

Crosswalk Warrants and Guidelines

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Section 1 – Uncontrolled Crosswalk Location Warrant

Support:

This crosswalk warrant applies to the placement of marked crosswalks at new locations or may be used for assessing the removal of existing marked crosswalks.

Crosswalk lines should not be used indiscriminately. An engineering study should be performed before they are installed at uncontrolled locations. Uncontrolled refers to the absence of traffic control (yield, stop or signals) on the approach to a crosswalk.

This section provides criteria for marking a pedestrian crossing at an uncontrolled midblock location or on an uncontrolled approach to an intersection. If the warrant is met and a crosswalk is marked, additional traffic control is recommended. Warrant and crosswalk traffic control, within this document, apply to school zones with exception to signing; refer to the MUTCD for specific signs to use at school crosswalks. Crosswalk markings are not required when the warrant is met but rather the warrant must be met before a crosswalk is considered.

Standard:

For a proposed crosswalk at a midblock or on an uncontrolled approach to an intersection, the following two criteria shall be satisfied in conjunction with the proposed marked crosswalk:

- **The crosswalk shall provide adequate sight distance; to include vertical, horizontal, and intersection stopping sight distance.**
- **The crosswalk shall not cross any part of an auxiliary lane and its transition. Auxiliary lanes include left turn, right turn, acceleration, and deceleration lanes. Two-way left-turn lanes are not considered auxiliary lanes.**

Guidance:

Locations being considered for a crosswalk (midblock or an uncontrolled approach to an intersection) should have a minimum level of traffic and pedestrian volumes. All of the following four criteria should be satisfied prior to installation:

- *Location of midblock crossings should be a minimum of 300 feet (200 feet with an engineering study) from any controlled intersection (all-way signal/stop/yield control or pedestrian overpass).*
- *Pedestrian crossing volumes should meet one of the following conditions:*
 - *20 pedestrians in an hour, or*
 - *15 elderly, disabled and/or children in an hour, or*
 - *60 pedestrians total for the highest consecutive pedestrian 4-hour period.*

Pedestrian counts should only include pedestrians crossing within 100 feet either side of the proposed crosswalk location to capture only potential users of the proposed crosswalk.

- *The two-way traffic volume should meet the minimum of 1500 vehicles for the average daily traffic (ADT) or 150 vehicles in the pedestrian count hour.*
- *The current pedestrian crossing is not due to a correctable gap in the sidewalk system.*

Support:

Crosswalks should not be installed at locations that could present an increased safety risk to pedestrians without first providing adequate design features and/or traffic control devices. *“Adding crosswalks alone will not make crossings safer, nor will they increase vehicles stopping for pedestrians. Whether or not marked crosswalks are installed, it is important to consider other pedestrian facility enhancements (e.g., signing, raised median, traffic signal, roadway narrowing, enhanced overhead lighting, traffic-calming measures, curb extensions), as needed, to improve the safety of the crossing.”* Good engineering judgment should be used in individual cases for deciding where to install crosswalks. (FHWA PUBLICATION # HRT-04-100)

For additional guidance, refer to SDDCTEA’s pamphlets on traffic engineering available on the TEA website (<http://www.sddc.army.mil/sites/tea/Pages/default.aspx>)

Section 2 - Controlled Crosswalk Locations

Support:

Controlled crosswalk locations are pedestrian crossings located on a controlled approach at an intersection (i.e., controlled by a traffic signal, stop sign, or yield sign), or located at a midblock and controlled by a traffic signal or pedestrian hybrid beacon.

Guidance:

These locations are often less controversial and do not require an assessment and are typically marked; however, they may also be unmarked depending on local guidelines and engineering assessments. Controlled crosswalks at intersections do not require nor is it recommended to provide the pedestrian crossing signs (W11-2).

Standard:

Per PROWAG standards, crosswalks located at multi-lane channelized roadways (such as dual right-turn lanes) and multi-lane roundabouts must provide one of the following crosswalk enhancements:

- **Pedestrian Actuated Rectangular Rapid Flashing Beacons (RRFB)**
- **Raised Crosswalks**
- **Traffic Signals with Pedestrian Signal Heads**
- **Pedestrian Hybrid Beacon**

Section 3 - Accessibility Requirement

Standard:

All crosswalks, regardless of the transportation element it connects to, must be PROWAG compliant.

Section 4- Blanket signing for existing crosswalks within housing areas

Support:

It has been documented through TEA traffic studies that marked crossings at uncontrolled locations in housing areas typically do not meet the minimum pedestrian and vehicular volumes as required by TEA guidelines - - implying that the uncontrolled crossing should not have been initially installed. TEA realizes that it is not practical to sign every midblock crossing in residential areas where traffic volumes and speeds are minimal.

Guidance:

TEA recommends a 'blanket' pedestrian posting for residential areas with low traffic volumes (≤ 150 vehicles per hour), low posted speeds (≤ 25 mph) and two-lane roadways, to warn drivers of pedestrian crossings throughout the area.

