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TO:	CHAIR AND MEMBERS BUILT AND NATURAL ENVIRONMENT COMMITTEE OCTOBER 31, 2011
FROM:	JOHN LUCAS, P. Eng. ACTING DIRECTOR, ROADS AND TRANSPORTATION
	HAMILTON ROAD AT GORE ROAD INTERSECTION

RECOMMENDATION

That, on the recommendation of the Acting Director, Roads and Transportation, the following information report related to the Hamilton Rd & Gore Rd intersection **BE RECEIVED** for information.

BACKGROUND

Purpose:

The purpose of this report is to provide the Built and Natural Environment Committee with the results of a technical study that was conducted for the intersection of Hamilton Rd & Gore Rd.

Context:

On July 20, 2009, the Environment and Transportation Committee (ETC) asked the Civic Administration to review and report back on the poor road alignment at the corner of Gore Rd and Hamilton Rd.

Discussion:

An engineering consultant assisted staff with the technical study of the "Stop" controlled / three-legged intersection of Hamilton Road at Gore Road. The main issues that prompted the study are summarized as follows:

- Gore Road tees into Hamilton Road at a sharp angle, causing sightline issues and turning movement difficulties for some approaches.
- The intersection is stop controlled on the Gore Road approach. A study was needed to investigate the need for traffic signals based on existing and future traffic volumes.
- Vehicular accesses to adjacent land uses are located at close proximity to the intersection.
- There is a record of many rear-end collisions at the intersection.

The primary intent of this study was to explore various geometric design and intersection control options for the Gore Road and Hamilton Road intersection, and develop a functional design plan for the preferred intersection design. The study also reviewed the impacts of the different design options on accesses near the intersection in accordance with the City's Access Management Guidelines. The technical study was intended to support future Environmental Assessment studies for arterial roads within the study area.

An existing conditions analysis was conducted using a 2010 projection of the 2009 turning movement counts. Traffic control signal warrants, calculated for the intersection showed that traffic signals are warranted at the study intersection under existing conditions.

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The future traffic operational conditions analysis considered two horizon years: 2020 & 2030 assuming existing geometry and traffic controls. In both horizon years, the analyses showed that traffic operations at the intersection can be expected to degrade significantly.

The existing and future conditions analysis, as noted above, has shown that the intersection can not continue to operate with the existing geometry and traffic control (stop control on Gore Road). Given the expected increase in traffic volumes, the "Do Nothing" alternative was not a viable option. Therefore, several intersection redesign options were explored to address existing and future deficiencies at the subject intersection:

Option 1: Reconstruct the intersection as a modern roundabout. (Appendix "A")

Option 2: Realign Hamilton Road (east leg) to have it intersect Gore Road at an angle closer to 90 degrees and Gore Road continuous, forming a new signalized intersection. (Appendix "B")

Option 3: Realign Gore Road to have it intersect Hamilton Road at an angle closer to 90 degrees, forming a new signalized intersection.

Since the prevailing traffic flows from the Hamilton Rd west leg to/from Gore Rd, Option 3 was not a practical alternative and it was screened from further evaluation.

The conceptual options 1 & 2 were evaluated further in terms of their: geometric design; capacity; 20-year lifecycle cost (initial screening); and, additional quantitative and qualitative assessment as noted below:

- Pedestrian circulation and crossings;
- Cyclists accommodation and circulation;
- Thames Valley Pathway System;
- Accommodation of heavy truck movements;
- Access provisions for residential and commercial properties;
- Parking for commercial properties;
- Property required from Hydro One and private property owners;
- Utility impacts, specifically the proximity to hydro poles and towers; and
- Large trees removals.

Based on the evaluation presented above, the roundabout (Option 1) was selected as the preferred design. Some of the significant advantages of selecting the roundabout option include:

- Likelihood of slower operating speeds at and around the intersection -- important given the nearby schools;
- The roundabout should result in fewer unnecessary stops and less delay in the off-peak periods;

- The estimated 20-year life cycle cost of the roundabout ($1.7M) is approximately 30% less than that associated with the signalized intersection option;
- Residences on the northwest side of Hamilton Road/Gore Road are served by a new laneway, and will not have to deal with entry/exit traffic near a signalized intersection;
- Given the potential for other roundabouts to be constructed along Hamilton Road (e.g., a roundabout is being considered for the Victoria Road intersection), a roundabout at the subject intersection would support more consistent corridor design and operations.

Since Hamilton and Gore Roads are both protected as 4-lane arterials in the London Long Term Transportation Corridor Protection Study, the proposed roundabout concept design is protected for future expansion to accommodate a full two-lane configuration. It should be noted that both of the traffic control options considered, the roundabout and the traffic signal, will create traffic capacity to meet projected growth needs.

The project provides arterial capacity, therefore it qualifies as a future growth project. The results of the study will be referred to the Transportation Master Plan so it can be included in a comprehensive list of future road improvements.

