

Presented To:	Operations Committee
Presented:	Monday, May 16, 2016
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Type:	Presentations

Request for Decision

Pedestrian Crossover Facilities

Resolution

THAT the City of Greater Sudbury adopts the use of Type B, C and D pedestrian crossovers to be used at locations that meet the guidelines of Book 15 of the Ontario Traffic Manual;

AND THAT the prioritized list of locations where pedestrian crossovers are recommended to be installed be presented to the Operations Committee at a future meeting;

AND THAT an annual report be presented to the Operations Committee which prioritizes the installation of pedestrian crossovers based on existing and anticipated pedestrian volumes all in accordance with the report dated April 29, 2016 from the General Manager of Infrastructure Services.

Background

Recently an update to Book 15, Pedestrian Crossing Treatments of the Ontario Traffic Manual was completed. The Ontario Traffic Council, various Ontario municipalities (including the City of Greater Sudbury), the Ministry of Transportation of Ontario, and CIMA Canada Inc. were involved in the development of the updated manual. With this updated manual and recent amendments to the Ontario Highway Traffic Act (HTA) through Bill 31, the Making Ontario Roads Safer Act, the Province has introduced three new pedestrian crossover facilities for municipalities to use. These new crossing treatments will allow pedestrians to cross roads under a greater number of conditions and will provide municipalities with a more cost effective solution to enhance pedestrian safety.

What is a Pedestrian Crossover Facility?

A Pedestrian Crossover (PXO) is defined in the HTA as “any portion of a roadway, designated as a by-law of a municipality, at an intersection or elsewhere, distinctly indicated for pedestrian crossing by signs on the highway and lines or other markings on the surface of the roadway as prescribed by the regulations.” There are four types of pedestrian crossovers which can be used for both mid-block and intersection control.

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Division Review

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Level 1 Pedestrian Crossover - Type A

The type A PXO is the traditional PXO that was previously available to municipalities and is now referred to as a Level 1 Pedestrian Crossover in the HTA. In Ontario it has been most commonly used in the City of Toronto. This PXO consists of pedestrian push buttons; side mounted crossing signs and overhead signs with flashing beacons. A typical layout for a type A PXO can be found in Exhibit "A".

This type of PXO is designed for use on multi lane roads with medium to high vehicle volumes. Many municipalities have had concerns with drivers and pedestrians not understanding how to use these types of PXOs and have replaced them with mid-block pedestrian traffic signals or intersection pedestrian traffic signals. The City of Greater Sudbury has shared these concerns and when warranted, has installed pedestrian traffic signals instead. It is recommended that the City continue this practice.

Level 2 Pedestrian Crossover - Types B, C and D

The recent amendment to the HTA introduced a new PXO referred to as a Level 2 Pedestrian Crossover. This PXO utilizes a ladder crosswalk, a yield to pedestrian line, Level 2 Pedestrian Crossover signs and as options, allows for rapid rectangular flashing beacons and overhead signs. Each configuration of the Level 2 PXO has its own type associated with it. The type D PXO has a ladder crosswalk, tactile warning panels, yield to pedestrian line and the Level 2 Pedestrian Crossover signs on both sides of the road. The type C PXO uses all the features of the type D PXO and includes rapid rectangular flashing beacons and accessible pedestrian signals. The type B PXO uses all the features of the type C PXO and includes overhead signs. Typical layouts of all three types of PXOs can be found in Exhibits "B", "C" and "D". The type D PXO can also be used at crossings within channelized right turn lanes. Exhibit "E" shows the typical layout for this situation.

Statutory Requirements

The HTA regulates the use of PXOs to roads with a posted speed limit of 60 km/h or less. Recent amendments to the HTA, which came into effect January 1, 2016, require drivers to stop when a pedestrian is within a PXO and to not proceed until the pedestrian is no longer on the roadway. Drivers of any vehicle are not permitted to pass another vehicle within 30 metres of a PXO. Pedestrians are required to continue exercising caution when choosing to cross to the road by selecting a safe time to enter the road and giving any approaching vehicle adequate time to stop. These new rules do not apply to pedestrian crosswalks at intersections with stop signs or traffic signals, unless a school crossing guard is present.