The Pedestrian Crossing (W11-2 MUTCD designation) warning sign size shall be 30" x 30". This is the minimum size sign which is adequate for single lane conventional roadways, and will also accommodate most housing areas. A 24" x 18" supplemental HOUSING AREA plaque (W16-25P-TEA) shall be used in conjunction with the W11-2 sign. Signs should be located on the right-hand side of the roadway at all entrances to the housing area. Signs in other locations should be considered only as supplementary.

DoD installations, with existing pedestrian crossing signs, that opt to utilize the blanket pedestrian crossing sign have two options for the existing pedestrian signage at their uncontrolled crosswalks: (1) remove the individual signage in conjunction with the blanket sign posting, or (2) remove the individual signage at the end of the service life of the sign assembly. If ABA accommodations (such as curb ramps) exist at the crossing, the crosswalk markings should be kept and maintained. No additional enhancements are necessary.

The warrant must still be met prior to marking any future crosswalk. The blanket signing does not mitigate the warrant requirements.



Section 5 – Signing for Multiple Crosswalks in Close Proximity

Support:

If multiple marked crosswalks exist within proximity of one another, they should be evaluated for need and consolidation in accordance with Section 1. Channelizing pedestrians to designated crossing areas can be accomplished using ornamental fencing, or similar means. If consolidation is not a viable option, roadway sections with multiple pedestrian midblock crossings (including marked and/or unmarked crossings) can be signed as a pedestrian crossing area to warn road users of the length of roadway over which the crossing condition exists.

'Blanket' signing of a pedestrian crossing area does not mitigate the necessity for lighting in the area, as well as crosswalk markings and accessibility accommodations for qualifying crossing locations. The individual crossings should not be signed when using the pedestrian area signing.

Guidance:

Midblock crossings that are separated by 250 feet or less are considered to be 'within close proximity' and may be identified and signed as a pedestrian crossing area. Signing of a pedestrian crossing area is not appropriate on high-speed, high-volume roadways; and therefore, is not to be used on roadways where the posted speed limit is greater than 30mph and/or the vehicle volume exceeds 12,000 per day or 1,200 in the peak hour.

For signing of a pedestrian crossing area, TEA recommends using the Pedestrian Crossing (W11-2 MUTCD designation) warning sign. The size shall be 30" x 30" for single lane roadways and 36" x 36" for multilane roadways. The W11-2 Pedestrian Crossing sign shall be used in conjunction with the 30" x 24" supplemental NEXT XXX FT (W16-4P) plaque. The supplemental warning plaque shall be mounted below the warning sign it supplements and on the same post. Signs should be located at the first known crossing on the right-hand side of the road, for each direction of travel.

Option:

In addition to signing where the crossing condition exists, a Pedestrian Crossing (W11-2) warning sign in conjunction with the 24" x 12" supplemental AHEAD (W16-9P) plaque may be installed to provide advance notice. Signs should be located 100 feet (minimum) in advance of the first known crossing location and on the right-hand side of the road, for each direction of travel.

For a lengthy pedestrian crossing area (≥ 1000 feet), it is recommended to install a second W11-2 Pedestrian Crossing sign with a supplemental NEXT XXX FT (W16-4P) plaque at a mid-point location, for each direction of travel, to remind road users of the crossing condition.



Example



Example

Section 6 - Crosswalk Enhancements and Drawings

Support:

After determination is made that a crosswalk is warranted, Table 1 provides the type of traffic control that should be added when a crosswalk is implemented at a midblock or at an uncontrolled approach to an intersection. The recommended traffic control contained in Table 1 are for guidance purposes and should be applied with engineering judgment. Major improvements, such as pedestrian hybrid beacons and pedestrian signals, must meet MUTCD guidelines and warrants; and be justified by an engineering study.

Guidance:

Table 1
Traffic Control for Crosswalks at Midblock Locations and on Uncontrolled Approaches to Intersections

