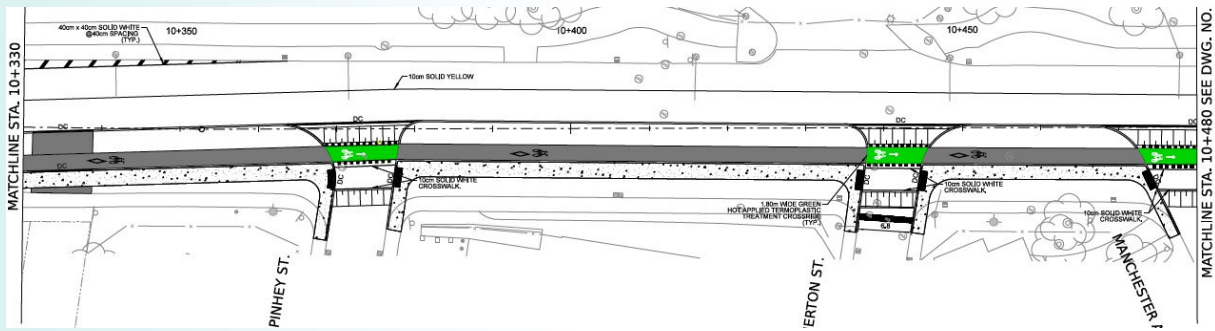






# Scott Street - Parkdale to Bayview Station Road: Under Construction

- Included at unsignalized intersections as part of a protected intersection project

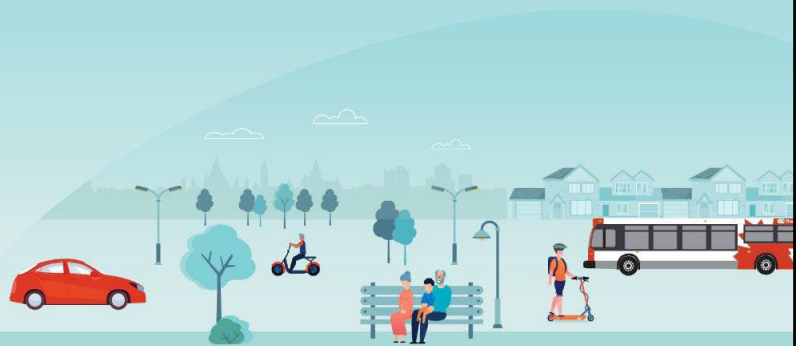


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# Thank You!



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