# The Corporation of the Town of Milton

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| Report To: | Council |
| From: | Doug Sampano, Commissioner, Community Services |
| Date: | June 23, 2025 |
| Report No: | COMS-004-25 |
| Subject: | Roundabout Review – Crossing Guards |
| **Recommendation:** | **THAT** the Roundabout Review – Crossing Guards Report be received for information by Council;<br>**AND THAT** at this time no further changes be made to the existing Crossing Guard Policy that was approved by Council on June 3, 2024; |

## EXECUTIVE SUMMARY

As a result of a Notice of Motion - Resolution 184 - 24 at the December 9th, 2024, Council Meeting staff were asked to review the following and report back to Council by the end of Q2 2025:

- Complete a review of traffic patterns and pedestrian safety data at roundabouts located near schools (elementary and secondary);
- Review the feasibility of assigning crossing guards to roundabouts near schools within the municipality.
- Review the feasibility of removing roundabouts and replacing them with alternative forms of traffic control systems (e.g., traffic lights);
- Consult with the Ontario Traffic Council (OTC) on their ongoing research regarding crossing guards at roundabouts;
- Complete a jurisdictional scan of municipalities in Ontario regarding the implementation of crossing guards for secondary schools near roundabouts;
- Identify potential schools and roundabouts where crossing guards could be implemented based on current traffic and pedestrian volumes, and the warrants identified in the Town's Crossing Guard Policy, along with a proposed implementation plan for the assignment of crossing guards.

The Town's current School Crossing Guard Policy reflects the most updated 2023 Ontario Traffic Council (OTC) School Crossing Guard Guide. As a result of this recent update, the Town's Placement of School Crossing Guards Policy now incorporates provisions for school crossing guards at Roundabouts and Pedestrian Crossovers (PXO's).

# REPORT

## Background

School crossing guards are used to assign right-of-way for pedestrians, primarily children, at locations with conflicting vehicular traffic. In accordance with the Town's Crossing Guard Policy, the role of a school crossing guard is to stop traffic for school aged children (JK-6) walking to and from school where sufficient naturally occurring gaps do not exist. Currently, the Town of Milton has 37 school crossing guards at 34 locations. In addition, the Town has a pool of ten (10) standby school crossing guards to cover locations when necessary.

In 2024, Council approved report COMS-004-24 School Crossing Guard Policy Update which provides a consistent method of evaluating existing and newly requested locations to determine if a school crossing guard is warranted. This Policy update includes a new warrant system for school crossing guards being placed at Roundabouts and PXO's.

## Discussion

In 2023, the Ontario Traffic Council (OTC) updated the School Crossing Guard Guide, which provides a technical approach to determine whether a school crossing guard should be provided at a specific location based on vehicular volumes, pedestrian volumes and adequate gaps in traffic. It should be noted that Town of Milton traffic staff was involved in the development of the original Crossing Guard Guide in 2016 and again with the updated guide. This guide includes a range of the best practices that are recommended for use within municipalities across Ontario. The Town's current School Crossing Guard Policy reflects the most current practices**. (See Appendix I).** It should be noted that the OTC is committed to updating the School Crossing Guard Guide every 5 years. The Town of Milton sits on the OTC School Crossing Programs Committee which was created to implement a One Voice Approach for collaboration, sharing, review, guidance, support and resources and to streamline School Crossing programs across the province for improved safety messaging, program delivery and support/promotion of safe and active travel to school.

Roundabouts are increasingly being used as traffic control measures due to their ability to reduce traffic delays and improve flow. However, concerns have arisen regarding pedestrian safety, particularly at roundabouts near schools. This report examines the feasibility of placing crossing guards at roundabouts near elementary and secondary schools, considering traffic patterns, pedestrian safety, and the potential benefits of crossing guard implementation.

**Complete a review of traffic patterns and pedestrian safety data at roundabouts located near schools (elementary and secondary)**

## Discussion

There are presently four elementary schools and two secondary schools that have roundabouts located with 150 metres of either side of the school's frontage: **(See Appendix II)**

### Elementary School Locations:

Whitlock Avenue and Kennedy Circle West - Ward 3

- Cedar Ridge Public Elementary School/ St. Veronica Catholic Elementary School
  - Level 2 Type D PXO to be installed in summer 2025 Kennedy Circle West and Ash Gate as a result of a PXO Study that was conducted in Fall 2024. **(See Appendix III)**
  - Level 2 Type D PXO will be installed in the summer 2025 at Whitlock Avenue and Hazel Way. In September of 2025, a crossing guard will be placed at Whitlock Avenue and Hazel Way as a result of a crossing guard study that was conducted in Fall 2024.
  - 1 reportable collision has occurred in the last 3 years. This was a rear end and no pedestrians were involved

Whitlock Avenue and Leger Way - Ward 4

- St. Scholastica Catholic Elementary School
  - Existing School Crossing Location at Whitlock Avenue and Mulroney Heights to be converted to a Level 2 Type D PXO in summer 2025.
  - 3 reportable collisions have occurred in the last 3 years - 2 rear end and 1 angled collision and no pedestrians were involved

Gordon Krantz Avenue and Kovachik Boulevard - Ward 4

- St. Josephine Bakhita Catholic Elementary School
  - No reportable collisions have occurred at this intersection within the last 3 years.

### Secondary School Locations:

Louis St Laurent Avenue and Kennedy Circle (East Intersection) – Ward 3

- St Kateri Tekakwitha Catholic Secondary School
  - In Fall 2024, staff upgraded the pedestrian crossovers to a Level 2 Type C with Rectangular Rapid Flashing Beacons on both the east and west legs of Louis St Laurent Avenue and Kennedy Circle (East Intersection).
  - Passive traffic calming measures (pavement markings) have been installed along the west approach of the roundabout on Louis St Laurent Avenue
  - Portable Variable Message Signs were installed for 2 months on Louis St Laurent Avenue for the west approach to the roundabout reminding motorists to watch their speed and watch for students crossing.
  - 1 reportable collision has occurred in the last 3 years. This was an angled collision that involved a cyclist that did not dismount their bicycle or push the button to cross/wait for vehicles to stop.

## Discussion

Bronte Street South and Etheridge Avenue – Ward 4

- Elsie MacGill Secondary School
  - Portable Variable Message Signs were installed for 2 months on Louis St Laurent Avenue for the west approach to the roundabout reminding motorist to watch their speed and watch for students crossing.
  - The Level 2 Type C PXO in front of the secondary school was modified from a two-stage crossing to a one-stage crossing for improved safety.
  - 5 reportable collisions have occurred in the last 3 years at the roundabout at Bronte Street South and Ethridge Avenue - 2 Single Motor Vehicle, 1 Sideswipe, 1 Angle and 1 Rear end and no pedestrians were involved
  - 1 reportable collision occurred at the PXO in front of the school. This collision involved a cyclist that did not dismount their bicycle or push the button to cross/wait for vehicles to stop.

