



City of
Peterborough

To: **Members of the General Committee**

From: **W.H. Jackson, Director of Utility Services**

Meeting Date: **February 26, 2018**

Subject: **Report USTR18-005**
Request for a Crossing Guard at Various Intersections

Purpose

A report to review the need for a crossing guard at the intersections of Parkhill Road and Pinehill Drive; Goodfellow Road and St. Mary's Street and; Sherbrooke Street and Woodglade Boulevard.

Recommendation

That Council approve the recommendation outlined in Report USTR18-005 dated February 26, 2018, of the Director of Utility Services, as follows:

That a crossing guard be implemented at the intersection of Goodfellow Road and St. Mary's Street during the A.M. school admission time and the P.M. school dismissal time.

Budget and Financial Implications

The implementation of a crossing guard at the intersection of Goodfellow Road and St. Mary's Street intersection will cost approximately \$9,800 per year, funds for which should come from the General Contingency for 2018. In future years the cost will be funded through the Crossing Guard annual operating budget. The implementation of school crossing signs will cost approximately \$600, funds for which should come from the Capital Levy for 2018.

Background

In 2017, staff received several requests from parents and school officials to review the need for a crossing guard at the intersections of: Goodfellow Road and St. Mary's Street; Sherbrooke Street and Woodglade Boulevard; and Parkhill Road and Pinehill Drive. Parents expressed concern for their children's safety when crossing at these intersections on their way to and from school.

School Crossing Guard Assessment

The role of a crossing guard is to direct and supervise the movement of persons across a public road by creating necessary gaps in traffic to provide safe passage at a designated school crossing, as defined in the Highway Traffic Act.

In 1992, representatives from the Ontario Traffic Council (OTC) and the Ontario Ministry of Transportation (MTO) collaborated to prepare a report to standardize the implementation of school crossings. This document titled "School Crossing Review 1992" has been used as a guideline by municipalities across the province and laid the foundation for the development of the "OTC School Crossing Guide, 2006" and the recent release of the updated "OTC School Crossing Guard Guide, May 2017".

The goal of this guide is to promote consistency across the province in the application and management of school crossings to improve safety. The guide provides a step-by-step analytical approach to determine if a school crossing guard should be provided at a specific location. The key factors used to assess the need for a crossing guard depend on the proposed location of the crossing. School crossing locations are categorized as listed below:

- At Signalized Intersections,
- At All-way Stop Controlled Intersections,
- At Minor Street Stop Controlled Intersections,
- At Pedestrian Signals,
- At Pedestrian Crossovers,
- At Mid-block Locations and;
- At Roundabouts

A detailed description and site specific data for each location is presented in Appendix A – Crossing Guard Study Details and Analysis

Crossing Guard Warrant at Signalized and All-way Stop Intersection

The Crossing Guard Warrant at Signalized and All-way Stop Intersections considers three conditions, Condition A, Condition B, and Condition C. Condition A requires an average of more than two vehicle-pedestrian collisions per year, occurring over the last three years. If Condition A criteria is not satisfied, a crossing guard may still be warranted if Condition B or Condition C criteria are met.

Condition B and C consider the potential risks at an intersection by comparing the Exposure Index of the requested location to be greater than the established Peterborough Exposure Index curve. The Exposure Index measures the number of potential vehicle conflicts created by vehicles turning right or turning left across the crossing during the school crossing times versus the number of students using the crossing. The Exposure Index curve, shown in **Figure 1**, represents the range of Exposure Indexes at all of the signalized or all-way stop locations in the City where crossing guards have been determined to be required.

If Condition B criteria are not satisfied, a crossing guard may still be warranted if Condition C criteria are met. Condition C requires the exposure index of the requested location to be greater than 50% of the Peterborough Exposure Index plus one environmental condition potentially affecting safety be satisfied.

Table 1 below shows the results of the proposed school crossings at the intersections of Goodfellow Road and St. Mary's Street; Sherbrooke Street and Woodglade Boulevard and; Parkhill Road and Pinehill Drive.

Table 1: Crossing Guard Warrant at Signalized and All-way Stop Intersections

Warrant Conditions	Goodfellow Road and St. Mary's Street	Sherbrooke Street and Woodglade Boulevard	Parkhill Road and Pinehill Drive
Condition A The requested crossing location has an average of more than 2 vehicle and pedestrian collisions per year over the last 3 years.	<input type="checkbox"/> Satisfied <input checked="" type="checkbox"/> Not Satisfied	<input type="checkbox"/> Satisfied <input checked="" type="checkbox"/> Not Satisfied	<input type="checkbox"/> Satisfied <input checked="" type="checkbox"/> Not Satisfied
Condition B The Exposure Index for the requested crossing location falls above the established Peterborough Exposure Index.	<input checked="" type="checkbox"/> Satisfied <input type="checkbox"/> Not Satisfied	<input type="checkbox"/> Satisfied <input checked="" type="checkbox"/> Not Satisfied	<input type="checkbox"/> Satisfied <input checked="" type="checkbox"/> Not Satisfied
Condition C The Exposure Index for the requested crossing location is greater than 50% of the established Peterborough Exposure Index, and; At least 1 Environmental Condition is satisfied for the requested crossing location	<input type="checkbox"/> Satisfied <input checked="" type="checkbox"/> Not Satisfied	<input type="checkbox"/> Satisfied <input checked="" type="checkbox"/> Not Satisfied	<input type="checkbox"/> Satisfied <input checked="" type="checkbox"/> Not Satisfied
If Condition A, Condition B, or Condition C are satisfied, a crossing guard is warranted.	Yes	No	No

At the intersection of Goodfellow Road and St. Mary's Street a total of 14 students and 68 conflicting vehicle turning movements were recorded crossing the east leg of the intersection during the A.M. school admission time. As shown in **Figure 1**, the exposure index for Goodfellow Road and St. Mary's Street intersection is above the Peterborough Exposure Index curve and as such, the warrant for the implementation of crossing guard at the intersection of Goodfellow Road and St. Mary's Street is satisfied under Condition B of the Crossing Guard Warrant at Signalized and All-way Stop Intersections.

