

	ADMINISTRATIVE POLICY	Policy No: AP-1049-21
		Approved By: City Manager
		Effective Date: April 5, 2023
		Last Reviewed Date: April 5, 2023
		Division: Planning and Infrastructure - Engineering

CROSSWALK TREATMENT SYSTEMS POLICY

POLICY STATEMENT

Crosswalk Treatment Systems are designed to control traffic and allow Pedestrians to cross the road safely utilizing Pedestrian Crossing Control Devices installed in advance of or applied within a Marked Crosswalk. Pedestrian Crossing Control Devices are to be applied in a consistent manner to a Marked Crosswalk so that drivers respond appropriately and without delay.

This policy is consistent with the City's commitment to actively promote vehicle and pedestrian safety throughout the city.

1. PURPOSE

- 1.1 The purpose of this policy is to provide for the uniform application of Treatment Systems at road intersections and at Mid-block Crosswalks to ensure consistency and balance for drivers and Pedestrians by adhering to national, provincial and local standards.

2. DEFINITIONS

- 2.1 "Accessible Pedestrian Signals" means devices at signalized intersections that provide crossing information to pedestrians by using audible and vibrotactile signals.
- 2.2 "Active Crossing Treatment System" means a Treatment System which contains Pedestrian signage, pavement markings, Pedestrian push buttons and flashing beacons.
- 2.3 "Arterial Road" means a road designed to accommodate medium to high traffic volumes for local and regional trips. Arterial Roads are designed to connect neighbourhoods to one another and the community to regional freeways and

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expressways. These roads are mainly four-lane facilities with wide boulevards and limited access to business and residential frontages. Arterial Roads are designated in the Transportation Master Plan.

- 2.4 “Collector Road” means roads that connect Arterial and Local Roads, as well as provide direct property access. Major Collector Roads are identified in the Transportation Master Plan.
- 2.5 “Crosswalk” means a portion of a road where Pedestrians cross from one corner of an intersection directly to the opposing road, curb or sidewalk. A Crosswalk may be Marked or Unmarked.
- 2.6 “Crosswalk Lines” means pavement markings in the form of white lines that identify a Marked Crosswalk.
 - (a) Parallel Lines – twin parallel lines (0.2m - 0.3m wide) placed a minimum of 2.5m apart and perpendicular to the direction of vehicular traffic.
 - (b) Zebra Lines – lines (0.6m x 2.5m) placed 0.6m apart and parallel to the direction of vehicular traffic.
- 2.7 “Local Road” means a road that primarily provides direct property access and is not an alley.
- 2.8 “Marked Crosswalk” means a Crosswalk which contains Pedestrian Crossing Control Devices.
- 2.9 “Mid-block Crosswalk” means a Marked Crosswalk that does not begin or end at a road intersection.
- 2.10 “Passive Crossing Treatment System” means a Treatment System which contains side-mounted Pedestrian signage and pavement markings only.
- 2.11 “Pathway” means a publicly accessible, asphalt surfaced, multi-use trail.

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- 2.12 “Pedestrian” means a person afoot, a person in or on a mobility aid, and users of inline skates, roller skates, skateboards and non-motorized scooters.
- 2.13 “Pedestrian Crossing Control Device” refers to Pedestrian signage, pavement markings, Pedestrian push buttons, Pedestrian signal indicators, flashing beacons and traffic signals.
- 2.14 “Pedestrian Desire Line” means the route a pedestrian will take to a specific destination.
- 2.15 “Treatment System” means a combination of Pedestrian Crossing Control Devices.
- 2.16 “Unmarked Crosswalk” means a Crosswalk free of any Pedestrian Crossing Control Devices. (i.e., Pedestrian signage, pavement markings, or flashing beacons).