Currently, there are no crossing guards at these roundabouts but there are other traffic control devices that are in place to provide protected crossings for students, as outlined above. It is a Town standard that at each roundabout within the Town of Milton that Level 2 Type D PXO's are installed at each leg of the roundabout. This ensures that pedestrians have the right of way when crossing.

To review traffic patterns and pedestrian safety data, a Digital Smartwatch System was installed in early February 2025 at the roundabout on Louis St Laurent Avenue and Kennedy Circle (East Intersection/West Leg). This is a device that uses video analytics to collect information on PXO utilization and vehicle compliance. This device detects vehicle non-compliance when pedestrians and bicycles are in the crossing, including vehicle direction.

Staff has reviewed reports generated from the Smartwatch System to determine the number of pedestrian/cyclist conflicts with vehicles while within the crosswalk. The results are from a two week period after the staff completed educational outreach at St. Kateri Tekakwitha Catholic Secondary School:

| Location | Date and Time Period | # of Pedestrians Crossing PXO | # of Pedestrian/Vehicular Conflicts |
|---|---|---|---|
| PXO - Southeast Leg of Roundabout | February 24 - 28, 2025 7:00 a.m. – 4:00 p.m. | 1426 | 0 |
| PXO - Southeast Leg of Roundabout | March 3 - 7, 2025 7:00 a.m. – 4:00 p.m. | 1033 | 0 |

## Discussion

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| PXO - Southeast Leg of Roundabout | April 21 - 25, 2025 7:00 a.m. – 4:00 p.m. | 1587 | 0 |
| PXO - Southeast Leg of Roundabout | May 5-9, 2025 7:00 a.m. – 4:00 p.m. | 2001 | 0 |
| PXO - Southwest Leg of Roundabout | February 24 - 28, 2025 7:00 a.m. – 4:00 p.m. | 1027 | 0 |
| PXO - Southwest Leg of Roundabout | March 3 - 7, 2025 7:00 a.m. – 4:00 p.m. | 675 | 0 |
| PXO - Southwest Leg of Roundabout | April 21 - 25, 2025 7:00 a.m. – 4:00 p.m. | 748 | 0 |
| PXO - Southwest Leg of Roundabout | May 5-9, 2025 7:00 a.m. – 4:00 p.m. | 880 | 0 |

The PXO's at this Roundabout are heavily used by students. Since September, staff have observed improvements in the number of students pushing the pedestrian push button to activate the Rectangular Rapid Flashing Beacons and dismounting/ walking their bicycles across the PXO.

Staff have also observed a significant improvement in vehicle stopping compliance, although at times vehicles do not remain fully stopped until the pedestrian has reached the curb. Motorists continue to demonstrate a lack of understanding in the proper use of PXO's.

The Town continues to work on a Road Safety Communications Plan which will involve items such as bus shelter ads, back of bus ads, portable information signs and social media and website content. PXO safety will be part of this communication plan.

The Digital Smartwatch System will remain in place at Louis St Laurent Avenue and Kennedy Circle until mid summer 2025, and it will then be relocated to the PXO on Bronte Street South in front of Elsie McGill Secondary School.

Going forward, the Digital Smartwatch Device will be relocated throughout the Town as a way to monitor various PXO locations.

**Review the feasibility of removing roundabouts and replacing them with alternative forms of traffic control systems (e.g., traffic lights);**

## Discussion

Roundabouts are circular intersections that improve road safety, manage increased traffic demand and help to improve air quality by eliminating unnecessary stops and idling. There are several safety benefits related to roundabouts which include reducing speeds of vehicles, eliminating right-angle crashes, and reducing the number of vehicle-vehicle and vehicle-pedestrian conflicts at an intersection. Reduced speeds allow for all users to better judge when they should enter the roundabout, and to detect and correct their mistakes, eliminate any type of high-speed collision, opposing left turn collisions, and head on collisions. Less serious injuries result from accidents at roundabouts compared to traffic signals due to reduced speeds.

Road Network Assessments (RNA) are completed for Secondary Plan areas which analyze traffic volumes and patterns to determine the most suitable traffic control devices for intersections. Along Louis St Laurent Avenue for example, the Boyne RNA recommended the installation of roundabouts at both legs of Kennedy Circle in order to keep traffic flowing. When installing traffic control signals within close proximity to each other it is very difficult to maintain progression along a corridor creating unnecessary delays for motorists. To properly assess the feasibility of removing a roundabout and replacing it with a traffic signal, a corridor functionality analysis, traffic analysis, land impact and cost assessment would need to be completed. Staff estimate this analysis would cost a minimum of $25K to complete as staff would engage a technical expert to complete the feasibility assessment. In terms of anticipated construction costs, a new set of signals (without any wide scale geometric modifications) is estimated at a minimum $350K plus ongoing maintenance costs (estimated at $5,350 per year). In addition, converting a roundabout to a signalized intersection would require geometric adjustments, drainage re-design, utility relocations (including and not limited to watermain, sanitary, underground hydro duct banks, telecommunications, and natural gas) and lighting modification. The cost of these additional modifications is difficult to estimate and would vary based on the specific intersection location and context, but a very hi-level estimate is that this would be in the range of $2.5M-$4M.

It is the opinion of staff, that the roundabouts located within the Town are functioning as they should and there is no need to change these devices to traffic control signals. Currently there are no plans to remove any roundabouts in the Town and replace with traffic control signals.

Included in the Town's road safety strategy communication plan is a piece to educate both motorists and pedestrians on how to properly navigate a roundabout. This is a yearly road safety campaign that has launched in the spring of 2025.

**Complete a jurisdictional scan of municipalities in Ontario regarding the implementation of crossing guards for secondary schools near roundabouts:**

A jurisdictional survey was conducted to determine how various municipalities handle the placement of School Crossing Guards in relation to roundabouts and secondary school students. The survey was posted on the OTC website, and the following 29 municipalities responded:

## Discussion

| Municipalities | |
|---|---|
| City Niagara Falls | City of Hamilton |
| Town of Gravenhurst | Town of Shelburne |
| Town of Tillsonburg | Township of Springwater |
| City of Thorold | Town of East Gwillimbury |
| City of Brampton | City of Vaughan |
| Town of Caledon | City of Markham |
| City of Waterloo | Town of Halton Hills |
| Town of Fort Erie | Municipality of Clarington |
| Town of Ajax | City of Mississauga |
| Township of Scugog | City of Kingston |
| Thunder Bay | Town of New Tecumseth |
| Town of Lincoln | City of Guelph |
| Town of Orangeville | Town of Oakville |
| City of Cambridge | City of Kitchener |
| City of Windsor | |

Of the 29 survey responses received, only one municipality has crossing guards at a roundabout for secondary school students, as follows:

- **City of Kitchener** (Roundabout PXO – Level 2 Type D – Homer Watson Boulevard (Regional Road 28) and Block Line Road) – This location has extremely high volumes of traffic along Homer Watson Boulevard as it is a Regional Road with heavy truck volumes. The north leg of Homer Watson Boulevard has 3 entry lanes into the roundabout. The remaining legs are 2 lanes. Homer Watson Boulevard also transitions from a rural cross section to an urban cross section in this area. Staff attended the site to observe how the roundabout functioned with

## Discussion

crossing guards and found that the secondary school students generally seemed to obey the crossing guards. There are a total of two guards at this roundabout, both at the north leg – one guard facilitates crossings at the 3-lane entry and the other facilitates crossings at the 2-lane exit.