Traffic Control Type	Vehicle Volume 1,500 ≤ ADT ≤ 12,000 OR 150 ≤ 1-Hour Volume ≤ 1,200												Vehicle Volume ADT > 12,000 OR 1-Hour Volume > 1,200												
	*2-Lanes Two-way			3-Lanes Two-way			≥ 4-Lanes Divided With Raised Median			≥ 4-Lanes Undivided			*2-Lanes Two-way			3-Lanes Two-way			≥ 4-Lanes Divided With Raised Median			≥ 4-Lanes Undivided			
	≤ 30 mph	35 mph	≥ 40 mph	≤ 30 mph	35 mph	≥ 40 mph	≤ 30 mph	35 mph	≥ 40 mph	≤ 30 mph	35 mph	≥ 40 mph	≤ 30 mph	35 mph	≥ 40 mph	≤ 30 mph	35 mph	≥ 40 mph	≤ 30 mph	35 mph	≥ 40 mph	≤ 30 mph	35 mph	≥ 40 mph	
Pavement Marking																									
High-Visibility Crosswalk Marking	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Signing and Lighting																									
Pedestrian Crossing (W11-2) warning sign W/ Downward Diagonal Arrow (W16-7P) Plaque	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Yield Here To (Stop Here For) Pedestrians (R1-5, R1-5a, R1-5b, or R1-5c) signs with Yield (Stop) Line marking (Yield or Stop scenario is dictated by local state law)				X	X	X	X	X	X	X	X	X	X	X				X	X	X	X	X	X	X	X
An advance Pedestrian Crossing (W11-2) warning sign with Ahead (W16-9P) plaque			√			√			√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Lighting	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Midblock Drawing #	1	1	2	3	3	4	3	3	4	4	4	4	2	2	2	4	4	4	4	4	4	4	4	4	
Uncontrolled Approach to Intersection Drawing #	5	5	6	7	7	8	7	7	8	8	8	8	6	6	6	8	8	8	8	8	8	8	8	8	
Major Improvements																									
Traffic Engineering Study is required to determine applicability of Hybrid Beacons, Pedestrian Signals, or a Pedestrian Overpass																									
Pedestrian Actuated Signals OR Pedestrian Hybrid Beacons OR Pedestrian Overpass			√			√			√			√	√	√	√	√	√	√	√	√	√	√	√	√	
FHWA PUBLICATION: HRT-04-100 **																									
* If the crossing is at an intersection that has a dedicated left and/or right turn lane, it is considered a multi-lane section and should follow drawing 7 or 8.																									
** The letters (C, P, or N) describe the baseline minimum enhancements for midblock crosswalks according to FHWA publication number HRT-04-100. SDDCTEA's recommendations contained in this table are based on this publication's minimum criteria.																									
C = Candidate sites for marked crosswalks. Marked crosswalks must be installed carefully and selectively. Before installing new marked crosswalks, an engineering study is needed to determine whether the location is suitable for a marked crosswalk. For an engineering study, a site review may be sufficient at some locations, while a more in-depth study of pedestrian volume, vehicle speed, sight distance, vehicle mix, and other factors may be needed at other sites. It is recommended that a minimum utilization of 20 pedestrian crossings per peak hour (or 15 or more elderly and/or child pedestrians) be confirmed at a location before placing a high priority on the installation of a marked crosswalk alone.																									
P = Possible increase in pedestrian crash risk may occur if crosswalks are added without other pedestrian facility enhancements. These locations should be closely monitored and enhanced with other pedestrian crossing improvements, if necessary, before adding a marked crosswalk.																									
N = Marked crosswalks alone are insufficient since pedestrian crash risk may be increased by providing marked crosswalks alone. Consider using other treatments, such as traffic-calming treatments, traffic signals with pedestrian signals where warranted, or other substantial crossing improvement to improve crossing safety for pedestrians.																									
If the existing speed limit is > 40 mph and pedestrian signals/hybrid beacons are not warranted, consider reducing the roadway speed limit prior to placement of crosswalk.																									
Unless otherwise stated, all section references are to the National MUTCD																									
Speed Limit = Posted Speed Limit																									
ADT = Average Daily Traffic (total of both directions)																									

SIGNING AND STRIPING LAYOUTS (NON-SIGNALIZED)

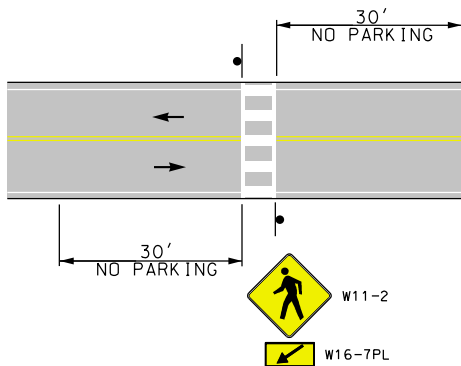
GENERAL NOTES (APPLICABLE TO DRAWINGS 1-8):

- 1) ALL REFERENCES ARE TO THE 2023 NATIONAL MUTCD, UNLESS OTHERWISE NOTED.
- 2) STOP AND YIELD LINES SHALL BE IN ACCORDANCE WITH SECTION 3B.19
- 3) CROSSWALK MARKINGS SHALL BE IN ACCORDANCE WITH CHAPTER 3C
- 4) LOCAL STATE LAW WILL DICTATE WHETHER STOP OR YIELD TO PEDESTRIANS SHOULD BE USED.
- 5) YIELD (STOP) LINES AND YIELD HERE TO (STOP HERE FOR) PEDESTRIANS SIGNS SHOULD NOT BE USED IN ADVANCE OF CROSSWALKS THAT CROSS AN APPROACH TO OR DEPARTURE FROM A ROUNDABOUT. (SECTION 2B.19)
- 6) UNLESS OTHERWISE NOTED, INTERSECTION PARKING RESTRICTIONS SHALL BE IN ACCORDANCE WITH SECTION 3B.27
- 7) SIGN HEIGHT SHALL BE A MINIMUM OF 7FT MEASURED TO THE BOTTOM OF THE SIGN PANEL. SIGN OFFSET SHALL BE IN ACCORDANCE WITH SECTION 2A.13 AND 2A.16