Initial Screening and Selection of Type of PXOs

OTM Book 15 provides guidelines for when PXOs should be implemented. The guidelines are as follows:

- 100 or more pedestrians (or equivalent) observed crossing over an eight hour period or 65 or more pedestrians (or equivalent) observed crossing over a four hour period.
- The PXO is intended to serve pedestrian traffic crossing low speed roads (posted speed of 60 km/h or less) and low to moderate vehicular volume not exceeding 35,000 in AADT;
- The PXO should not be installed within 200 metres of other controlled crossings;
- There are not more than four lanes of two-way traffic or three lanes of one-way traffic;

OTM Book 15 provides a preliminary assessment flow chart and a PXO selection matrix to assist practitioners in choosing the appropriate PXO for the site in question. These are presented in Exhibits "F" and "G".

Preliminary Review

In anticipation of these new PXO devices being available to municipalities, staff conducted pedestrian and vehicle counts at 36 locations throughout the City. These locations included trail heads along the Junction Creek Trail, channelized right turn lane crossings and other mid-block uncontrolled crossings. Exhibit "H" presents the list of 17 locations which qualify for a PXO and Exhibit "I" presents the list of locations which do not meet the requirements for a PXO. This preliminary review demonstrates how the guidelines of OTM Book 15 are applied and how the various types of PXOs are chosen.

Recommendations

The addition of these new types of PXOs has provided municipalities a lower cost option to create controlled pedestrian crossings at locations where pedestrians desire to cross. By providing additional controlled crossings, the City of Greater Sudbury will help facilitate a healthier and safer lifestyle for all residents. It is recommended that the City of Greater Sudbury adopt the use of Type B, C and D PXOs to be used at locations that meet the guidelines of OTM Book 15.

The installation cost for a PXO can vary greatly depending on the type of PXO recommended, the availability of street lighting and if any physical changes to the roadside environment are required. The existing capital budget for sidewalks and street lighting will be utilized to install PXOs. It is recommended that staff prepare a report which will prioritize the installation of PXOs at the recommended locations based on expected construction costs and allocated budgets.

Should the City of Greater Sudbury adopt the use of PXOs, staff anticipate receiving many requests to have additional PXOs installed. In order to prioritize requests in a fair manner, it is recommended that staff present an annual report to the Operations Committee which prioritizes the installation of PXOs based on existing and anticipated pedestrian volumes.

In addition, staff will work with Communication Services and Greater Sudbury Police Services to develop a communication plan to educate drivers and pedestrians on the safe use of PXOs.

