



**City of Kingston
Information Report to Council
Report Number 19-294**

To: Mayor and Members of Council
From: Sheila Kidd, Commissioner, Transportation & Public Works
Resource Staff: Ian Semple, Director, Transportation Services
Date of Meeting: November 19, 2019
Subject: School Crossing Upgrades

Executive Summary:

This report provides Council with information regarding assessment and prioritization of upgrades at school crossings as part of the 5-year Active Transportation Implementation Plan (ATIP), developed to directly address Council's priorities to demonstrate leadership on climate action and improve walkability, roads, and transportation in the city.

Specifically, this report addresses Council's priority to install crosswalks around schools, sidewalks, and heavy pedestrian traffic areas, to assess all existing school crossing guard locations and upgrade four pedestrian school crossing locations with the recommended infrastructure. This work furthers the City's efforts to foster a culture of active transportation in Kingston and supports the forthcoming Safe Routes to School program, aimed at increasing the number of students using travel modes that are active, safe, and sustainable.

School crossings and the use of crossing guards are intended to provide protection and enhanced safety for children where there is potential for conflict with motor vehicles. Crossing guards play an important role in ensuring that children can cross roadways safely on their way to and from school each day. Many school crossings in the city are located along busy arterial roadways that are used heavily by pedestrians of all ages and abilities. When a stop sign is displayed by a school crossing guard on duty, the driver of any vehicle approaching the stop sign must stop before reaching the crossing. However, at all other times when a school crossing guard is not present, the school crossing, in the absence of any other traffic control, is considered an uncontrolled crossing and vehicles are not required to stop.

Recognizing the limitations of some existing school crossings, this report provides a summary of the process that was used to assess all existing uncontrolled school crossing locations and the prioritized ranking and infrastructure upgrades that will be completed in the future.

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The full list of assessed locations is included as Table 1 with the top four locations identified as:

- Taylor-Kidd Boulevard at Pembridge Crescent
- Weller Avenue at Wiley Street
- Bayridge Drive south of Taylor-Kidd Boulevard
- Montreal Street at MacCauley Street

The upgrades at these locations are planned for 2020-2021, subject to confirmation of the 2020 capital budget.

The intersection of Barrie Street and Clergy Street will also be recommended for upgrade to an all-way stop as part of a report that will be presented to Council in the spring of 2020.

Recommendation:

This report is for information only.

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Authorizing Signatures:

**Sheila Kidd, Commissioner,
Transportation & Public Works**

**Lanie Hurdle, Interim Chief
Administrative Officer**

Consultation with the following Members of the Corporate Management Team:

Peter Huigenbos, Acting Commissioner, Community Services	Not required
Brad Joyce, Acting Commissioner, Corporate Services	Not required
Jim Keech, President & CEO, Utilities Kingston	Not required
Desirée Kennedy, Chief Financial Officer & City Treasurer	Not required

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Options/Discussion:**Background**

Effective January 1, 2016, the *Highway Traffic Act of Ontario* (HTA) was revised to include a regulation that requires vehicles to stop and yield the entire roadway at all types of pedestrian crosswalks known as pedestrian crossovers (PXO). This change enables the City to install legal crosswalks on roads with relatively low speeds and low traffic volumes, and provide options to facilitate pedestrian crossings at all hours in a safer, more visible manner.

School crossings are part of a broader group of pedestrian crossings legislated by Ontario's *Highway Traffic Act* (HTA). The HTA outlines two distinct categories of pedestrian crossings:

1. Controlled Crossing — where vehicles are required legally to stop or yield to traffic in the crossing, which includes pedestrians
2. Uncontrolled Crossing — where pedestrians must wait for a safe gap in traffic, sufficient for them to cross the roadway, prior to attempting to enter the roadway.

Controlled crossings, in order of increasing complexity, may include locations that are controlled by stop or yield signs, pedestrian crossovers (PXO), intersection pedestrian signals (IPS), mid-block pedestrian signals (MPS), full traffic control signals, or school crossings when a school crossing guard is supervising the crossing.

An uncontrolled crossing is a crossing that does not have a traffic control measure to provide a dedicated pedestrian right-of-way. In these cases, pedestrians must wait for a safe gap sufficient to fully cross the roadway or for vehicles to stop before crossing. A school crossing in the absence of a traffic signal, Intersection Pedestrian Signal (IPS), mid-block pedestrian signal, pedestrian crossover, or stop sign, is only considered a controlled crossing when the crossing is being supervised by a school crossing guard. In the absence of a school crossing guard, the presence of school crossing signs and pavement markings do not require drivers to stop to allow pedestrians to cross.