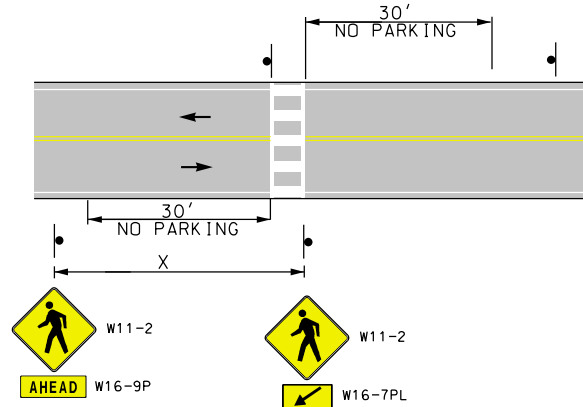
SIGN SPACING DISTANCE
TABLE 2C-3

POSTED OR 85TH PERCENTILE SPEED	"X" DISTANCE
35 MPH OR LESS	100 FT
40 MPH	125 FT
45 MPH	175 FT
50 MPH	250 FT
55 MPH	325 FT

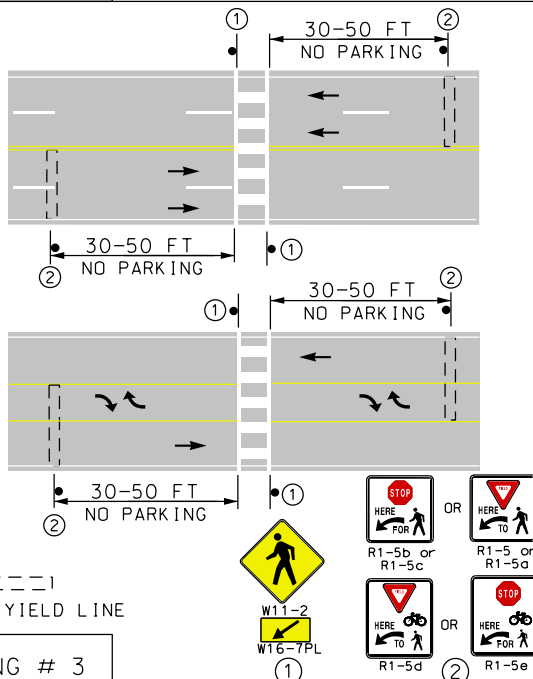
SIGNING AND STRIPING LAYOUTS (MIDBLOCK)