3. RESPONSIBILITIES

- 3.1 The Director of Engineering shall determine the appropriate Treatment System for Marked Crosswalks, in conjunction to the related documents, and as outlined in this policy.
- 3.2 Crosswalk Treatment Systems shall be reviewed by the Director of Engineering and deficiencies shall be documented and prioritized.
- 3.3 The Director of Public Works shall maintain all Treatment Systems for Marked Crosswalks.
- 3.4 The Director of Public Works shall resolve the documented deficiencies as resources become available.

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4. TREATMENT SYSTEM GUIDELINES

- 4.1 Crosswalk Treatment Systems shall be determined using the decision support tool in the Pedestrian Crossing Control Guide published by the Transportation Association of Canada (TAC) as a guideline which includes site assessment and Crosswalk Treatment System selection.
- 4.2 Treatment Systems are hierarchical (Passive → Active → Controlled Intersections). Higher ordered systems may be substituted for lower ordered systems as designated by the Director of Engineering.
- 4.3 The type of road (Arterial, Collector, or Local) shall be considered when determining Treatment System selection.
- 4.4 At roundabouts, where two or more types of roads exist, the higher-level Treatment System shall preside.
- 4.5 Where traffic controls differ at an intersection, the control for each approach shall be evaluated separately and the Treatment System selected accordingly. (i.e., At a two-way stop-controlled intersection, the stop-controlled approaches and the uncontrolled approaches are evaluated separately.)
- 4.6 All Marked Crosswalks shall have connecting sidewalks or Pathways, curb cut-outs and ramps and sufficient sight distance, as outlined in the Geometric Design Guide for Canadian Roads published by TAC.
- 4.7 All Marked Crosswalks shall have artificial lighting, as recommended in the Guide for the Design of Roadway Lighting published by TAC and the Illuminating Engineering Society of North America ANSI/IESNA RP-8.
- 4.8 The safety of selected Treatment Systems may be increased by installing curb extensions where on-street parking exists, reducing the radius of the curb corners, or installing raised refuge islands for roads with more than two lanes and two-directional traffic.

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- 4.9 Marked Crosswalks shall be no less than 100m from other Marked Crosswalks unless located in a school zone. Pedestrian Desire Lines, system connectivity, classification of road, and impact to traffic, as set by TAC, shall be reviewed and Treatment System placement shall be at the discretion of the Director of Engineering.
- 4.10 Marked Crosswalk Lines shall be placed on the road between the curb ramps and must be used in conjunction with other Pedestrian Crossing Control Devices.
- 4.11 All Pedestrian crossing signs (RA-4 or RA-3) shall be installed in advance of the crossing, where practical, to a maximum of 3m from the closest Crosswalk Line.
- 4.12 All components of a Treatment System shall be installed in accordance with the Manual of Uniform Traffic Control Devices for Canada (MUTCDC).
- 4.13 Treatment Systems at intersections shall be designed with the following guiding principles:
- (a) Clarity;
 - (b) Predictability;
 - (c) Visibility;
 - (d) Short wait times;
 - (e) Adequate crossing times;
 - (f) Limited exposure; and
 - (g) Usable crossings.
- 4.14 Where Mid-Block Treatment Systems are considered appropriate, they shall be designed to consolidate pedestrian movements into a single location, reducing

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the likelihood that crossings will occur at multiple Mid-Block locations along the roadway.

4.15 Treatment Systems shall not be installed where the minimum Pedestrian and traffic volumes have not been achieved, as set by TAC, unless deemed necessary by the Director of Engineering.

4.16 The request for Accessible Pedestrian Signals shall be assessed by the Director of Engineering.

5. CONTROLLED INTERSECTIONS

5.1 The Treatment System at traffic signals shall include:

- (a) Parallel Lines;
- (b) A stop line, placed a minimum of 1m from the nearest Parallel Line;
- (c) Solid lane lines on right and/or left turn lanes, a maximum length of 25m, to prevent lane changes on multi-lane roads;
- (d) Pedestrian push buttons mounted at the beginning of each crossing;
- (e) Pedestrian push button signs (ID-21) mounted directly above the push buttons;
- (f) Pedestrian signal indicators (Walk and Don't Walk) at each crossing; and
- (g) Accessible Pedestrian Signals, upon approval.

