

ATTACHMENT 4

SUMMARY OF TRAFFIC CONTROL DEVICES FOR PROVIDING PEDESTRIAN CROSSING PROTECTION

This attachment contains a summary of the various traffic control devices used to provide Pedestrian Crossing Protection, including All-Way Stop Control (AWSC), Level 1 and Level 2 Pedestrian Crossovers (PXOs), Mid-Block Pedestrian Signals (MPS), Intersection Pedestrian Signals (IPS), Traffic Control Signals (TCS), and School Crossing Guards (SCG) at supervised school crossing locations.

All-Way Stop Control

The purpose of All-Way Stop Control is to promote safe and orderly travel through and across an intersection (see Figure 1). AWSC can be useful as a safety measure at intersection if certain traffic conditions exist, such as the need to control conflicts between pedestrians and people driving or cycling. AWSC is also used to improve safety at locations with a high frequency of turning collisions, where there is a history of right- and left-turn collisions or right-angle collisions that can not be corrected through changes such as improving the sight distance for the side street approach or other geometric modifications.

Pedestrian Crossovers

A Pedestrian Crossover is used to assign right-of-way to pedestrians at a crossing location using regulatory and warning signs, pavement markings, and flashing lights. A Level 1 Type A PXO uses flashing overhead amber beacons and is the most common type of PXO found across the City (see Figure 2).

Level 2 PXOs have had limited use in Toronto to date. Similar to Level 1 PXOs, pavement markings and regulatory and warning signs are used to designate Level 2 PXOs. However, there are various types of Level 2 PXOs that vary based on the placement of regulatory signs and use of rectangular rapid flashing beacons (RRFB). Level 2 PXOs are generally only suitable for lower speed and lower volume roadways.

The use of Level 2 PXOs in Toronto is recommended to primarily consist of Type B and Type C (see Figures 3 and 4). Level 2 Type D PXOs (see Figure 5) may also be installed in unique situations such as crossings at channelized turn lanes and are recommended to be assessed on a case-by-case basis.

Mid-Block and Intersection Pedestrian Signals

A Mid-Block Pedestrian Signal (MPS) is a traffic control signal that provides gaps in traffic for pedestrians to cross a roadway in between intersection locations (see Figure 6). At an MPS, pedestrian signal indications are used for crossing the main roadway, regular traffic control signals are provided to stop vehicular traffic on the main roadway, and no motor vehicle cross-traffic exists. Bicycle signals can also be provided at an MPS to facilitate crossing the main street for people cycling, such as at a trail crossing location.

Intersection Pedestrian Signals (IPS), also known as Half-Signals, are a form of traffic signal control that is dedicated to controlling vehicular traffic at an intersection for pedestrians and people cycling to cross a higher-volume roadway. IPSs are primarily provided at intersection locations where a traffic control signal is required to provide an adequate level of safety for pedestrians and/or people cycling crossing the higher-volume roadway but low traffic volumes on the side street(s) do not warrant installation of a full traffic signal. This type of signalization helps minimize delay to vehicular traffic on the side streets.

At an IPS, pedestrian/cycling-activated signals are provided across the main roadway, but the lower-volume side street approach remains controlled by a stop sign (see Figure 7). In Toronto, the general practice at IPS will include crosswalks for pedestrians and where appropriate, cross-rides for people cycling at both sides of the intersection, to cross the major roadway. This provides protected crossing opportunities at locations where it is expected users to cross and therefore maximize safety of pedestrians and people cycling.

Traffic Control Signals

The function of Traffic Control Signal (TCS), also known as a Full Signal, is to alternate right-of-way between conflicting streams of vehicular traffic – including people driving, riding a motorcycle, or cycling – or conflicting movements between vehicular traffic and pedestrians crossing a road safely and efficiently (see Figure 8). TCSs assign right-of-way through illuminated displays with a standard colour and shape, as regulated by the Highway Traffic Act.

School Crossings

Designated school crossings are locations close to schools where school children must cross the roadway en route between home and school and where School Crossing Guards (SCG) are provided during specified hours in regular school periods (see Figure 9). The role of a SCG is to direct and supervise the movement of persons across a roadway by creating necessary gaps in vehicular traffic – including people driving, riding a motorcycle, or cycling – to provide safe passage. The use of SCGs is intended to provide protection and enhanced safety for children, as elementary school children generally have not developed good judgment related to traffic and in making sound decisions for safe crossings.

When a stop sign is displayed by a SCG, the people driving, riding a motorcycle, or cycling approaching the stop sign are required to stop before reaching the crossing. At all other times when a SCG is not present, the school crossing, in the absence of any other form of traffic control device listed above, is considered an uncontrolled crossing.

