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<b>TO:</b>	<b>CHAIR AND MEMBERS CIVIC WORKS COMMITTEE MEETING ON APRIL 25, 2016</b>
<b>FROM:</b>	<b>JOHN BRAAM, P.ENG. MANAGING DIRECTOR, ENVIRONMENTAL &amp; ENGINEERING SERVICES AND CITY ENGINEER</b>
<b>SUBJECT:</b>	<b>PEDESTRIAN CROSSOVER PROGRAM</b>

<b>RECOMMENDATION</b>
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That, on the recommendation of the Managing Director, Environmental & Engineering Services and City Engineer, the Civic Administration **BE DIRECTED** to implement a Pedestrian Crossover Program, as guided by the Ontario Traffic Manual Book 15 - Pedestrian Crossing Facilities.

<b>PREVIOUS REPORTS PERTINENT TO THIS MATTER</b>
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- Civic Works Committee – October 31, 2011 – Update on Book 15: Pedestrian Crossing Facilities
- Civic Works Committee – May 29, 2012 – Update on Book 15: Pedestrian Crossing Facilities
- Civic Works Committee – March 3, 2014 – London Road Safety Strategy

<b>2015-19 STRATEGIC PLAN</b>
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The following report supports the Council Strategic Plan through the strategic focus area of *Strengthening Our Community* by investing in programs and infrastructure to make London more accessible and safer for pedestrians.

<b>BACKGROUND</b>
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**Purpose**

This report provides Committee and Council with an overview of, and seeks direction to implement, a Pedestrian Crossover (PXO) Program.

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**Context**

The Ontario Traffic Council and partner municipalities, including the City of London, worked for many years on the development of the Ontario Traffic Manual Book 15 - Pedestrian Crossing Facilities (Book 15). The first edition of Book 15 was released by the Ministry of Transportation of Ontario (MTO) in late 2011. During the process of developing Book 15, changes to the Highway Traffic Act (HTA) were proposed in order to provide municipalities with more tools when dealing with public inquiries related to pedestrian access across uncontrolled intersections and midblock locations. The changes meant to provide greater protection for pedestrians by requiring drivers to come to a full stop and yield the right of way to a pedestrian who is within a crossover or using a school crossing.

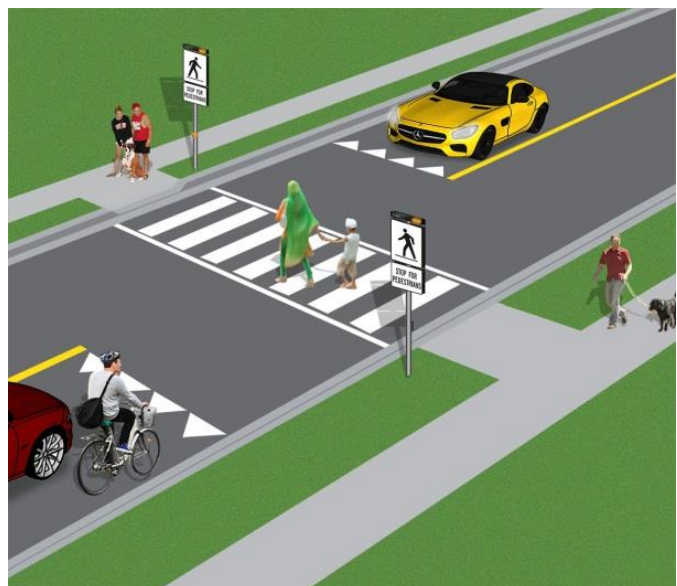
In 2014, Council approved the London Road Safety Strategy (LRSS), which has a vision of safer road environments for all transportation users in London with a goal to reduce injury and fatal collisions by 10% over 5 years. Improving safety for pedestrians was one of the six target areas that have been identified in the LRSS. More specifically, the Strategy recommended yearly upgrades of 5 to 10 high pedestrian activity areas in the City. No upgrade or improvements have been implemented to date and the proposed program outlined in this report will be a great step towards implementation of this target area.

On June 2, 2015, Bill 31, the Transportation Statute Law Amendment Act (Making Ontario's Roads Safer) passed final reading in the Ontario Legislature. Bill 31 deals with many of the measures in Book 15 including amendment to the HTA to allow for new pedestrian crossing devices for low-speed and low-volume roads as requested by municipalities. Bill 31 took effect on January 1, 2016.

In 2015, MTO completed its update to Book 15. Within this update and the amendments recently approved to the Highway Traffic Act through Bill 31, the Province has introduced three new variations of the PXO. This crossing treatment will allow pedestrians to cross with the right-of-way under a greater number of conditions than before, and will provide municipalities with additional solutions to increase pedestrian safety.

**DISCUSSION**

Book 15 - Pedestrian Crossing Facilities recommends PXO treatments and developed three new types of PXOs. The recommended PXOs are consistent with HTA and are limited to roads with a posted speed limit of 60 km/h or less. PXOs provide pedestrians with protected crossing opportunities by requiring motorists and cyclists to yield to pedestrians within the crosswalk.