While not located at a roundabout, it should be noted that the Town of Caledon does provide a crossing guard at one signalized intersection for secondary school students. This signalized intersection is located at Hwy 50 & Bolton Heights Rd & Cross Country Blvd. Caledon staff have indicated that the secondary school students do not listen to the crossing guard, will cross the road on their own and are disrespectful to the guard at times.

As a result of the jurisdictional scan, the Town does not recommend guards for secondary school students. Both the Town's Crossing Guard Policy and the OTC Crossing Guard Guide indicate that crossing guards should be implemented for students in JK-6. Secondary School students are at an age where they have the knowledge to properly cross a roadway using the given traffic control devices. As per current practise, when a secondary school is located within close proximity to a multi lane roundabout and that is the designated crossing device, the PXO's will be upgraded to a Level 2 Type C with Rectangular Rapid Flashing Beacons.

Further related to crossing guards at roundabouts, of the 29 survey responses it was determined that 9 municipalities do provide crossing guards for elementary students at roundabouts. These municipalities include Towns of Caledon, Ajax, Halton Hills and Cities of Hamilton, Vaughan, Mississauga, Kingston, Guelph and Kitchener.

Staff have visited locations within the Town of Halton Hills and the City of Hamilton to observe how the roundabouts function with having one crossing guard cross two legs per roundabout location. It should be noted that these intersections are single lane roundabouts. It was observed that children at some points did not wait for the crossing guard before crossing the roadway, as they were crossing children at the other leg of the roundabout. Therefore, should crossing guards be warranted within the Town at roundabout locations for elementary school students, it is recommended that one crossing guard be placed per warranted leg of the roundabout.

**Review the feasibility of assigning crossing guards to roundabouts near schools within the municipality and identify potential schools and roundabouts where crossing guards could be implemented based on current traffic and pedestrian volumes, and the warrants identified in the Town's Crossing Guard Policy, along with a proposed implementation plan for the assignment of crossing guards.**

## Discussion

As a result of observations made in other municipalities it is recommended that crossing guards would only be implemented at the legs the warrants are fulfilled, and they would only cross one leg of the roundabout.

The following roundabout locations have been studied to determine if crossing guards are warranted:

- Gordon Krantz Avenue and Kovachik Boulevard – at this time, due to low traffic and pedestrian volumes, crossing guards are not warranted along any legs of this roundabout. Staff will continue to monitor this roundabout as this area develops and pedestrian traffic patterns become more established
- Whitlock Avenue and Leger Way – Two crossing guards will be implemented at this roundabout. One crossing guard will cross the South Leg and one crossing guard will cross the West Leg. These crossing guards will be placed in September of 2025 when school resumes.

Whitlock Avenue and Kennedy Circle West will be studied in the Fall of 2025 after the implementation of the PXO's at Whitlock Avenue and Hazel Way and Kennedy Circle West and Ash Gate.

At this time, the 2025 crossing guard budget can accommodate an additional two crossing guards for the period between September – December 2025. At the time of writing this report, these two crossing guards have been allocated to start in September 2025. The cost per crossing guard from September - December 2025 would be approximately $4,500.

The Town of Milton remains committed to ensuring the safety and well being of children by implementing school crossing guards where needed, based on thorough evaluations, in line with the Town's Crossing Guard Policy.

### Road Safety Initiatives

The Town continues to implement road safety initiatives throughout the year as well as providing educational awareness to secondary school students.

Since the opening of our new secondary schools, staff have made ongoing efforts to educate both students and drivers on how to use the traffic infrastructure properly. Educational efforts have included distributing PXO brochures during arrival/dismissal times at both St. Kateri Tekakwitha and Elsie MacGill Secondary Schools. To-date, staff have also set up information tables at four of the six secondary schools within the Town of Milton during lunch periods to further educate students. This education included pamphlets on correct ways to cross at a signalized intersection and PXO brochures if the secondary schools have a PXO near the school. Staff also engaged in conversation with the students about general traffic and pedestrian safety, and the student observations in this regard.

It should be noted that since the upgrades to the PXO's were completed at Louis St Laurent Avenue and Kennedy Circle (East Intersection), students have seen an improvement from motorists approaching the area with higher stopping compliance and the students are now pushing the pedestrian buttons to activate the Rectangular Rapid Flashing Beacons. Students and staff from the secondary schools have expressed gratitude to Town staff for being on site and providing in person education.

## Discussion

## Financial Impact

Included in the 2025 operating budget is $630,077 associated with the provision of crossing guard services. The additional crossing guards recommended within this report can be accommodated within the 2025 budget. The annualized cost of the new guards will also then be considered as part of the development of the 2026 Budget.

Respectfully submitted,

Doug Sampano
Commissioner, Community Services

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| For questions, please contact: | Heide Schlegl, C.E.T, MITE, Dipl.M.M. Manager Traffic | Phone: Ext. 2506 |
| | Jessica van Ravens, Road Safety Specialist | Phone: Ext. 2531 |

## Attachments

Appendix I – School Crossing Guard Policy

Appendix II – Roundabout Locations within School Zone Frontage

Appendix III – Pedestrian Crossover Types

Approved by CAO
Andrew M. Siltala
Chief Administrative Officer

## Recognition of Traditional Lands

The Town of Milton resides on the Treaty Lands and Territory of the Mississaugas of the Credit First Nation. We also recognize the traditional territory of the Huron-Wendat and Haudenosaunee people. The Town of Milton shares this land and the responsibility for the water, food and resources. We stand as allies with the First Nations as stewards of these lands.

## Purpose & Scope

This policy, in conjunction with the Ontario Traffic Council (OTC) Crossing Guard Guide, will be used to assist staff with the placement of school crossing guards. School crossing guards can be placed on all roadways within the urban boundary of Milton, with a posted speed limit of 60km/h or less as per the Ontario Highway Traffic Act Section 176.

A school crossing guard is a person 18 years of age or older who is directing the movement of persons across a highway by creating necessary gaps in vehicular traffic to provide a safe passage at a designated school crossing location and is employed and trained by the Town of Milton.