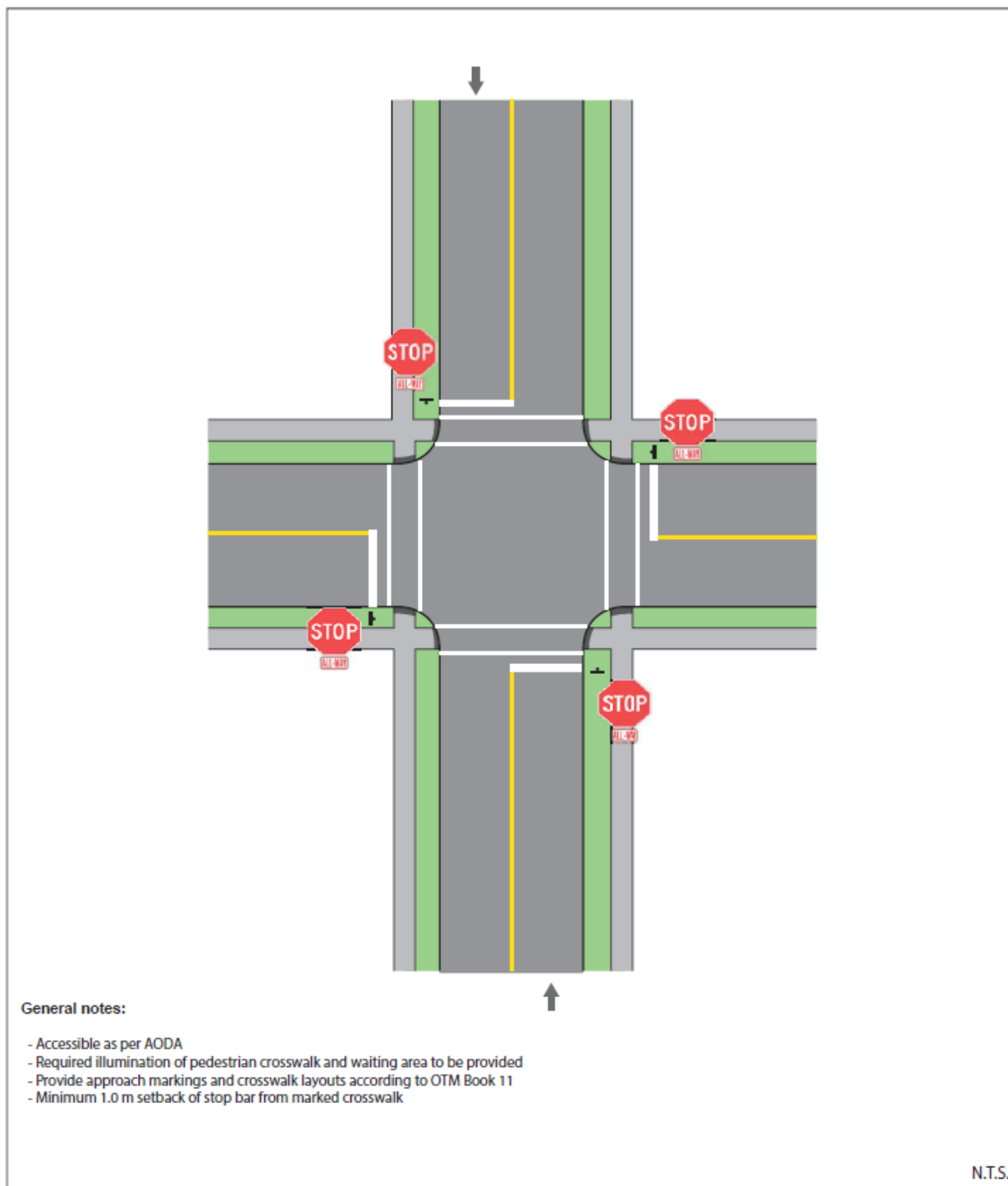


Figure 1: All-Way Stop Control Intersection as Pedestrian Crossing Protection – 2-Way Intersection (source: Ontario Traffic Manual, Book 15 – Pedestrian Crossing Facilities)