The student crossing volumes and vehicle conflicts at the Parkhill Road and Pinehill Drive and Sherbrooke Street and Woodglade Boulevard locations fall below the Exposure Index thresholds for Condition B and Condition C, and therefore Crossing Guards are not warranted at these locations.

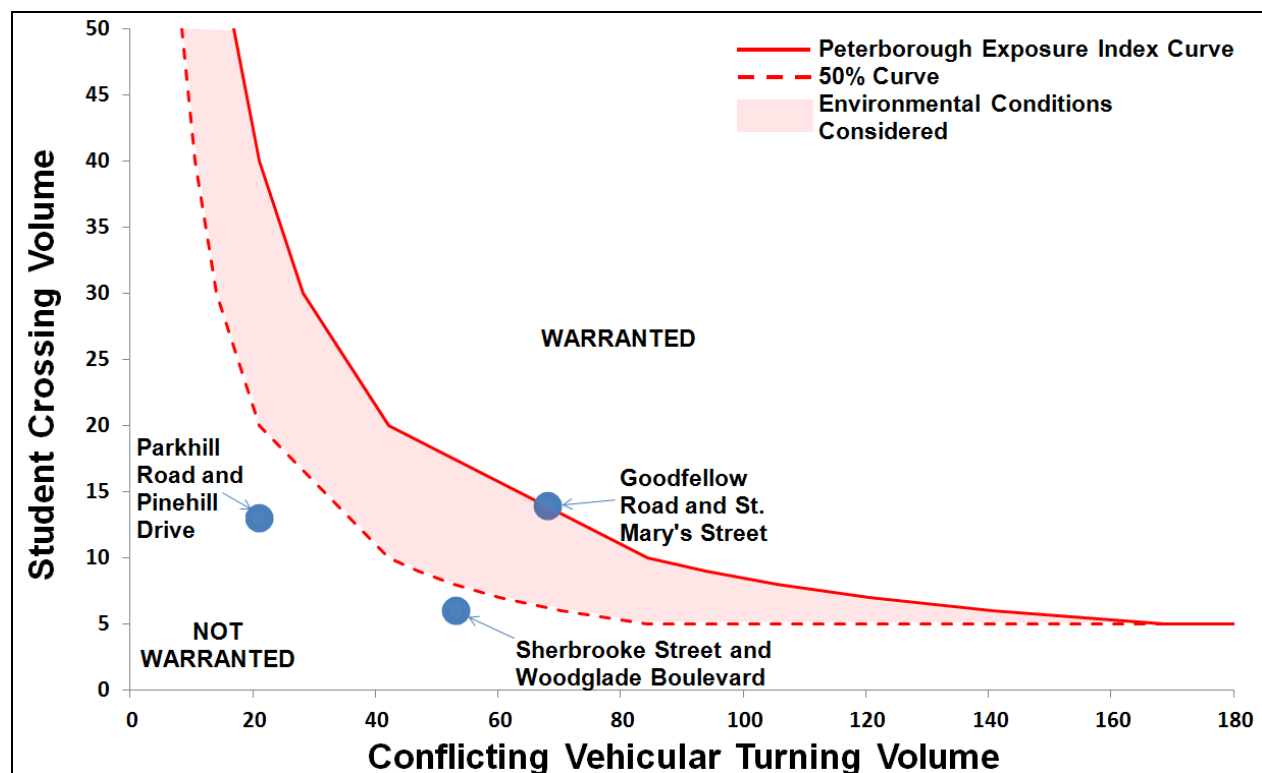


Figure 1: Exposure Index Results

Timelines

If the recommendation is approved, implementation of a crossing guard at the intersection of Goodfellow Road and St. Mary's Street is estimated to be completed before the end of May 2018. This will provide sufficient time to install signs and to hire and train a new crossing guard.

Summary

The review supports the need for a crossing guard at the intersection of Goodfellow Road and St. Mary's Street. The implementation of a crossing guard should reduce pedestrian exposure to conflicting vehicle movements and improve pedestrian safety at the intersection.

Submitted by,

W.H. Jackson
Director of Utility Services

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Attachments:
Appendix A – Crossing Guard Study Details and Analysis

Appendix A – Crossing Guard Study Details and Analysis

The role of a crossing guard is to direct and supervise the movement of persons across a public road by creating necessary gaps in traffic to provide safe passage at a designated school crossing, as defined in the Highway Traffic Act. At locations under traffic signal control and all-way stop control, the traffic signals and the stop signs automatically create gaps in traffic by displaying a red indication at signalized intersections or a stop sign at an all-way stop. However, vehicle movements such as right-turn on red; left-turns from the side street and; through movements at these locations (conflicting vehicle movements) are dependent on driver judgement. Therefore, when a significant number of conflicting vehicle movements exist and school children (JK to grade 6) are present, a crossing guard may be considered to help manage safety risks.

The intersections of Parkhill Road and Pinehill Drive and Sherbrooke Street and Woodglade Boulevard are both under traffic signal control and the intersection at Goodfellow Road and St. Mary's Street is under all-way stop control. The School Crossing Guard Warrant for both signalized intersections and all-way stops use the following three key factors in determining the need/justification for a school crossing guard:

- a) Collision History,
- b) Exposure Index and;
- c) Other Environmental Conditions affecting safety.

Collision History

A crossing guard may be approved; regardless of the outcome of the exposure index study or the number of students regularly crossing, if an average of more than two vehicle-pedestrian collisions per year occurred over the last three years and those collisions are susceptible to correction by a crossing guard.