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## New Pedestrian Crossover Configurations

The new PXOs are a defined set of roadside signs and road pavement markings which form a new passive treatment to provide pedestrians the right-of-way when crossing the roadway where the treatment is installed. Warrants for these new treatments have been developed to allow for pedestrian right-of-way for more road types and traffic conditions, including at roundabouts. At all PXOs, drivers are required to yield the right-of-way when a pedestrian is at such a crossing and has the intent to cross the roadway. The new PXO options being put forward will offer greater service to residents in terms of pedestrian mobility and connectivity. The four types of PXOs for both mid-block and intersections are briefly defined below:

- **Type A:** PXO A is the pre-existing PXO under Book 15 and is currently not used on City of London streets and with most other municipalities. The PXO consists of side mounted poles with crossing signs, as well as overhead signs with flashing beacons suspended on wire spanning the two roadside poles. This type of PXO is designed for use on high to medium traffic volume multi-lane arterials.
- **Type B:** PXO B consists of a roadside mounted sign leading to a crossing in both directions with an overhead sign and a rapid flashing beacon strip on top of the roadside mounted sign. This type of PXO is designed for use on medium traffic volume single or multi-lane roadways, such as primary collectors, arterials and medium volume roundabouts.
- **Type C:** PXO C consists of a roadside mounted sign at a crossing for both directions and a rapid flashing beacon strip on top of the side mounted sign. This type of PXO is designed for use on medium traffic volume single or multi-lane roadways, such as primary collectors and low volume roundabouts.
- **Type D:** PXO D consists of a roadside mounted sign at the crossing for both directions with no rapid flashing beacon. This type of PXO is designed for use on medium to low traffic volume single lane roadways, such as locals, secondary collectors, single lane roundabouts and channelized right-turn lanes.

An example of a typical PXO Type D layout is shown in Figure 1 below. Additional examples of typical PXO layouts are illustrated in Appendix A.

There are a number of conditions that must be met in order for a PXO to be implemented, including:

- Appropriate pedestrian and vehicle volumes or the ability to address a need for pedestrian system connectivity;
- Pedestrian facilities on both sides of the road which are maintained in the winter;
- Appropriate sight lines;
- Located within a roadway segment with a posted speed limit of 60km/h or less;
- Accessibility for Ontarians with Disabilities Act (AODA) compliant curb and sidewalk depressions at the crossing;
- Not within 200 m of another crossing control treatment (unless pedestrian and vehicle volumes are high and there is a requirement for system connectivity or the location is on a pedestrian desire line); and,
- Illuminated with street lighting meeting provincial standards for such treatments.

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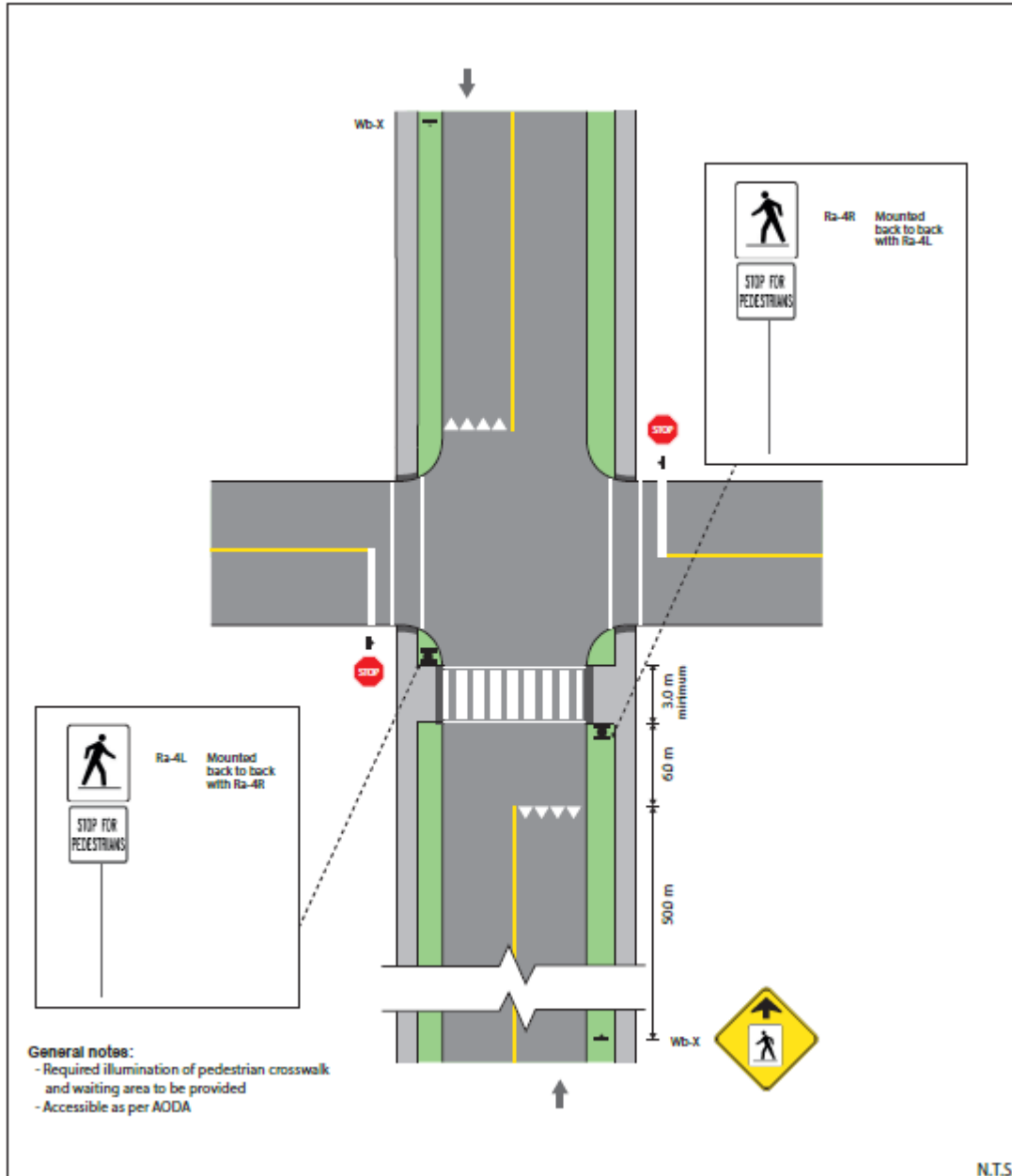


Figure 1: Pedestrian Crossover Type D – Intersection (2-way)

### Pedestrian Crossover Program

It is recommended that and the City implement a multi-year PXO Program, where various types of the newly introduced PXOs will be installed at warranted locations across the city. It is recommended that the PXO Program follow the process provided in the updated Book 15 which include the following:

- The screening process for potential crossing locations,
- The selection process for the type of PXO when the location is warranted, and
- Determining the conditions required for the installation of the PXO.