School crossing guards will only be provided to assist students when all of the following criteria are met:

- attend schools operating under the Halton District School Board, Halton District Catholic School Board and the French Language School Board;
- live within the school's walking boundaries;
- are in Grades Junior Kindergarten to Six

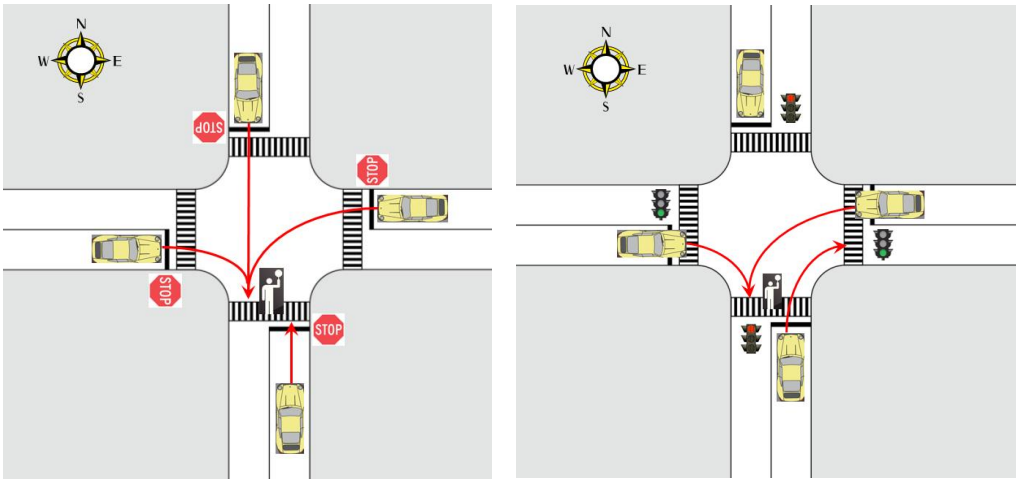
School crossing guards will be placed at warranted locations a minimum of 30 minutes before the morning bell time and 30 minutes after school dismissal. At school crossing locations directly in front of a school, these guards will remain in place an additional 5 minutes should there be late students. The bell times are provided by the appropriate school board.

School crossing guards can be placed at signalized intersections, all-way stops, roundabouts, minor street stop controlled or at mid-block locations where warrants have been fulfilled.

## Definitions

85$^{th}$ Percentile: Calculated by plotting the product (conflicting vehicles multiplied by pedestrians) for all existing crossing guard locations. Based on the plotted locations, the 85$^{th}$ percentile is calculated and this is the exposure threshold value.

Conflicting Vehicles: A conflicting vehicular movement is one that interferes with or compromises the safety of the crossing students. The conflicting vehicular movements vary depending on the type of intersection, crossing or control where students are crossing.




All Way Stop and Signalized Examples - Conflicting Movements

Exposure Index: The Exposure Index method examines the level of interaction and conflict between vehicular and student pedestrian volumes. The Exposure Index method generates a graph based on historical trends at existing crossing guard locations. The graph is then used as a threshold for future crossing locations where a school crossing guard may be required. (See Appendix I)

Gap Study: Measures the elapsed time naturally occurring between vehicles, measured in seconds, as vehicles cross the intended study location. The gaps are recorded in five-minute intervals.

Safe Gap Time: A Safe Gap Time is the time required in a break within the traffic that permits students to cross the road safely. (See Appendix II)

Warrant: The criteria used to determine if a school crossing guard is warranted.

## Requests for a School Crossing Guard

Requests from parents and schools must be submitted in writing addressed to the Community Services Department, Traffic Engineering. The request should indicate the applicable school, daily walking route, preferred intersection (including leg of intersection)/location where they are requesting that a school crossing guard be placed. Upon Traffic Engineering staff's review of the student scatter map provided by the appropriate school board, a more suitable location may be considered and studied.

## Types of Studies Used to Determine Locations for School Crossing Guards

Appropriate studies to place a school crossing guard will be conducted at requested locations. All applicable studies will be conducted 30 minutes prior to school entrance times and 30 minutes following school dismissal.

If a school crossing guard is being considered, a site study will be conducted on a typical school day, Tuesday to Thursday with fair weather, to determine if the location is appropriate and if it meets the minimums for the applicable warrant.

The site study would include the following:

- The location's proximity to another traffic control device or existing school crossing guard;
- Number of students utilizing the crossing location;
- Existing sidewalks i.e. is construction complete or nearly complete in the area;
- Driver and pedestrian behaviour - is education or police enforcement required;
- Site lines - would the school crossing guard and children be clearly visible by traffic at this location;
- Parked vehicles - staff may be required to review area for parking/stopping prohibitions

In order for a school crossing guard to be warranted, all parts of the applicable warrants must be met. A three-year collision review will also be completed at all studied locations to determine if there is a collision pattern during school entrance and dismissal times.

## Gap Study - Minor Street Stop-Controlled Intersections/Mid-Block Locations

A Gap Study measures the elapsed time naturally occurring between vehicles, measured in seconds, as vehicles cross the intended study location. The gaps are recorded in five-minute intervals.

At all locations where a Gap Study is performed, a Site Inspection Report will be completed (See Appendix III). All components of the warrant must be met.

**Minimum Warrant Requirements – Gap Study**

- Less than four safe gaps present in 50% of the five minute intervals in either the morning or afternoon study period
- Minimum of 40 students during a study period
- Average daily traffic volumes less than 12,000 vehicles/day on leg of intersection where highest number of students cross

## Exposure Index Study – All-Way Stops

An Exposure Index Study quantifies the level of interaction and potential conflict between vehicular and child pedestrian movements at a given crossing. For a crosswalk at an all-way stop, the conflicting movements considered as part of the Exposure Index would be those vehicles turning left, right or going straight through that crosswalk. The Exposure Index is determined by multiplying the number of conflicting vehicular movements by the number of school aged pedestrians at a crossing. It provides an empirically based value, which can be used objectively to determine if a school crossing guard is warranted at a location. When completing a count, a vehicle drives through a crossing or it does not. The subjectivity is removed from the review.

A Site Inspection Report will be completed. All components of the warrant must be met.

**Minimum Warrant Requirements – Exposure Index Study**

- Minimum number of students during the school peak period either am or pm must be 40
- Minimum Exposure Threshold must be 8,102
- Average daily traffic volumes less than 12,000 vehicles/day on leg of intersection where highest number of students cross

## Signalized Intersections

Very few municipalities are using the Exposure Index at signalized intersections and many municipalities do not place crossing guards at signalized intersections. The municipalities that do use the Exposure Index all have different thresholds based on their existing locations. The Town of Milton only has crossing guards at one signalized intersections, which is not a large enough sample to create an Exposure Index. Therefore, at this time the Exposure Index will not be used at signalized intersections and the existing procedure will continue, which was outlined in the previous OTC Crossing Guard Guides from 2017.

Logic would dictate that school crossing guards should not be necessary at signalized intersections since traffic control signals are in place and provide for the orderly flow of traffic and pedestrians. Pedestrians have right of way when crossing on a green signal, which should minimize vehicle/pedestrian conflict. The use of a school crossing guard at a signalized intersection could adversely affect traffic flow, causing undue delay for motorists and should therefore be considered only as a last resort if several of the following are observed:

- A large number of conflicting movements through the intersection both right and left on the green signal and right turning traffic on the red signal.
- A large number of students, particularly young students crossing.
- The intersection leads to a main arterial or collector road and therefore there is a significant volume of trucks or other large vehicles using the intersection, potentially affecting visibility for both pedestrians and drivers.
- Poor driver behaviour, not yielding right of way to pedestrians, not coming to a complete stop prior to turning on a red signal, drivers inching forward, thus intimidating pedestrians in or about to cross the roadway and/or drivers weaving through pedestrians as they cross the roadway.
- The students appear timid in crossing the road or do not seem to be properly trained on how to cross the road safely, e.g. forgetting to push the pedestrian button or entering the roadway after the red flashing hand is showing.