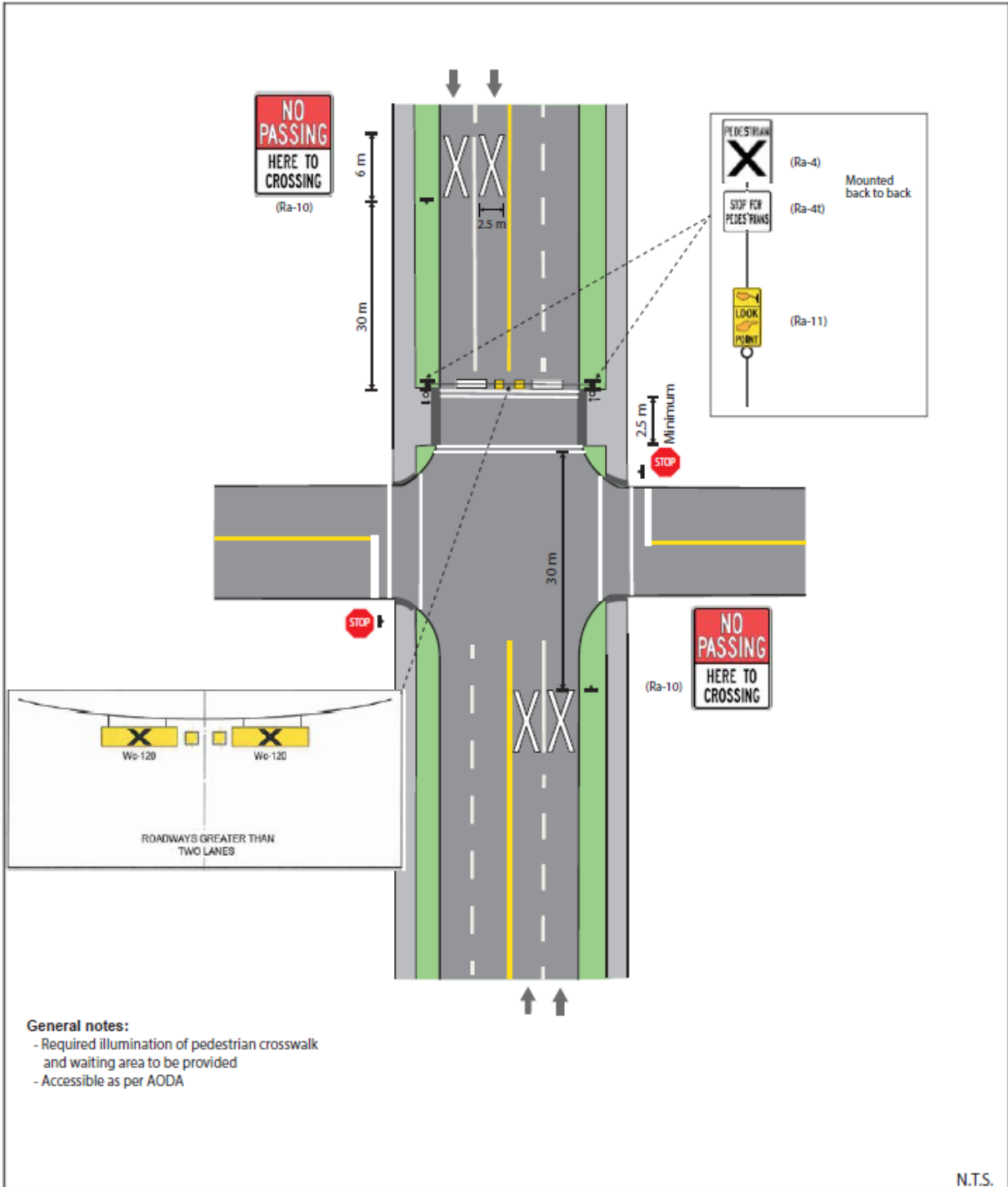


Figure 2: Pedestrian Crossover Level 1 Type A – 2-Way Intersection (source: Ontario Traffic Manual, Book 15 – Pedestrian Crossing Facilities)

