



P.O. Box 1749  
Halifax, Nova Scotia  
B3J 3A5 Canada

**Information Item: 2**  
**Transportation Standing Committee**  
**June 23, 2022**

**TO:** Chair and Members of Transportation Standing Committee

**SUBMITTED BY:**

  
Jacques Dubé, Chief Administrative Officer

**DATE:** May 10, 2022

**SUBJECT:** Criteria for New Marked Crosswalks

**INFORMATION REPORT**

**ORIGIN**

November 26, 2020 Transportation Standing Committee motion (Item No. 13.1):

MOVED by Councillor Russell, seconded by Deputy Mayor Outhit

THAT the Transportation Standing Committee request a staff report to review and establish criteria for new marked crosswalks that shall account for:

1. Not just existing crossings but also projected crossing demand;
2. That takes into account land uses, present and future demand;
3. Pedestrian compliance, speed, safety, and crash history;
4. Recognize that the practice of discouraging pedestrian crossings by leaving uncontrolled crossings unmarked is not a valid safety measure; and
5. Prioritizes proximity to schools, school walking routes, parks, trails, and other active transportation facilities as critical pedestrian destinations.

MOTION PUT AND PASSED

**LEGISLATIVE AUTHORITY**

*Halifax Regional Municipality Charter*, Part XII, subsection 321(8) provides:

Subsection 321(8) The Traffic Authority for the Municipality has, with respect to highways in the Municipality, excluding those for which the Provincial Traffic Authority has authority, the powers conferred upon a traffic authority by or pursuant to the Motor Vehicle Act.”

*Nova Scotia Motor Vehicle Act*, R.S.N.S. 1989, c.293, subsection 90 (1) provides:

Subsection 90(1) The traffic authority may establish and designate and may maintain, or cause to be maintained, by appropriate devices, marks or lines upon the surface of the highways, crosswalks

at intersections where, in his opinion, there is particular danger to pedestrians crossing the highway, and at such other places as he may deem necessary.

## **BACKGROUND**

Traffic Management receives numerous requests to install marked crosswalks. When assessing these requests, staff follow established criteria which provide an objective basis for evaluation of each request when determining whether it is appropriate to install a marked crosswalk at a particular location on HRM roadways.

The specific criteria adopted by staff are contained in the nationally recognized Pedestrian Crossing Control Guide (the Guide) published by the Transportation Association of Canada (TAC). The Guide was developed to promote uniformity across Canada for the assessment and implementation of pedestrian crossings and provides a decision support tool to:

1. Establish the need for pedestrian crossing control; and
2. Identify the most appropriate treatment suitable for a particular location

The Guide provides several criteria to be considered for a given location, including vehicle volume / speed, pedestrian volume and demographic, delay, collision experience, visibility conditions; proximity of adjacent crossing controls, roadway characteristics, pedestrian generators / attractors and the availability of adequate connecting infrastructure to support pedestrian travel. All these factors are considered as part of the warrants contained in the Guide. The warrants are intended to provide a starting point with a rational, defensible basis to help support decisions and promote consistency in design and approach. However, as outlined in the discussion section of this report, the warrants are only a part of the overall assessment and decision-making process. Engineering judgement, as well as knowledge and experience at a particular location must also be part of the decision-making process as each location would have its own characteristics and constraints.

## **DISCUSSION**

Requests for marked crosswalks can often include an emotional aspect, particularly when accommodating children or elderly pedestrians. Because of the potential emotional aspect, decisions to install pedestrian crossing controls, or any traffic control measure, must be made carefully. Installing unwarranted or unjustified pedestrian crossings, where the installation may be seen as providing a solution to multiple traffic problems can be detrimental to overall safety for road users. Decisions made without proper consideration of the overall need or impact leads to non-uniform application, misuse or overuse of crossing control treatments which could result in non-compliance with and/or disregard for the treatment. As well, public funds are limited and therefore crossing control and traffic treatments should be prioritized to areas and intersections with proven need for controls.

As noted in the background section of this report, the Guide provides warrants to aid in the decision-making process, however installation of a treatment, warranted or not, provides no guarantee for the safety of a pedestrian. The warrant aspect of the assessment is not intended to be a substitute for site specific investigations and application of engineering judgement. The fact that a warrant may be met does not provide sole justification for the installation of a marked crosswalk. Conversely, the decision to install a marked crosswalk or apply a particular treatment is not strictly reliant on meeting a specific minimum warrant "score" and may still be considered based on local context and / or other factors.