The selection of an appropriate type of PXO was based on the PXO selection matrix provided in Book 15 (Section 5.22, Table 7) and is illustrated below in Table 1. The table provides the warrant system based on vehicular volumes, posted speed limit and the number of lanes. The table provides the option for practitioners to use 8-hour or 4-hour vehicular volume counts during the highest pedestrian period.

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**Table 1: Pedestrian Crossover Selection Matrix**

Two-way Vehicular Volume			Speed Limit (km/h)	Total Number of Lanes for the Roadway Cross Section <sup>1</sup>			
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 <sup>3</sup>	PXO D <sup>2</sup>	PXO B
4 Hour	395	1,185					
8 Hour	750	2,250	60	PXO C	PXO B	PXO C <sup>2</sup>	PXO B
4 Hour	395	1,185					
8 Hour	2,250	4,500	≤50	PXO D	PXO B	PXO D <sup>2</sup>	PXO B
4 Hour	1,185	2,370					
8 Hour	2,250	4,500	60	PXO C	PXO B	PXO C <sup>2</sup>	PXO B
4 Hour	1,185	2,370					
8 Hour	4,500	6,000	≤50	PXO C	PXO B	PXO C <sup>2</sup>	PXO B
4 Hour	2,370	3,155					
8 Hour	4,500	6,000	60	PXO B	PXO B	PXO C <sup>2</sup>	PXO B
4 Hour	2,370	3,155					
8 Hour	6,000	7,500	≤50	PXO B	PXO B	PXO C <sup>2</sup>	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					

**Implementation Strategy**

Achieving the following objectives is fundamental to the success of the PXO Program:

- Recognition of the new treatment by all road users;
- An understanding that the new crossing treatments provide pedestrians with the right-of-way;
- Road user buy-in and acceptance of the treatments; and,
- Minimizing the chance of, or exposure to, incidents.

The program implementation strategy aims to achieve the objectives with the identification of a strategic list of locations and a complimentary communication plan. Meeting these objectives in a consistent manner will help support road user education, expectations and overall buy in.

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Recommended Locations

Initial phasing of PXO implementation will allow road users to frequently become familiar with the treatments at lower risk locations. The initial focus will be on Type D installations and a few Type C installations. The plan recommends that the installation of any Type B PXOs are deferred until public awareness and knowledge of the new PXOs City wide is increased.

Many initial Type D locations have been selected from the current list of school crossing guard locations with no traffic control such as traffic signals or an all way stop signs. These locations are prioritized for initial implementation of the program because drivers are already accustomed to pedestrians crossing at these locations. With PXO installation, pedestrians will have a device to assist them in crossing the road at all hours, not just when the crossing guard is present.

A multi-year implementation program is recommended with PXO locations prioritized based on a review and availability of budget funds. Appendix B lists locations for the proposed PXOs over a multi-year period. Additional locations will be identified in the future after evaluation of this first phase of the PXO implementation program. In addition to the installation of basic signage and pavement markings, some locations may require the installation of curb/sidewalk depressions, tactile walking surface indicators and potential lighting.

Communication Plan

An integral component of the program will be a comprehensive communication plan to inform, educate and raise awareness about the program. The new PXOs will be a cultural change for drivers, cyclists and pedestrians. There will be a greater occurrence of pedestrians having the right-of-way and vehicle operators need to be made aware of this. Drivers will need to proactively be on the lookout for pedestrian crossings and for pedestrians entering the roadway to cross. Pedestrians will also need to exercise due care to avoid collisions, particularly at recently introduced PXOs.

To support the successful implementation of the PXOs within the City, public awareness initiatives will be undertaken during the multi-year PXO program implementation. A coordinated approach will inform of changes that will be implemented, and serve to clarify the rights and responsibilities of all road users at these crossings. The City-wide communications plan may include media products, social media, City website, signage and advertising.

With support from Road Safety Strategy partners, mainly the London-Middlesex Road Safety Committee, an educational campaign will be developed focusing on awareness activities, presentations and videos to target key audiences, such as local area schools, community associations and all other road users.

Information and education will be provided at the local area whenever a new PXO is implemented. Staff will review other municipalities' PXO education and awareness experiences.

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## **Financial Impact**

The estimated costs to implement individual Type D & C PXOs are \$5,000, \$12,000 respectively. The estimated cost of Type B PXO is \$20,000. These costs are for basic installation with roadside mounted signs and roadway pavement markings. Cost will vary based on the conditions of each site. These estimates do not include any costs associated with additional work on sidewalks to create sidewalk depressions as necessary or with improved lighting if required. Further review of each site will be conducted in order to identify the specific works that are required at each site and the associated cost.

Funding for the implementation of the new pedestrian crossover program is available in the Road Safety Strategy capital account. The number of PXOs installed each year will depend on the associated costs with each site and the available budget. It is anticipated that the identified list of 36 locations will take approximately three years to implement.