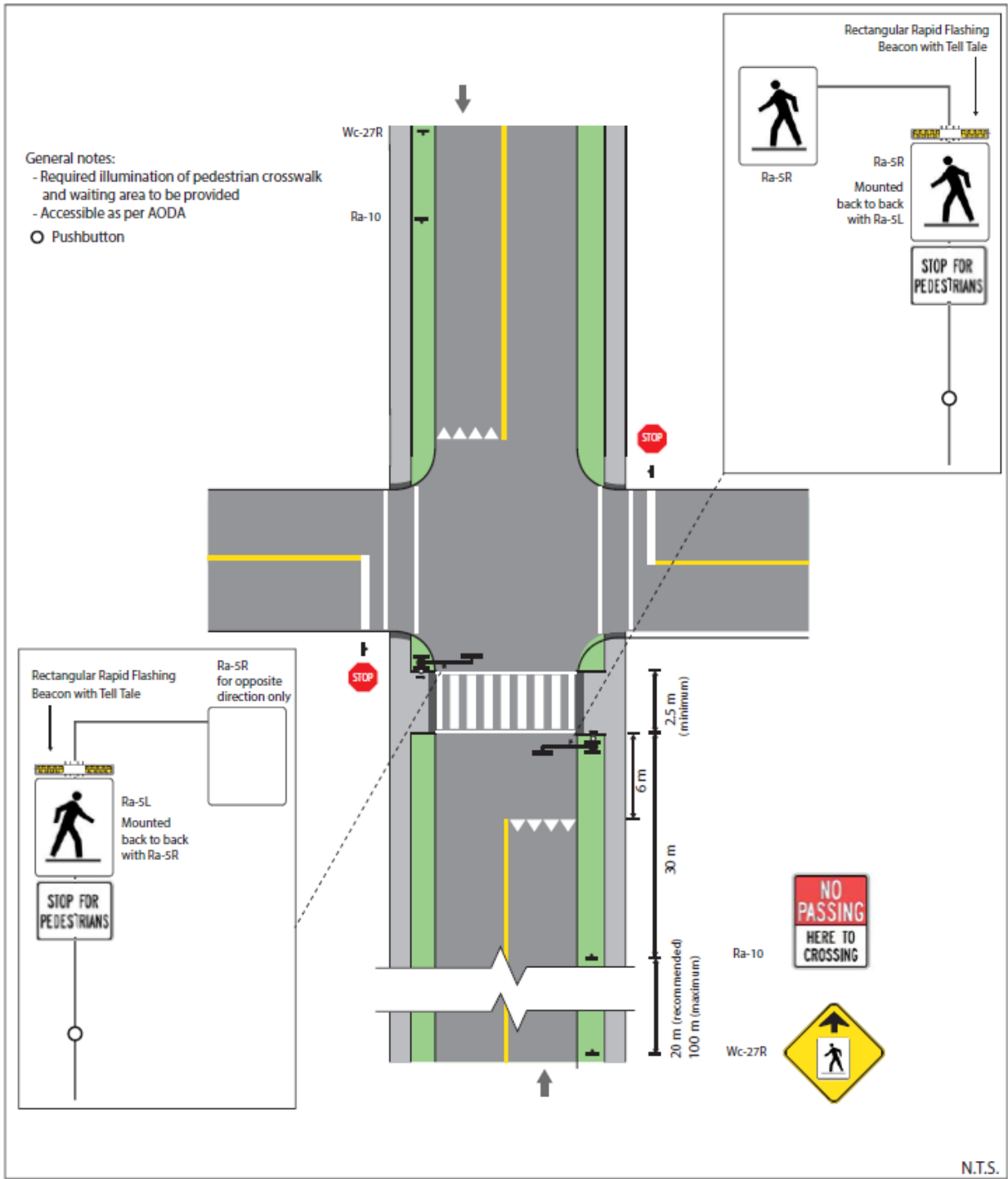


Figure 3: Pedestrian Crossover Level 2 Type B – 2-Way Intersection (source: Ontario Traffic Manual, Book 15 – Pedestrian Crossing Facilities)

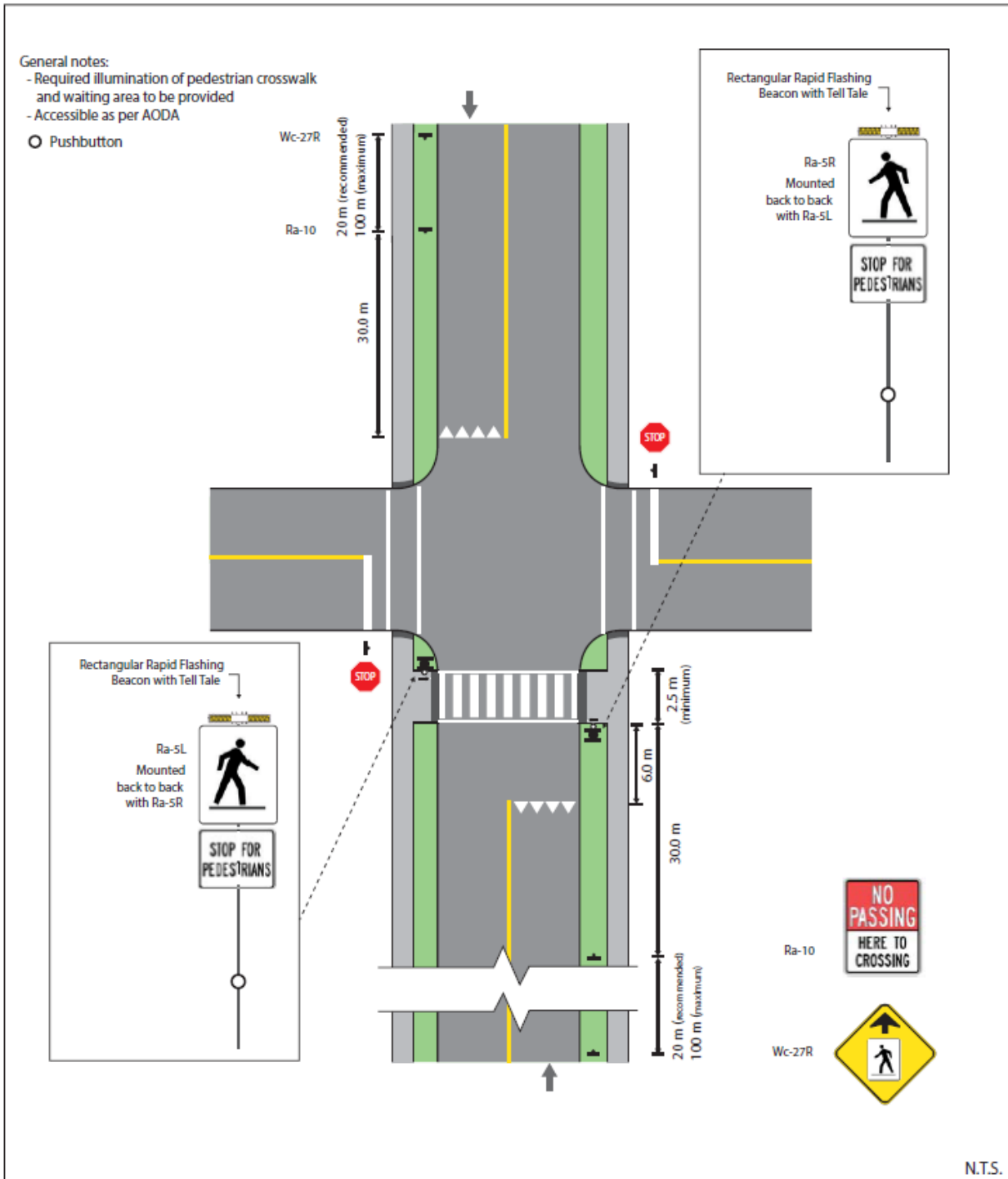


Figure 4: Pedestrian Crossover Level 2 Type C – 2-Way Intersection (source: Ontario Traffic Manual, Book 15 – Pedestrian Crossing Facilities)