Exposure Index

The crossing guard warrant methodology for crossings at both signalized intersections and intersections under all-way stop control uses an exposure index to compare the requested crossing guard location to existing signalized and all-way stop intersections currently employing crossing guards. In this context, an exposure index represents the potential interactions between turning vehicles and pedestrians crossing an intersection. School aged children (JK to grade 6) crossing at designated crosswalks are counted along with vehicles that pass over the crosswalk, during both the A.M. and P.M. peak periods.

Data on traffic conflicts and crossing activity at 7 other signalized intersections in Peterborough (where crossing guards are used) was collected to produce the local Peterborough Exposure Index as presented in Figure 2 below.

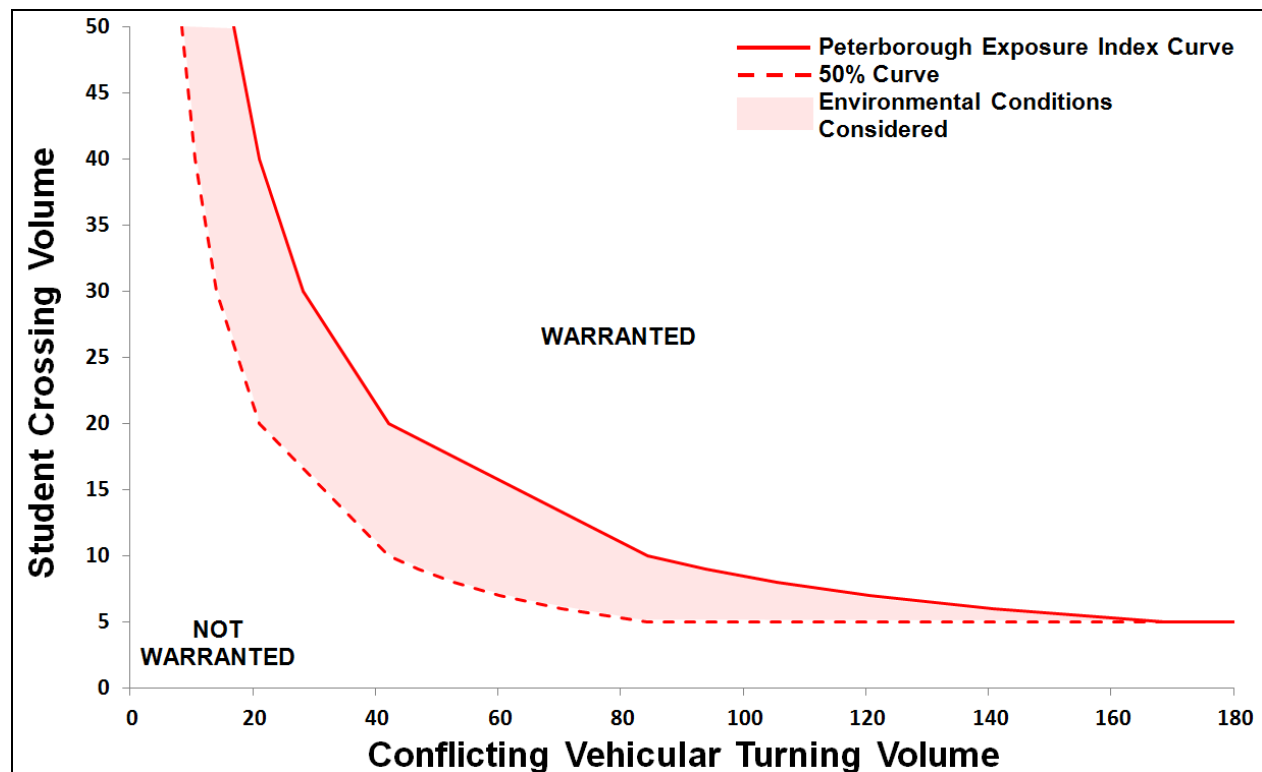


Figure 2: Peterborough Exposure Index

Environmental Conditions

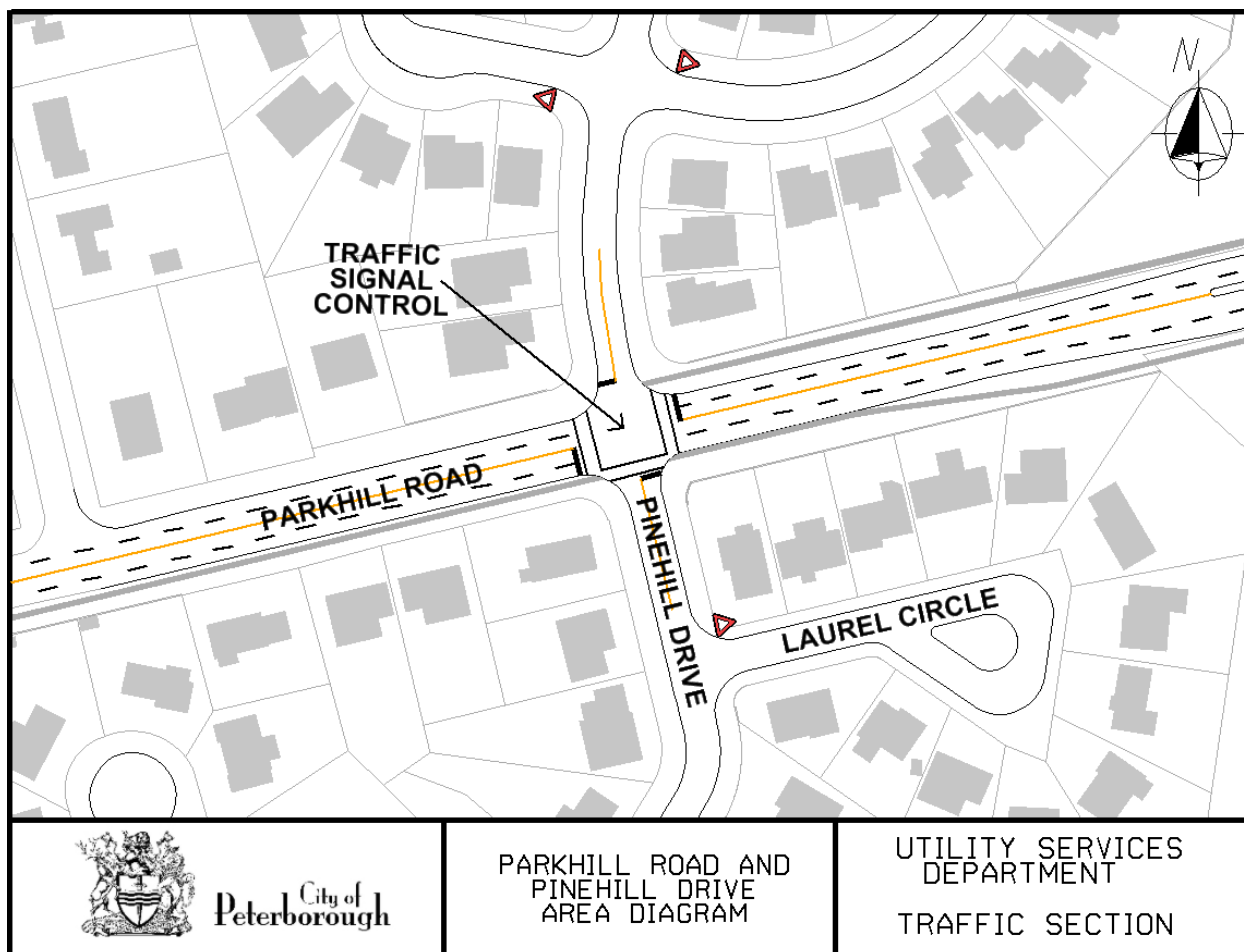
In some cases, other “Environmental Factors” at a particular site may present additional operational or safety risks that may not necessarily be reflected in the sites chosen when creating the local Peterborough Exposure Index. For that reason, the Guidelines include other Environmental Conditions (such as wide crossings of multi-lane arterial roads, or intersections with poor sight distance, etc) which should be considered in determining if a crossing guard is needed at sites that do not meet the Exposure Index criteria but have an Exposure Index greater than 50% of the established Peterborough Exposure Index.

