

---

**TO:** GENERAL COMMITTEE

**SUBJECT:** PEDESTRIAN CROSSOVERS

**WARD:** 7

**PREPARED BY AND KEY CONTACT:** M. KAVECKAS, TRANSPORTATION OPERATIONS TECHNOLOGIST, EXT. 4876

**SUBMITTED BY:** M. BANFIELD, RPP, DIRECTOR OF DEVELOPMENT SERVICES

**GENERAL MANAGER APPROVAL:** B. ARANIYASUNDARAN, P.ENG., PMP, GENERAL MANAGER OF INFRASTRUCTURE AND GROWTH MANAGEMENT

**CHIEF ADMINISTRATIVE OFFICER APPROVAL:** M. PROWSE, CHIEF ADMINISTRATIVE OFFICER

---

### **RECOMMENDED MOTION**

1. That a Pedestrian Crossover, Level 2 Type D, be installed at the intersection of Thrushwood Drive and Elmbrook Drive/Megan Crescent and at the intersection of Elmbrook Drive and Blackbird Lane.

### **PURPOSE & BACKGROUND**

2. Staff in the Development Services Department have received the request to investigate the feasibility of implementing an All-Way Stop at the intersection of Thrushwood Drive and Elmbrook Drive/Megan Crescent and a Pedestrian Crossover on Elmbrook Drive in proximity to Trillium Woods Elementary School.
3. The existing traffic operations at Thrushwood Drive (Local) and Elmbrook Drive/Megan Crescent (Local) require vehicles travelling east/west on Elmbrook Drive/Megan Crescent to stop at Thrushwood Drive. Please refer to Appendix "A" for a map of the study area.
4. The existing traffic operations at Elmbrook Drive (Local) and Blackbird Lane (Local) require vehicles travelling west on Blackbird Lane to stop at Elmbrook Drive. Please refer to Appendix "B" for a map of the study area.

### **ALL-WAY STOP ANALYSIS**

5. Staff have investigated the intersection of Thrushwood Drive and Elmbrook Drive/Megan Crescent to determine if an All-Way Stop is warranted based on criteria within the Ontario Traffic Manual (OTM) Book 5 – Regulatory Signs.
6. The OTM warrant is based on volume, collision history, and stopping sight distance at the intersection. There are two classes of warrants identified in the OTM. Each class is based on the classifications of roadways; Minor Roadways (Locals) and Major Roadways (Collectors and Arterials). Road classification is determined by using the City of Barrie Official Plan, Schedule D – Road Plan.

7. Based on the classification of Thrushwood Drive and Elmbrook Drive/Megan Crescent both being local roads, the Minor Roadways warrant is used. Each component of the All-Way Stop Warrant can satisfy the warrant independently.
  - **Volume** - The total vehicle volume on all approaches exceeds 350 vehicles for the highest hour recorded in the 8-hour count, and the volume split does not exceed 65/35.
  - **Collision History** – Reviews high collision frequency. There must be an average of four collisions per year over a three-year period. Only collisions that are correctable through All-Way Stop control (i.e., right angle and turning type collisions) and reported to the Barrie Police Service are considered for the review.
  - **Stopping Sight Distance** - The distance required for a driver to see ahead to stop if necessary.
8. Turning movement counts over the eight (8) busiest hours of the day were completed at the intersections of Thrushwood Drive and Elmbrook Drive/Megan Crescent and at Elmbrook Drive and Blueberry Lane.
9. The results of the turning movement counts for the All-Way Stop analysis is summarized below.

Description	All-Way Warrant	Recorded Data	Satisfied All-Way Warrant	
			Yes	No
<b>Part 1a – Total Volume</b> Hourly Traffic Volume	Greater than 350 vehicles in the peak hour	199 vehicles in the peak hour		
<b>Part 1b – Side Street Volume</b> Volume of Traffic on Elmbrook Drive/Megan Crescent (Minor Street)	Volume split does not exceed 65/35 at the intersection	87 vehicles on side street (56/44)		X
<b>Part 2 – Collisions</b> Intersection Collision History	Average 4 per year over 3 years	0 collisions over a 3-year period		X
<b>Part 3 – Visibility</b> Stopping Sight Distance from Elmbrook Drive/Megan Crescent	Less than 105m	No restrictions		X

10. An All-Way Stop questionnaire survey was prepared and mailed to 38 property owners on Thrushwood Drive and Elmbrook Drive/Megan Crescent. See table below for results of the survey.