When a school is located adjacent to a signalized intersection, additional measures may be taken. These measures will include but are not limited to:

- Implementing Leading Pedestrian Intervals (LPI) - The LPI provides an advanced walk signal so that pedestrians begin to cross the road before vehicles get a green light and it provides pedestrians an advantage over turning vehicles.
- Prohibiting right turns on red during the LPI time
- Extending the pedestrian walk time
- Ensuring pedestrian countdown and information signs are installed at the intersection

- Provide training to students on how to properly use pedestrian signals

Signal monitoring equipment at these intersections will allow traffic engineering staff to monitor the intersections more frequently and make signal timing adjustments if necessary.

## *Pedestrian Crossovers (PXOs)*

*The warrant method at a PXO is dependent on whether the PXO is located at a midblock location or in the vicinity of an intersection. This differentiation is crucial as a midblock PXO faces no conflicting vehicular movements since all through traffic must yield, prioritizing pedestrian safety, including students. Conversely, a PXO at an intersection would be susceptible to conflicting vehicular movements from the side streets. With respect to this difference, the school crossing guard warrant methods for PXOs located at both locations are outlined below:*

***Minimum Warrant Requirements –Exposure Index Study (Intersection)***

- *Minimum number of students during the school peak period either am or pm must be 40*
- *Minimum Exposure Threshold must be 8,102*
- *Average daily traffic volumes less than 12,000 vehicles/day on leg of intersection where highest number of students cross*

***Minimum Warrant Requirements –Midblock PXO***

- *Less than four safe gaps present in 50% of the five minute intervals in either the morning or afternoon study period*
- *Minimum of 40 students during a study period*
- *Average daily traffic volumes less than 12,000 vehicles/day on leg of intersection where highest number of students cross*

## *Roundabout Intersections*

*Some municipalities employ the Exposure Index method and the Gap Study method to assess the necessity of school crossing guards at roundabouts. When determining the most appropriate warrant approach, the municipality should take into account the following considerations:*

*If the sample size is inadequate and roundabouts are not anticipated to be frequently constructed in the municipality, the Exposure Index method may not be applicable. In such cases, a Gap Study conducted at the roundabout could be considered, especially if historical data or existing roundabouts are unavailable.*

***Minimum Warrant Requirements – Gap Study***

- *Less than four safe gaps present in 50% of the five minute intervals in either the morning or afternoon study period*
- *Minimum of 40 students during a study period*
- *Average daily traffic volumes less than 12,000 vehicles/day on leg of intersection where highest number of students cross*

*As roundabouts become more prevalent in Ontario, it is recommended that the effectiveness of implementing school crossing guards directly at roundabouts be compared to other safety measures, such as implementing PXOs at roundabouts or shifting the guard to a midblock location. A better understanding of the impact of various aspects of the roundabout on the operation of a school crossing guard should also be monitored*.

## New School Opening

School boards must notify the Community Services Department three months in advance of the opening dates of all new schools in Milton. They are to provide the catchment area of the registered children for the subject school and a scatter map showing the potential walking students.

*A site visit will occur within three weeks of the school opening to review potential sites for future studies based on student volumes at all significant crossings. School crossing guards will not be placed before school opens, as traffic/pedestrian patterns have not been established. Construction surrounding schools should be nearing completion, which would include sidewalks and curbs. The safety of pedestrians and the school crossing guard must be taken into consideration. Approximately six to eight weeks after the school opens (pending construction progress) applicable studies would be conducted and warranted guards would be placed.*

## Removal of a School Crossing Guard

The Commissioner, Community Services, is authorized to remove school crossing guard locations without further study due to school closure, a school boundary change or if the students are now eligible for bussing. Additionally, locations can be removed following the completion of three gap/exposure studies where any of the three studies fall short of meeting warrants within a school year. Staff will advise Council as well as affected schools of the locations where school crossing guards are being removed. The affected school(s) will be responsible for advising parents/caregivers of the removal of the school crossing guard. Removals should be effective after the end of school year.

## Updating of Policy

*The Placement of School Crossing Guards Policy will be reviewed and updated, as necessary, each term of Council. This will include updating the Exposure Threshold to ensure existing conditions are being captured and reflected.*

*As per Council Report ENG-023-19, the Commissioner is delegated the authority to update the policy. Updates to the policy will be communicated to Council via an information report to Council.*

Appendix I – Exposure Index Graph
*Appendix II – Safe Gap Time definition from OTC Crossing Guard Guide 2023*
Appendix III – Site Survey Form and Gap Study