Parkhill Road and Pinehill Drive Intersection

Site Details

Parkhill Road is a four-lane arterial road running from Television Road in the east to Brealey Drive in the west. In the area of the crossing Parkhill Road is classified as a High Capacity Arterial. Pinehill Drive is a two-lane local road running from Rockland Road in the south to Parkwood Circle in the north. Both streets have a speed limit of 50 km/h. The intersection of Parkhill Road and Pinehill Drive is controlled by traffic signals and has crosswalks on the east, west, and south legs of the intersection. St. Teresa Catholic Elementary School and Westmount Public School are both located to the

southwest and accessed by students through the residential neighborhood. A sketch of the area is shown below in Figure 3.



City of
Peterborough

PARKHILL ROAD AND
PINEHILL DRIVE
AREA DIAGRAM

UTILITY SERVICES
DEPARTMENT
TRAFFIC SECTION

Figure 3: Parkhill Road and Pinehill Drive Intersection

Collision History

A review of the collision history at Parkhill Road and Pinehill Drive intersection revealed no vehicle-pedestrian collisions in the past three years.

Exposure Index

Student crossing volume and conflicting vehicular turning volume data was collected during the A.M. school admission time and the P.M. school dismissal time and compared to the Peterborough Exposure Index as shown below in **Figure 4**.