<b>SUMMARY</b>
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The recently approved initiative to improve pedestrian mobility in Ontario provides municipalities with additional transportation mobility tools. On January 1<sup>st</sup>, 2016, HTA amendments took effect that requires drivers, including cyclists to yield the entire roadway crossing at PXOs. MTO also recently completed the associated update to the Ontario Traffic Manual – Book 15, Pedestrian Crossing Facilities, in which three new types of PXOs are identified for lower volume, lower speed roads.

Improving safety for pedestrians was one of the priority areas identified in the London Road Safety Strategy. Implementing the Pedestrian Crossover Program will help achieve the goal of the LRSS by reducing injury and fatal collisions, and will support Council's Strategic Plan by investing in programs and infrastructure to make London more accessible and safer for pedestrians.

It is recommended that a multi-year implementation program to install Type D and C PXOs across the city be undertaken, concurrently with a multi-faceted communication plan to raise awareness and educate Londoners. Implementation of the program would utilize available budget and resources. The program will be expanded beyond the identified locations and PXO types in the future subject to the results of the initial installations and a future funding business case.

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**Acknowledgements**

This report was prepared with the assistance of Maged Elmadhoon, P.Eng., and Mark Ridley, CET of the Transportation Planning & Design Division.

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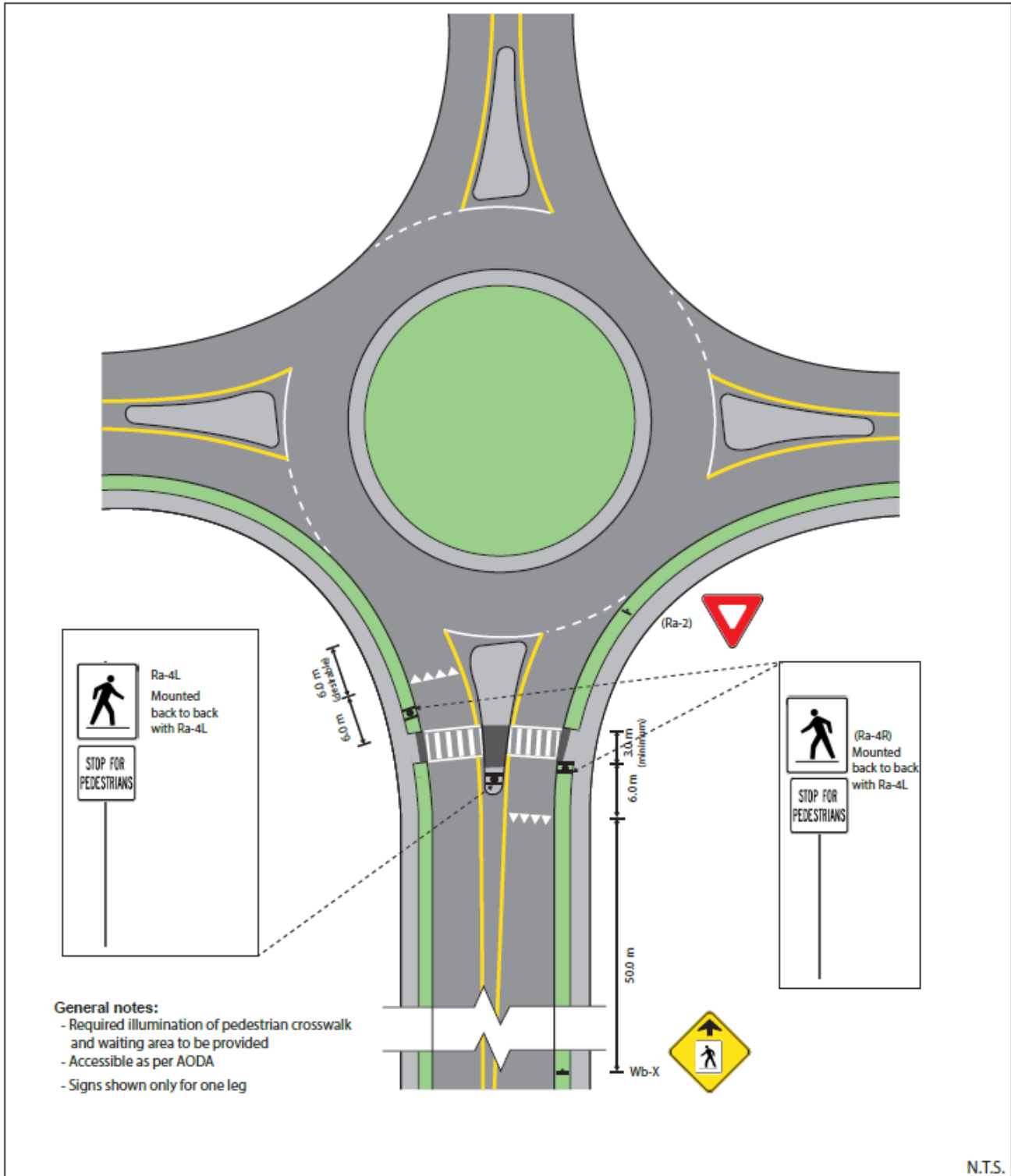
Attach:      Appendix A: Typical PXO Layouts (Types A, B, C, & D)  
                  Appendix B: Proposed London PXO Locations

cc:      Amanda Pfeffer, London Police  
             Transportation Advisory Committee (TAC)  
             Community Safety and Protective Services Committee (CSCP)  
             Accessibility Advisory Committee (ACCAC)  
             London-Middlesex Road Safety Committee c/o Alyssa Penney, MLHU  
             Age Friendly London Transportation Working Group c/o Michelle Dellamora