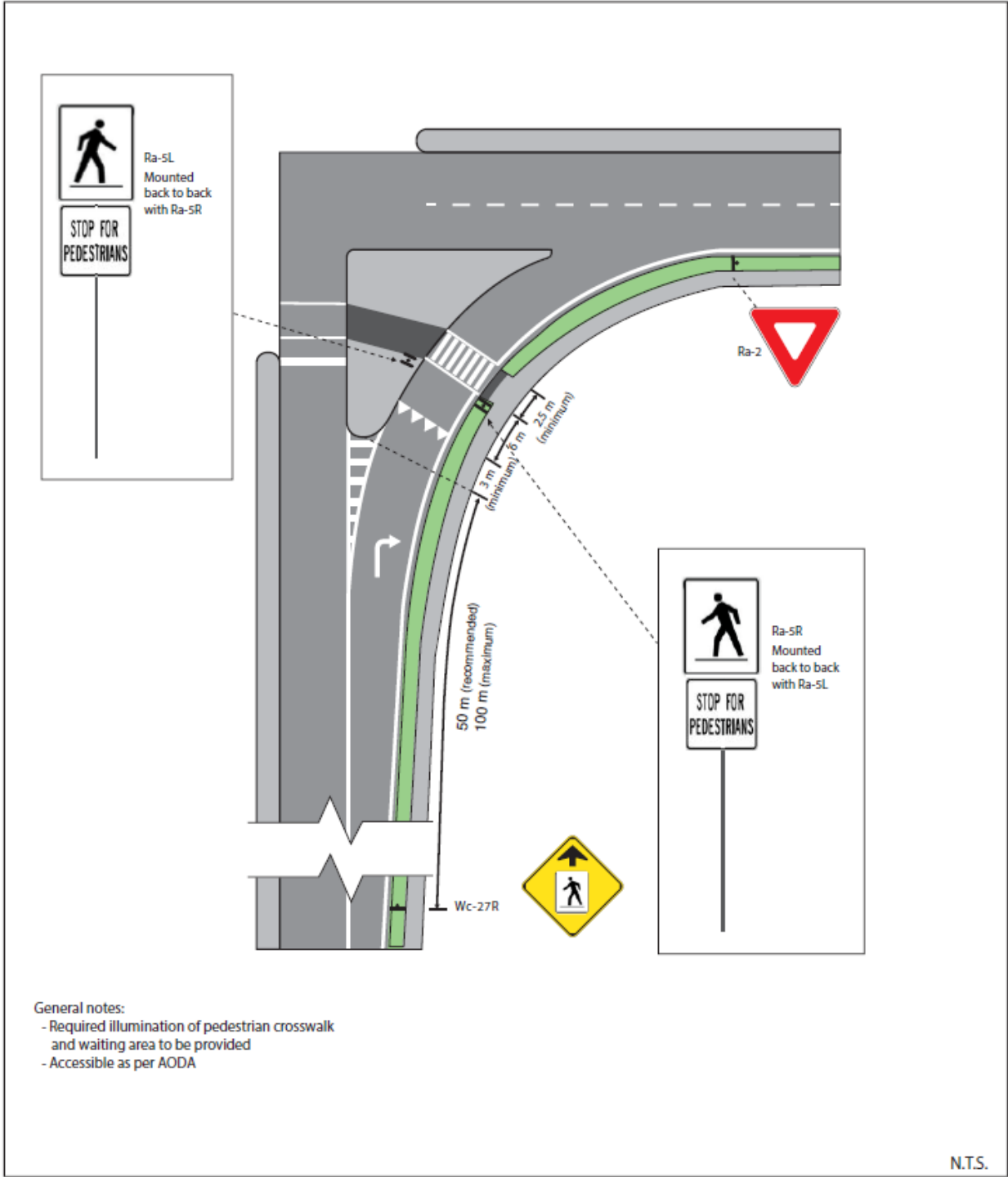


Figure 5: Pedestrian Crossover Level 2 Type D – Right-Turn Channel (source: Ontario Traffic Manual, Book 15 – Pedestrian Crossing Facilities)

