
TO: GENERAL COMMITTEE

SUBJECT: ALL-WAY STOP – COX MILL ROAD AND TOLLENDAL MILL ROAD

WARD: 8

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

SUBMITTED BY: D. FRIARY, DIRECTOR OF OPERATIONS

GENERAL MANAGER APPROVAL: A. BOURRIE, RPP, 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:

"Cox Mill Road and
Tollendal Mill Road

Northbound and Southbound on Cox Mill Road and
Eastbound and Westbound on Tollendal Mill
Road."

PURPOSE & BACKGROUND

2. Staff in the Operations Department had received a concern from residents to review the intersection of Cox Mill Road and Tollendal Mill Road to improve traffic movements and safety.
3. Cox Mill Road is a two lane major collector roadway with a pavement width of 11.0 metres, a sidewalk on the east side and Sheppard Park on the west side. There is a traffic volume of approximately 2,000 vehicles per day. Please refer to Appendix "A".
4. Tollendal Mill Road is a two lane minor collector roadway with a pavement width of 8.5 metres. East of Cox Mill Road it has an urban cross-section with curb and gutter and a sidewalk on the north side. West of Cox Mill Road there is a rural cross-section with asphalt shoulders and a horizontal and vertical curve with guard rails on either side. Tollendal Mill Road has approximately 2,000 vehicles per day. 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 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). Tollendal Mill Road is classified as a minor collector and Cox Mill Road is classified as a major collector therefore the Arterial and Major 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 April 11th, 2017, 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	Greater than 500 vehicles per hour for 8 hours ⁽¹⁾	144 vehicles in the peak hour ⁽²⁾		
Part 1b – Volume Split Percentage of Traffic on Tollendal Mill Road (Minor Street)	Greater than 200 vehicles and pedestrians per hour and does not exceed a 70/30 split.	104 vehicles and pedestrians with a 72/28 split.		X
Part 2 – Collisions Intersection Collision History	Average four per year over three years	1 collision over a 3-year period		X
Part 3 – Visibility Stopping Sight Distance from Cox Mill Road (south leg to east leg)	Less than 105m	Stopping Sight Distance 78m	X	

(1) 1a & 1b must both be satisfied to warrant an All-Way stop.

(2) Over the 8 hour count, the average hourly traffic volume is 103 vehicles.

- One collision over 3 years does not meet the warrant requirements. However, it is worth noting that the collision occurred in the intersection due to the motorist travelling northbound on Cox Mill Road believing that the intersection was an all-way stop and proceeded through the intersection, causing the collision with a vehicle travelling westbound on Tollendal Mill Road.
- After review of the intersection of Cox Mill Road and Tollendal Road, staff recommend an All-Way Stop be installed as there are restrictions due to the lack of stopping sight distance for eastbound vehicles. Stopping sight distance is the distance it takes for a vehicle to stop once the brakes have been applied. The values of stopping sight distance are used for curve design, intersection geometry and the placement of traffic control devices. Staff measured a maximum stopping sight distance of 78m for eastbound traffic. The required minimum distance for Tollendal Mill Road is 105m. This reduction in stopping sight distance is due to the horizontal and vertical alignments of the roadway.
- In the eight hour count period there were sixty-nine (69) pedestrian movements through the intersection. Majority of pedestrians are travelling along the east leg of the intersection which leads to and from Tyndale Park. 77% of those pedestrians analyzed were crossing Tollendal Mill Road which is the only way to Tyndale Park from this intersection.

9. Based on insufficient stopping sight distance, 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:

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10. Barrie Fire, Barrie Police Services, Emergency Services and Municipal Law Enforcement do not oppose the recommended motion.

ENVIRONMENTAL AND CLIMATE CHANGE IMPACT MATTERS

11. 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

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

Alternative #1

General Committee could decide not to install the All-Way stop at Cox Mill Road and Tollendal Mill Road.

This alternative is not recommended as there is an insufficient stopping sight distance. This is due to the horizontal and vertical alignments through the urban cross-section portion of Tollendal Mill Road.

FINANCIAL

13. 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

14. 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.
15. The recommendation will 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 due to the existing insufficient stopping sight distance. This measure will help ensure safe and efficient travel.

APPENDIX "A"