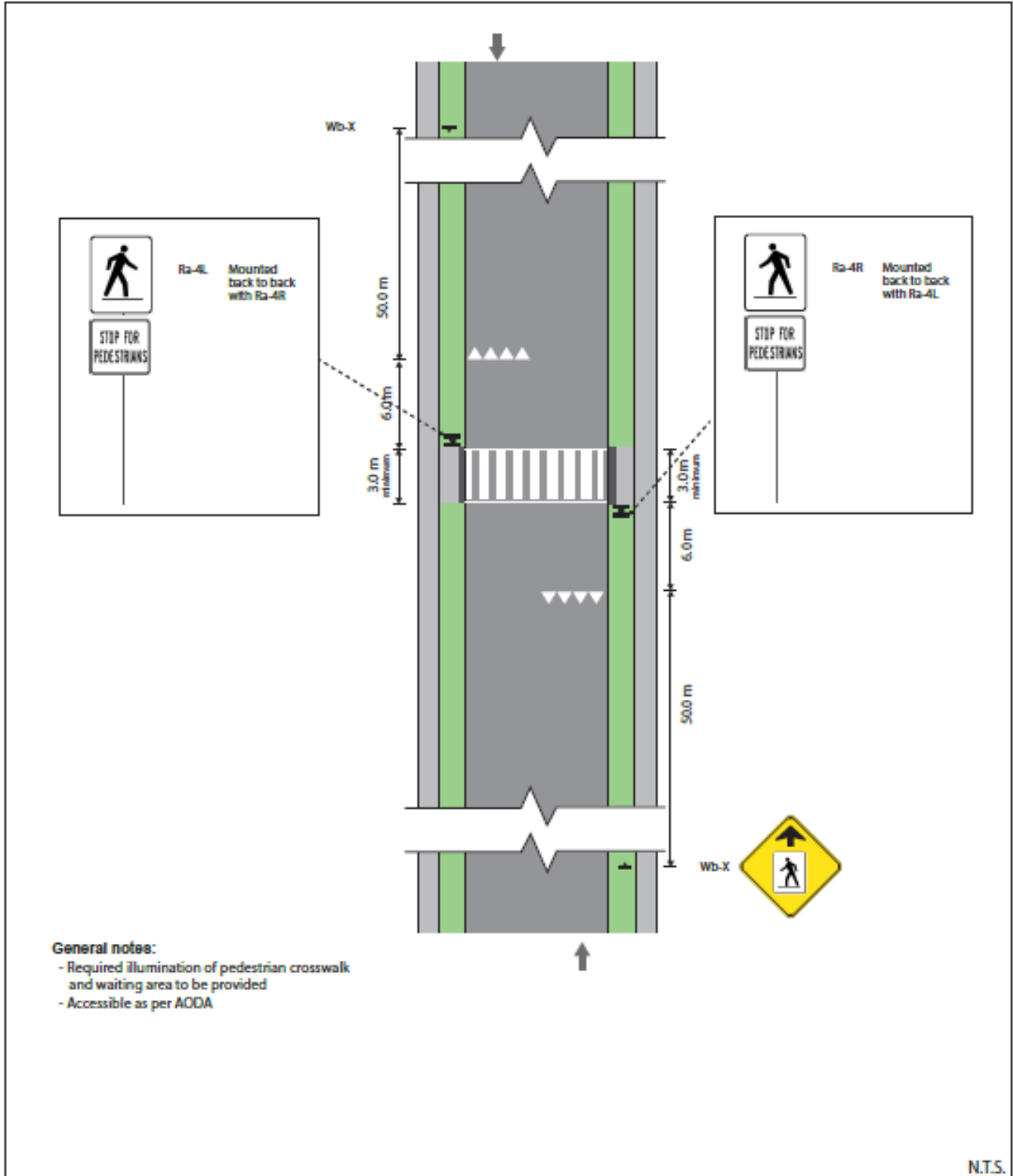
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## Appendix A Typical PXO Layouts