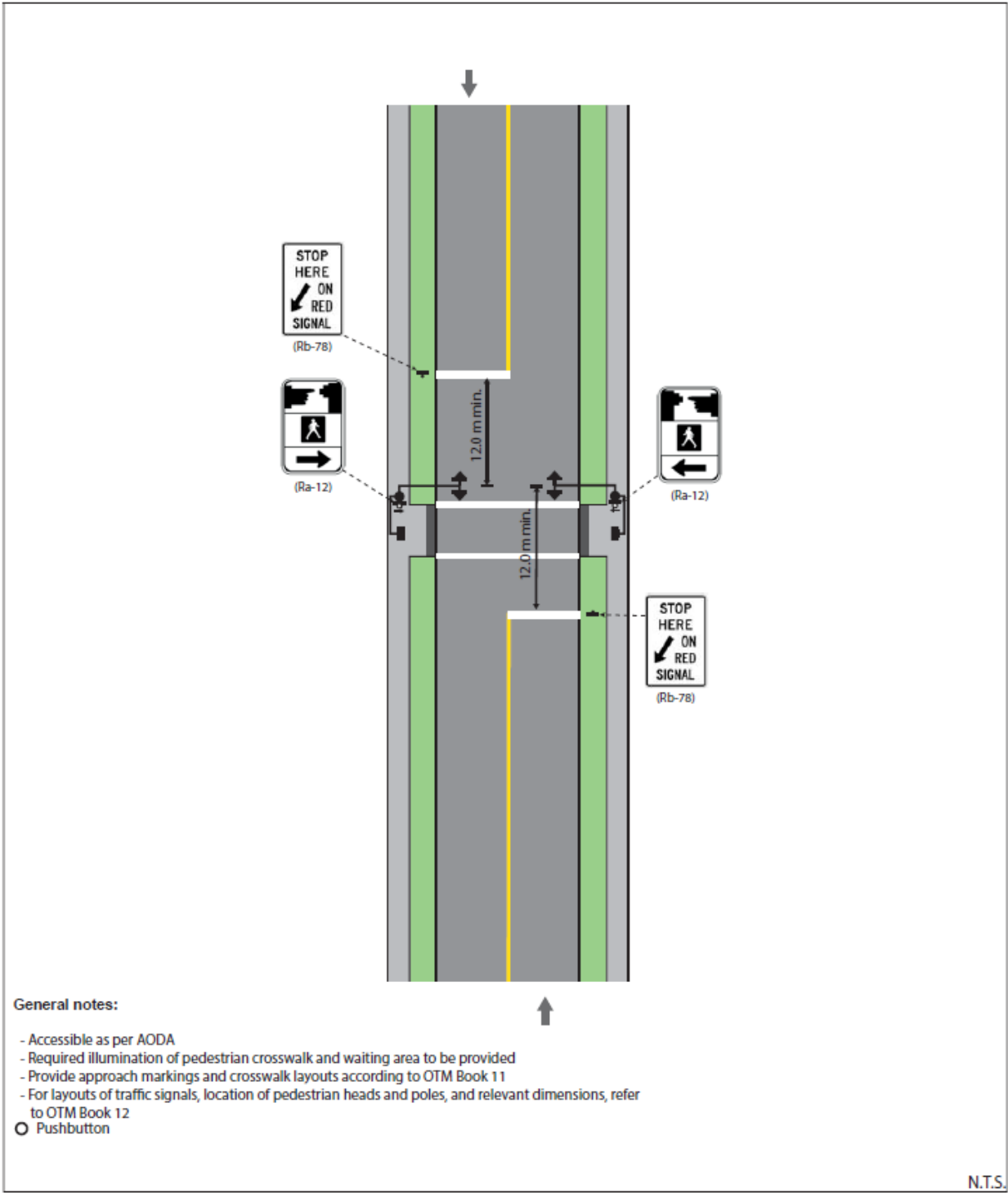


Figure 6: Mid-Block Pedestrian Signal – 2-Lane, 2-Way (source: Ontario Traffic Manual, Book 15 – Pedestrian Crossing Facilities)