5.2 The Treatment System at a stop sign shall include:

- (a) Crosswalk Lines:

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- (i) Parallel Lines, if located on Collector or Local Roads where the number of Pedestrian crossings meet the conditions outlined by TAC; or
 - (ii) Zebra Lines, if located in a school area/zone or within 100m of school grounds; and
- (b) A stop line, placed a minimum of 1m from the closest Crosswalk Line.

6. ACTIVE CROSSING TREATMENT SYSTEMS

6.1 The Treatment System for overhead flashing beacons (OF) shall include:

- (a) Zebra Lines;
- (b) Solid lane lines for through traffic, a minimum length of 30m, on the approach of each crossing to prevent lane changes on multi-lane roads;
- (c) Solid lane lines on right and/or left turn lanes, a maximum length of 25m, to prevent lane changes on multi-lane roads;
- (d) Overhead-mounted white or black Pedestrian crossing signs (RA-102) containing alternately flashing amber beacons installed facing traffic on both sides of the road so the driver faces two signs for each approach;
- (e) Side-mounted flashing beacons:
 - (i) Amber flashing ball beacons; or
 - (ii) Rectangular rapid flashing beacons;
- (f) Pedestrian push buttons mounted at both ends of the crossing;
- (g) Pedestrian push button signs (ID-21) mounted directly above the push buttons;

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- (h) Side mounted, white Pedestrian crossing signs (RA-4R/L or RA-3R/L when located in a school zone); and
 - (i) Side mounted advanced warning sign (WC-2R/L or WC-16R/L when located in a school zone) where visibility is limited, installed 50m to 150m in advance of the crossing.
- 6.2 The Treatment System for rectangular rapid flashing beacons (RRFB) shall include:
- (a) Zebra Lines;
 - (b) Solid lane lines for through traffic, a minimum of 30m in length, on the approach of each crossing to prevent lane changes on multi-lane roads;
 - (c) Solid lane lines on right and/or left turn lanes, a maximum of 25m in length, to prevent lane changes on multi-lane roads;
 - (d) RRFB assembly mounted on both sides of the road and on the raised median if the road is divided;
 - (e) Pedestrian push buttons mounted at both end of the crossing;
 - (f) Pedestrian push button signs (ID-21) mounted directly above the push buttons;
 - (g) Fluorescent lime yellow Pedestrian crossing signs (RA-4 R/L or RA-3 R/L when located in a school zone) mounted back-to-back on both sides of an undivided road or when divided, mounted single sided on the right side of each direction and back-to-back on the raised median; and
 - (h) Side mounted advanced warning sign (WC-2R/L or WC-16R/L when located in a school zone) where visibility is limited, installed 50m to 150m in advance of the crossing.

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7. PASSIVE CROSSING TREATMENT SYSTEMS

7.1 The Treatment System for channelized right turn lanes shall include:

- (a) Zebra Lines;
- (b) Fluorescent lime yellow Pedestrian crossing signs (RA-4R/L) installed at both ends of each crossing;
- (c) Briteside reflective panels mounted below each sign; and
- (d) Side mounted advanced warning sign (WC-2R/L or WC-16R/L when located in a school zone) where visibility is limited, installed 50m to 150m in advance of the crossing.

7.2 The Treatment System for Marked Crosswalks on Arterial Roads shall include:

- (a) Zebra Lines;
- (b) Solid lane lines for through traffic, a minimum of 30m in length, on the approach of each crossing to prevent lane changes on multi-lane roads;
- (c) Solid lane lines on right and/or left turn lanes, a maximum 25m in length, to prevent lane changes on multi-lane roads;
- (d) Fluorescent lime yellow Pedestrian crossing signs (RA-4 R/L or RA-3 R/L when located in a school zone) mounted back-to-back on both sides of an undivided road or when divided, mounted single sided on the right side of each direction and back-to-back on the raised median;
- (e) Briteside reflective panels mounted below each sign; and
- (f) Side mounted advanced warning sign (WC-2R/L or WC-16R/L when located in a school zone) where visibility is limited, installed 50m to 150m in advance of the crossing.