<b>Thrushwood Drive and Elmbrook Drive/Megan Crescent All-Way Stop Survey</b>	<b>Response Received</b>	<b>Percentage of Responses</b>
<b>Option A</b> - Leave as is (traffic along Elmbrook Drive/Megan Crescent stops at Thrushwood Drive)	1	10%
<b>Option B</b> – Install an All-Way Stop at Thrushwood Drive and Elmbrook Drive/Megan Crescent.	9	90%
<b>TOTAL</b> (Out of 38)	<b>10</b>	<b>26%</b>

11. Staff have identified through the turning movement count the peak hour of the day was in the AM during 7:45 am – 8:45 am. This time period had 199 vehicles entering the intersection. There were 112 vehicles entering northbound and southbound (Thrushwood Drive) and 87 vehicles entering eastbound and westbound (Elmbrook Drive/Megan Crescent). This gives the intersection a volume split of 56/44 (56% on the major street, 44% on the minor street). This volume split exceeds the warrant’s recommendation. However, the total volume from Part 1a is short of triggering this component by 151 vehicles in the peak hour. Therefore, the current traffic volumes do not satisfy the intersection volume warrant for an all-way stop.
12. Staff investigated the collision history and found there were zero correctable collisions in the past 3 years, taken from January 1, 2019, to the current date. Staff also made site visits at the intersection to analyze if vehicles stopped eastbound and westbound at the current stop control had sight line restrictions. Staff found that there were no restrictions and motorists had clear vision to proceed into the intersection when safe to do so.
13. Staff reviewed the comments from the survey which was sent to 38 properties in close proximity to the intersection. Staff received 10 responses (26% participation) with 9 in favour of the installation of an All-Way Stop and 1 response to leave the intersection as is. The responses in favour of the All-Way Stop had concerns that there should be stop control for northbound and southbound on Thrushwood Drive due to higher speeds from traffic coming off Harvie Road and that the intersection has high pedestrian volumes generated from nearby Trillium Woods Elementary School. Staff have taken this into consideration; however, Stop Signs are to be used to clearly assign the right-of-way at an intersection and not be used as traffic calming measures.

OTM Book 5 states:

“All-way stop controls should not be used under the following conditions:

- As a speed control device.”
- Where the protection of pedestrians, school children in particular, is a prime concern. This concern can usually be addressed by other means.”

14. Based on the data provided through the All-Way Stop Warrant analysis, it is recommended that an All-Way Stop not be installed at the intersection of Thrushwood Drive and Elmbrook Drive/Megan Crescent at this time.

---

### **PEDESTRIAN CROSSOVER ANALYSIS**

15. Staff have investigated the potential for a Pedestrian Crossover (PXO) at the intersections of Thrushwood Drive and Elmbrook Drive/Megan Crescent and Elmbrook Drive and Blackbird Lane as there were high pedestrian volumes generated from Trillium Woods Elementary School. Please refer to Appendix "A" and Appendix "B" for the study areas of the PXOs.
16. There is a warrant process for the installation of PXOs taken from OTM Book 15 – Pedestrian Crossing Treatments. The warrant for a PXO requires an 8-hour count with: pedestrian volumes  $\geq 100$  and a vehicle volume  $\geq 750$  vehicles.
17. Over the total of 8-hours at Thrushwood Drive and Elmbrook Drive/Megan Crescent there were 121 pedestrians and 643 vehicles. The pedestrian volume supports the warrant; however, the vehicle volume is short of what is required. Staff have assumed with COVID-19, traffic for Trillium Woods School would be less than typical volume. With pedestrian volumes being high and vehicle volumes being close to the warrant, Staff recommend installing a PXO at the intersection of Thrushwood Drive and Elmbrook Drive/Megan Crescent on the north leg of the intersection.
18. Over the total of 8-hours at Elmbrook Drive and Blueberry Lane, there were 561 pedestrians and 515 vehicles. As the vehicle volume does not satisfy the warrant, the pedestrians volumes exceed the minimum warrant by 461 pedestrians. Similar to Elmbrook Drive/Megan Crescent staff assumes traffic for Trillium Woods School to be less than typical volumes. With the results of the traffic study pedestrian volumes being high and vehicle volumes being close to warrant values, Staff recommend installing a PXO at Elmbrook Drive and Blackbird Lane on the south leg to improve pedestrian connectivity.
19. OTM Book 15 recommends the installation of a PXO Level 2 Type D treatment for both of these locations. This recommendation is based on a posted speed limit of  $\leq 50$ km/h, 1 or 2 travel lanes, and two-way vehicle volumes between 750 – 2,250 vehicles over 8-hours. Refer to Appendix "C" for the configuration of a PXO.
20. Staff recommend that the Pedestrian Crossover Level 2 Type D's are installed at the intersection of Thrushwood Drive and Elmbrook Drive/Megan Crescent (north leg) and at Elmbrook Drive and Blackbird Lane (south leg).
21. Barrie Police Service, Barrie Fire and Emergency Service and Municipal Law Enforcement Staff do not oppose to the recommendation.

