
TO: GENERAL COMMITTEE

SUBJECT: HURONIA ROAD/McKAY ROAD EAST (formerly 10th LINE) TRAFFIC SIGNALS – ADDITION TO THE 2011 CAPITAL PLAN

PREPARED BY AND KEY CONTACT: K. OAKLEY, P. ENG.
INFRASTRUCTURE PROGRAM ENGINEER (Ext. 4451) *K. Oakley*

SUBMITTED BY: B. G. PARKIN, P. ENG. *B. G. Parkin*
INTERIM DIRECTOR OF CORPORATE ASSET MANAGEMENT

GENERAL MANAGER APPROVAL: R. J. FORWARD, MBA, M.Sc., P. Eng.
GENERAL MANAGER OF INFRASTRUCTURE, DEVELOPMENT & CULTURE *R. J. Forward*

CHIEF ADMINISTRATIVE OFFICER APPROVAL: JON M. BABULIC
CHIEF ADMINISTRATIVE OFFICER *J. M. Babulic*

RECOMMENDED MOTION

1. That the installation of traffic signals at the intersection of Huronia Road and McKay Road East (formerly 10th Line) be added to the 2011 Capital Plan and funded in the amount of \$85,000 from the Tax Capital Reserve (13-04-0440).
2. That an all way stop be implemented immediately at the intersection of Huronia Road and McKay Road East (formerly 10th Line), and funded in the amount of \$6,500 from the Tax Rate Stabilization Reserve (13-04-0461), and that the all way stop remain in place until such time as traffic signals are installed.

PURPOSE & BACKGROUND

3. Prior to January 1, 2010, all four quadrants of the intersection of McKay Road East and Huronia Road were within the Town of Innisfil (the Town). Operation of the intersection was the responsibility of the County of Simcoe (the County). On January 1, 2010, Bill 196, the Barrie-Innisfil Boundary Adjustment Act, 2009, came into force and the north-west and south-west quadrants of the intersection were transferred from Innisfil to Barrie. Bill 196 established the boundary between the City and the Town as the middle of the road allowances. As such, the ownership of the lands at McKay Road and Huronia Road intersection are split between the City and the Town, i.e. west side owned by Barrie and the east side owned by Innisfil.
4. In late 2009, the City, the Town and the County entered into a series of agreements that, among other things, lay out responsibility for control, operations and maintenance of roads and intersections along the new boundaries. The intersection of Huronia Road and McKay Road East falls under the jurisdiction of the City to operate and maintain, including provision of traffic control. The agreement further states that costs associated with traffic control infrastructure will be shared between jurisdictions according to actual ownership.
5. The County had planned to install traffic signals at this location in 2010, however the timing of the annexation meant the work was not completed by the County.
6. After the annexation occurred, the City became aware of the traffic operations at the intersection and in 2010 installed a flashing beacon and improved signage to improve safety.

7. City staff have undertaken a traffic study at this intersection and confirmed that the intersection does meet the warrants for signalization. For additional details please refer to appendix A. The project was identified as a need during preparation of the 2011 – 2020 Capital Plan, and the signals are currently shown in 2014.

ANALYSIS

8. While the flashing beacon and signage provide improvement over the previous conditions, they do not provide the same level of safety and operational improvement that traffic signals would. The existing measures also do not mitigate the potential liability exposure to the City. Over the last several months the City has had the opportunity to undertake additional analysis including public input.
9. Staff have analyzed the operation of the existing intersection with full traffic signals at Huronia Road and McKay Road East using the same volume of the busiest peak hour period of the day (4:30 p.m. - 5:30 p.m.), collected from the Turning Movement Study. Analysis shows that the intersection would operate at a Level of Service A, once fully signalized. Level of Service is a qualitative measure describing the operational characteristics of a roadway, ranging from a Level of Service A (being the best driving conditions) to a Level of Service F (represents gridlock).
10. The reconstruction of Mapleview Drive in the vicinity of Highway 400 is forcing vehicles to find alternate routes of travel and McKay Road East is one of these roadways accommodating additional east-west traffic. Staff have observed queuing of vehicles on McKay Road East at Huronia Road, and temporary traffic signals will improve these traffic operations.
11. Given that the intersection meets the signal warrants, it is recommended that the intersection be signalized in 2011. Information from the ongoing engineering and planning studies in the newly annexed lands will provide insight into the ultimate configuration of this intersection. In the meantime temporary traffic signals are recommended for this intersection, as they will more easily accommodate future construction. Many of the items associated with the temporary signals will be able to be reused for a permanent signal installation.
12. It is estimated that the design, tendering and construction of temporary signals can be completed in 2011, however the signals would not be operational until the end of 2011. It is therefore recommended that an all way stop be implemented immediately, as an interim measure. The intersection would operate at a Level of Service B under an all way stop condition.
13. The 2011 work plan for the Engineering Department can accommodate the hours required to coordinate the implementation of an all way stop, as well as complete the design and installation of the temporary traffic signals. There are not expected to be significant impacts to any other projects already included in the work plan, as the total time required for the work being recommended in this report, is not a substantial portion of the overall work plan for 2011.
14. The risks of not proceeding with this work in 2011 include the public health and safety concerns associated with the existing circumstances at the intersection, as well as a continuation of the poor traffic operations, such as long wait times.

