
RTO: GENERAL COMMITTEE

SUBJECT: ALL-WAY STOP – ELMBROOK DRIVE AND BROOKWOOD DRIVE

WARD: 7

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

SUBMITTED BY: D. FRIARY
DIRECTOR OF ROADS, PARK, AND FLEET

GENERAL MANAGER APPROVAL: A. MILLER, RPP
ACTING GENERAL MANAGER OF INFRASTRUCTURE AND GROWTH MANAGEMENT

CHIEF ADMINISTRATIVE OFFICER APPROVAL: M. PROWSE
CHIEF ADMINISTRATIVE OFFICER

RECOMMENDED MOTION

1. That Traffic By-law 80-138, Schedule “S” “Providing for the Erection of Stop Signs at Intersections” be amended by adding the following:

“Elmbrook Drive and Brookwood Drive”

Northbound and Southbound on Elmbrook Drive and Eastbound and Westbound on Brookwood Drive.”

PURPOSE & BACKGROUND

2. The Ward Councillor has requested that staff in Roads, Parks and Fleet Department review the intersection of Elmbrook Drive and Brookwood Drive to improve traffic movements and safety and report back to General Committee with respect to any corrective actions that may be required.
3. Elmbrook Drive is a two (2) lane local roadway with a sidewalk on the north and south side, with a traffic volume of less than a 1,000 vehicles per day and a pavement width of 8.5 metres. 25 metres north of Brookwood Drive, Elmbrook Drive is a Community Safety Zone with a reduced speed limit of 40km/h as Trillium Woods Elementary School is located at the north end of Elmbrook Drive. Please refer to Appendix “A”.
4. Brookwood Drive is a two (2) lane local roadway with sidewalks on the east and west side, with a daily volume of less than a 2,000 vehicles per day and a pavement width of 8.5 metres. Please refer to Appendix “A”.

ANALYSIS

5. The OTM warrant is based on volume, collision history, and stopping sight distance of the intersection. There are two (2) variations of Minimum Volume Warrants identified in the OTM based on the classification of the roadway. The variations are Minor Roadways (Local Roadways) and Major Roadways (Collector and Arterial Roadways). Brookwood Drive is classified as a local roadway and therefore the Minor Roadway Minimum Volume Warrant was used. Each component of the All-Way Stop Warrant has the ability to satisfy the warrant independently.

- **Volume** - the total number of vehicles entering an intersection during the peak hour as well as the percentage of vehicles on the minor street during the peak hour.
- **Collision History** - reviews collisions over a three-year period which are correctable through All-Way Stop control (i.e. right angle and turning type collisions) and which are reported to the Barrie Police Service.
- **Stopping Sight Distance** - the distance required for a driver to see ahead in order to stop, if necessary.

A traffic count was completed on December 13, 2018, for the purpose of completing an All-Way Stop warrant. The results of the investigation are summarized below:

Description	All-Way Warrant	Recorded Data	Satisfied All-Way Warrant	
			Yes	No
Part 1a – Total Volume Peak Hour Traffic Volume ⁽¹⁾	Greater than 350 vehicles in peak hour ⁽²⁾	292 vehicles in the peak hour		
Part 1b – Volume Split Percentage of Traffic on Elmbrook Drive (Minor Street)	Greater than 35% ⁽²⁾	134 vehicles (46%)		X
Part 2 – Collisions Intersection Collision History	Average four per year over three years	0 collisions over a 3-year period		X
Part 3 – Visibility Stopping Sight Distance from Elmbrook Drive	Less than 65m	No Restrictions		X

- Residents were 75/25 regarding the implementation of the All-Way Stop at the intersection of Elmbrook Drive and Brookwood Drive. The 75% of residents that were in favour of the All-Way Stop noted concerns of high pedestrian volume from students which attend Trillium Woods Elementary School which is located at the north end of Elmbrook Drive.
- After review of the intersection of Elmbrook Drive and Brookwood Drive staff recommend an All-Way Stop be installed as there is close to a 50/50 split with volume on the Minor and Major Street.
- In the peak hour there were 74 pedestrian movements through the intersection, which is above average pedestrian volume for two local streets. Majority of pedestrians are school aged, travelling to and from Trillium Woods Elementary School. 57% of those pedestrians analyzed were crossing Brookwood Drive which is the straight through street. 43% of the pedestrians crossed at Elmbrook Drive which has the stop control.
- Currently the total peak hour traffic volume is 16% from meeting the All-Way Stop Warrant. With the future Big Bay Point Road and Harvie Road extension scheduled for completion in 2020, Staff anticipate an increase in traffic volume through the intersection due to potential east and westbound cut through traffic. This increase in future traffic volume would likely then satisfy Part 1a and Part 1b of the Warrant.
- In anticipation of future traffic growth, Staff recommend that Traffic By-law 80-138 Schedule "S" "Providing for the Erection of Stop Signs at Intersections" be amended by adding the following:

"Elmbrook Drive and Brookwood Drive"

Northbound and Southbound on Elmbrook Drive and Eastbound and Westbound on Brookwood Drive"

11. Barrie Fire and Emergency Services and Municipal Law Enforcement do not oppose the recommended motion.

ENVIRONMENTAL MATTERS

12. At a typical All-Way Stop location, the following vehicle emissions are released each Year:
- 657 kg (1,448 lbs) of hydrocarbons (HC);
 - 8,760 kg (19,312 lbs) of carbon monoxide (CO);
 - 675 kg (1,448 lbs) of nitrogen oxides (NOx); and
 - 65,700 kg (144,842 lbs) of carbon dioxide (CO₂).