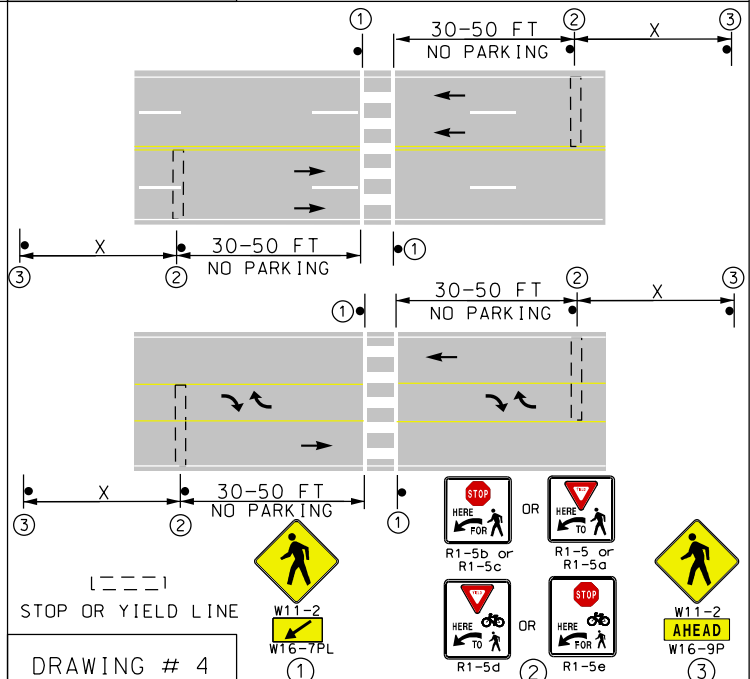
DRAWING # 1



DRAWING # 2



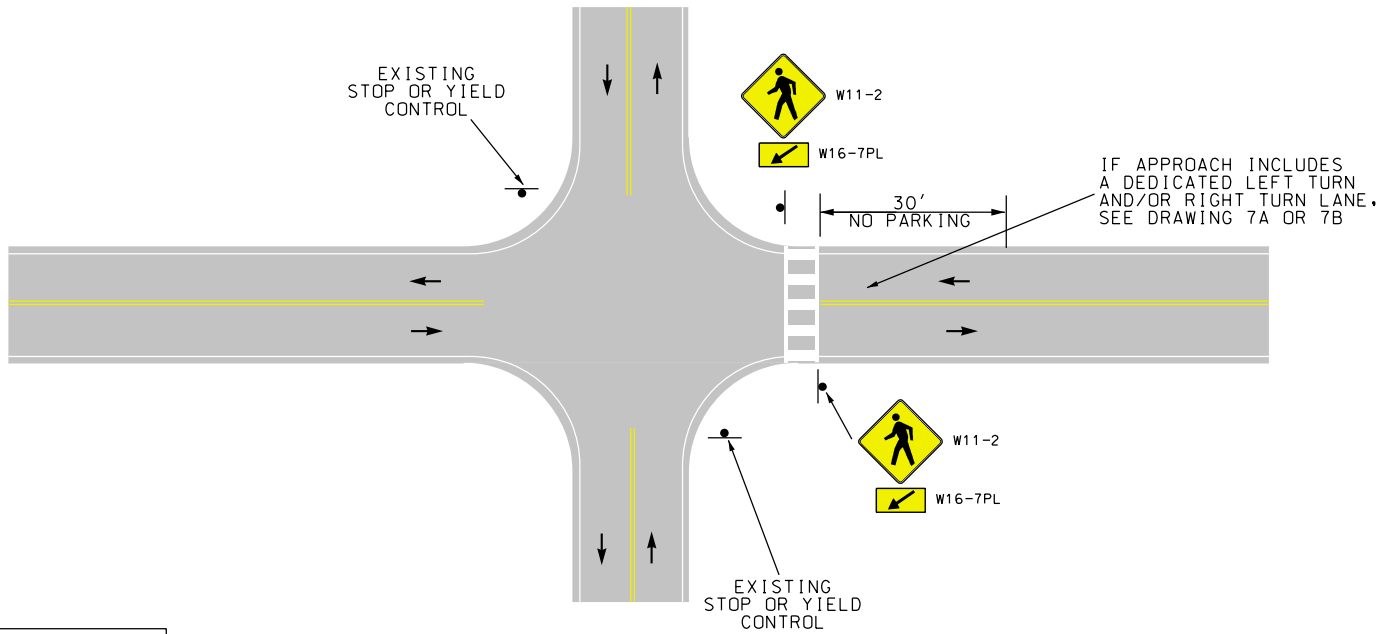
DRAWING # 3



DRAWING # 4

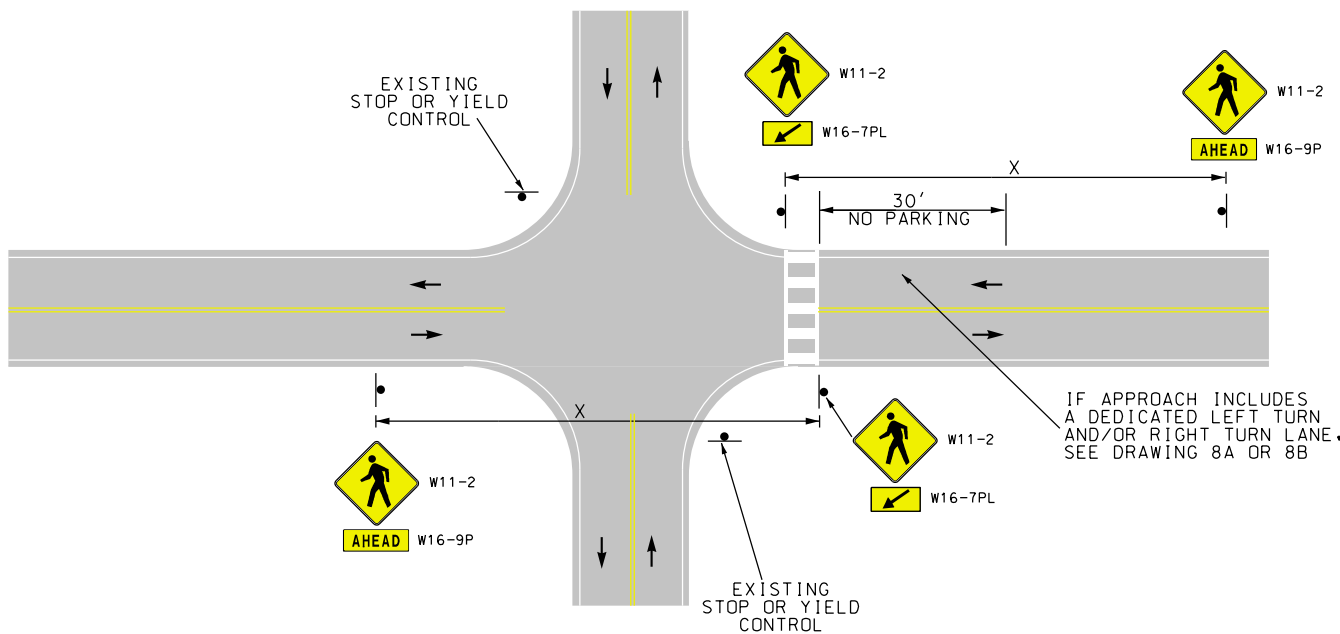
SIGNING AND STRIPING LAYOUTS (UNCONTROLLED APPROACHES TO INTERSECTIONS)