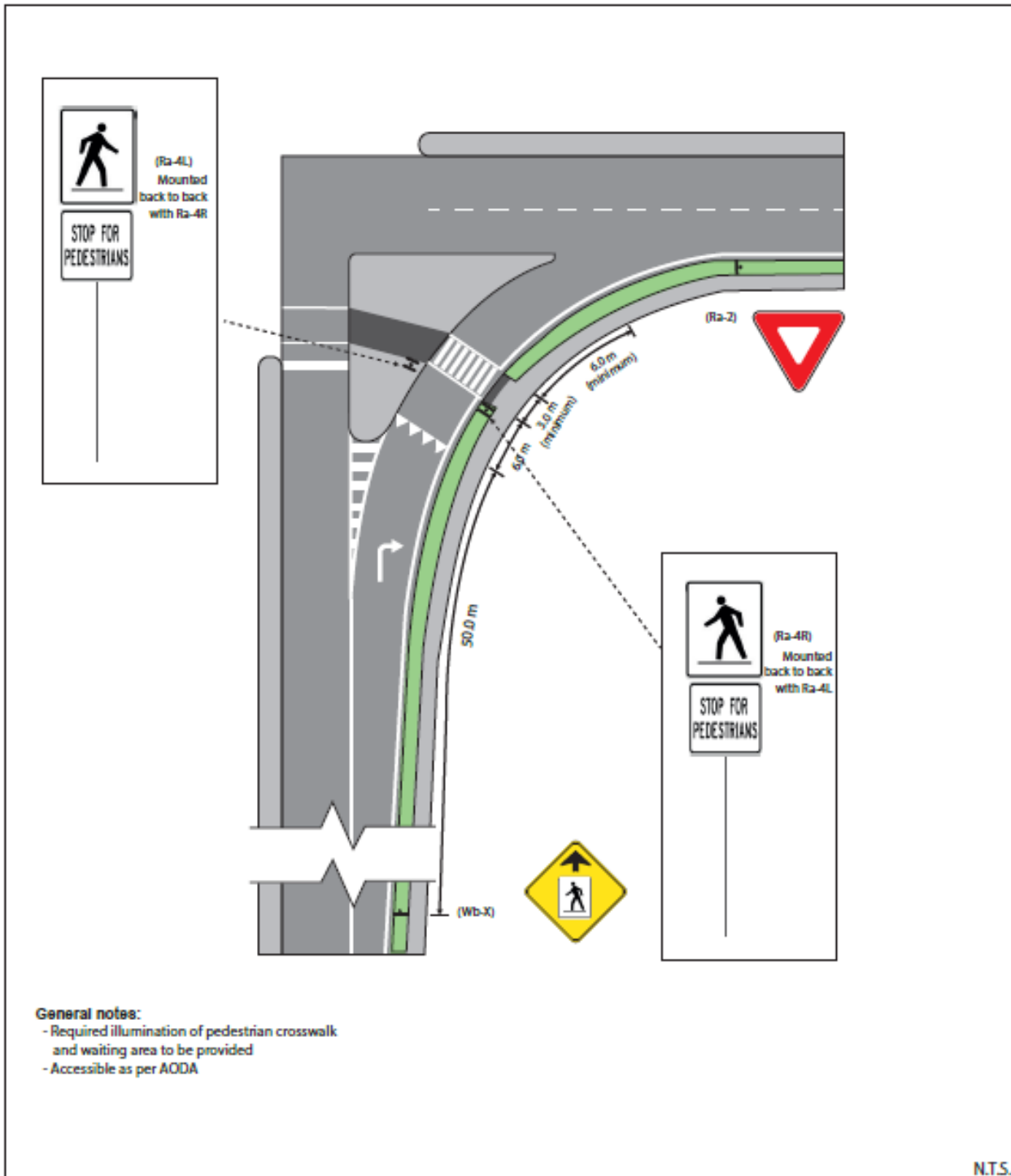
**PXO Type D – Single-Lane Roundabout**

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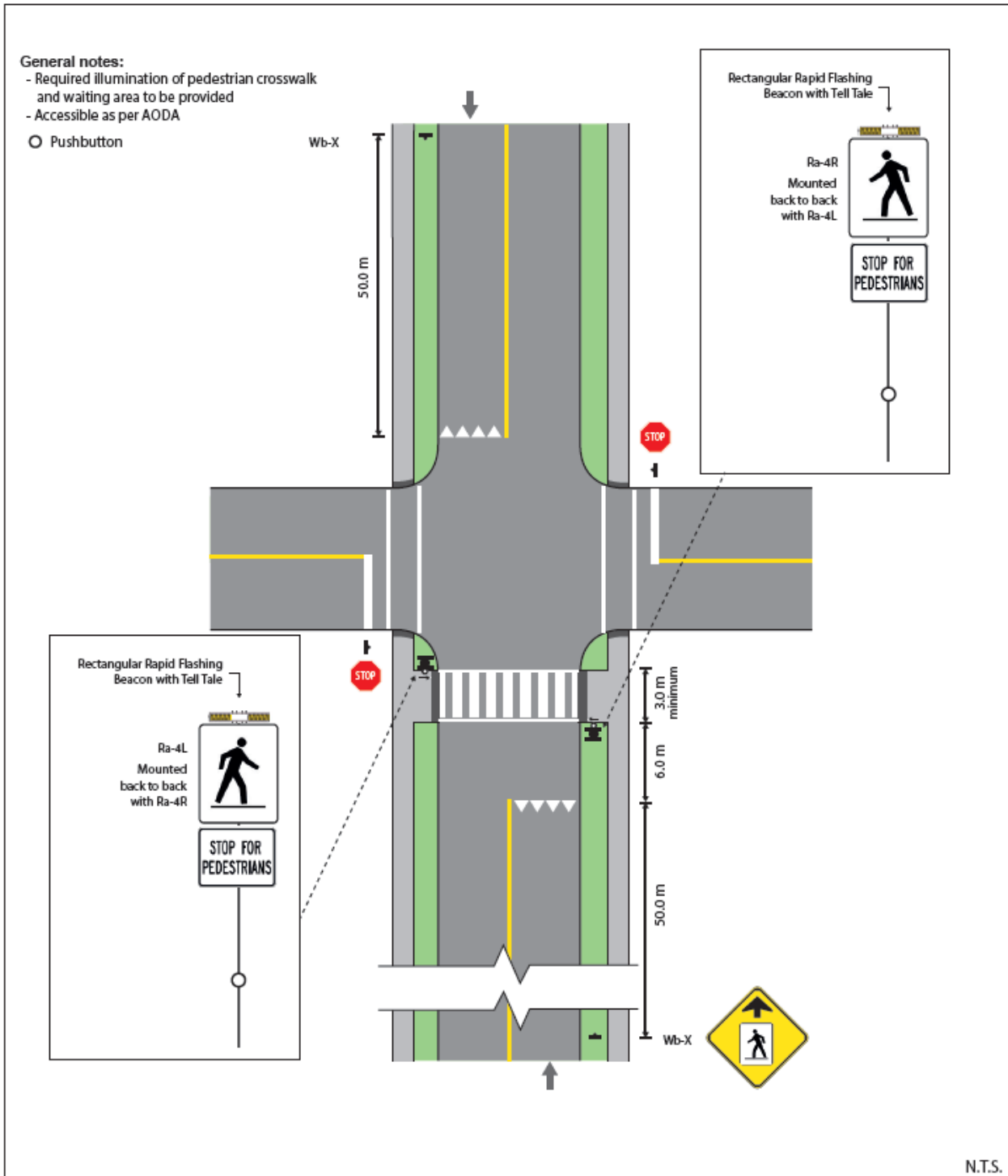
PXO Type D – Mid-block (2-lane, 2-way)

