



TO: GENERAL COMMITTEE


SUBJECT: CUMMING DRIVE – ADDITIONAL TRAFFIC CALMING MEASURES

WARD: WARD 6

PREPARED BY AND KEY CONTACT: J. MACDONALD, C. TECH.
TRANSPORTATION TECHNOLOGIST (Ext. 5178) 

SUBMITTED BY: J. WESTON, M.A.Sc., P. Eng., PMP
DIRECTOR OF ENGINEERING 

GENERAL MANAGER APPROVAL: R. J. FORWARD, MBA, M.Sc., P. Eng.
GENERAL MANAGER OF INFRASTRUCTURE & GROWTH MANAGEMENT 

CHIEF ADMINISTRATIVE OFFICER APPROVAL: C. LADD
CHIEF ADMINISTRATIVE OFFICER 

RECOMMENDED MOTION

1. That Staff Report ENG029-13 be received for information in response to a Council request for an investigation.

PURPOSE & BACKGROUND

2. The purpose of this staff report is to review the use of additional traffic calming measures on Cumming Drive. The use of additional speed cushions has been utilized and has been effective in reducing cut through traffic. The use of permanent traffic calming measures has been reviewed and staff recommend that permanent traffic calming measures be considered in preparation of 2014 Business Plan through the preparation of a capital needs justification form for:
 - a) Raised intersection at Cumming Drive and Stapleton Place; and
 - b) Curb bump outs on Cumming Drive near Cumming Park.
3. On November 19, 2012, City Council adopted motion 12-G-313 regarding the investigation of additional traffic calming measures on Cumming Drive as follows:

"That staff in the Engineering Department investigate and report back to General Committee on additional traffic calming measures for Cumming Drive to address a history of speeding related issues and accidents which continue despite the existence of speed cushions, including but not limited to the following:

- a) The implementation of an all-way stop at Cumming Drive and Stapleton Place;
- b) The installation of additional speed cushions at or near the area of 180 Cumming Drive (the area of the first turn coming west from Ferndale Drive on Cumming);
- c) The installation of curb bump outs at or near the area of 180 Cumming Drive (the area of the first turn coming west from Ferndale Drive on Cumming); and

4. Cumming Drive is a local roadway with a pavement width of 8.5 metres, sidewalk on the north side and a daily volume of 1,150 vehicles. Please refer to Appendix "A" for the study area.
5. The City has received ongoing concerns from residents on Cumming Drive regarding vehicular speed, volume, and cut through traffic.
6. Staff also received several requests for All-Way Stops at the intersection of Cumming Drive and Stapleton Place, and Cumming Drive and Bloom Crescent (both legs).

ANALYSIS

7. A speed study was conducted in April 2013 on Cumming Drive between Ferndale Drive and Stapleton Place, and found the 85th percentile speed of the roadway is 52 km/h. The 85th percentile speed is the speed at which 85% of the vehicles travel at and below. Cumming Drive is a residential roadway with a speed limit of 50 km/h. Based on the results of the study the 85th percentile speed is typical of a residential roadway and does not pose any operational and safety concerns.
8. Staff completed a license plate study in December 2012 to determine the percentage of cut through traffic. Cut through traffic is traffic that uses residential roadways to get to a designation outside of the neighbourhood to avoid using arterial roadways. The results of the study showed that approximately 50% of vehicles travelling Cumming Drive were using the roadway as a cut through.
9. In July 2013 staff conducted a follow up license plate study to determine the percentage of cut through traffic on Cumming Drive when the speed cushions are installed. The results of the study showed that 20% of vehicles use Cumming Drive as a cut through; this is a reduction from December 2012 of 30%.

ALL-WAY STOP INVESTIGATION

10. Staff has investigated the intersection of Cumming Drive and Stapleton Place to determine if an All Way Stop is warranted based on the criteria within the Ontario Traffic Manual (OTM) Book 5 – Regulatory Signs.
11. 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). Cumming Drive and Stapleton Place are classified as local roadways 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.

12. A traffic count was completed on May 28, 2013, 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⁾	147 vehicles in the peak hour		
Part 1b – Volume Split Percentage of Stapleton Place (Minor Street)	Greater than 25% ⁽²⁾	25 vehicles (28%)		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 Stapleton Place	Less than 65m	No restrictions		X

- (1) Peak Hour Volume is the maximum number of vehicles that pass through the intersection during a one hour period.
(2) 1a and 1b must both be satisfied to warrant an All-Way stop.