PEDESTRIAN CROSSING LAYOUT



DRAWING # 5

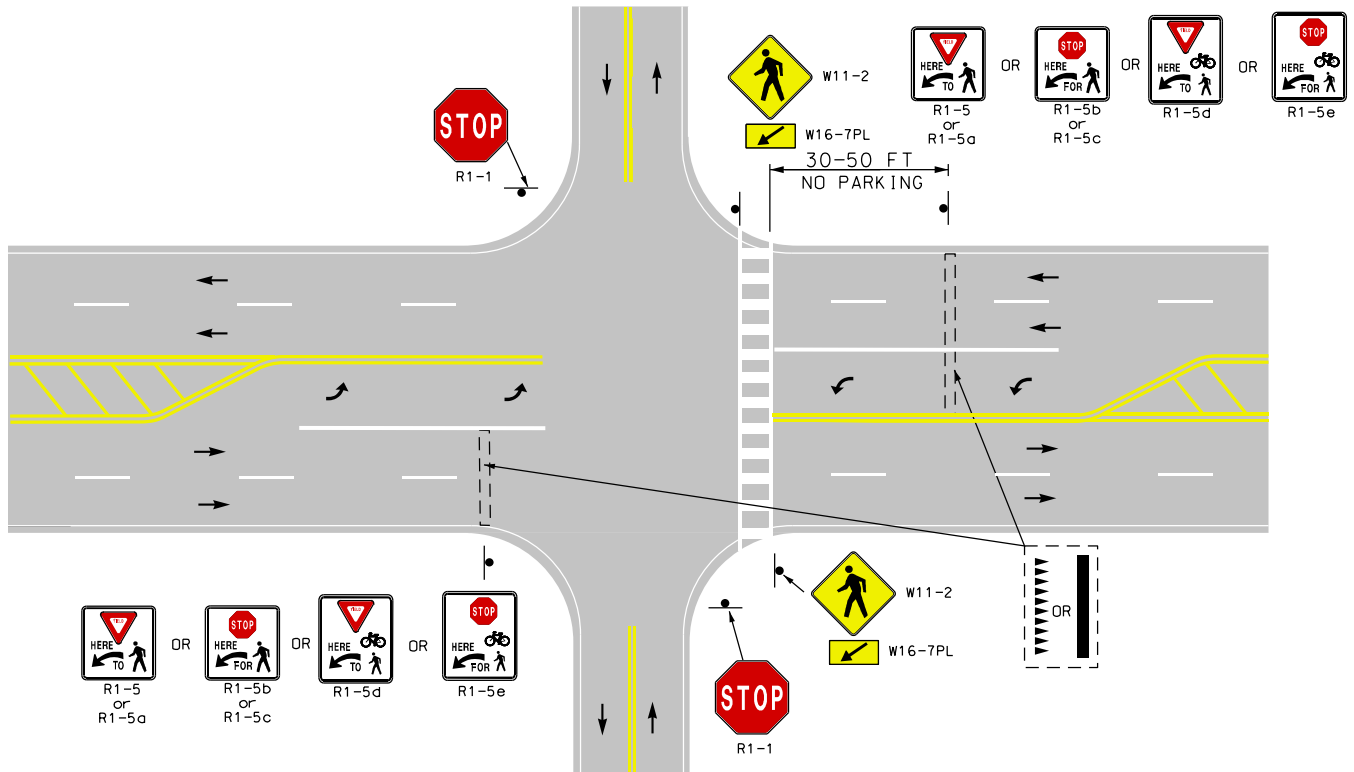
PEDESTRIAN AHEAD CROSSING LAYOUT



DRAWING # 6

SIGNING AND STRIPING LAYOUTS (UNCONTROLLED APPROACHES TO INTERSECTIONS)

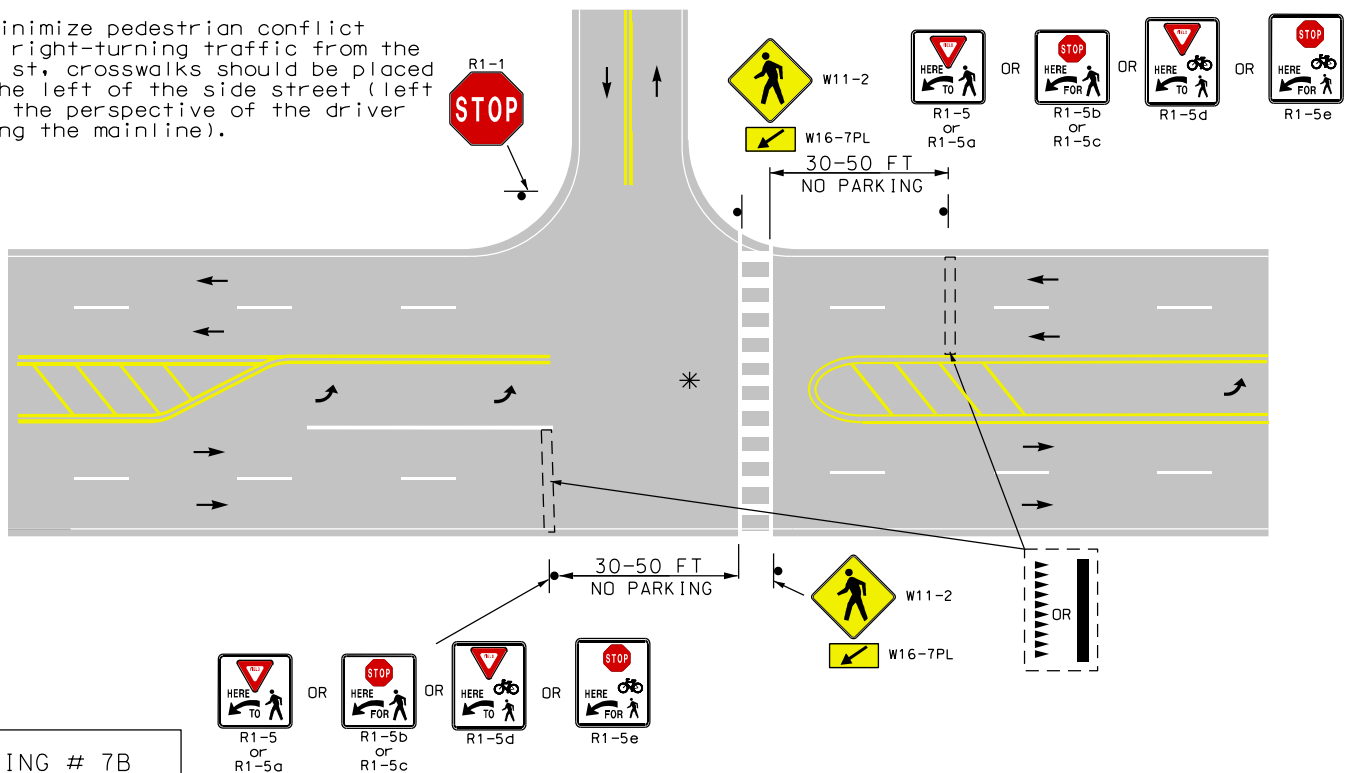
YIELD TO (STOP FOR) PEDESTRIANS CROSSING LAYOUT