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7.3 The Treatment System for Marked Crosswalks on Collector Roads shall include:

(a) Crosswalk Lines:

- (i) Parallel Lines; or
- (ii) Zebra Lines if any of the following exist: located in a school/playground zone or area, within 100m of school grounds, located mid-block, connects a Pathway, or frequently used by the elderly or mobility impaired. (Brick inlay or equivalent stamped concrete along with Parallel Lines may be used in place of Zebra Lines when connecting a Pathway);
- (b) Solid lane lines for through traffic, a minimum of 30m in length, on the approach of each crossing to prevent lane changes on multi-lane roads;
- (c) Solid lane lines on right and/or left turn lanes, a maximum of 25m in length, to prevent lane changes on multi-lane roads;
- (d) Fluorescent lime yellow Pedestrian crossing signs (RA-4 R/L or RA-3 R/L when located in a school zone) mounted back-to-back on both sides of an undivided road or when divided, mounted single sided on the right side of each direction and back-to-back on the raised median;
- (e) Briteside reflective panels mounted below each sign; and
- (f) Side mounted advanced warning sign (WC-2R/L or WC-16R/L when located in a school zone) where visibility is limited, installed 50m to 150m in advance of the crossing.

7.4 The Treatment System for Marked Crosswalks on Local Roads shall include:

(a) Crosswalk Lines:

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- (i) Parallel Lines; or
- (ii) Zebra Lines if any of the following exist: located in a school/playground zone or area, within 100m of school grounds, located mid-block, connects a Pathway, or frequently used by the elderly or mobility impaired. (Brick inlay or equivalent stamped concrete along with Parallel Lines may be used in place of Zebra Lines when connecting a Pathway);
- (b) Fluorescent lime yellow Pedestrian crossing signs (RA-4R/L) mounted back-to-back on both sides of the road;
- (c) Briteside reflective panels mounted below each sign; and
- (d) Side mounted advanced warning sign (WC-2R/L or WC-16R/L when located in a school zone) where visibility is limited, installed 50m to 150m in advance of the crossing.

7.5 The Treatment System for Marked Crosswalks at roundabouts shall include:

- (a) Crosswalk Lines:
 - (i) Zebra Lines when located on Arterial and Collector Roads (Brick inlay or equivalent stamped concrete along with Parallel lines may be used in place of Zebra Lines); or
 - (ii) Parallel Lines when located on Local Roads;
- (b) Solid lane lines on multi-lane roundabouts:
 - (i) When entering, in advance of the crossing, a minimum of 15m in length, and continuing beyond the crossing to the yield line; and
 - (ii) When exiting, from the outer radius of the roundabout to the crossing and continuing beyond the crossing, a minimum of 15m in length;

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- (c) Fluorescent lime yellow Pedestrian crossing signs (RA-4 R/L) at both ends of each crossing. Where the splitter island is a minimum width of 2.4m, the distance from the outer curb to the splitter island is considered one crossing;
- (d) Briteside reflective panels below each sign; and
- (e) Side mounted advanced warning sign (WC-2R/L or WC-16R/L when located in a school zone) where visibility is limited, installed 50m to 150m in advance of the crossing.

8. REVIEW

- 8.1 This policy shall be reviewed every two years and amended to reflect current recommendations by TAC.

RELATED DOCUMENTS

Pedestrian Crossing Control Guide
 Manual of Uniform Traffic Control Devices of Canada
 Geometric Design Guide for Canadian Roads
 Guide for the Design of Roadway Lighting
 Illuminating Engineering Society of North America ANSI/IESNA RP-8-18
 Transportation Master Plan

APPROVAL

City Manager: Original signed by Dean Screpnek

Date: April 5, 2023