



TO: GENERAL COMMITTEE

SUBJECT: INVESTIGATION TO IMPROVE TRAFFIC OPERATIONS –
INTERSECTION OF BAYVIEW DRIVE AND BALDWIN LANE

WARD: 8

PREPARED BY AND KEY CONTACT: M. KAVECKAS
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SUBMITTED BY: D. FRIARY, DIRECTOR OF OPERATIONS

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

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

RECOMMENDATION

1. That the existing stop control at the intersection of Bayview Drive and Baldwin Drive be maintained as a result of the investigation to improve traffic operations and as identified in Staff Report OPR006-20.
2. That staff in the Operations Department implement/install an acceleration lane for the right-turn channelization for eastbound right turning vehicles travelling from Baldwin Lane to southbound on Bayview Drive to improve the traffic operations and safety.

PURPOSE & BACKGROUND

3. Staff have received motion; 19-G-229 which states “That staff in the Operations Department investigate solutions to improve traffic operations at the intersection on Bayview Drive and Baldwin Lane as it relates to the eastbound right turn movements and report back to General Committee.”
4. Bayview Drive within the study area is a two (2) lane major collector roadway with a pavement width of approximately 10.6 metres. Bayview Drive has an urban cross-section with residential driveway accesses on both sides of the road. Allendale Heights Public School is located just south of the intersection. There are approximately 6,000 vehicles travelling through this location per day.
5. Baldwin Lane a two (2) lane major collector roadway with a pavement width of 8.0 metres. Baldwin Lane has an urban cross-section with residential driveway accesses on both sides of the road. IOOF Seniors Home is located on Baldwin Lane, west of the intersection. There are approximately 4,500 vehicles travelling on the road per day.
6. Staff received concerns regarding limited stopping sight distance for eastbound vehicles from Baldwin Lane onto Bayview Drive due to a tree located on the northwest corner of the intersection at 76 Baldwin Lane. Refer to Appendix ‘A’

ANALYSIS

7. Staff reviewed the All-Way Stop Warrant to analyze the intersection. The Ontario Traffic Manual (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 (Collectors and Arterial Roadways). Baldwin Lane and Bayview Drive are both classified as major collectors. Therefore, the 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 any hour per day 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 February 21, 2019, 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 500 vehicles per hour for 8 hrs ⁽²⁾	699 vehicles in the peak hour ⁽³⁾		
Part 1b – Volume Split Percentage of Traffic on Baldwin Lane	Greater than 200 vehicles and pedestrians per hour and does not exceed a 70/30 split.	169 vehicles and pedestrians with a 76/24 split.		X
Part 2 – Collisions Intersection Collision History	Average four per year over three years	6 collision over a 3-year period		X
Part 3 – Visibility Stopping Sight Distance from Baldwin Lane – Both directions	Less than 105m	132m - Northbound 160m - Southbound		X

(1) *Peak Hour Volume is the maximum number of vehicles that pass through the intersection per hour for each of any eight hours of the day.*

(2) *1a & 1b must both be satisfied to warrant an All-Way stop.*

(3) *Over the eight hour count, the average hourly traffic volume is 544 vehicles.*

8. Staff have analysed the data from the intersection turning movement count. The warrants from the Ontario Traffic Manual Book 5 were not met, as none of the parts of the warrant were satisfied. There was an average hourly volume of 544 vehicles per hour however the volume of the side street – Baldwin Lane did not exceed 30% of the required volume.
9. Collisions that were recorded at the intersection did not highlight any trend that could be correctable from the implementation of an all-way stop.

10. Staff identified that the tree at 76 Baldwin Lane which is on the northwest corner of the intersection was limiting the amount of stopping sight distance for a motorist making the eastbound right turn movement onto Bayview Drive. As a result, the tree was removed which increased the visibility at the intersection. Staff completed a site visit post tree removal and measured the stopping sight distance. The measurements were 132 metres looking northbound, and 160 metres looking southbound. The minimum stopping sight distance based on Transportation Association of Canada guidelines require a minimum of 105 metres. If this minimum distance can not be achieved an all-way stop is warranted. Refer to Appendix 'A'.
11. Based on staff observations and the removal of the tree on the northwest corner, it is recommended that the existing stop control is maintained at Bayview Drive and Baldwin Lane. Staff will improve traffic operations and safety by implementing an acceleration lane and lane ends sign for the right-turn channelization for vehicles travelling from Baldwin Lane to southbound on Bayview Drive. Refer to Appendix 'B'.
12. Unwarranted all-way stops create operational and safety concerns for both pedestrian and vehicles entering the intersection. The unwarranted all-way stop makes drivers feel the stop is unnecessary and motorists typically do not comply with the stop control.
13. Staff do not recommend an all-way stop as the geometrics of the road do not support the stop control. Visibility of a potential sign would be hampered by the vertical curve. Vehicles travelling northbound on Bayview Drive would be required to stop on a steep grade which poses operational and safety concerns.
14. Barrie Police Service, Barrie Fire and Emergency Service and Municipal Law Enforcement staff do not oppose the recommended motion.

ENVIRONMENTAL AND CLIMATE CHANGE IMPACT MATTERS

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

ALTERNATIVES

16. There is one (1) alternative available for consideration by General Committee:

Alternative 1 General Committee could decide to implement an all-way stop at the intersection of Bayview Drive and Baldwin Lane.

This alternative is not recommended as the existing traffic volume does not satisfy the OTM warrant for the installation of all-way stops.

FINANCIAL

17. The cost of implementing the proposed pavement marking improvements and signage is approximately \$500 which can be accommodated in the 2020 Operation budget.



LINKAGE TO 2018-2022 STRATEGIC PLAN

18. The recommendation included in this Staff Report supports the following goals identified in the 2018-2022 Strategic Plan:

- a) Improving the ability to get around Barrie.

The recommendation will increase operational safety by clearly designating an acceleration lane for vehicles turning from Baldwin Lane onto Bayview Drive southbound. This improvement along with the removal of the tree on the northwest corner of the intersection, increasing stopping sight distance will ultimately enhance the safety of motorists.

APPENDIX "A"



APPENDIX "B"