The Guide provides for a holistic approach to assessing locations for the installation of pedestrian crossing controls by combining numeric criteria and qualitative engineering judgement into the decision-making process. Using this approach provides flexibility to address specific or unique conditions that may be encountered at each individual site being assessed.

When undertaking assessments for the application of pedestrian crossing controls, the Guide presents a set of principles to help in the decision-making process. These guiding principles include:

**Safety** – the key objective when determine whether pedestrian crossing control is required, and the type of treatment used. The goal is to achieve a high level of compliance by all road users so that the desired result is achieved.

**Delay** – careful management of pedestrian delay needs to be considered and balanced. As delay increases, there is also the potential for pedestrians to take chances and make risky or non-compliant crossings.

**Equity** – this principle aims to ensure that consideration is given to the needs of all pedestrians (i.e., children, persons with mobility or cognitive challenges, seniors, etc.) at a particular location when assessing for application of crossing controls.

**Expectancy** – when installing marked crosswalks, it is important to ensure the location and treatment will support driver expectation of encountering and recognizing the crossing. This helps to increase the likelihood of a driver responding quickly and appropriately.

**Consistency** – the approach taken when installing pedestrian crossings and use of crossing treatments should be consistent and uniform across the entire transportation system. Consistency in application helps to ensure crossings and crossing treatments are recognized, understood, and used effectively by all road users.

**Connectivity** – aims to ensure overall system connectivity and proximity to other crossings. Consideration needs to be given to pedestrian generators, attractors, pedestrian desire lines and connections between other crossings and facilities (sidewalks, trails, pathways, etc.).

**Pragmatism** – highlights the need to consider practical issues or consequences associated with providing pedestrian crossing control. A pragmatic approach to providing pedestrian crossing control includes consideration of cost, effectiveness of the chosen treatment for the local conditions, as well as ease of installation and maintenance.

Supported by the above noted guiding principles, a decision support tool is also provided in the Guide. This tool outlines a process and criteria to be considered when assessing a location for installation of a marked crosswalk as well as guidance in selecting the appropriate treatment type. The decision support tool consists of six steps, each outlining criteria to be considered when assessing a request for installation of a marked pedestrian crossing. These steps include:

1. Check Traffic Signal Warrant

The Guide suggests checking the warrant for installation of traffic signals as an initial step in the assessment process. This step would not be necessary for most locations for which marked crossings are requested, however it could be a consideration should the location involve intersection of major roadways.

2. Evaluate Pedestrian and Vehicle Volumes

Pedestrian and vehicle volume is an important consideration when determining if a marked crosswalk is appropriate at a particular location. Setting minimum volume thresholds for pedestrians and vehicles helps to ensure there is demand for the crossing control and that over-application of measures doesn't occur. If demand doesn't exist for a treatment or if it is placed in an inappropriate environment, measures may be ineffective or result in negative consequences.

As part of the review of pedestrian and traffic volume, staff also consider the collision history for a particular location. The overall number, frequency and type of collisions experienced are reviewed to

determine if there might be a site-specific condition that would make the location unsuitable for a marked pedestrian crossing or to help in selecting an appropriate crossing treatment that would address the situation and allow for a safe and appropriate crossing location.

Evaluation of pedestrian volumes involves determining the number of “Equivalent Adult Units” (EAU) for pedestrian crossings. The observed pedestrian volume is converted EAU to account for pedestrian age and physical ability. The conversion is shown in the following table.

<b>Pedestrian Volume Conversion to EAU</b>	
Adult	1 EAU
Children (< 12)	2 EAU
Seniors (> 65)	1.5 EAU
Pedestrians with Impairment	2 EAU

The EAU threshold identified for considering the implementation of pedestrian crossing controls is outlined in the Guide as 100 EAUs over a 7-hour count period. When determining the count period, consideration is given to the location, facilities and uses nearby, as well as weather conditions. This ensures the count or observations capture travel patterns representative of the location. For example, for requests that are near schools, the count period would be set to encompass school arrival and dismissal times. Counts / observations for all assessments, regardless of location, would be conducted on fair weather days to ensure maximum potential for pedestrian activity.

