# DESIGN FEATURES SAFETY FOCUSED \* Adapted from the Government of British Columbia's B.C. Community Road Safety Toolkit

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### **PROTECTED BICYCLE LANES**

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A protected bicycle lane (also known as a cycle track or separated bicycle lane) runs alongside a street, but is physically separated from motor vehicle traffic and is distinct from the sidewalk. Protected bicycle lanes can be one- or two-way. The bicycle lane can be at street level, higher up at the sidewalk level, or at a level in-between the two.

żλΗΜ	<ul> <li>To reduce up to 90% of vehicle-bicycle incidents resulting in injuries</li> <li>To reduce cyclist to cyclist conflicts by utilizing one-way directional bicycle lanes</li> </ul>
έMOH	<ul> <li>Protected physical barrier between vehicle lanes and bicycle lanes</li> <li>Painted directional indications for cycling</li> <li>Placement of bicycle lanes positioned outside of potential intersections and vehicle parking conflict areas</li> </ul>
<b>WHERE?</b>	• Throughout the proposed Metral Drive complete street design

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### **RAISED CROSSINGS**

People on foot or on bicycle crossing a road often have the right-ofway, but this is not intuitive in typical North American road design. Raised crossings are crosswalks that are flush with the sidewalk, rather than the road, and help to make people crossing more apparent to drivers.

żλΗΜ	<ul> <li>To prioritize the right-of-way for pedestrians and cyclists</li> <li>Reduce vehicle-pedestrian injuries by up to 46%</li> <li>Reduce vehicle-bicycle injuries by as much as 51%</li> </ul>	
HOW?	<ul> <li>Raised crossings</li> <li>Sidewalk and cycle track material is continuous</li> <li>Tactile warning strips</li> </ul>	
WHERE?	<ul> <li>Somerset Drive (x2)</li> <li>Bergen Op Zoom Dr</li> <li>Fernandez Place</li> <li>Tulip Place</li> </ul>	<ul> <li>Malpass Road</li> <li>Dorren Place</li> <li>Pine Park Place</li> <li>Spartan Road</li> </ul>





#### **PROTECTED INTERSECTIONS**

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.

- Crashes involving pedestrians and cyclists with motor vehicles frequently occur at intersections (drivers turning).
- Raised corner islands

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**WOH** 

WHERE

- Adjusted vehicle stopline
- Pedestrian crossing setbacks
- Turner Road and Metral Drive intersection
- Enterprise Way and Metral Drive intersection

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Pedestrian refuge islands work to reduce roadway crossing distances for people, allowing them to safely and more quickly reach the opposite side. These safety designs are low-cost, increasing the opportunity for widespread implementation.

έλΗΜ	<ul> <li>To reduce vehicle-pedestrian incidents by 46% at marked crosswalks and 39% at unmarked crosswalks</li> <li>To encourage drivers to yield to pedestrians</li> </ul>
ίMOH	<ul> <li>Curb letdowns</li> <li>Pedestrian island midway across road</li> <li>Raised protected buffers on either side of island</li> </ul>
WHERE?	<ul><li>Godfrey Road</li><li>Doumont Road</li></ul>

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### **OFF-SET CROSSWALK**

An Off-set Crosswalk is a raised refuge island which has been cut out in a zigzag pattern. This roadcrossing design is also known as a Danish offset, a Z-crossing, a corral crossing, or a two-stagecrossing. The zigzag pattern of the refuge island directs pedestrians to face motor vehicle traffic before completing the second stage of their crossing.

ζΥΗΨ	<ul> <li>To encourage drivers to yield to pedestrians</li> <li>To guide pedestrians to safer crossings, discouraging attempts at unmarked dangerous locations</li> <li>To reduce pedestrians from being stuck mid-crossing</li> </ul>	żλΗΜ
ίMOH	<ul> <li>Curb letdowns</li> <li>Pedestrian island midway across road</li> <li>Zigzag crosswalk pattern from one side to the other</li> <li>Raised protected buffers on either side of island</li> </ul>	;WOH
<b>WHERE?</b>	<ul> <li>North end of Metral Drive by Real Canadian Superstore parking lot</li> </ul>	<b>WHERE?</b>







### **ROAD DIETS AND COMPLETE STREETS**

"Road diets" are changes to a street's design where one or more motor vehicle travel lanes are removed. Commonly, this occurs when a 4-lane street is reduced to a 2-lane street and pedestrian and cycling facilities are added to make it a "complete street." A complete street is one that accommodates and protects all road users in proportion to their risk.