DRAWING # 7A

YIELD TO (STOP FOR) PEDESTRIANS CROSSING LAYOUT

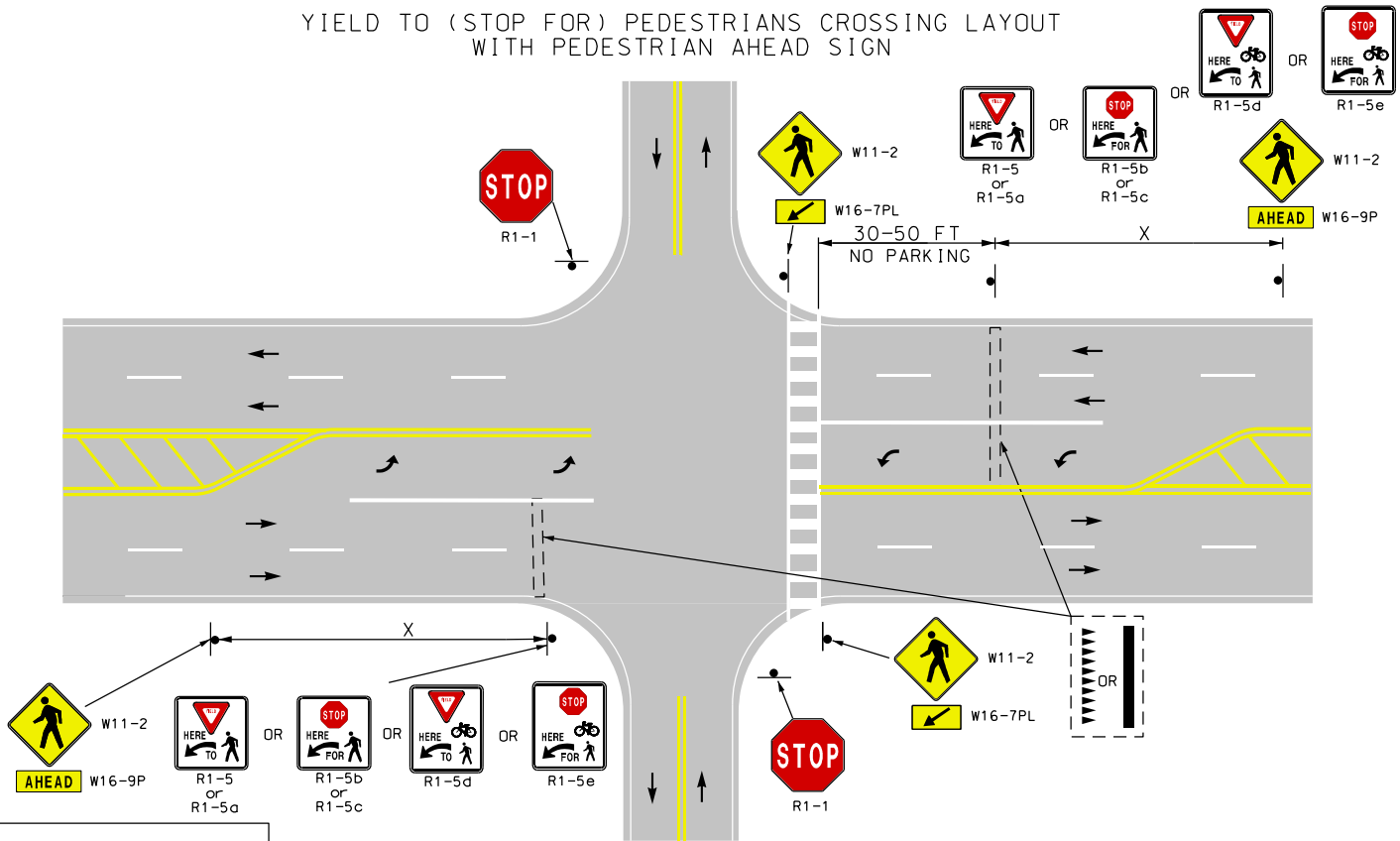
* To minimize pedestrian conflict with right-turning traffic from the side st., crosswalks should be placed to the left of the side street (left from the perspective of the driver facing the mainline).