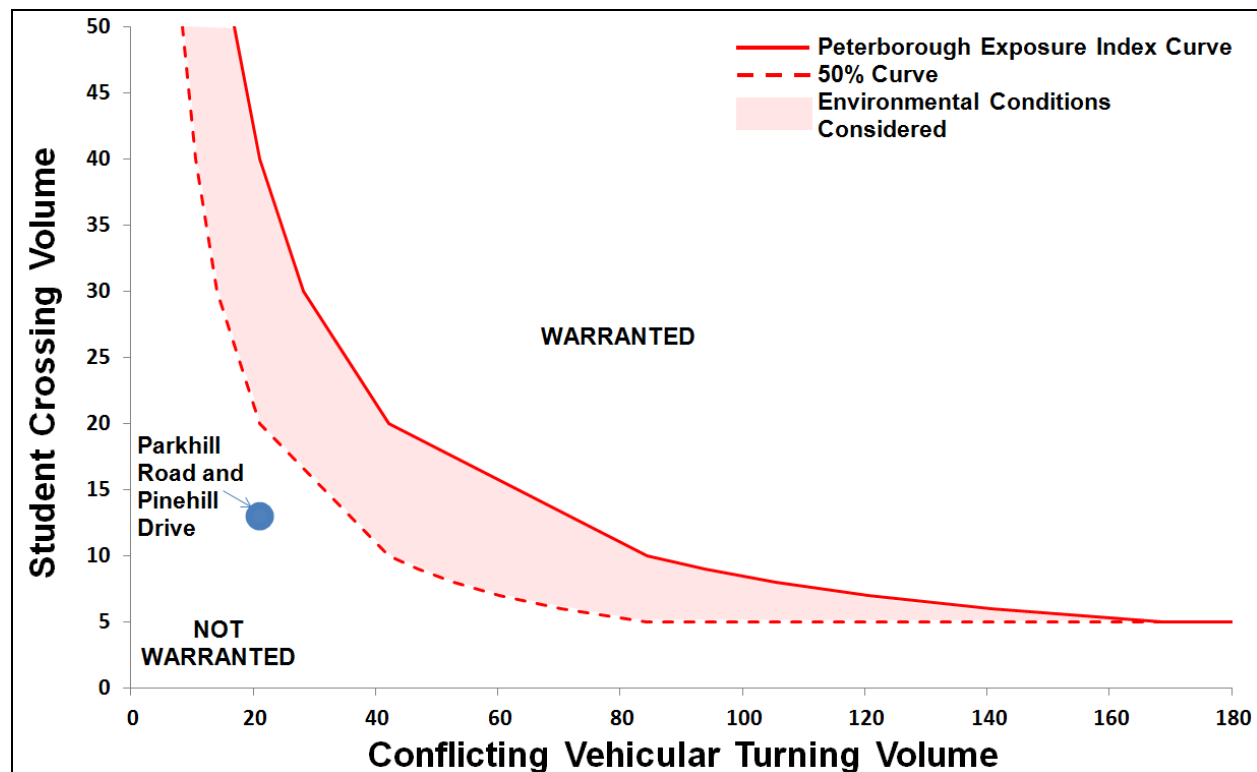


Figure 4: Exposure Index for Parkhill Road and Pinehill Drive Intersection

At the intersection of Parkhill Road and Pinehill Drive a total of 13 students and 21 conflicting vehicle turning movements were recorded crossing Parkhill Road during the P.M. school dismissal time. The exposure index for Parkhill Road and Pinehill Drive is below the (50%) curve.

Crossing Guard Warrant at Signalized and All-way Stop Intersection

The Crossing Guard Warrant at Signalized and All-way Stop Intersections considers three conditions, Condition A, Condition B, and Condition C. Condition A requires an average of more than two vehicle-pedestrian collisions per year over the last three years. If Condition A criteria is not satisfied, a crossing guard may still be warranted if Condition B criteria is met. Condition B requires the exposure index of the requested location to be greater than the established Peterborough Exposure Index curve. If Condition B criteria are not satisfied, a crossing guard may still be warranted if Condition C criteria are met. Condition C requires the exposure index of the requested location to be greater than 50% of the Peterborough Exposure Index and one environmental condition potentially affecting safety to be satisfied. **Table 2** below shows the results of the proposed school crossing at the intersection of Parkhill Road and Pinehill Drive.

Table 2: Crossing Guard Warrant at Signalized and All-way Stop Intersections

Warrant Conditions	Parkhill Road and Pinehill Drive
Condition A The requested crossing location has an average of more than 2 vehicle and pedestrian collisions per year over the last 3 years.	<input type="checkbox"/> Satisfied <input checked="" type="checkbox"/> Not Satisfied
Condition B The Exposure Index for the requested crossing location falls above the established Peterborough Exposure Index curve.	<input type="checkbox"/> Satisfied <input checked="" type="checkbox"/> Not Satisfied
Condition C The Exposure Index for the requested crossing location is greater than 50% of the established Peterborough Exposure Index, and; At least 1 Environmental Condition is satisfied for the requested crossing location	<input type="checkbox"/> Satisfied <input checked="" type="checkbox"/> Not Satisfied
If Condition A, Condition B, or Condition C are satisfied, a crossing guard is warranted.	NO

Based on this result, the warrant for the implementation of crossing guard at the intersection of Parkhill Road and Pinehill Drive is not satisfied.

Goodfellow Road and St. Mary's Street Intersection

Site Details

Goodfellow Road is a two-lane high capacity collector road running north-south from Sherbrooke Street, in the north, to Lansdowne Street, in the south. St. Mary's Street is a two-lane local road running east-west from Arthur Avenue, in the west, to High Street, in the east. The intersection of Goodfellow Road and St. Mary's Street is controlled by an all-way stop with crosswalks on all legs of the intersection. Keith Wightman Public School is located to the northeast of the intersection, and St. Alphonsus Catholic Elementary School is located to the southeast of the intersection. Both Goodfellow Road and St. Mary's Street have speed limits of 50 km/h. A sketch of the area is shown below in Figure 5.