• To encourage slower and more attentive driving

- To encourage the use of more active modes of transportation
- To reduce motor vehicle incidents by between 19 and 47%
- Reduction in the number of motorized lanes along a roadway
- Building infrastructure for pedestrians and bicyclists
- Implementation of best practices for public roadway design such as off-street pathways, refuge islands and raised crossings

• Metral Drive between Mostar Road and Aulds Road

# **DESIGN CROSS-SECTIONS**

## MOSTAR ROAD TO GODFREY ROAD

- Raised and continuous sidewalk (1.8m width)
- Raised and separated cycle track (bike route)
- Road travel lanes suitable for buses and trucks
- New curb and gutter added

HIGHWAY

- Street trees and landscape median added to improve aesthetics and provide separation
- KEY MAP

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## GODFREY ROAD TO TURNER ROAD

- Raised and continuous sidewalk (1.8m)
- Raised and separated cycle track (bike route)
- Road travel lanes suitable for buses and trucks
- New curb and gutter added to form boulevard
- Street trees and landscape median added to improve aesthetics and provide separation

ENTERPRIS

#### **KEY MAP**

HIGHWAY 19A





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# **DESIGN CROSS-SECTIONS**

## TURNER ROAD TO ENTERPRISE WAY

- Raised and continuous sidewalk (1.8m width)
- Raised and separated cycle track (bike route)
- Road travel lanes suitable for buses and trucks
- New curb and gutter added to form boulevard
- Street trees and landscape median added to improve aesthetics and provide separation



## ENTERPRISE WAY TO AULDS ROAD

- Existing continuous sidewalk (1.8m width)
- Raised and separated cycle track (bike route)
- Road travel lanes suitable for buses and trucks (truck route)
- New curb and gutter added to form boulevard
- Street trees and landscape median added to improve aesthetics and provide separation

### **KEY MAP**



ENTERPRISE







# SCENE 1: On-Street Parking Metral Drive at Dublin Way

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# **KEY FEATURES**

- Raised and continuous sidewalks (1.8m) on both sides of the road
- Continuous cycle track (protected bike lane) both sides of the road, raised at local roads
- On-street parking lanes (2.4m) between curb extensions
- Travel lanes suitable for buses and trucks (3.6m to face of curb)
- New curb and gutter added to form boulevard and street trees added to improve aesthetics and provide separation
- Improved sight-lines at Dublin Way raised local intersection

# SCENE 2: Transit Stop Metral Drive at Bergen Op Zoom











## **KEY FEATURES**

- Raised and continuous sidewalks (1.8m) on both sides of the road
- Continuous cycle track (protected bike lane) on both sides of the road, raised at local road intersections
- Road travel lanes suitable for buses and trucks (3.6m to face of curb)
- Transit stop island (clear of sidewalk and cycle track)
- Centre median and two-stage protected crosswalk
- New curb and gutter added to form boulevard and street trees added to improve aesthetics and provide separation



# **SCENE 3: Driver's Perspective** Metral Drive North (at Cobs Bakery)



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KEYPLAN

## **KEY FEATURES**

- Lane reduction from five to three, providing one vehicle travel lane in each direction and a centre turn lane.
- Offset pedestrian crossing including median island to reduce crossing distance.
- Existing 1.8m sidewalk is retained, all changes made between the existing curbs.
- Cycle tracks with buffer (protected bike lanes) adjacent to existing sidewalks.
- Minimum width travel lanes suitable for buses and trucks (3.6m to face of curb).
- New curb and gutter added to form boulevard and street trees added to improve aesthetics and provide separation.