13. An All Way Stop Survey was prepared and mailed to 66 property owners on Cumming Drive and Stapleton Place. Results of the All-Way Stop Survey are as follows:

Cumming Drive and Stapleton Place All-Way Stop Survey	Responses Received	Percentage of Responses
Option A - If minimum warrants are NOT SATISFIED using the All Way stop criteria in the Ontario Traffic Manual leave as is (traffic along Stapleton Avenue stops at Cumming Drive).	11	65%
Option B - If minimum warrants are SATISFIED using the All Way stop criteria in the Ontario Traffic Manual install an All Way Stop at Cumming Drive and Stapleton Place.	6	35%
TOTAL (Out of 66)	17	26%

14. Staff has reviewed the intersection of Cumming Drive and Stapleton Place for the installation of an All Way Stop. Based on the results of the investigation and resident survey, the installation of an All Way Stop at this intersection does not satisfy the warrants identified in the OTM at this time and is therefore not recommended. In accordance with the Council approved All Way Stop Policy the results are provided to advise of the results of an investigation when the OTM warrants have not been satisfied.

ADDITIONAL SPEED CUSHIONS

15. For the past three (3) years the City has installed speed cushions on Cumming Drive and has received positive feedback regarding the installations. The initial program consisted of two (2) speed cushion sections on Cumming Drive and in consideration of motion 12-G-313, an additional speed cushion section was added to the 2013 program for Cumming Drive.
16. The additional speed cushions for 2013 were to provide additional traffic calming on Cumming Drive to capture vehicles as they accelerate down the hill as vehicles enter from Emms Drive.

CURB BUMP OUTS

17. In 2009 a Traffic Calming Pilot Project was launched and as part of this project a curb extension was installed on Sandringham Drive south of Birkhall Place. The cost to implement the curb extension cost approximately \$10,000. The existing curbing was cut and increased to create a "pinch point" which is designed to reduce vehicular speed. The curb extension do cause minimal operational concerns during winter maintenance as snow plows must slow down and retract the side blade as the roadway width is decreased.
18. On-street parking would be prohibited near the proposed curb bump outs to ensure clear sight lines for approaching vehicles as there would be a narrowing of the roadway. The limits of no parking would have to be determined once detailed design is completed.
19. Staff recommend that a curb bump out be considered in the preparation of the 2014 Business Plan for the installation on Cumming Drive near Cumming Park.
20. The installation of curb bump out would reduce vehicular speed on Cumming Drive near Cumming Park, and help reduce the volume of cut through traffic. Please refer to Appendix "B".

RAISED INTERSECTION

21. In 2009 a Traffic Calming Pilot Project was launched and as part of this project a raised intersection was installed at Sandringham Drive and Birkhall Place. The cost to implement the raised intersection cost approximately \$55,000. Currently, the raised intersection does not cause any operational concerns during winter maintenance.
22. Staff tested the raised intersection using a Barrie Transit bus and did not have any operational concerns with the use of raised intersections on transit routes.
23. Raised intersections reduce vehicle speeds and reduce cut through traffic. This is achieved by physically raising the intersection approximately 80 mm above the grade of the roadway and provides a vertical deflection for drivers as they travel through the intersection.
24. Staff reviewed implementing a raised intersection at both the east and west intersections of Cumming Drive and Bloom Crescent, however this is not recommended as the east leg is on a 6% grade, and the west leg is on a bend limiting sight distance. The steep grade and limited sight distance pose operational and safety concerns.
25. Staff recommend that a raised intersection be considered in the preparation of the 2014 Business Plan for the installation at Cumming Drive and Stapleton Place.
26. The installation of a raised intersection at Cumming Drive and Stapleton Avenue would reduce vehicular speed on Cumming Drive and help reduce the volume of cut through traffic. Please refer to Appendix "B".

27. Barrie Fire and Emergency Service supports the proposed recommendation.
28. Staff will continue to review vehicle speeds and cut through traffic on Cumming Drive to evaluate the effectiveness of the proposed raised intersection and curb bump out.

ENVIRONMENTAL MATTERS

29. There are no environmental matters related to the recommendation.

ALTERNATIVES

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

Alternative #1 General Committee could decide to install an All Way Stop at Cumming Drive and Stapleton Place.

This Alternative is not recommended as staff completed an All Way Stop investigation and as a result of the investigation the minimum warrants were not satisfied at this time.