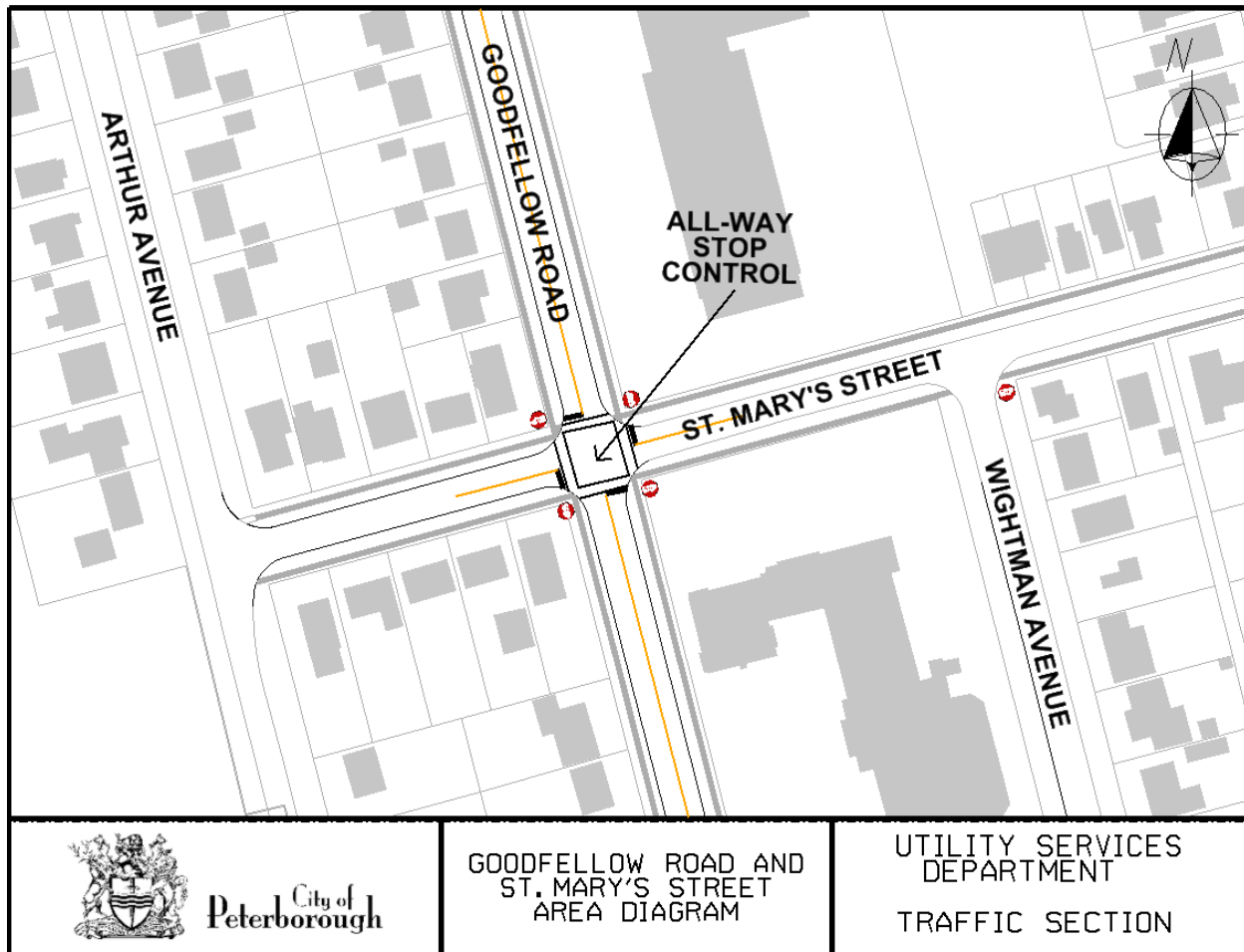


Figure 5: Goodfellow Road and St. Mary's Street Intersection

Collision History

A review of the collision history at Goodfellow Road and St. Mary's Street Intersection Drive revealed no vehicle-pedestrian collisions in the past three years.

Exposure Index

Student crossing volume and conflicting vehicular turning volume data was collected during the A.M. school admission time and the P.M. school dismissal time and compared to the Peterborough Exposure Index as shown below in **Figure 6**.

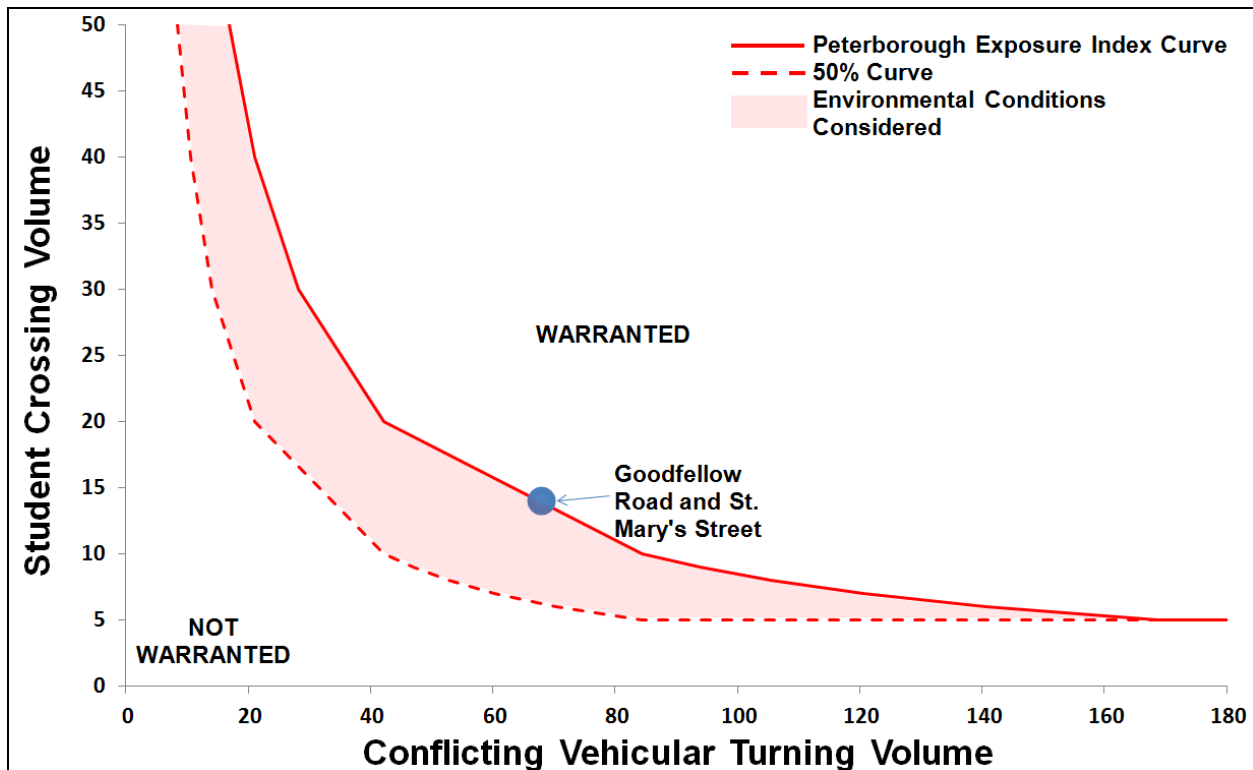


Figure 6: Exposure Index for Goodfellow Road and St. Mary's Street Intersection

At the intersection of Goodfellow Road and St. Mary's Street a total of 14 students and 68 conflicting vehicle turning movements were recorded crossing the east leg of the intersection during the A.M. school admission time. The exposure index for Goodfellow Road and St. Mary's Street intersection is above the Peterborough Exposure Index curve.

Crossing Guard Warrant at Signalized and All-way Stop Intersection

The Crossing Guard Warrant at Signalized and All-way Stop Intersections considers three conditions, Condition A, Condition B, and Condition C. Condition A requires an average of more than two vehicle-pedestrian collisions per year occurred over the last three years. If Condition A criteria is not satisfied, a crossing guard may still be warranted if Condition B criteria is met. Condition B requires the exposure index of the requested location to be greater than the established Peterborough Exposure Index curve. If Condition B criteria are not satisfied, a crossing guard may still be warranted if Condition C criteria are met. Condition C requires the exposure index of the requested location to be greater than 50% of the Peterborough Exposure Index and one environmental condition to be satisfied. **Table 3** below shows the results of the proposed school crossing at the intersection of Goodfellow Road and St. Mary's Street.