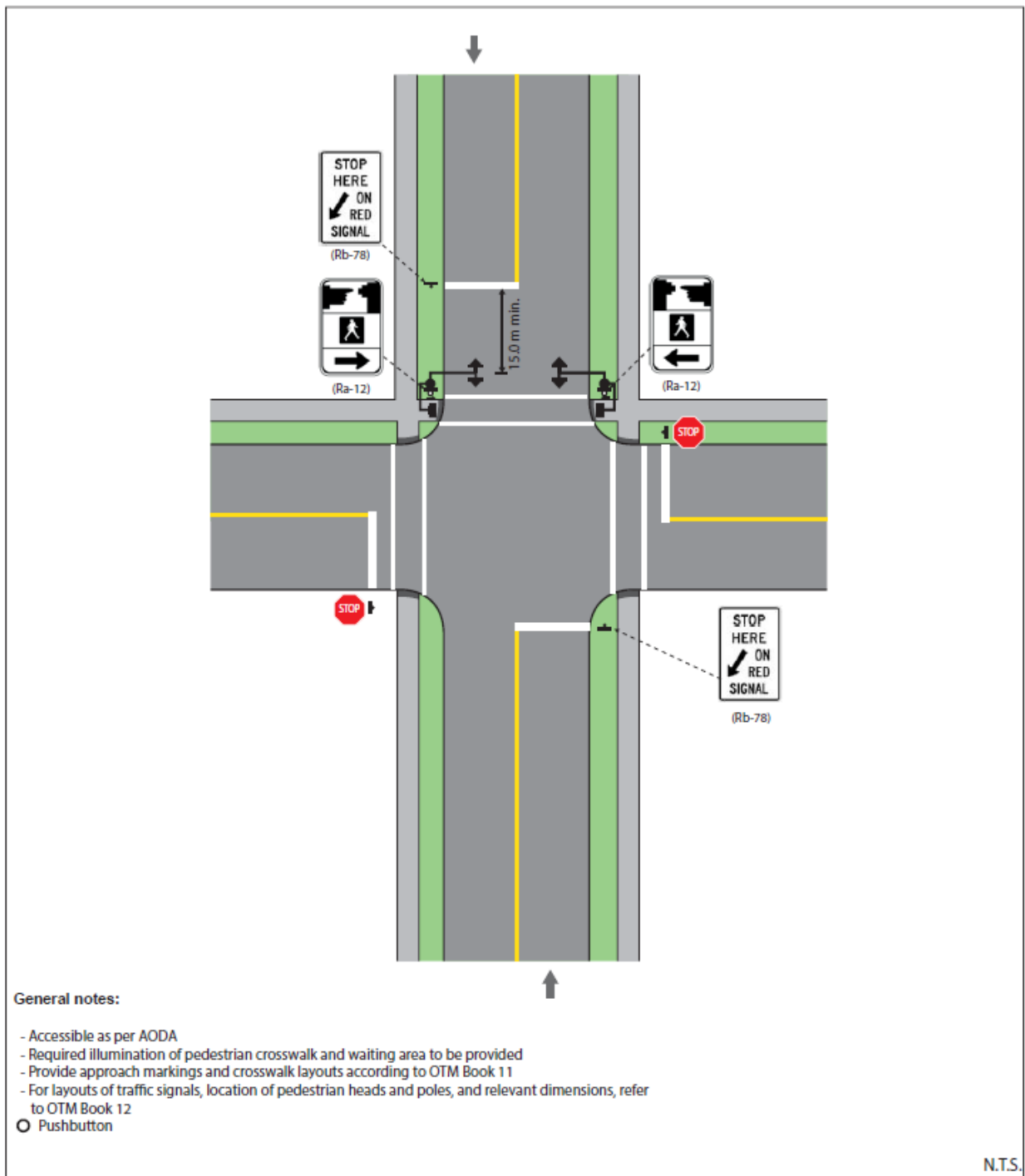


Figure 7: Intersection Pedestrian Signal Pedestrian Crossing Treatment – 2-Lane, 2-Way (source: Ontario Traffic Manual, Book 15 – Pedestrian Crossing Facilities)