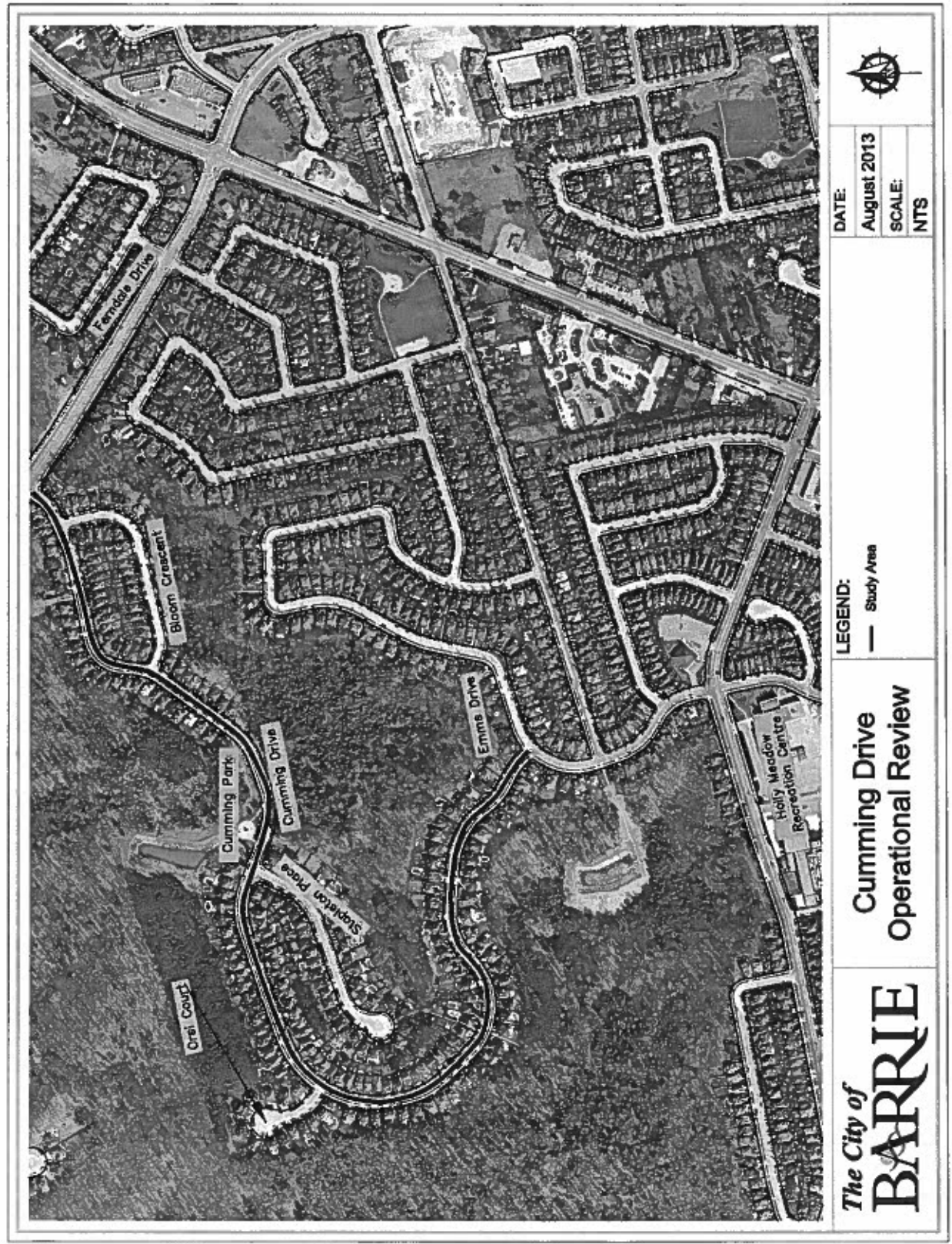
FINANCIAL

31. Based on the premise that the permanent traffic calming measures will decrease the traffic volume on a roadway, and hence extend the useful life of the road asset, a capital needs justification form will be prepared for consideration in the 2014 Business Plan development process:
 - a) Design of the raised intersection and curb bump out (\$10,000)
 - b) Construction of raised intersection (\$55,000)
 - c) Construction of curb bump outs (\$15,000)
32. The installation of the raised intersection and curb bump out would result in a savings of \$5,000 per year as temporary speed cushions would no longer be installed on Cumming Drive but the savings would be utilized for temporary installations on other roadways.

LINKAGE TO 2010 – 2014 COUNCIL STRATEGIC PLAN

33. The recommendation(s) included in this Staff Report are not specifically related to the goals identified in the 2010-2014 City Council Strategic Plan.

Appendix "A"



Appendix "B"