## Appendix I
**Exposure Index Graph**

# Exposure Index Graph for All-way Stop-controlled Intersections

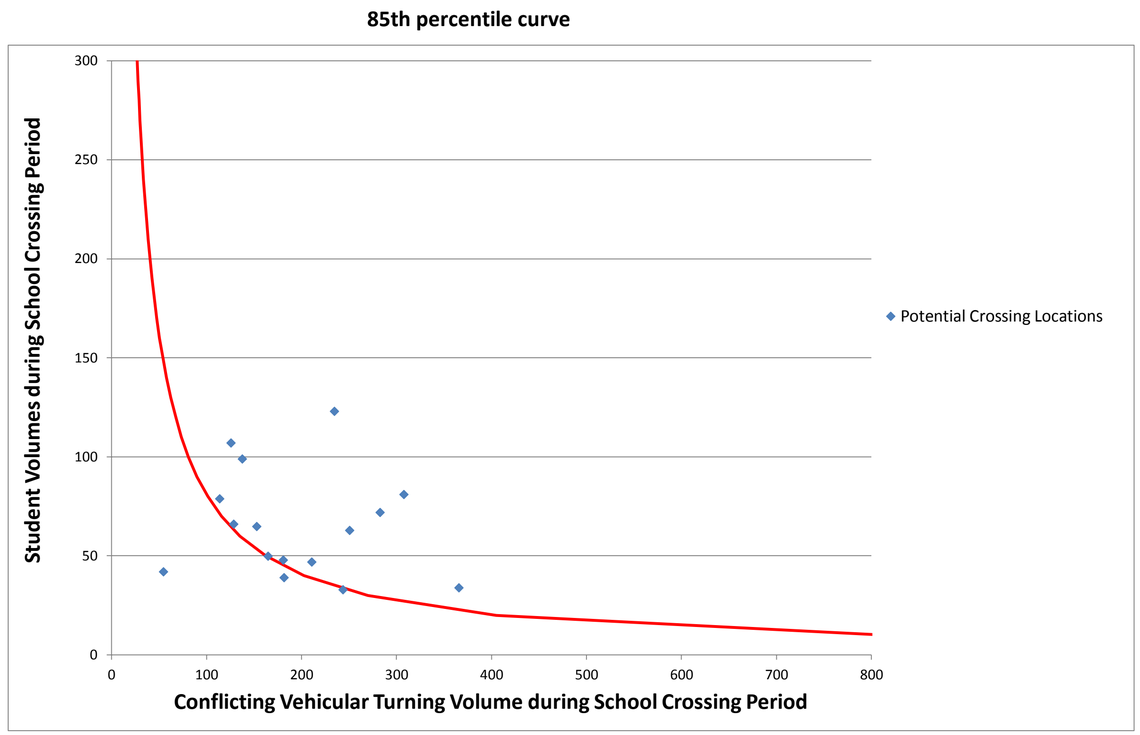
**85 percentile threshold** **8,102**

**Existing Crossing Guard Locations**

| | | | |
|---|---|---|---|
| 1 | 153 | 65 | 9,945 |
| 2 | 244 | 33 | 8,052 |
| 3 | 114 | 79 | 9,006 |
| 4 | 138 | 99 | 13,662 |
| 5 | 308 | 81 | 24,948 |
| 6 | 211 | 47 | 9,917 |
| 7 | 366 | 34 | 12,444 |
| 8 | 235 | 123 | 28,905 |
| 9 | 283 | 72 | 20,376 |
| 10 | 129 | 66 | 8,514 |
| 11 | 251 | 63 | 15,813 |
| 12 | 55 | 42 | 2,310 |
| 13 | 126 | 107 | 13,482 |
| 14 | 181 | 48 | 8,688 |
| 15 | 165 | 50 | 8,250 |
| 16 | 182 | 39 | 7,098 |
| | | | 8,102 |

**Potential Crossing Locations**

| ID | Conflicting movements | Students (JK-6) | Product |
|---|---|---|---|
| BENNETT / ARMSTRONG G | 153 | 65 | 9,945 |
| BENNETT / CLARK | 244 | 33 | 8,052 |
| Costigan / Denyes (new?) | 114 | 79 | 9,006 |
| Costigan / Miller (new?) | 138 | 99 | 13,662 |
| FARMSTEAD / MCLAUGHL | 308 | 81 | 24,948 |
| LAURIER / COSTIGAN | 211 | 47 | 9,917 |
| LAURIER / COXE | 366 | 34 | 12,444 |
| LAURIER / DENYES | 235 | 123 | 28,905 |
| LAURIER / HOLLY | 283 | 72 | 20,376 |
| PHILBROOK / CLARK | 129 | 66 | 8,514 |
| SAVOLINE / PRINGLE | 251 | 63 | 15,813 |
| THOMAS / HESLOP | 55 | 42 | 2,310 |
| WOODWARD / DIXON | 126 | 107 | 13,482 |
| WOODWARD / WILSON | 181 | 48 | 8,688 |
| YATES / BOLINGBROKE | 165 | 50 | 8,250 |
| YATES / HOLLY | 182 | 39 | 7,098 |



## Appendix II

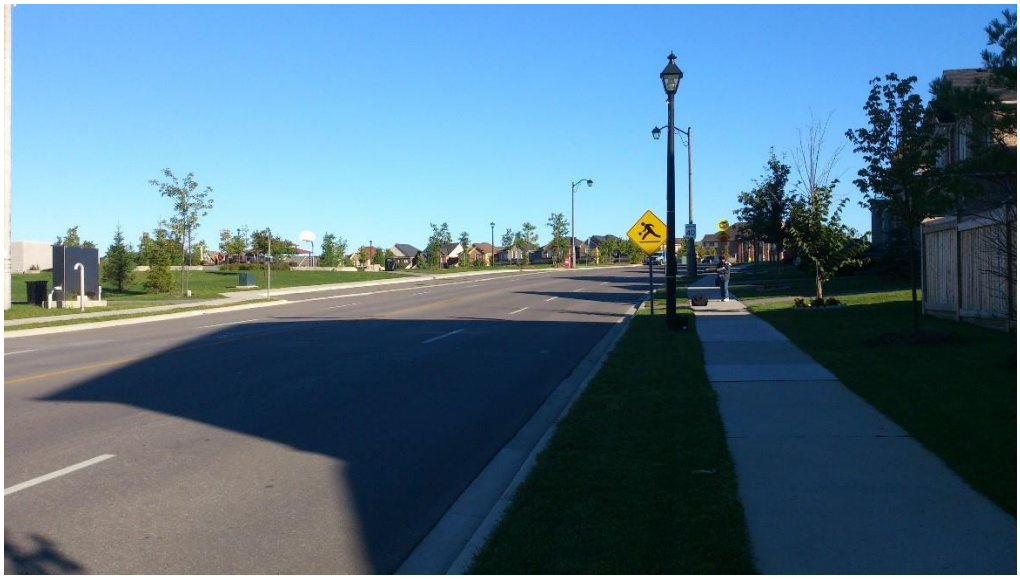
**Safe Gap Time definition from OTC Crossing Guard Guide 2023**

## Sample Calculation of Safe Gap Time

The following sample midblock location has been chosen to demonstrate how the Safe Gap Time is calculated based on the equation:

*Safe Gap Time (G) = Perception & Reaction Time (P) + Crossing Time + Group Factor Time*

$$G = P + (W / S) + T (N – 1)$$



**Perception time (P):** Because there were not enough students crossing at this midblock location, the default value of 4.0 seconds is adopted.

**Width of roadway (W):** The pavement width plus the boulevard width on the side with the crossing sign was measured. This is the more conservative approach that assumes students would not wait on the edge of the road and curb, but rather the boulevard area while waiting for a gap. The distance was measured to be 15.6 m with a measuring wheel.

**Average walking speed of students (S):** The default value was 1.0 m/s was used because there were insufficient sample size.

**Group factor (T):** Information for this was not available at the time of the survey so the default 2.0 seconds is adopted.

**Predominant group size (N):** From an upstream all-way stop-controlled intersection, students were observed to be crossing in groups of typically two to three students. It was conservatively assumed that this trend would continue if a crossing guard was assigned to this midblock location. Thus, N equals to one since the average group size does not exceed one increment of three.