### **ENVIRONMENTAL AND CLIMATE CHANGE IMPACT MATTERS**

22. There are no environmental and/or climate change impact matters related to the recommendation.

### **ALTERNATIVES**

23. The following alternatives are available for consideration by General Committee:

**Alternative #1**

General Committee could maintain the existing conditions at both intersections of Thrushwood Drive and Elmbrook Drive/Megan Crescent and at Elmbrook and Blackbird Lane.

This alternative is not recommended as it has been identified by Staff and residents as a high pedestrian area and based on OTM Book 15 additional crossing treatments are warranted.

**Alternative #2**

General Committee could install an All-Way Stop at the intersection of Thrushwood Drive and Elmbrook Drive/Megan Crescent.

This alternative is not recommended as the intersection is not warranted for an All-Way Stop. The purpose of an All-Way Stop is to clearly assign the right-of-way travel between vehicles approaching an intersection. A Stop Sign is not to be used as a speed control device or for crossing treatments.

**FINANCIAL**

24. The costs associated with the installation of the PXO's signage, associated pavement markings and enhancements to the sidewalk including AODA compliance are approximately \$24,000.00 and can be accommodated with funds from the Federal Gas Tax account.

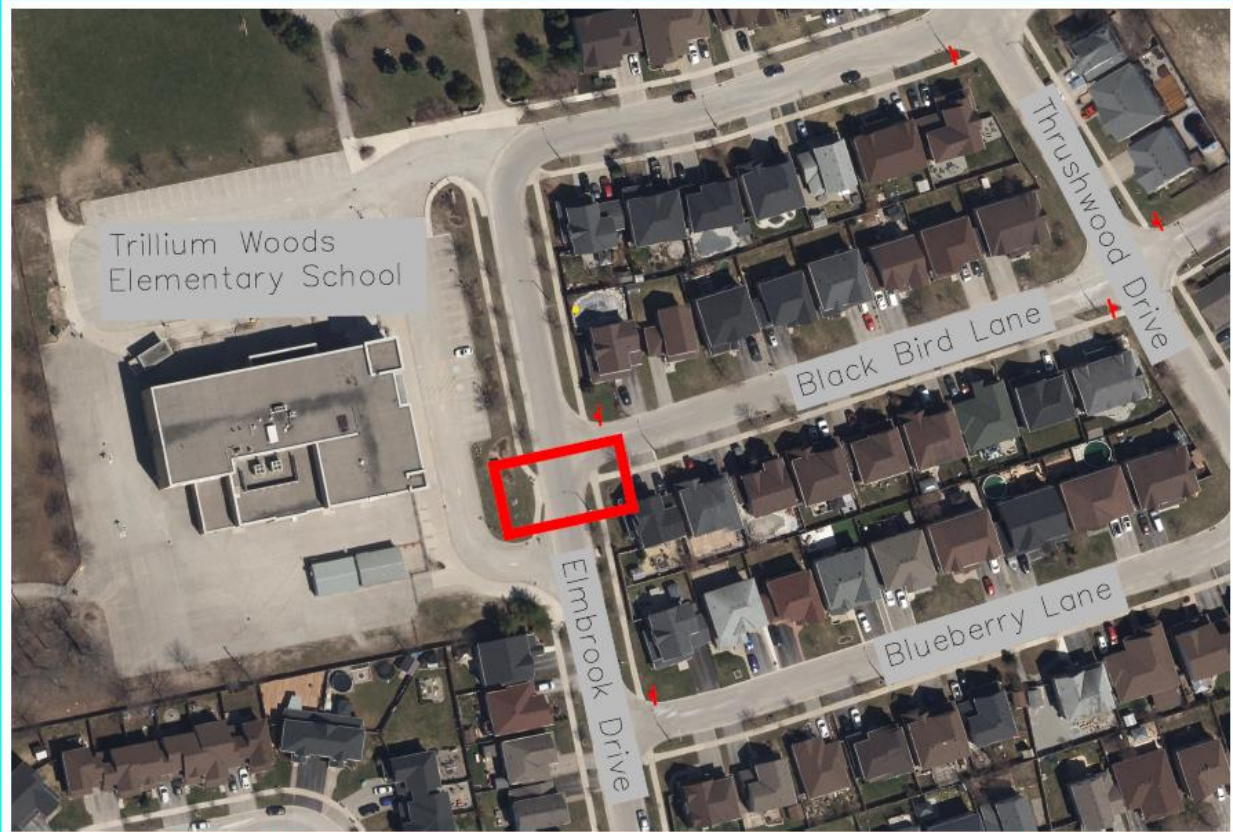
**LINKAGE TO 2018-2022 STRATEGIC PLAN**

25. The recommendation(s) included in this Staff Report support the following goals identified in the 2018-2022 Strategic Plan:
- Improving the Ability to Get Around Barrie – Create Safer Streets
26. The recommendation of installing Pedestrian Crossovers at the intersections of Thrushwood Drive and Elmbrook Drive/Megan Crescent and Elmbrook Drive and Black Bird Lane will improve safety and traffic operations for pedestrians and motorists. This recommendation correlates directly with Council's 2018-2022 strategic priorities by creating safer streets.

