



TO: GENERAL COMMITTEE


SUBJECT: INVESTIGATION OF INTERIM SOLUTIONS TO ROAD INFRASTRUCTURE -
MAPLEVIEW DRIVE EAST

WARD: 9

**PREPARED BY AND
KEY CONTACT:** L. BORGDORFF, P. ENG.,
SENIOR PROJECT ENGINEER (EXT. 4493) 

SUBMITTED BY: R. S. KAHLE, M. Eng., P. Eng.
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 asphalt patching work be undertaken on Mapleview Drive East from Country Lane to Yonge Street in the most severely deteriorated sections, in the approximate value of \$35,000 funded from the 2013 Business Plan.
2. That "Pedestrian Ahead" traffic signs be installed along Mapleview Drive East from Huronia Road to Yonge Street.

PURPOSE & BACKGROUND

3. The purpose of this staff report is to investigate potential interim solutions that could be implemented on Mapleview Drive East between Country Lane and Madelaine Drive, to address the structure and safety concerns associated with the condition of the road infrastructure.
4. On December 17, 2012, City Council adopted Motion 12-G-353 as follows:

"That staff in the Engineering Department investigate potential interim solutions that could be implemented on Mapleview Drive East between Country Lane and Madelaine Drive, prior to the future reconstruction of the road, to address the structure and safety concerns associated with the condition of the road infrastructure and report back to General Committee. (Item for Discussion 6.6, December 10, 2012) (File:T00)"
5. Concerns have been raised by the general public regarding vehicle and pedestrian safety due to the current degraded condition of Mapleview Drive East between Country Lane and Madelaine Drive.
6. Staff reviewed the section of Mapleview Drive East from Country Lane easterly to Yonge Street and noted that the road condition is as deteriorated from Madelaine Drive easterly to Yonge Street as it is from Country Lane to Madelaine Drive.

7. On Maplevue Drive East, there are:
 - a) 17,300 vehicles per day between Country Lane and Madelaine Drive; and
 - b) 10,000 vehicles per day between Madelaine Drive and Yonge Street.
8. Staff reviewed the vehicle speeds on Maplevue Drive East between Huronia Road and Yonge Street and found that 85% of the vehicles are travelling at or above 25 km/hr above the posted speed limit of 50 km/hr.
9. Maplevue Drive East from Huronia Road easterly to Yonge Street is a 2-lane rural cross section with gravel shoulders and ditches. The width of asphalt is approximately 7.3 m, and widens at several intersections for turning lanes.
10. Road repairs by the Roads, Parks, and Fleet Department on these and all sections of roads complies with the Ontario Regulation 239/02 "Minimum Maintenance Standards for Municipal Highways" under the Municipal Act for repair of road defects. The regulation sets out the size of defect that must be repaired and the allotted time in which it must be repaired. Road Patrol staff inspects roads regularly based on the prescribed frequency stated in the regulation to identify pot holes and other road defects and these deficiencies are passed along to Roads crews for repairs that are completed in a timely manner to meet or exceed the regulation.
11. The annual maintenance costs to maintain Maplevue Drive East in compliance with the Municipal Act are approximately:

a)	Country Lane to Madelaine Drive	\$18,400;
b)	Madelaine Drive to Yonge Street	\$4,600.

These annual maintenance costs are expected to persist in spite of additional maintenance work as per the recommendation due to the ongoing deterioration of the road surface.
12. Maplevue Drive East Widening and Reconstruction, from Huronia Road to Yonge Street, has these components already budgeted by Council:
 - a) In the 2012 Capital Budget:
 - i) Property acquisition for right-of-way widening;
 - ii) Utility Relocations;
 - iii) Roadway design (to confirm appropriate utility relocation); and
 - iv) Lover's Creek Culvert preliminary design.
 - b) In the 2013 Capital Budget:
 - i) Complete Phases 3 & 4 of Maplevue Drive East, Huronia Road to Yonge Street Environmental Assessment.
13. A preliminary schedule for reconstruction on Maplevue Drive East from Huronia Road to Yonge Street has been developed, subject to Council's adoption of the Capital Budgets for the following years:
 - a) In 2014, prepare detail design of Maplevue Drive East, Huronia Road to Country Lane;