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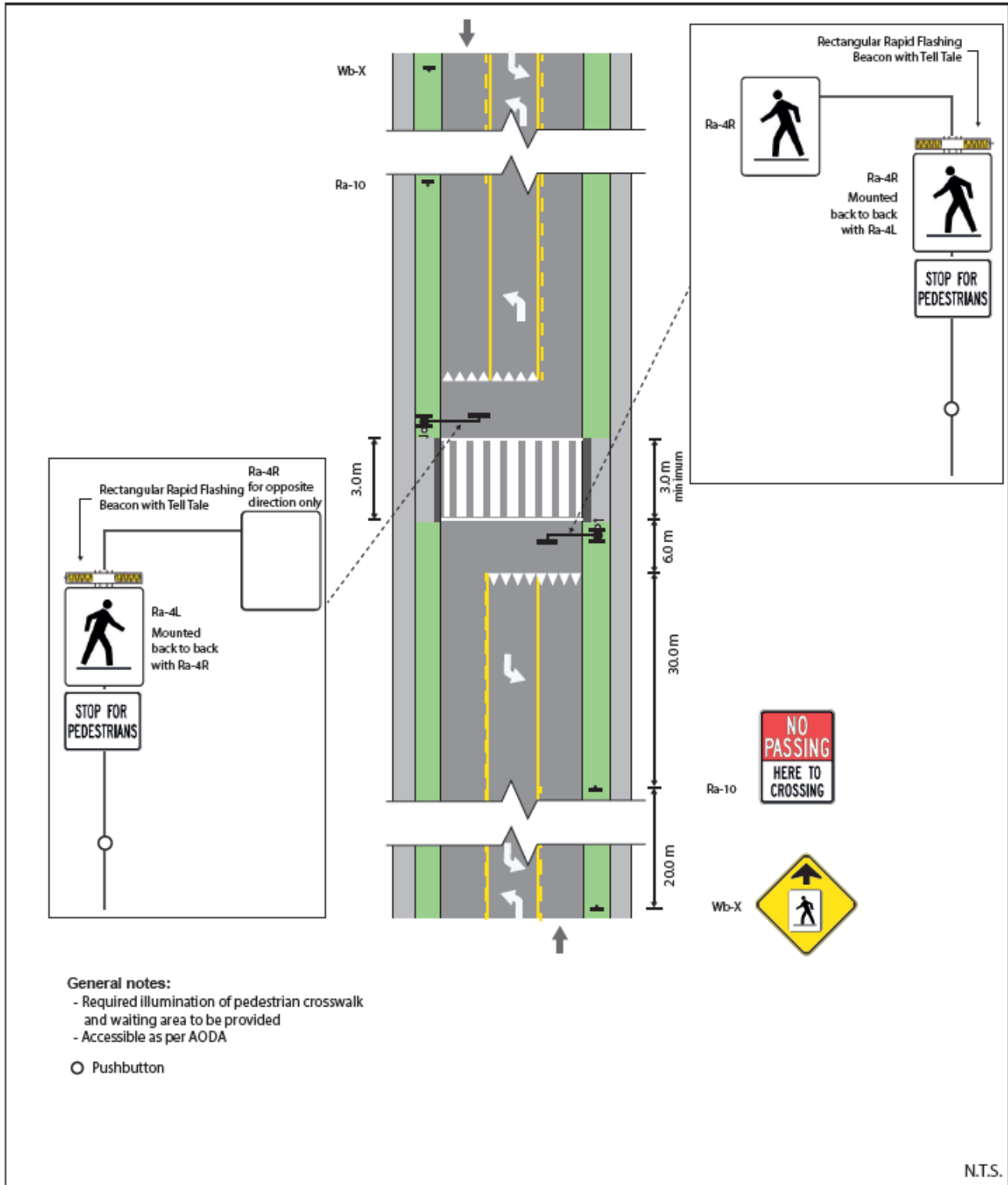
PXO Type D – Right-turn Channel