EXHIBIT A

Typical Type A Pedestrian Crossover

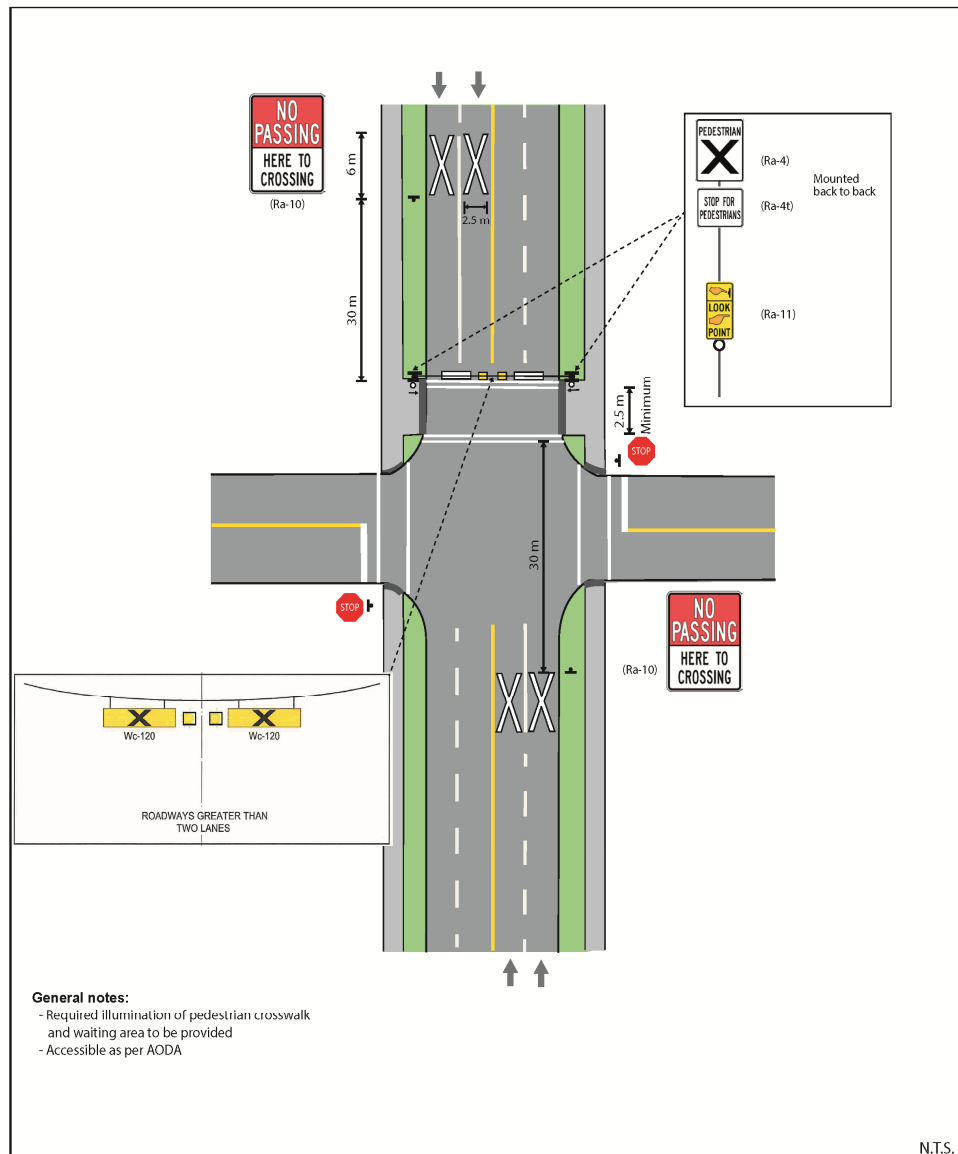