Table 3: Crossing Guard Warrant at Signalized and All-way Stop Intersections

Warrant Conditions	Goodfellow Road and St. Mary's Street
Condition A The requested crossing location has an average of more than 2 vehicle and pedestrian collisions per year over the last 3 years.	<input type="checkbox"/> Satisfied <input checked="" type="checkbox"/> Not Satisfied
Condition B The Exposure Index for the requested crossing location falls above the established Peterborough Exposure Index curve.	<input checked="" type="checkbox"/> Satisfied <input type="checkbox"/> Not Satisfied
Condition C The Exposure Index for the requested crossing location is greater than 50% of the established Peterborough Exposure Index, and; At least 1 Environmental Condition is satisfied for the requested crossing location.	<input type="checkbox"/> Satisfied <input checked="" type="checkbox"/> Not Satisfied
If Condition A, Condition B, or Condition C are satisfied, a crossing guard is warranted.	Yes

Based on this result, the warrant for the implementation of crossing guard at the intersection of Goodfellow Road and St. Mary's Street is satisfied.

Sherbrooke Street and Woodglade Boulevard Intersection

Site Details

Sherbrooke Street is a two-lane high capacity arterial road running east-west from Water Street, in the east, to beyond the city limits, in the west. Woodglade Boulevard is a two-lane high capacity collector road running north-south from Glenforest Boulevard to Kawartha Heights Boulevard. Both Sherbrooke Street and Woodglade Boulevard have a speed limit of 50 km/h. The intersection of Sherbrooke Street and Woodglade Boulevard is controlled by traffic signals and has designated left-turn lanes and crosswalks on all-four legs of the intersection. École Catholique Monseigneur-Jamot is located to the northeast of the intersection, and currently contains students JK to grade 8. A sketch of the area is shown in **Figure 7**.

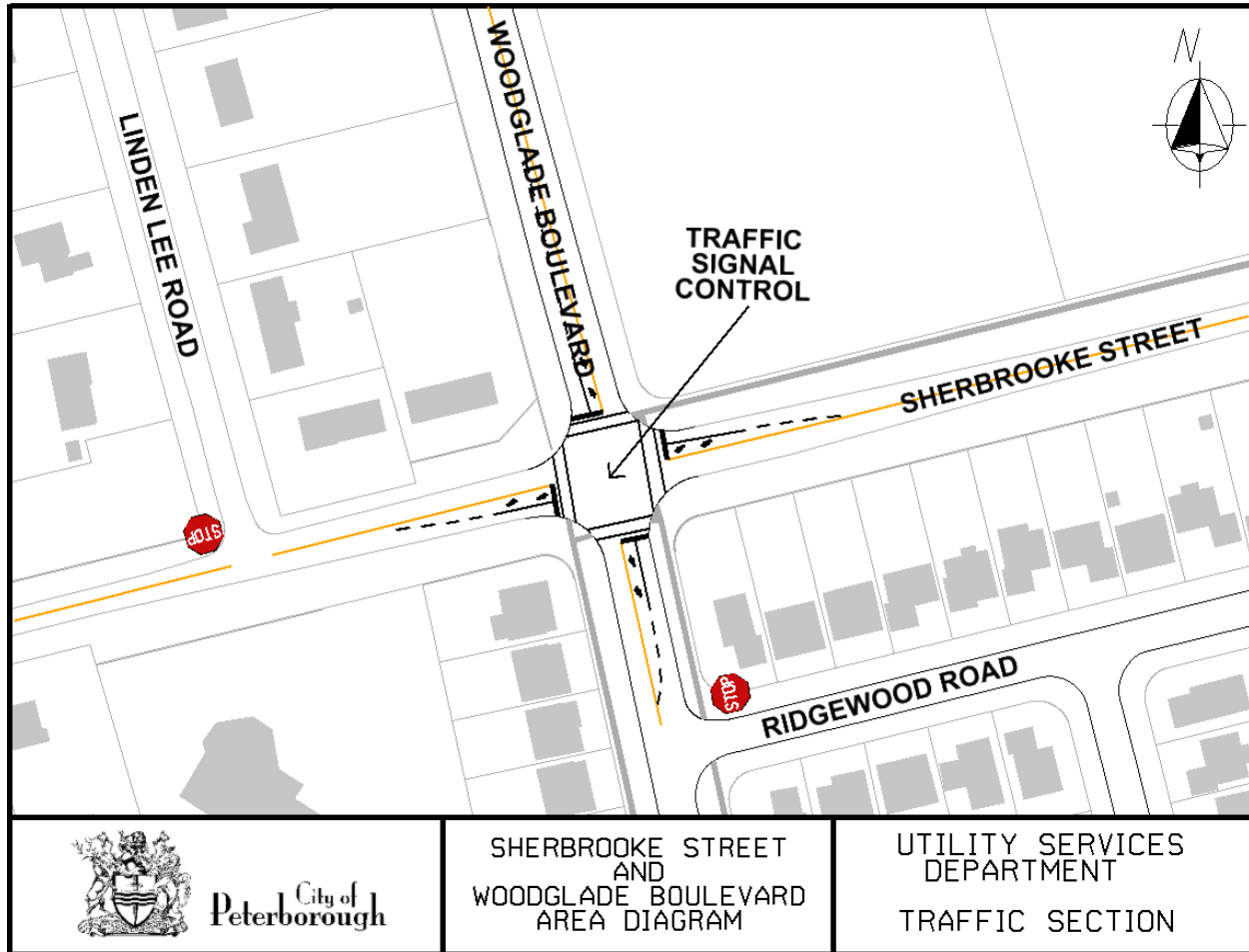


Figure 7: Sherbrooke Street and Woodglade Boulevard Intersection

Collision History

A review of the collision history at the Sherbrooke Street and Woodglade Boulevard Intersection Drive revealed no vehicle-pedestrian collisions in the past three years.