ALTERNATIVES

13. There is one alternative available for consideration by General Committee:

Alternative #1

General Committee could decide not to install the All-Way stop at Elmbrook Drive and Brookwood Drive.

1. This alternative is not recommended as the All-way Stop Warrant is within 16% of the total vehicle volume required to be satisfy the OTM warrant. Additionally, with the future implementation of Big Bay Point Road and Harvie Road extension, staff anticipate an increase in traffic volume through the intersection. This increase in future traffic volume would likely then satisfy Part 1a and Part 1b of the Warrant.

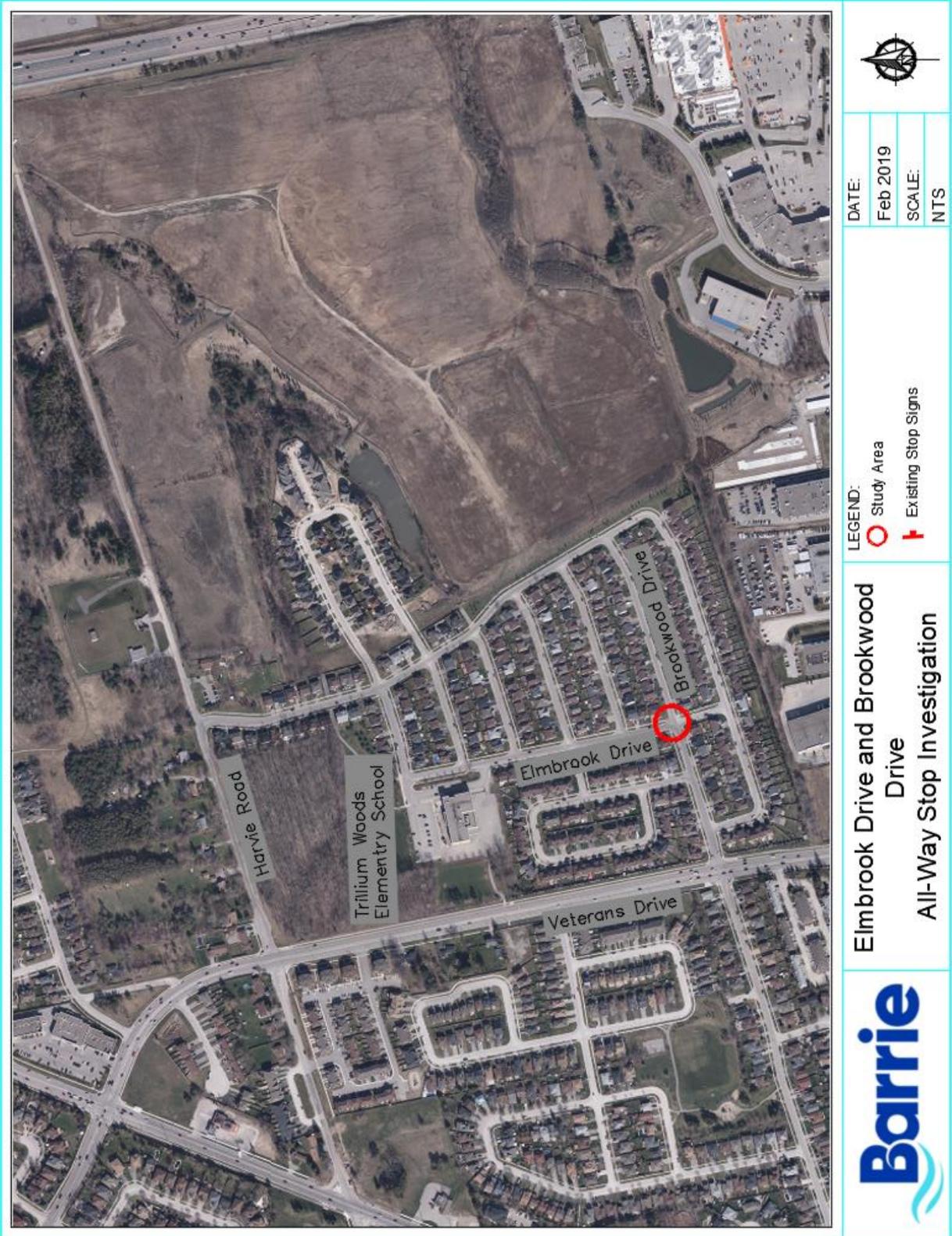
FINANCIAL

14. The cost associated with the recommended motion would be approximately \$750 and can be accommodated within the 2019 Operating Budget.

LINKAGE TO COUNCIL STRATEGIC PRIORITIES

15. The recommendation included in this Staff Report support the following goals identified in the 2018-2022 Strategic Plan:
- a) Improving the ability to get around Barrie
16. The recommended motion will and increase operational safety by clearly assigning the right-of-way between vehicles approaching the intersection from different directions and can reduce right angle or turning collisions. Moving forward with future growth in the area at Big Bay Point Road and Harvie Road extension this measure will help ensure safe and efficient travel.

APPENDIX "A"



DATE:	Feb 2019
SCALE:	NTS

LEGEND:

	Study Area
	Existing Stop Signs

Elmbrook Drive and Brookwood Drive
All-Way Stop Investigation