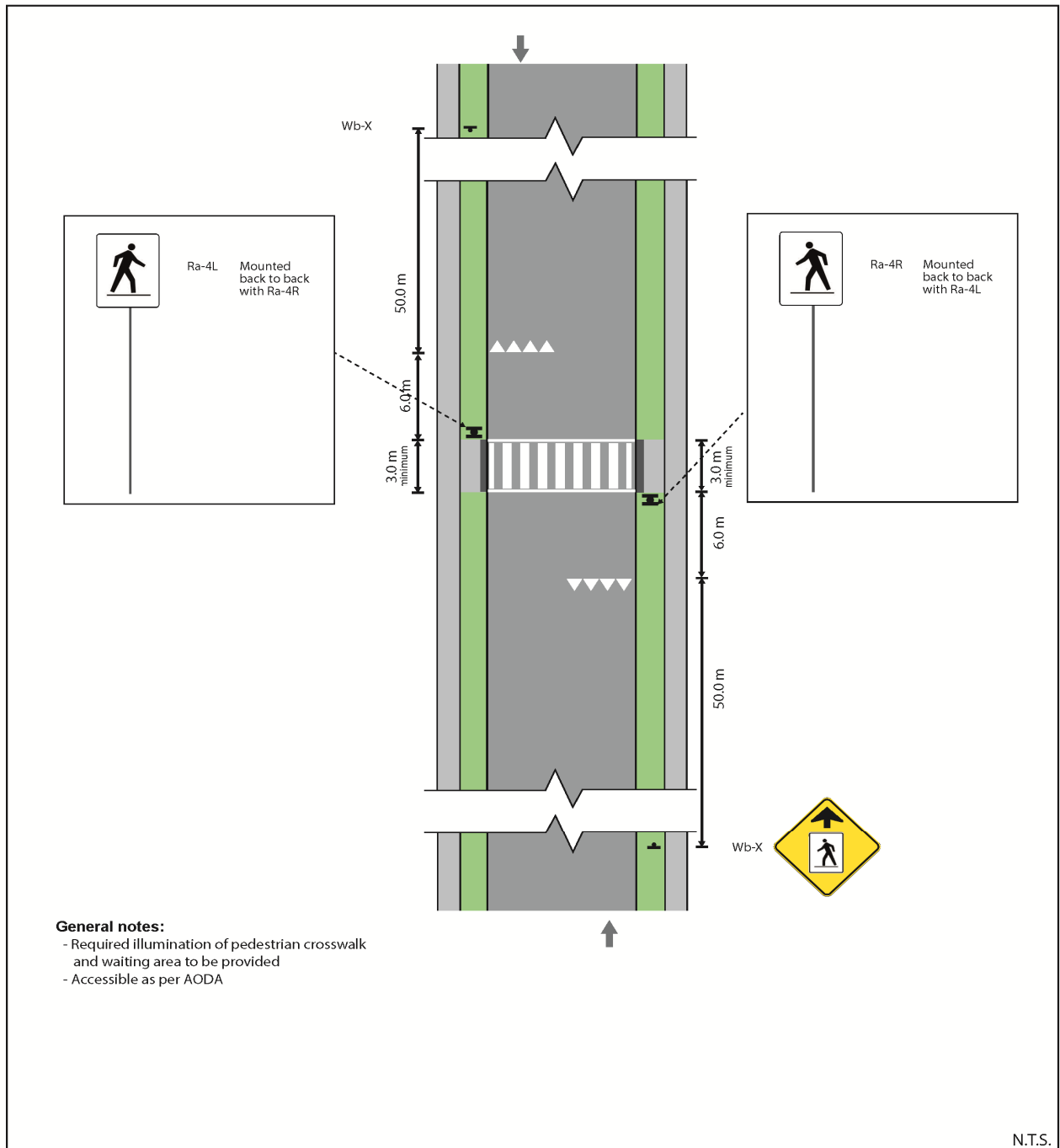
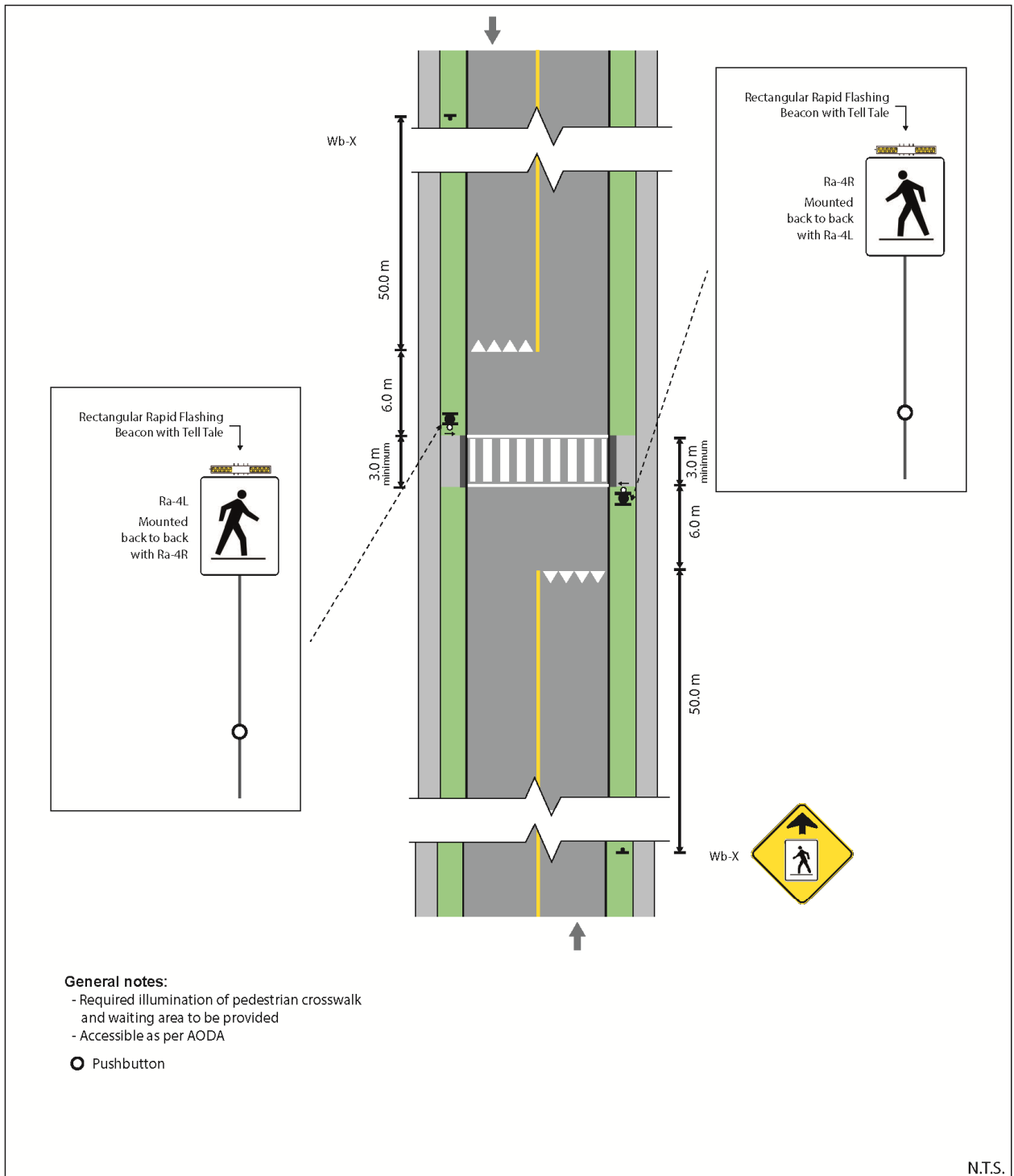