Exposure Index

Student crossing volume and conflicting vehicular turning volume data was collected during the A.M. school admission time and the P.M. school dismissal time and compared to the Peterborough Exposure Index as shown below in Figure 8.

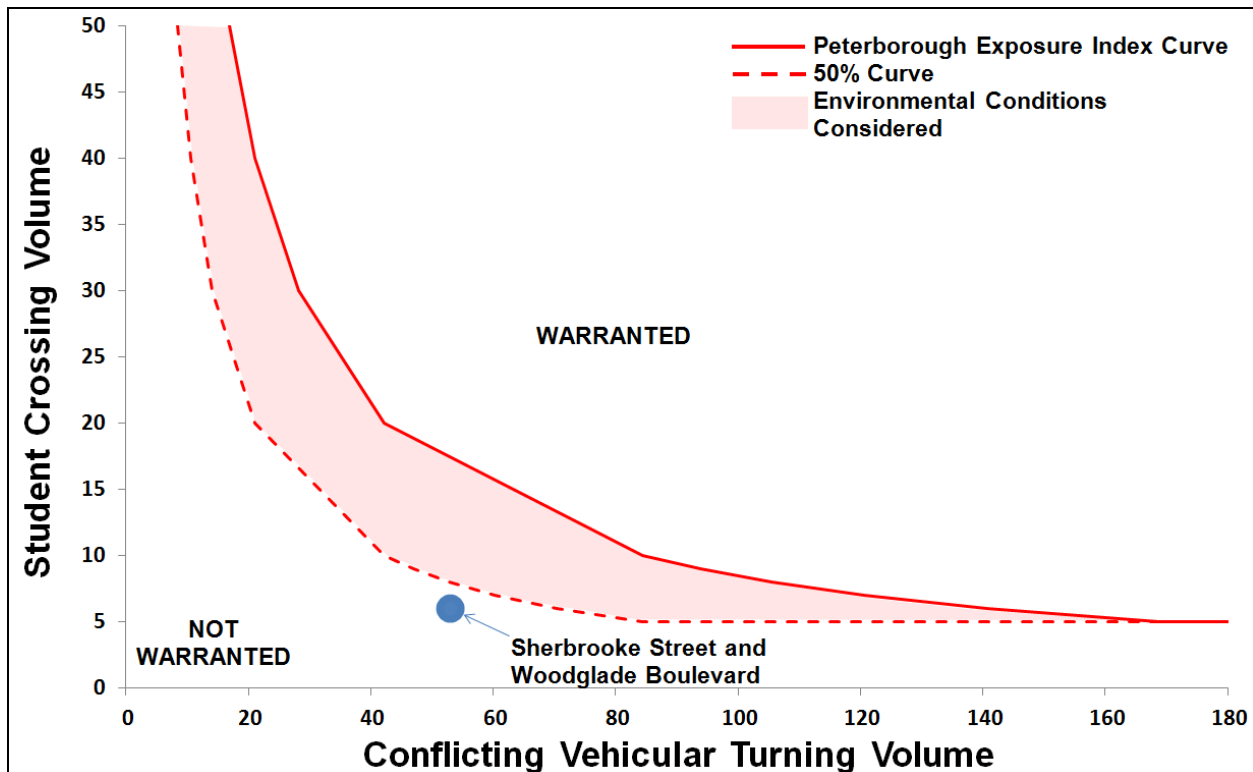


Figure 8: Exposure Index for the Sherbrooke Street and Woodglade Boulevard Intersection

At the intersection of Sherbrooke Street and Woodglade Boulevard a total of 6 students and 53 conflicting vehicle turning movements were recorded crossing Parkhill Road during the P.M. school dismissal time. The exposure index for Sherbrooke Street and Woodglade Boulevard is below the (50%) curve.

Crossing Guard Warrant at Signalized and All-way Stop Intersection

The Crossing Guard Warrant at Signalized and All-way Stop Intersections considers three conditions, Condition A, Condition B, and Condition C. Condition A requires an average of more than two vehicle-pedestrian collisions per year occurred over the last three years. If Condition A criteria is not satisfied, a crossing guard may still be warranted if Condition B criteria is met. Condition B requires the exposure index of the requested location to be greater than the established Peterborough Exposure Index curve. If Condition B criteria are not satisfied, a crossing guard may still be warranted if Condition C criteria are met. Condition C requires the exposure index of the requested location to be greater than 50% of the Peterborough Exposure Index and one environmental condition to be satisfied. **Table 4** below shows the results of the proposed school crossing at the intersection of Sherbrooke Street and Woodglade Boulevard.

Table 4: Crossing Guard Warrant at Signalized and All-way Stop Intersections

Warrant Conditions	Sherbrooke Street and Woodglade Boulevard
Condition A The requested crossing location has an average of more than 2 vehicle and pedestrian collisions per year over the last 3 years.	<input type="checkbox"/> Satisfied <input checked="" type="checkbox"/> Not Satisfied
Condition B The Exposure Index for the requested crossing location falls above the established Peterborough Exposure Index curve.	<input type="checkbox"/> Satisfied <input checked="" type="checkbox"/> Not Satisfied
Condition C The Exposure Index for the requested crossing location is greater than 50% of the established Peterborough Exposure Index, and; At least 1 Environmental Condition is satisfied for the requested crossing location.	<input type="checkbox"/> Satisfied <input checked="" type="checkbox"/> Not Satisfied
If Condition A, Condition B, or Condition C are satisfied, a crossing guard is warranted.	NO

Based on this result, the warrant for the implementation of crossing guard at the intersection of Sherbrooke Street and Woodglade Boulevard is not satisfied.