APPENDIX "A"



APPENDIX "B"



Elmbrook Drive and Black Bird Lane PXO Location

LEGEND:  
■ Proposed PXO Location  
↑ Existing Stop Signs

DATE:  
May 2022  
SCALE:  
NTS



APPENDIX "C"

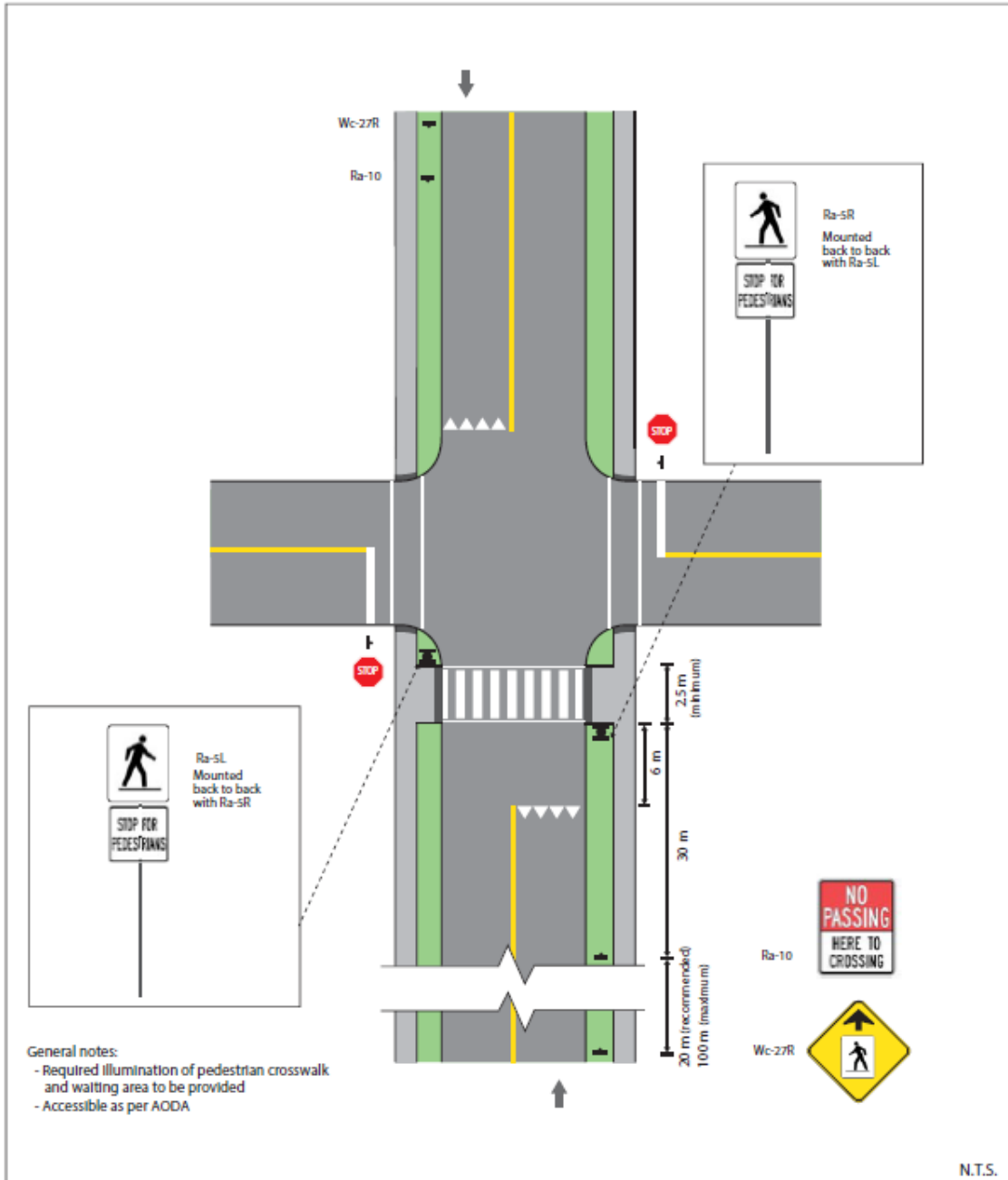


Figure 44: Pedestrian Crossover Level 2 Type D – Intersection (2-way)