EXHIBIT B

Typical Type D Pedestrian Crossover



Typical Type C Pedestrian Crossover



Typical Type B Pedestrian Crossover

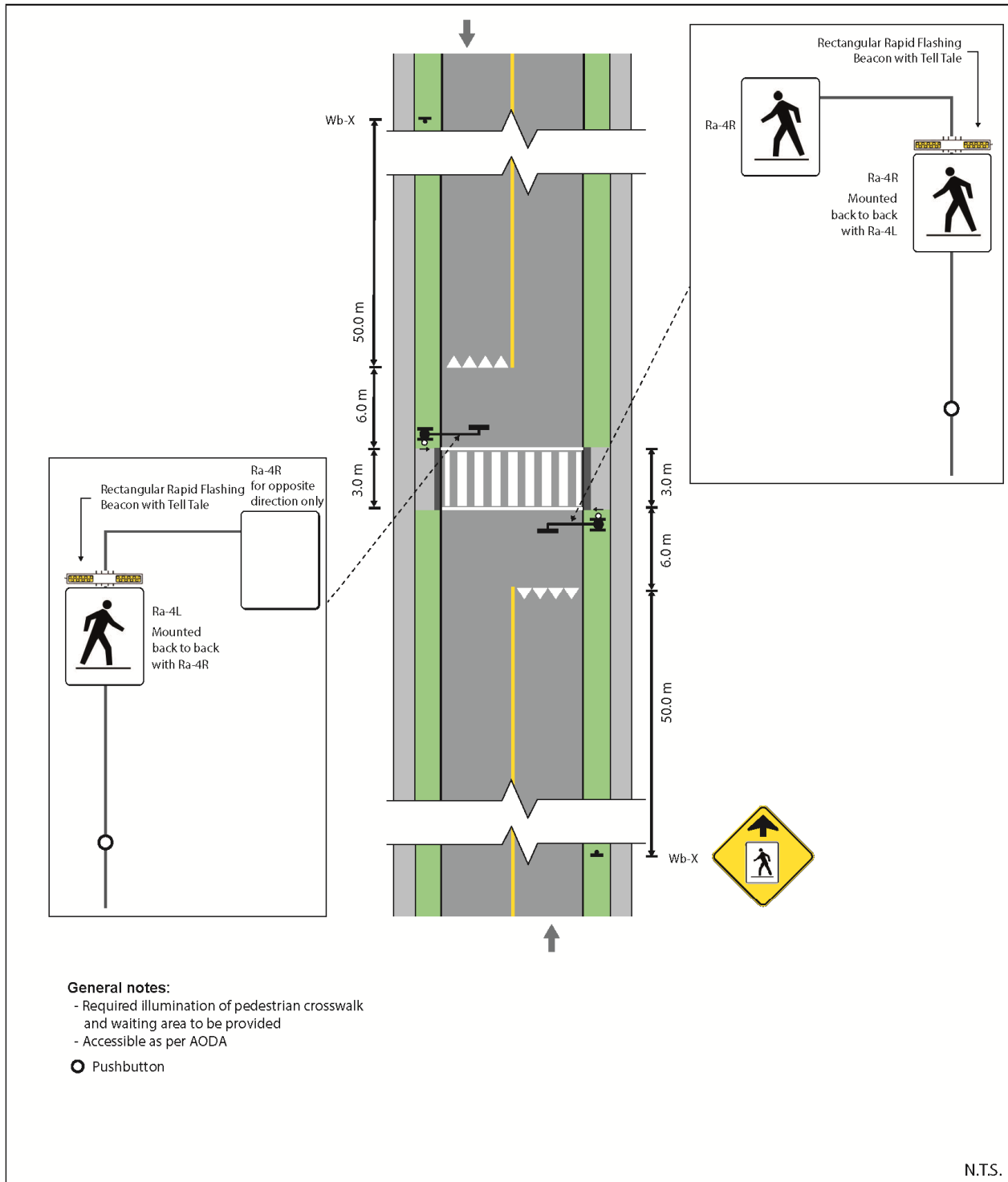


EXHIBIT E

Typical Type D Pedestrian Crossover at Channelized Right-turn Lane

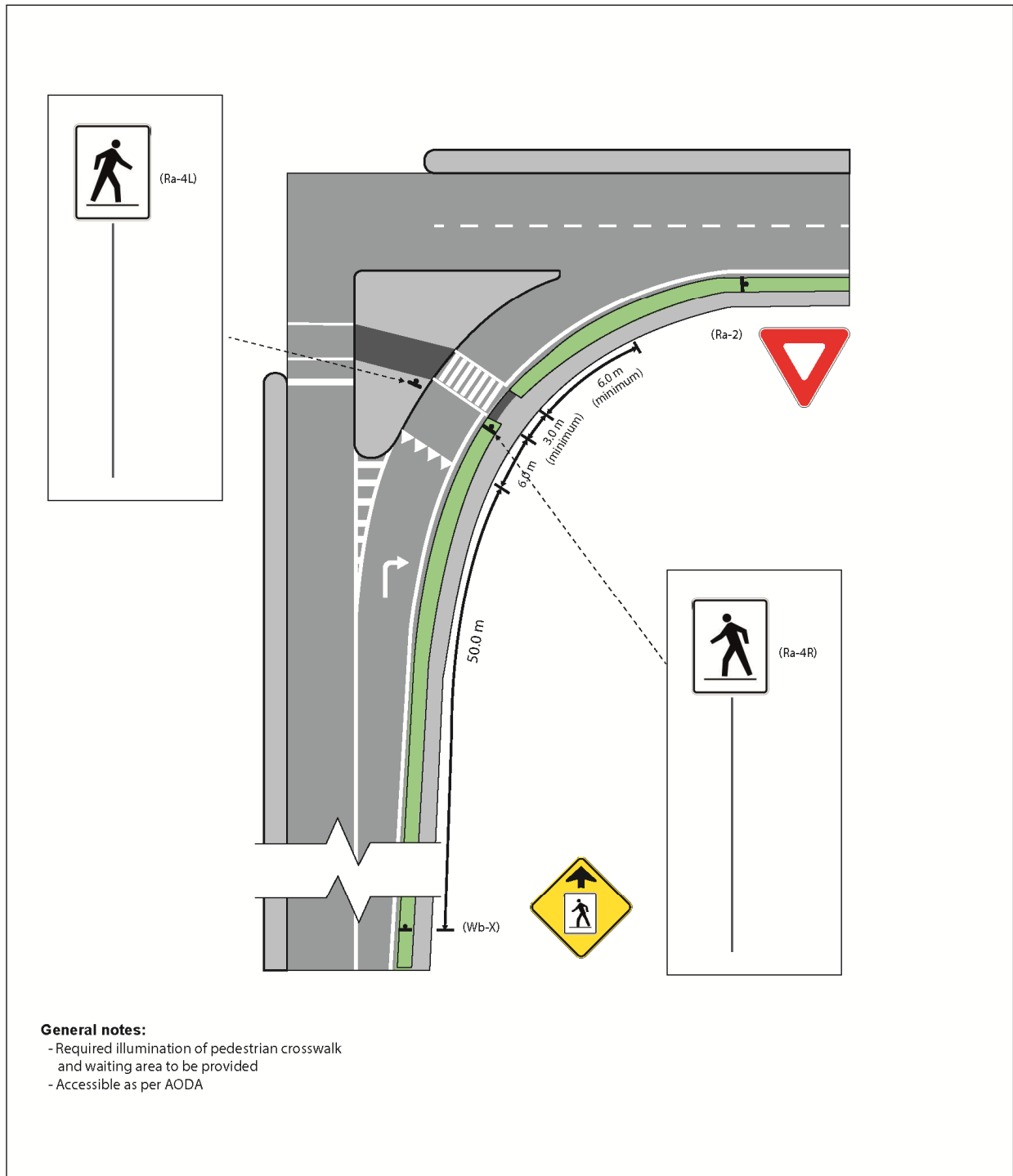


EXHIBIT F

Preliminary Assessment Flow Chart

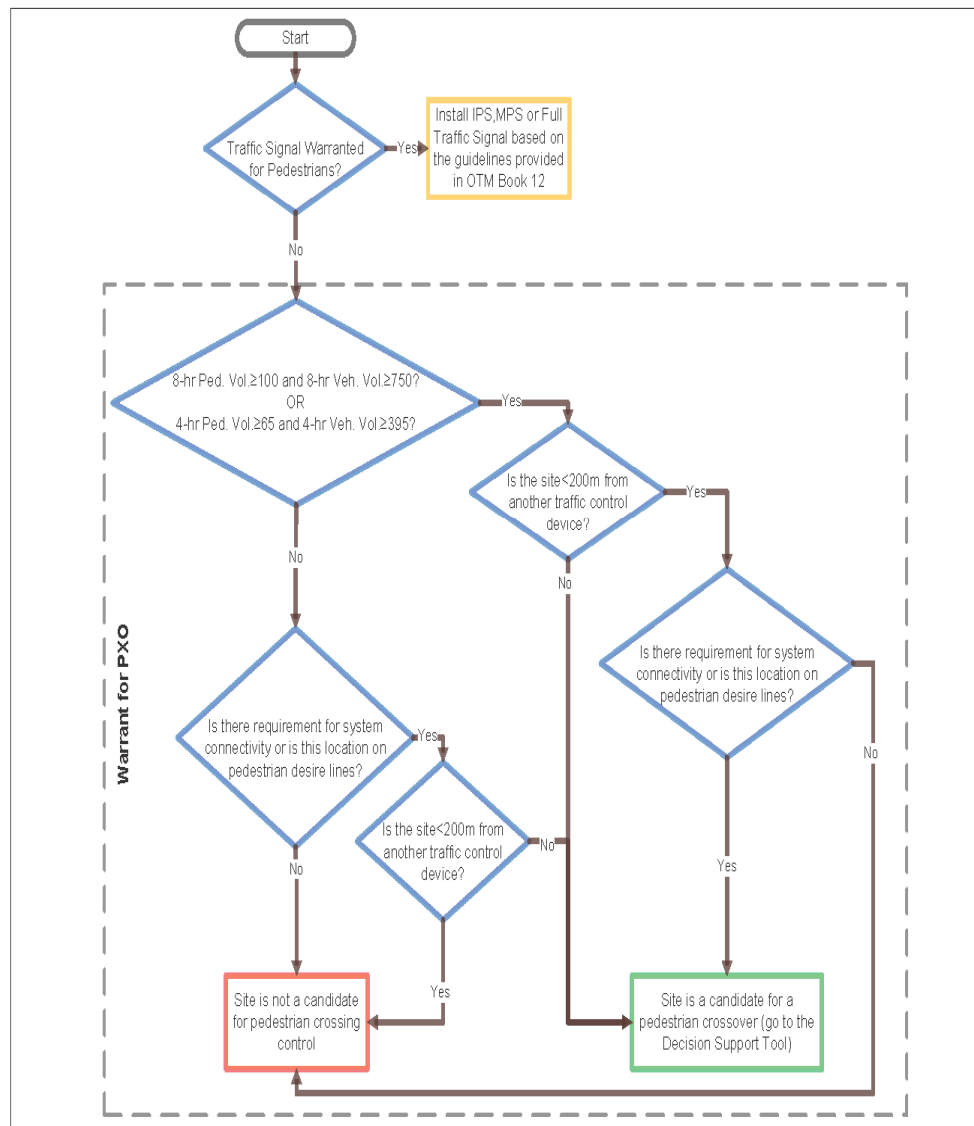


EXHIBIT G

Pedestrian Crossover Selection Matrix