The City operates 21 school crossings during the peak morning and afternoon travel times of each school day. Eight of these school crossings are considered controlled locations at all hours, meaning they are controlled by a stop sign, intersection pedestrian signal, or full traffic control signal, in addition to being supervised by a school crossing guard during peak active travel times to and from school. This includes Front Road at Lakeview Avenue, and Johnson Street at Macdonnell Street, which were recently upgraded to Intersection Pedestrian Signals (IPS) in 2019. The remaining 13 uncontrolled school crossings were the focus of the assessments for potential upgrade to controlled locations.

School crossings and the use of crossing guards are intended to provide protection and enhanced safety for children where there is potential for conflict with motor vehicles. Crossing guards play an important role in ensuring that children can safely cross roadways on their way to and from school each day. However, many school crossings are located along neighbourhood routes with heavy pedestrian traffic at all hours of the day, with some crossings

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being located along busy arterial roadways. Recognizing these locations are only considered a controlled crossing when the crossing is being supervised by a school crossing guard, and in keeping with the City's priority to create better connections and improve the level of safety for pedestrians, especially children walking to/from school, this report outlines recommendations for upgrading existing school crossings to controlled pedestrian crossings.

Alignment with Council's Priorities

This report provides Council with information regarding planned upgrades at school crossings across the city as part of the 5-Year Active Transportation Implementation Plan (ATIP), developed to directly address Council's priorities to demonstrate leadership on climate action and to improve walkability, roads, and transportation in the city. Specifically, this report addresses Council's priority to install crosswalks around schools, sidewalks, and heavy pedestrian traffic areas, and upgrade four pedestrian school crossing locations with recommended infrastructure. This work furthers the City's efforts to foster a culture of active transportation in Kingston and supports the forthcoming Safe Routes to School program, aimed at increasing the number of students using travel modes that are active, safe, and sustainable.

Council set a priority to review all existing school crossing guard locations for pedestrian crossing upgrades in 2019 and to upgrade four pedestrian school crossing locations with recommended infrastructure between 2020 and 2022. All uncontrolled school crossing locations were identified as candidate locations as part of the 5-Year ATIP and will be considered as part of this work.

School Crossing Assessments

The methods used to evaluate the existing uncontrolled school crossings were adapted from the warrant guidelines outlined in the Ontario Traffic Council's School Crossing Guard Guide. The elements of two quantitative evaluation methods, the Gap Study and Exposure Index, were used to evaluate these crossings.

The Gap Study requires measuring the width of a roadway at the crossing to calculate the 'safe gap time' for that crossing. The equation is derived using a conservative estimate of the average walking speed of children at one metre per second and adds an additional four seconds to account for the time necessary to recognize a safe gap before crossing. The gap between vehicles passing through the school crossing is measured using a stopwatch and all time periods exceeding the established safe gap time are noted.

The Exposure Index Method is a screening tool, which allows for comparison of crossings by evaluating the number of pedestrians (schoolchildren) using the crossing, and the total number of vehicles traveling through the crossing during peak active travel times to and from school. These two criteria were included in the school crossing assessment matrix. A qualitative evaluation of site-specific factors, including aggressive driving and site distance issues, was also considered.

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Originally designed to determine whether a location meets the warrant to necessitate a school crossing guard, these evaluation methods were adapted to evaluate and prioritize the existing school crossings in Kingston. Morning peak active school travel periods were used for the evaluation and considered the following criteria:

- Percentage of 5-minute intervals with less than four safe gaps
- Pedestrian (student) count
- Vehicle count
- Sight distance issues
- Observed aggressive driving

Of note, Taylor Kidd Boulevard at Pembridge Crescent was identified for upgrade prior to the commencement of the evaluations as a result of the observed operating speeds, the width of the roadway (four lanes of through traffic), and the significant volume of vehicles travelling through the crossing during peak active travel to and from school.

School Crossing Upgrades

There are three types of upgrades that may be considered for each crossing: an intersection pedestrian signal (IPS), a pedestrian crossover (PXO), or an all-way stop.

Intersection Pedestrian Signal

An intersection pedestrian signal (IPS), also known as a "half signal", provides a legal crossing for pedestrians across a major roadway. An IPS consists of traffic signal heads for vehicles on the major street only, along with signalized pedestrian fixtures and crosswalks. Vehicles approaching the intersection from the side street are controlled by a stop sign. These signals have been installed at several locations in Kingston including on King Street at the Tett Centre, King Street at Beverley Street, and on Bath Road in front of Frontenac Secondary School.

Pedestrians must push a button to activate the walk indicator, which is followed by the flashing hand display. Vehicles on the major roadway must obey the IPS signal and vehicles on the side street must obey the stop sign. After coming to a complete stop, motorists may turn onto the major roadway when it is clear and safe to do so. Vehicles must yield the right-of-way to pedestrians crossing the main or side streets, and to vehicles travelling along the major street.