DRAWING # 7B

SIGNING AND STRIPING LAYOUTS (UNCONTROLLED APPROACHES TO INTERSECTIONS)

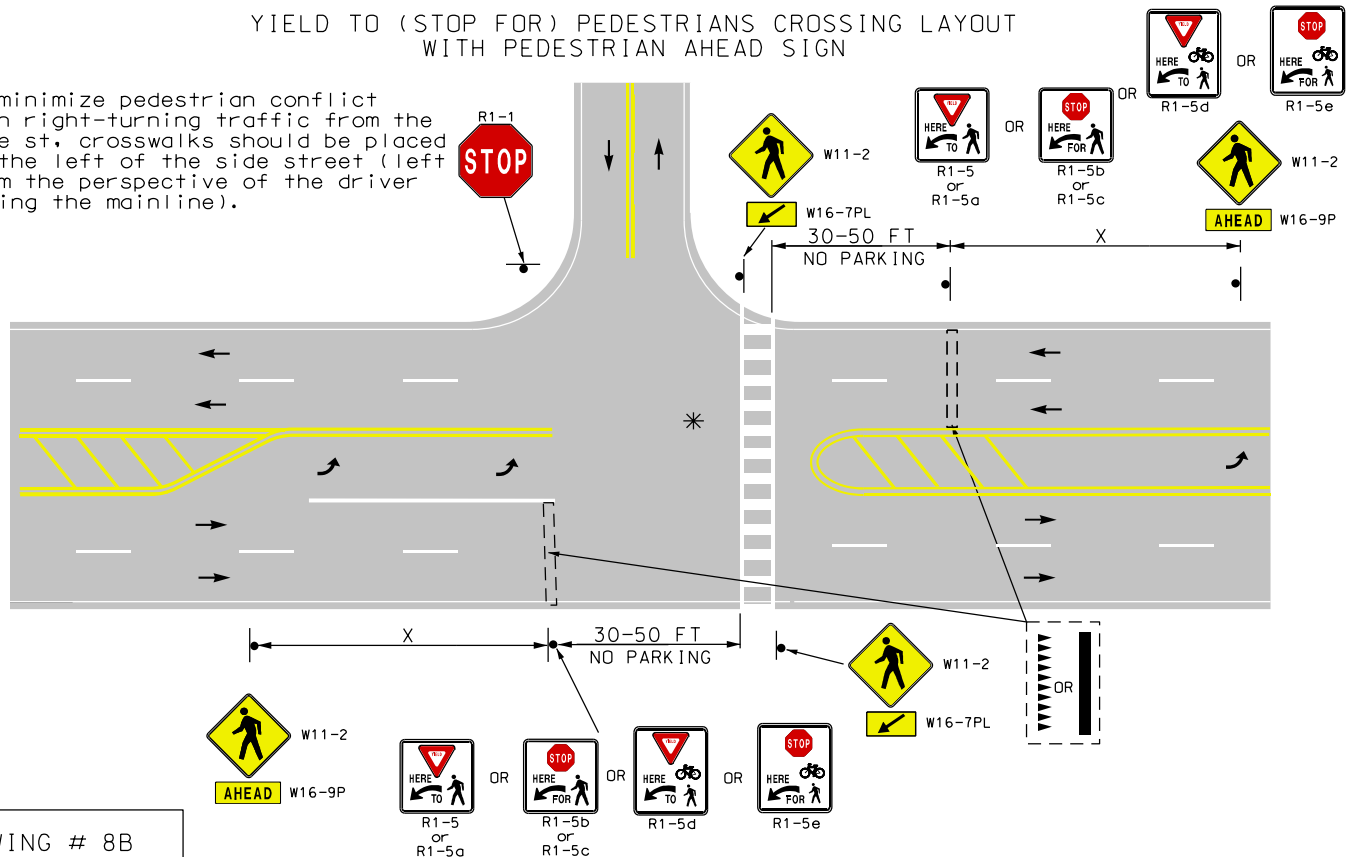
YIELD TO (STOP FOR) PEDESTRIANS CROSSING LAYOUT
WITH PEDESTRIAN AHEAD SIGN



DRAWING # 8A

YIELD TO (STOP FOR) PEDESTRIANS CROSSING LAYOUT
WITH PEDESTRIAN AHEAD SIGN

* To minimize pedestrian conflict with right-turning traffic from the side st, crosswalks should be placed to the left of the side street (left from the perspective of the driver facing the mainline).



DRAWING # 8B