Two-way Vehicular Volume			Speed Limit (km/h)	Total Number of Lanes for the Roadway Cross Section ¹			
Time Period	Lower Bound	Upper Bound		1 or 2 Lanes	3 lanes	4 lanes w/raised refuge	4 lanes w/o raised refuge
8 Hour	750	2,250	≤50	PXO D	PXO C ³	PXO D ²	PXO B
4 Hour	395	1,185					
8 Hour	750	2,250	60	PXO C	PXO B	PXO C ²	PXO B
4 Hour	395	1,185					
8 Hour	2,250	4,500	≤50	PXO D	PXO B	PXO D ²	PXO B
4 Hour	1,185	2,370					
8 Hour	2,250	4,500	60	PXO C	PXO B	PXO C ²	PXO B
4 Hour	1,185	2,370					
8 Hour	4,500	6,000	≤50	PXO C	PXO B	PXO C ²	PXO B
4 Hour	2,370	3,155					
8 Hour	4,500	6,000	60	PXO B	PXO B	PXO C ²	PXO B
4 Hour	2,370	3,155					
8 Hour	6,000	7,500	≤50	PXO B	PXO B	PXO C ²	PXO A
4 Hour	3,155	3,950					
8 Hour	6,000	7,500	60	PXO B	PXO B		
4 Hour	3,155	3,950					
8 Hour	7,500	17,500	≤50	PXO B	PXO B		
4 Hour	3,950	9,215					
8 Hour	7,500	17,500	60	PXO B			
4 Hour	3,950	9,215					