Pedestrian Crossover

Pedestrian crossovers (PXO) are marked crosswalks where vehicles must yield to pedestrians crossing the road. They are identified by specific signs and pavement markings. This allows the City to install legal crosswalks at locations that are not controlled by traffic signals, stop signs or yield signs on roads with relatively lower traffic speeds and traffic volumes.

The PXO Type B is distinguished by overhead and side-mounted signs with rapid rectangular flashing amber beacons. They are typically installed on higher volume roads with operating speeds up to 60 kilometres per hour. Examples of this type of PXO in Kingston include the

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crosswalk on Rideau Street in front of Rideaucrest Home, and at King Street in front of Kingston General Hospital.

The PXO Type C includes side-mounted signs and rapid rectangular flashing amber beacons but no overhead sign. They are typically installed on collector roads or lower volume multi-lane roundabouts.

The PXO Type D is the most basic form of crosswalk, which includes only side-mounted signs and pavement markings. Type D PXOs do not include a rapid flashing beacon. This type of PXO is designed for use on medium to low traffic volume single lane roadways, such as local roads or single lane roundabouts. Type D PXOs have the potential to be used as cost-effective tools to enhance pedestrian safety, increase network connectivity, and be implemented on a wider-reaching scale.

A comprehensive review and evaluation of the City's Pedestrian Crossing Guidelines will be conducted and includes the engagement of an external traffic safety consultant. This work will provide an implementation approach for PXOs in the city, particularly as it relates to the use of the Type D PXO that can be installed in a more expeditious and cost-efficient manner to address pedestrian safety at a neighbourhood level. This review is targeted for completion in Q1 2021.

All-Way Stop

Stop signs are erected as a form of traffic control to assign and regulate right-of-way at intersections with the potential for conflict. An all-way stop has stop signs at all legs of an intersection. The purpose of the stop sign is to clearly assign right-of-way between vehicles approaching an intersection from different directions and allows the installation of a crosswalk on all intersection legs.

Results of School Crossing Assessments

The following table outlines the uncontrolled school crossings in order of priority for upgrade, as well as the type of recommended approach:

Priority	School Crossing Location	Recommended Upgrade
1	Taylor Kidd Boulevard and Pembridge Crescent	Intersection Pedestrian Signal
2	Weller Avenue and Wiley Street	Intersection Pedestrian Signal / Pedestrian Crossover (Type B)
3	Bayridge Drive south of Taylor Kidd Boulevard	Intersection Pedestrian Signal
4	Montreal Street and MacCauley Street	Intersection Pedestrian Signal

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Priority	School Crossing Location	Recommended Upgrade
5	Johnson Street between Mowat Avenue and Yonge Street	Intersection Pedestrian Signal / Pedestrian Crossover (Type B)
6	Union Street and Macdonnell Street	Pedestrian Crossover (Type B)
7	Henderson Boulevard east of Ashley Crescent	Pedestrian Crossover (Type B)
8	Queen Mary Road and Robert Wallace Drive	Pedestrian Crossover (Type B)
9	Elliott Avenue and Lyons Street	Pedestrian Crossover (Type B)
10	1066 Hudson Drive	Pedestrian Crossover (Type D)
11	Welborne Avenue south of Everitt Avenue	Pedestrian Crossover (Type D)
12	120 Norman Rogers Drive	Pedestrian Crossover (Type D)
13	Barrie Street and Clergy Street	All-Way Stop

Table 1: School Crossing Assessment Results and Ranking

Crossing guards play an important role at all school crossings, including both controlled and uncontrolled locations. Even as these upgrades are completed, the intent is for crossing guard services to continue at all existing school crossing locations.

Next Steps

Council set a priority to upgrade four pedestrian school crossing locations with recommended infrastructure between 2020 and 2022. The funding and resourcing to construct the infrastructure at the top four locations is included in the capital budget requirements of the Active Transportation Implementation Plan. The upgrades at these locations is planned for 2020-2021, subject to confirmation of the 2020 capital budget.

The intersection of Barrie Street and Clergy Street will be recommended for upgrade to an all-way stop as part of a report that will be presented to Council in the spring of 2020.

The ability to upgrade the remaining locations beyond the four school crossings identified in Council's Strategic Plan is dependent upon the availability of funding and resources through opportunities such as the Investing in Canada Infrastructure Program (ICIP). Funding for these locations has been applied for in 2019 as part of ICIP, Transit Stream funding program, and the City expects to receive confirmation before the end of year on the eligibility.

Existing Policy/By-law:

Not applicable

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Notice Provisions:

Not applicable

Accessibility Considerations:

The infrastructure upgrades planned for the existing school crossing areas will enhance the safety and accessibility of the locations for all users.

Financial Considerations:

The funding required to design and construct the crossing infrastructure at four locations is included in the capital budget requirements of the Active Transportation Implementation Plan.

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Exhibits Attached:

Not applicable