Based on the above parameters, the Safe gap Time is calculated as:

$$G = 4 + (15.6 / 1) + 2 (1 – 1) = \mathbf{19.6\ seconds}$$

## Appendix III
**Site Survey Form and Gap Study**

Appendix III

# Site Inspection Report

| | | |
|---|---|---|
| **Observers** | **Observed By** | and |
| | **Date of Inspection** | |
| | **Times:** | AM: PM: |
| | **Requested by** | |
| | **Weather Conditions** | ☐ Dry ☐ Sunny ☐ Rain ☐ Snow ☐ Other:_____ |
| **Site** | **Location** | Please include map of intersection showing portion studied |
| | **Leg** | ☐ North ☐ East ☐ South ☐ West |
| | **Name of School(s)** | |
| | **Type of Crossing/ Intersection** | ☐ 4 Way ☐ 3 Way ☐ Mid-block |
| | **Type of Control** | ☐ No Control ☐ Traffic signals ☐ PXO<br>☐ Stop Signs (Traffic Stopped on one Street only)<br>☐ All Way Stop (Traffic Stopped in all directions) |
| **Observations** | **School Signs** | ☐ School Crossing ☐ School Warning ☐ None |
| | **Posted Speed** | ☐ 40 km/hr-when flashing ☐ 50 km/hr-when flashing<br>☐ 40 km/hr no flash ☐ 50 km/hr no flash ☐ 60 km/hr no flash |
| | **Pedestrian Site Distance** | ☐ Poor ☐ Fair ☐ Good |
| | **Sight Obstructions** | ☐ Trees ☐ Hedges ☐ Fences ☐ Bus Shelter<br>☐ News Paper Boxes ☐ None ☐ Other: |
| | **Road Grade** | ☐ Flat ☐ Incline ☐ Decline |
| | **Road Geometrics** | ☐ Straight ☐ Curved |
| | **Road Width (m)** | Curb to Curb: Curb to Median: |
| | **Road Conditions** | ☐ Dry ☐ Wet ☐ Ice ☐ Snow covered |
| | **Sidewalks** | ☐ North ☐ East ☐ South ☐ West ☐ Not Present |
| | **Proximity to School(s)** | School:_____ ☐ In front of ☐ Within _____ (m)<br>School:_____ ☐ In front of ☐ Within _____ (m) |
| | **Route Survey** | ☐ Shopping Area ☐ Construction ☐ Driveway ☐ Bus Stop<br>☐ Parked Vehicle(s) ☐ Other: |
| | **Comments** | |
| | | |
| | | |

# Pre-Calculated Safe Gap Times

| Intersection Width | | Safe Gap |
|---|---|---|
| Feet | Metres | (seconds) |
| 24 | 7.30 | 11 |
| 25 | 7.60 | 11 |
| 26 | 7.90 | 11 |
| 27 | 8.25 | 12 |
| 28 | 8.50 | 12 |
| 29 | 9.00 | 12 |
| 30 | 9.10 | 13 |
| 31 | 9.50 | 13 |
| 32 | 9.75 | 13 |
| 33 | 10.00 | 13 |
| 34 | 10.35 | 14 |
| 35 | 10.67 | 14 |
| 36 | 11.00 | 14 |
| 37 | 11.25 | 15 |
| 38 | 11.60 | 15 |
| 39 | 11.90 | 15 |
| 40 | 12.20 | 15 |
| 41 | 12.50 | 16 |
| 42 | 12.80 | 16 |
| 43 | 13.10 | 16 |
| 44 | 13.40 | 17 |
| 45 | 13.70 | 17 |
| 46 | 14.00 | 17 |
| 47 | 14.30 | 17 |
| 48 | 14.60 | 18 |
| 49 | 15.00 | 18 |
| 50 | 15.25 | 18 |

| Intersection Width | | Safe Gap |
|---|---|---|
| Feet | Metres | (seconds) |
| 51 | 15.50 | 19 |
| 52 | 15.90 | 19 |
| 53 | 16.20 | 19 |
| 54 | 16.50 | 19 |
| 55 | 16.75 | 20 |
| 56 | 17.00 | 20 |
| 57 | 17.40 | 20 |
| 58 | 17.70 | 21 |
| 59 | 18.00 | 21 |
| 60 | 18.30 | 21 |
| 61 | 18.60 | 21 |
| 62 | 18.90 | 22 |
| 63 | 19.20 | 22 |
| 64 | 19.50 | 22 |
| 65 | 19.80 | 23 |
| 66 | 20.10 | 23 |
| 67 | 20.40 | 23 |
| 68 | 20.70 | 23 |
| 69 | 21.00 | 24 |
| 70 | 21.30 | 24 |
| 71 | 21.60 | 24 |
| 72 | 22.00 | 25 |
| 73 | 22.25 | 25 |
| 74 | 22.50 | 25 |
| 75 | 22.90 | 25 |
| 76 | 23.20 | 26 |
| 77 | 23.50 | 26 |
| 78 | 23.80 | 26 |
| 79 | 24.00 | 27 |
| 80 | 24.40 | 27 |

* Note: school aged children only, no adults or bussed students. Circle = conflict, / = vehicle, numbers = seconds elapsed

| No. of children | # | Time in 5 minute increments | Gap = _____ | Seconds Totalled | Total ÷ Gap | Total # Cars |
|---|---|---|---|---|---|---|
| e.g. 1,5,3,1 | 9 | 8:05-8:10 | Gap = 15 // 23 ~~////~~ ~~////~~ //(19) 23 18 // | 83 | 5.53 | 20 |
| | | | | | | |
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Notes:


# URBAN STREET DIRECTORY

0 95 190 380 570 760 Meters



Prepared by Town of Milton Corporate Services - GIS

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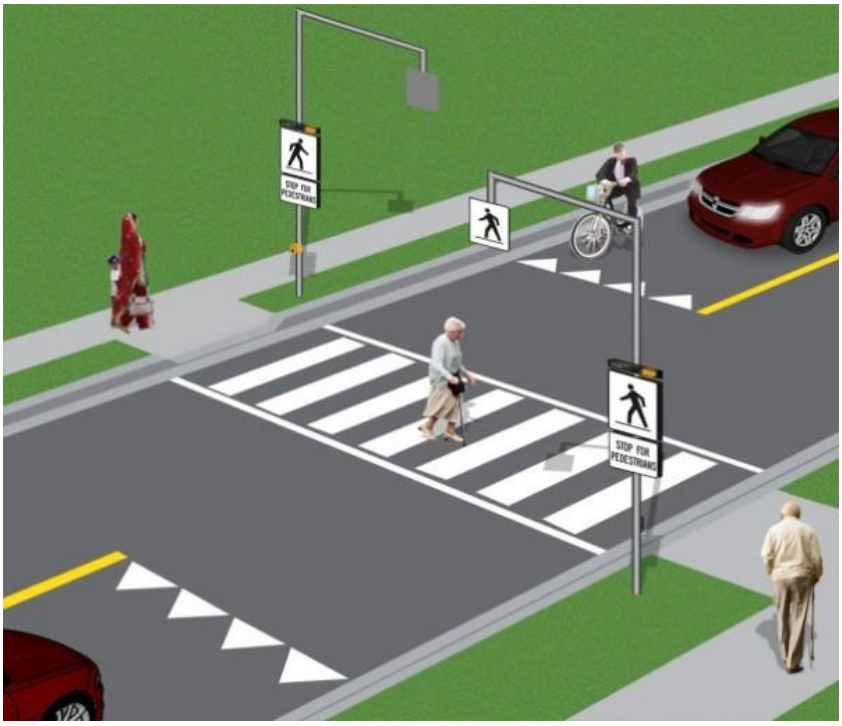
**DATE OF LAST REVISION: SEPTEMBER, 2021**