-
- b) In 2015,
 - i) Complete the detail design and tender package for Mapleview Drive East, Huronia Road to Country Lane;
 - ii) Prepare detail design of Mapleview Drive East, Country Lane to Madelaine Drive;
 - c) In 2016,
 - i) Begin first year of construction for Mapleview Drive East, Huronia Road to Country Lane;
 - ii) Acquire the necessary property and relocate the utilities in advance of widening Mapleview Drive East, Country Lane to Madelaine Drive;
 - d) In 2017,
 - i) Complete construction of Mapleview Drive East, Huronia Road to Country Lane;
 - ii) Complete detail design and tender package for construction of Mapleview Drive East, Country Lane to Madelaine Drive;
 - iii) Prepare detail design of Mapleview Drive East, Madelaine Drive to Yonge Street;
 - e) In 2018,
 - i) Reconstruct and widen Mapleview Drive East, Country Lane to Madelaine Drive;
 - ii) Acquire the necessary property and relocate the utilities in advance of widening Mapleview Drive East, Madelaine Drive to Yonge Street;
 - f) In 2019, reconstruct and widen Mapleview Drive East from Madelaine Drive to Yonge Street.
14. The design, property and utilities phases for Mapleview Drive East from Huronia Road to Country Lane have been approved in previous capital plans. The initial cost estimate for construction of Mapleview Drive East from Huronia Road to Country Lane and all phases of Mapleview Drive East from Country Lane to Yonge Street (design, property, utilities and construction) is \$21.2 million with approximately \$13 million funded from development charges. These estimates are based on the recommendations of the current transportation plan. A new transportation master plan will soon be presented to Council for consideration.

ANALYSIS

15. The foundation of the City of Barrie's approach to asset management is to deliver the desired or mandated service level, at the lowest possible life cycle costs (minimize total cost of ownership) and at an acceptable level of risk. In keeping with this, the City of Barrie is moving to an approach to manage all assets (including roadways) on a life cycle basis. This is an internationally recognized best practice that has proven to result in the best return on investment; both capital and operating.

16. The approach we are taking now will ensure that the City optimizes the investment of limited funding and directs it to where the City will derive the greatest benefit. The challenge is that while the City is implementing this approach which will ultimately improve the overall condition of the road network, we also need to address a tremendous backlog of roads that require complete reconstruction. The challenge is further complicated by also having to address a backlog of capacity issues as well.
17. In 2010 the City undertook a network wide road condition assessment that assigned each road segment a Pavement Condition Index (PCI). The PCI provides a numerical rating for the condition of all road segments within the road network, where 0 is the worst possible condition and 100 is the best. The data collected through this exercise allows for performance trending in relation to levels of investment (capital, operating, and maintenance) as well as for future capital planning.
18. Mapleview Drive East between Huronia Road and Yonge Street has a PCI of 50-53. The road structure has failed, and without full reconstruction, defects such as cracks will reflect through a new surface, and defects such as distortion will not be addressed. In addition, this area of Mapleview Drive East has been identified for widening and urbanization in the last few Transportation Master Plans that the City has undertaken and is considered one of the City's highest priority backlogged capacity related needs.
19. Staff recommend that asphalt patching be undertaken in the most deteriorated areas, in the order of \$35,000 under the operating account for road patching. Although this extent of patching will not improve the overall level of service significantly, it will address the most problematic locations.
20. Repair methods beyond patching such as asphalt overlays would provide a smoother ride however the additional costs, in the order of \$100k are not justifiable considering the reconstruction scheduling over the next several years.
21. Funding for an asphalt overlay could be considered under the 2014 Business Plan to further improve the rideability and safety in the interim period prior to full reconstruction.
22. A review of the collision history over the last three (3) years on Mapleview Drive East between Country Lane and Goodwin Drive did not identify any collisions that were due to the condition of the roadway. In total, there were 12 collisions that were reported for this stretch of roadway and none were related to the condition of the roadway. The collisions were mostly related to turning conflicts at the intersections.
23. Staff investigations identified that the existing pavement markings on Mapleview Drive East from Huronia Road to Yonge Street were wearing out. The existing pavement markings including painted edge line will be re-applied this spring and again in the fall to maintain positive guidance to motorists.
24. Staff recommend that "Pedestrian Ahead" traffic signs be installed along Mapleview Drive East from Huronia Road to Yonge Street as this roadway link lacks sidewalks and pedestrians are on the side of the road.

ENVIRONMENTAL MATTERS

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

ALTERNATIVES

26. The following Alternatives are available for consideration by General Committee:

Alternative #1 General Committee could choose to undertake improved signage and pavement markings, and not the asphalt patching work.

This Alternative is not recommended as it would not address the potential for loss of vehicle control resulting from the deteriorated existing pavement.

Alternative #2 General Committee could choose to do nothing (e.g. maintain status quo).

This Alternative is not recommended as it would not address the continuing deterioration of the roadway, and the resulting safety issues.

FINANCIAL

27. The installation of traffic signage to warn of the presence of pedestrians would cost approximately \$1,200 and funds can be accommodated within the 2013 Business Plan. No additional staff resources would be required.
28. In conjunction with the City's annual pavement marking program, pavement markings are currently applied twice a year on Mapleview Drive East and funds have been accommodated within the 2013 Business Plan. No additional staff resources would be required.
29. The costs of the asphalt patching work, estimated at \$35,000, can be accommodated within the 2013 Business Plan. The expenditure of \$35,000 on Mapleview Drive East would result in less patching work being done elsewhere in the City. No additional staff resources would be required.

LINKAGE TO 2010 – 2014 COUNCIL STRATEGIC PLAN

30. The recommendations included in this Staff Report are not specifically related to the goals identified in the 2010-2014 City Council Strategic Plan.