¹The total number of lanes is representative of crossing distance. The width of these lanes is assumed to be between 3.0 m and 3.75 m according to MTO Geometric Design Standards for Ontario Highways (Chapter D.2). A cross sectional feature (e.g. bike lane or on-street parking) that extends the average crossing distance beyond this range of lane widths may need to be considered as an additional lane in this table.

²Use of two side mounted signs per direction (one on the right side and on the median).

³Use PXO B for one-way streets.

EXHIBIT H

Pedestrian Crossings Which Qualify for a Pedestrian Crossover

Location	Pedestrian Volume	Vehicular Volume	Raised Refuge	Number of Lanes	Type
Bond Street - East of Murray Street	105	740	No	2	PXO D
Barry Downe Road at Woodbine Avenue	141	5502	Yes	2	PXO B
Brady Street at Shaughnessy Street	1062	10026	Yes	4	PXO C
Elm Street at Transit Centre and Rainbow Centre	913	6781	Yes	4	PXO C
Elgin Street at Nelson Street Bridge	117	2329	No	2	PXO D
Elgin Street at Shaughnessy Street	186	2623	No	2	PXO D
Municipal Road 24 - South of Jacobson Drive*	32	7521	Yes	2	PXO B

* Existing pedestrian refuge island with flashing beacons. Desire line for area residents exists and seniors residence in area is expanding. Staff recommends replacing the existing uncontrolled crossing with a type B PXO.

Pedestrian Crossings at Channelized Right Turn Lanes Which Qualify for a Pedestrian Crossover

Intersection	Channelized Right turn	Pedestrian Volume	Vehicular Volume	Type
Paris Street at Elm Street	Northbound	310	188	PXO D
Paris Street at Brady Street	Northbound	123	3303	PXO D
	Southbound	94	1687	PXO D
Lasalle Boulevard at Barry Downe Road	Eastbound	183	1524	PXO D
	Northbound	137	1688	PXO D
Lasalle Boulevard at Notre Dame Avenue	Westbound	102	1808	PXO D
	Northbound	155	4052	PXO D
Regent Street at Paris Street/Long Lake Road	Northbound	153	1054	PXO D
	Southbound	140	1184	PXO D
Regent Street at Walford Road /Martindale Road	Northbound	136	1641	PXO D

EXHIBIT I

Pedestrian Crossings Which Do Not Qualify for a Pedestrian Crossover

Location	Pedestrian Volume	Vehicular Volume	Raised Refuge	Number of Lanes
Attlee Avenue at Lexington Court	9	4240	No	2
Beatrice Crescent at Adanac Ski Hill	19	229	No	2
Beatrice Crescent at Cambrian Arena	22	229	No	2
Errington Avenue at Anna Street	33	3339	No	2
Errington Avenue at Morin Street	28	3339	No	2
Falconbridge Highway at Cedargreen Drive	6	12441	yes	4
Falconbridge Highway at O'Neil Drive West	8	9985	Yes	4
Martindale Road - North of Copper Street	23	5537	No	2
Mountain Street at Vincent Street	57	738	No	2
Municipal Road 24 at Ninth Avenue	29	2336	No	2

Pedestrian Crossings at Channelized Right Turn Lanes Which Do Not Qualify for a Pedestrian Crossover

Intersection	Channelized Right turn	Pedestrian Volume	Vehicular Volume
Barry Downe Road at Marcus Drive	Westbound	27	1538
Kingsway at Barry Downe Road	Eastbound	53	556
	Westbound	31	2721
	Southbound	18	3976
	Eastbound	10	1545
Kingsway at Falconbridge Highway	Westbound	24	1906
	Southbound	15	3459
	Westbound	55	193
Paris Street at Walford Road	Southbound	51	1269