| PARK ID | PARK NAME | Grid Location |
|---|---|---|
| 1 | SAM SHERRATT TRAIL PARK | C3, C4, C5 |
| 2 | LIVINGSTON PARK | B2 |
| 4 | KNIGHT TRAIL PARK | D2 |
| 5 | FITZGERALD PARK | D2 |
| 6 | SINCLAIR PARK | D3 |
| 7 | TRUDEAU PARK | D4, D5 |
| 8 | CENTRE PARK | C2 |
| 9 | HARWOOD PARK | D5 |
| 10 | BEATY TRAIL PARK | D5, D6 |
| 11 | WATSON PARK | D6 |
| 12 | COURT PARK | C2 |
| 13 | CHRIS HADFIELD PARK | B1 |
| 14 | KINGSLEIGH PARK | C1 |
| 15 | MCDUFFE PARK | D6 |
| 16 | CLARKE NEIGHBOURHOOD PARK | D5 |
| 17 | BEATY NEGHBOURHOOD PARK - NORTH | D5, D6 |
| 18 | OAKVIEW PARK | D7 |
| 19 | WALLBROOK PARK | D5 |
| 20 | BARCLAY PARK | D5 |
| 21 | BEATY NEIGHBOURHOOD PARK - SOUTH | D6 |
| 22 | BENNETT PARK | D6 |
| 23 | HUTCHINSON PARK | D6 |
| 24 | WAKEFIELD PARK | C3 |
| 25 | CENTENNIAL PARK | B2 |
| 26 | FIELD PARK | D5 |
| 27 | BRIAN BEST PARK | B4, C4 |
| 28 | DAVID THOMPSON PARK | B4 |
| 31 | MEIGHEN PARK | D7 |
| 32 | GASTLE PARK | A7, B7 |
| 33 | HARRISON PARK | A7 |
| 34 | SCOTT NEIGHBOURHOOD PARK - WEST | A4 |
| 35 | SCOTT NEIGHBOURHOOD PARK - EAST | B3, B4 |
| 36 | WINN PARK | C5 |
| 38 | SAVOLINE PARK | A5 |
| 39 | SHERWOOD DISTRICT PARK | A3 |
| 40 | COULSON PARK | C4 |
| 42 | MILTON COMMUNITY PARK | B6, B7, C6, C7 |
| 43 | LEITERMAN PARK | B7 |
| 44 | WILLMOTT NEIGHBOURHOOD PARK | B6 |
| 45 | WILLMOTT LINEAR PARK | B6 |
| 46 | SUNNY MOUNT PARK (OFF LEASH DOG PARK) | B6 |
| 47 | COATES NEIGHBOURHOOD PARK SOUTH | C6 |
| 48 | MENEFY PARK | D6 |
| 49 | SPICE OF LIFE PARKETTE | B3 |
| 50 | CEDAR HEDGE PARK - EAST | D3, D4 |
| 51 | FEATHERSTONE PARK | C6 |
| 52 | ROTARY PARK | B2 |
| 53 | COATES LINEAR PARK | C6, C7 |
| 54 | OPTIMIST PARK | A6 |
| 55 | LUXTON PARK | C6, D6 |
| 56 | OMAGH PARK | D9 |
| 57 | LIONS SPORTS PARK | D3 |
| 58 | BRISTOL DISTRICT PARK | C7 |
| 59 | COATES NEIGHBOURHOOD PARK NORTH | C5, C6 |
| 60 | BURLING PARK | C5 |
| 61 | CEDAR HEDGE PARK - WEST (OFF LEASH DOG PARK) | D4 |
| 62 | SPRUCEDALE PARK | D2 |
| 63 | MAQUIRE PARK | C6 |
| 64 | BALDWIN PARK | C2 |
| 65 | FAY COURT PARK | C1, C2 |
| 66 | 16 MILE CREEK PARK - NORTH | B5, C4, C5 |
| 67 | VICTORIA PARK | B3 |
| 68 | BRONTE MEADOWS PARK | B4, B5 |
| 69 | LAIDLAW PARK | D4 |
| 70 | SAM SHERRATT PARK | C4, C5 |
| 72 | BUSSEL PARK | D4 |
| 73 | LAURIER PARK | C4, C5 |
| 74 | MOORELANDS PARK | C5 |
| 75 | MELANIE PARK | C1, C2 |
| 76 | CLARKE NEIGHBOURHOOD PARK | D4 |
| 77 | KINSMEN PARK | C2 |
| 78 | DEMPSEY NEIGHBOURHOOD PARK | D2 |
| 79 | 16 MILE CREEK PARK - SOUTH | B5, C5 |
| 80 | SPEYER PARK | B5, B6 |
| 81 | MCDOUGALL PARK | A5 |
| 82 | MCCREADY PARK | B5 |
| 83 | HOLLOWAY PARK | B3 |
| 86 | COXE BOULEVARD PARK | C4 |
| 87 | BEAVER COURT PARK | C4 |
| 91 | FORD NEIGHBOURHOOD PARK | B8 |
| 92 | RASPBERRY PARK | B7, B8 |
| 93 | BRONSON PARK | B9 |
| 96 | TIMBERLEA TRAIL | C3 |

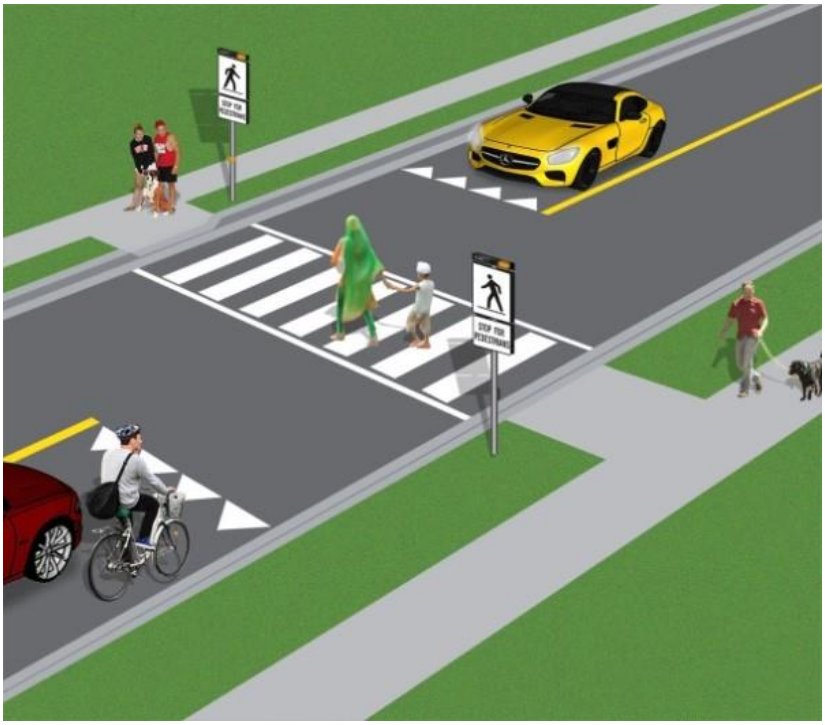
Appendix II - Roundabout Locations within School Zone Frontage

## Level 1 Type A

## Level 2 Type B



## Level 2 Type C




## Level 2 Type D