ENVIRONMENTAL MATTERS

15. There are no environmental matters associated with this recommendation.

ALTERNATIVES

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

Alternative #1

General Committee could not approve the installation of the temporary traffic signals or the all way stop.

This alternative is not recommended, as the existing conditions present a public health and safety issue, and associated liability exposure for the City.

Alternative #2

General Committee could choose not to approve the installation of the traffic signals, but approve the all way stop.

This alternative is not recommended. Although it does mitigate public health and safety, and associated liability exposure for the City, it does not provide the level of service that could be attained with signals.

FINANCIAL

17. Cost estimates for installation of temporary signals and removal of the existing flashing beacon have been prepared by the Engineering Department, and amount to \$85,000. The work would be funded 100% from the Tax Capital Reserve (13-04-0440).
18. The cost to implement an all way stop is estimated at \$6,500 and would be funded from the Tax Rate Stabilization Reserve (13-04-0461). All materials associated with the all way stop can be reused when the signals are installed.
19. An agreement between the City, the County and the Town, signed in late 2009 addresses cost sharing for traffic control infrastructure at intersections on boundary roads. At this time, all of the necessary funding to complete the work is being requested from City sources, in order to proceed with tendering of the project; however staff will enter into discussions with the County and/or Town and report back once a decision on cost sharing has been reached.

LINKAGE TO 2010 – 2014 COUNCIL STRATEGIC PLAN

20. 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

**Traffic Signal Warrant Information for Huronia Road at
McKay Road East (formerly 10th Line) Based on January 6, 2010 Traffic Study**

A Turning Movement Study was conducted to assess the Traffic Signal Warrant at the Huronia Road and 10th Line intersection on January 6, 2010, to collect the vehicle volumes over the busiest eight hours of the day. The Traffic Signal Warrant is a Provincial Guideline for determining the justification of traffic control signal installations.

The Traffic Signal Warrant is composed of four (4) areas of justification:

- a) Minimum Vehicular Volume – Addresses the minimum volume conditions in which signalization can be used to minimize total average vehicle delay from all approaches at the intersection.
- b) Delay to Cross Traffic – Intended where the traffic volume on the main road causes excessive delay or creates a traffic hazard to traffic entering or crossing the main road from a cross street.
- c) Accident Experience – Where an un-signalized intersection has a high collision record.
- d) Combination Warrant – Signals are justified where one of Warrant No's 1, 2 or 3 is 100% satisfied, or where two or more are at least 80% of the warranted values.

The Warrant Values for Huronia Road and 10th Line are as follows:

TRAFFIC SIGNAL WARRANT	WARRANT VALUE	ACTUAL VALUE
Warrant No. 1 - Minimum Vehicular Volumes	480 vehicles per hour on all approaches combined for eight hours in one day. 80% of traffic volume required to satisfy Warrant No. 1.	A) All Approaches: 93% fulfilled. B) Minor Street Both Approaches: 98% fulfilled.
Warrant No. 2 - Delay to Cross Traffic	480 vehicles per hour on the Major Roadway (Huronia Road) for eight hours in one day. 80% of traffic volume required to satisfy Warrant No. 2.	A) Major Street Both Approaches: 76% fulfilled. B) Traffic Crossing Major Street: 100% fulfilled.
Warrant No. 3 - Accident Experience	5 collisions per year for 3 consecutive years correctable by traffic signals.	5 collisions reported within last three years. 33% fulfilled.
Warrant No. 4 - Combination Warrant	Any 2 warrants satisfied at least 80% (Warrant No's 1, 2 or 3).	Warrant No. 1 satisfied at least 80%. No other warrant satisfied at least 80%.
Warrant Satisfied		NO (See notes below)

Notes: The lesser amount of each section of the warrant analysis is used to determine if the warrant is satisfied.

As Warrant No. 2 – Delay to Cross Traffic is 76% fulfilled and 4% away from warranting traffic control signal, Staff recommend the installation of traffic control signals as traffic is expected to have increased since the January 6, 2010 traffic study to satisfy the warrant.