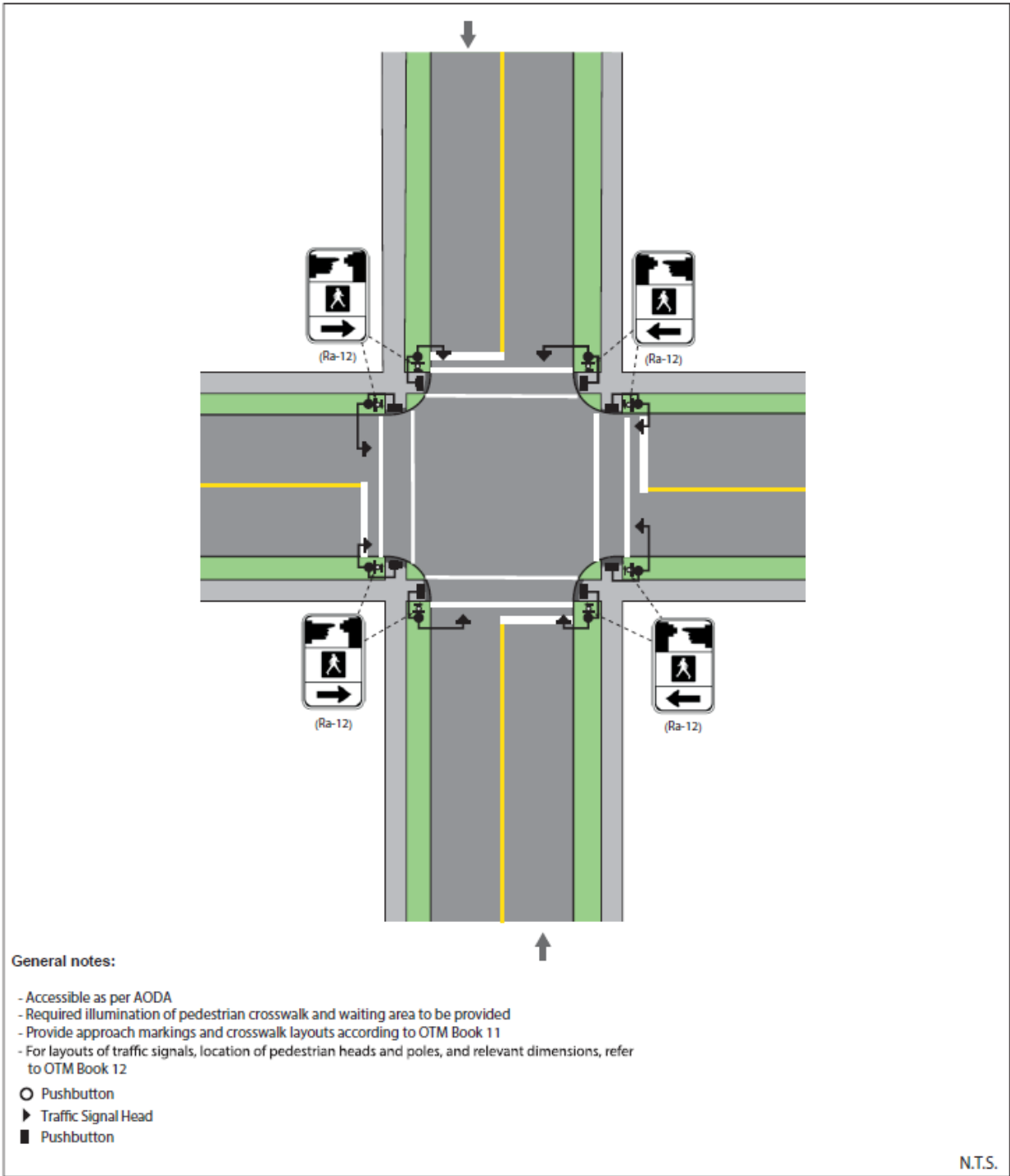


Figure 8: Pedestrian Treatment at Traffic Control Signal – 2-Lane, 2-Way (source: Ontario Traffic Manual, Book 15 – Pedestrian Crossing Facilities)

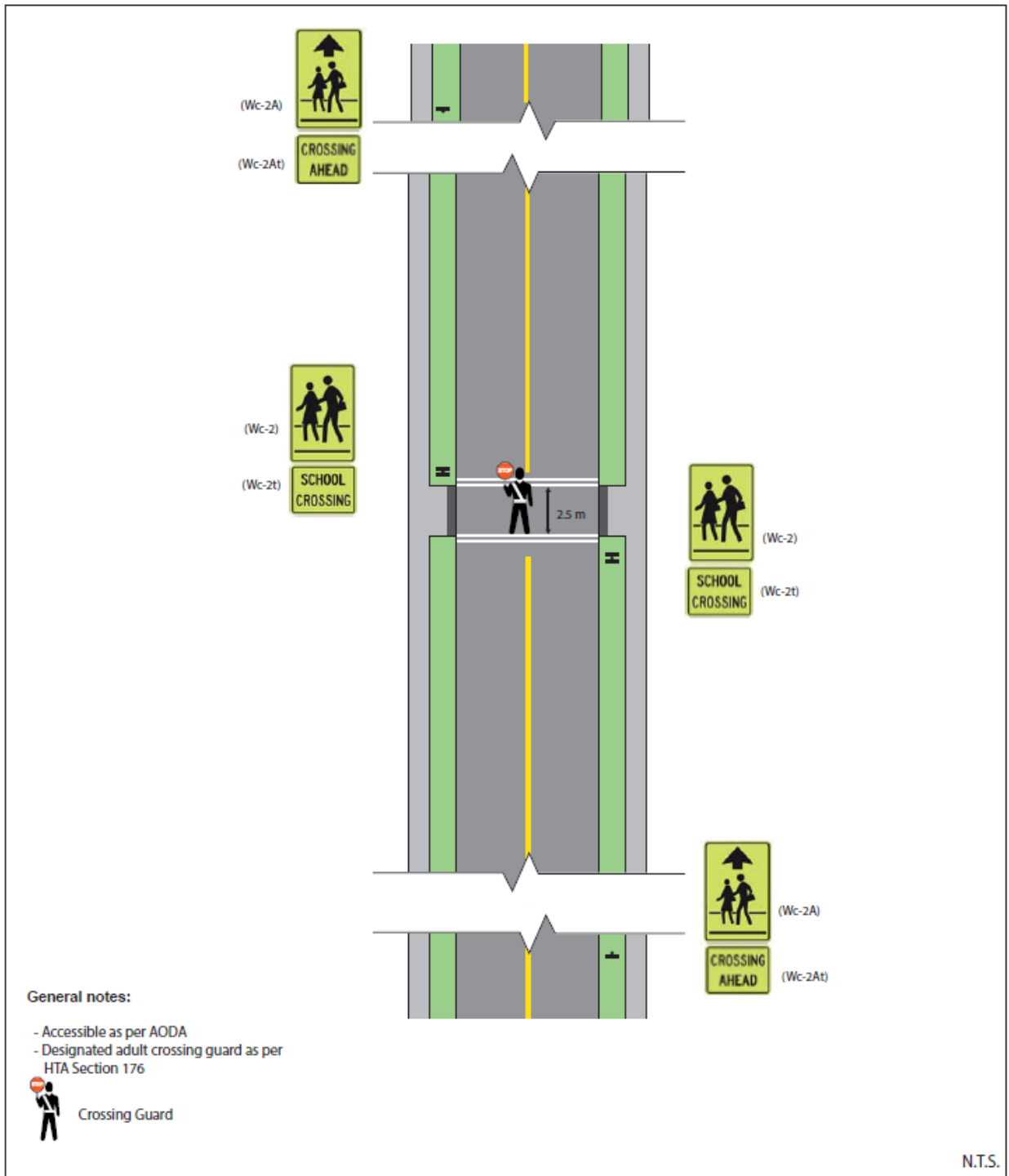


Figure 9: Designated School Crossing Location with a School Crossing Guard (source: Ontario Traffic Manual, Book 15 – Pedestrian Crossing Facilities)