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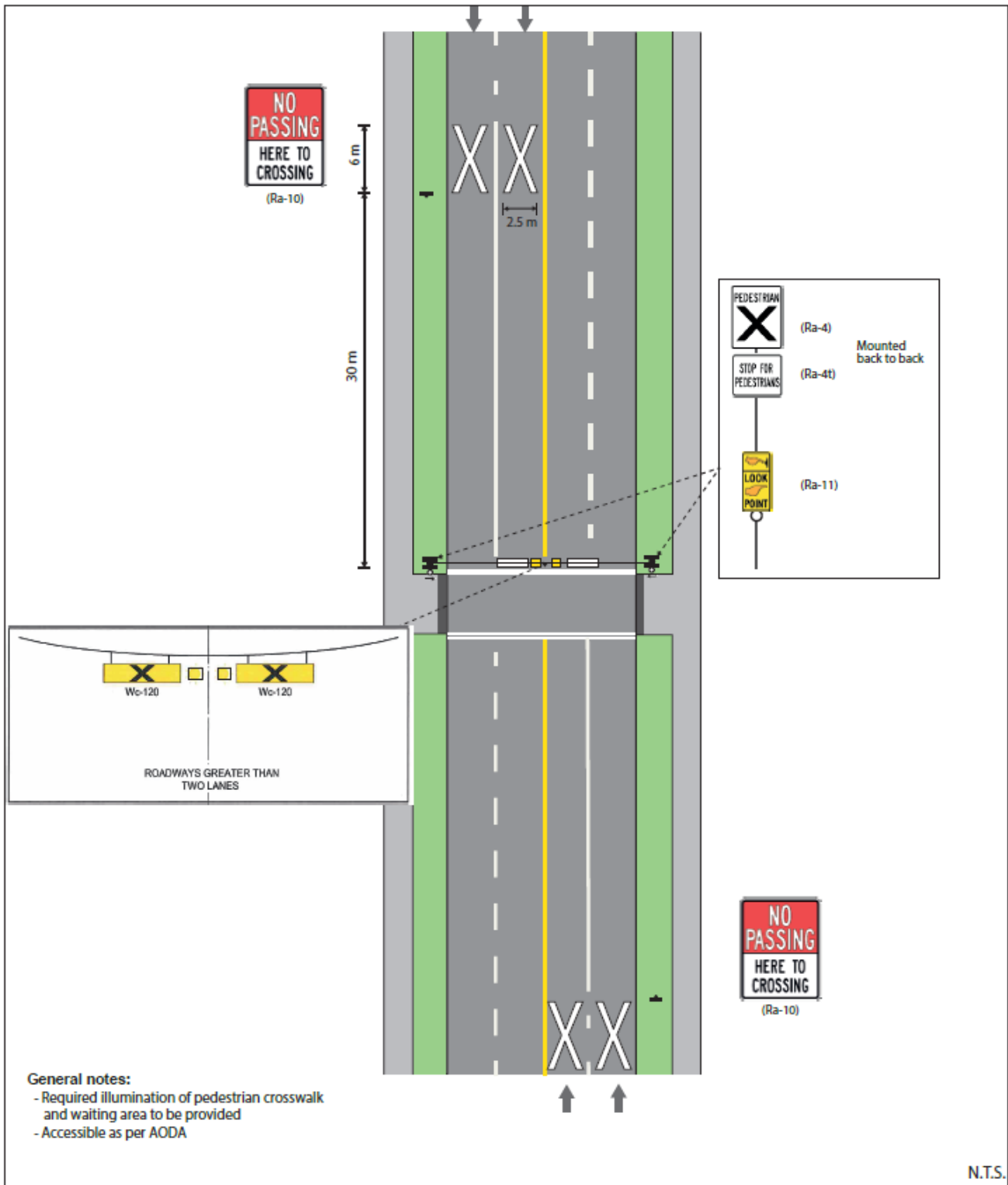
PXO Type C – Intersection (2-way)

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**PXO Type B – Mid-block (3-lane with center 2-way left-turn lane)**

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PXO Type A - Mid-block (4-lane, 2-way)

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**Appendix B  
Proposed London PXO Locations**

**Proposed Type D PXO Locations**

	<b>Location</b>	<b>Road Classification</b>
1	Landor Street	Local road
2	Hawthorne Road & Chapple Hill Road	Secondary collector & local road
3	Chippewa Drive & Apache Road	Secondary collector & local road
4	Nixon Avenue & Creston Avenue	Primary collector & local road
5	Farnham Road (110m north of Farnham Grove)	Secondary collector
6	Lola Street & Blake Street	Local roads
7	Colborne Street & St. James Street	Primary collector & local road
8	Hastings Drive (138 m north of Virginia Rd)	Secondary collector
9	Wortley Road & Duchess Avenue	Secondary collector & local road
10	Admiral Drive (150 m north of Trafalgar Street)	Secondary collector
11	Woodward Avenue & Edinburgh Street	Primary collector & local road
12	Valetta Street (near Oakridge Arena)	Secondary collector
13	Montebello Drive & Strathcona Drive	Secondary collector & local road
14	Ernest Avenue & Lacey Crescent	Primary collector & local road
15	Hillview Boulevard & Cherokee Road	Local roads
16	Millbank Drive & Bridlington Road	Secondary collector & local road
17	Notre Dame Drive & Norton Avenue	Secondary collector & local road
18	Sandford Street & Beckworth Avenue	Primary collector & Secondary collector
19	Jalna Boulevard & Ponderosa Crescent	Secondary collector & local road
20	Ernest Avenue & Muriel Crescent	Primary collector & local road
21	Jalna Boulevard & Poplar Crescent	Secondary collector & local road
22	Millbank Drive & Dudley Crescent	Secondary collector & local road
23	Osgoode Drive & Harding Crescent	Local roads
24	Second Street & Mardell Street	Primary collector & local road
25	Tewksbury Crescent & Tudor Street	Local roads
26	Viscount Road & Galloway Crescent	Primary collector & local road
27	Viscount Road & Steeplechase Drive	Primary collector & local road
28	Glenora Drive & Glengyle Crescent	Secondary collector & local road
29	Cherryhill Place (160 m west of Platts)	Secondary collector
30	Coronation Drive & Hawthorne Road	Secondary collector

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**Proposed Type C PXO Locations**

	<b>Location</b>	<b>Road Classification</b>
1	Hyde Park Road & Valetta Street	Primary collector & Secondary collector
2	Windermere Road (west of Adelaide Street)	Arterial Road
3	Kipps Lane & Country Lane	Secondary collector & local road
4	Proudfoot Lane (near 565)	Secondary collector
5	Talbot Street & Anne Street	Primary collector & local road
6	Byron Baseline (84 m west of Byron Blvd)	Arterial road