When considering vehicle volumes, the Guide recommends, based on available research, 1500 vehicles per day as being a practical minimum threshold for consideration of installation of pedestrian crossing control. Vehicle volume at or below this level would provide sufficient safe gaps in traffic to allow for pedestrian crossings.

**3. Identify the Proximity to the Nearest Traffic Control Device**

Spacing between traffic controls is an important consideration. Having multiple traffic controls within close proximity of each other increases driver visual workload, potentially resulting in improper driver decisions which may lead to collisions. The Guide recommends a minimum spacing of 100 – 200 metres which would vary from location to location and would be dependent on consideration of things like the type of road, traffic volume, pedestrian volume, and demographic and potential queue lengths at various traffic controls along the facility. The Guide goes further to reference additional guidance from the Institute of Transportation Engineers (ITE) where it is recommended that deviation from a desired pedestrian route to reach a crossing should not exceed 90 – 120 metres.

Consideration is still given to installing a pedestrian crossing at a location where the volume thresholds may not be met, but the spacing to an adjacent crossing is beyond the recommended values provided above. Crosswalk spacing is context sensitive and engineering judgement is used through consideration of factors such as surrounding land use, presence / location of transit stops, volume / speed of traffic and pedestrian type.

**4. Evaluate Pedestrian Desire Lines**

This step involves assessment of the area around the location where a marked crossing has been requested. Pedestrian desire lines are identified through engineering judgement by considering potential pedestrian generators or attractors on either side of the road that may not be served by the existing pedestrian network. Specific attention is given to identifying uses such as schools, community centres, hospitals, seniors’ homes, parks and shopping centres. In instances where a significant desire line can be established, installation of a marked crosswalk could be considered even in instances where the distance criteria identified in step 3 may not be satisfied.

5. Evaluate Latent Crossing Demand and/or Need to Provide System Connectivity

Latent crossing demand refers to the potential number of pedestrians that would use a crosswalk if one were provided. Determining the potential latent demand at a particular location would take into account similar factors considered in the previous step to identify potential pedestrian desire lines, but would also take into consideration pedestrian activity along a particular corridor where it may be beneficial to provide a defined, consolidated crossing location. This would also include review of the proposed road network of new developments before they are built, including proposed land uses and connections to existing facilities, to try to identify where marked crossings could be placed once the road network is constructed to help support pedestrian activity as the development builds out.

Even if the potential latent demand does not result in meeting the volume thresholds, consideration of the location for a marked crosswalk would still be given to the location based on a need for system connectivity to provide continuity of pedestrian facilities.

Application of this step, in combination with the previous step, ensures consideration is given not only to existing quantifiable crossing demand, but also to potential and future demand based on existing and planned future land uses.

6. Selection of Crossing Treatment

If an assessment results in a recommendation to proceed with installation of a marked crosswalk, a further assessment is undertaken to determine what the appropriate crossing treatment would be for the location. When determining the appropriate treatment (i.e. basic marked crosswalk, overhead RA-5 with beacons, etc.), consideration is given to road type, number of lanes, traffic volume and speed. Other factors such as visibility and lighting are also considered when selecting treatment type, particularly when assessing a location a change or upgrade in treatment type.

All guiding principles and criteria outlined above are important when considering implementation of pedestrian crossings. However, conditions and requirements unique to each location often create challenges in finding the appropriate balance. The ultimate goal is to provide for overall system safety for all road users, which often requires compromises to ensure any traffic controls that are installed are as effective as possible without introducing other safety risks or hazards.

**FINANCIAL IMPLICATIONS**

There are no financial implications associated with the content of this report.

**COMMUNITY ENGAGEMENT**

Community engagement was not undertaken as the report content is associated with internal policy and related to matters within the jurisdiction and responsibility of the Traffic Authority.

**ATTACHMENTS**

No attachments.

A copy of this report can be obtained online at [halifax.ca](http://halifax.ca) or by contacting the Office of the Municipal Clerk at 902.490.4210.

Report Prepared by: Roddy MacIntyre, P.Eng., Senior Traffic Operations Engineer, 902.490.8425

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