Summary

- Gore Road intersects Hamilton Road at a sharp angle, causing sightline issues and turning movement difficulties for some approaches.
- An existing and future conditions analysis has shown that the intersection cannot continue to operate with the existing geometry and traffic control.
- Based on detailed evaluation in terms of geometric design; capacity analysis; 20-year lifecycle cost analysis; and additional quantitative and qualitative assessment, the roundabout was selected as the preferred design.
- The future roundabout design will create traffic capacity to meet projected growth needs.
- The total estimated cost to reconstruct the intersection, including property acquisitions and utility relocations, is $1.7 M.
- The project will be referred to the Transportation Master Plan for inclusion as a future project.

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Acknowledgements:

This report was prepared with the assistance of Maged Elmadhoon, Manager, Traffic Engineering and Transportation Planning within the Transportation Planning and Design Division.

PREPARED BY:	RECOMMENDED BY:
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REVIEWED & CONCURRED BY:
Pat McNally
PAT MCNALLY, P. ENG. EXECUTIVE DIRECTOR, PLANNING, ENVIRONMENTAL AND ENGINEERING SERVICES DEPARTMENT

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Attach: Appendix 'A' – Option 1 / Roundabout
Appendix 'B' – Option 2 / Signalized intersection

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J. Braam; City Engineer
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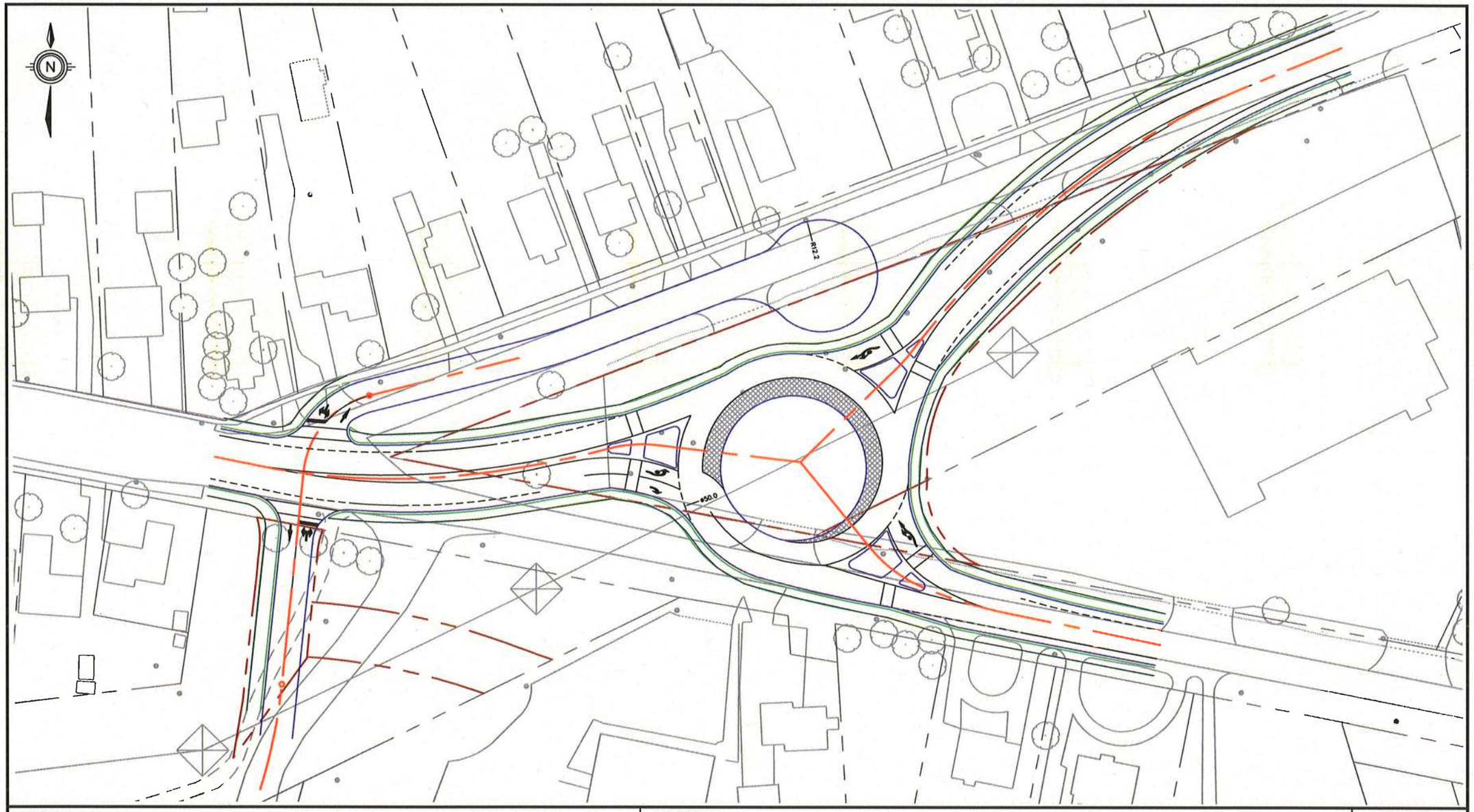
Appendix 'A'

Option 1 / Roundabout



OPTION 1
HAMILTON / GORE INTERSECTION
PRELIMINARY CONCEPT

SCALE 1:750
DATE NOV 2010
PROJECT No. 28160

LEGEND

CENTRELINE
ROW
EDGE OF PAVEMENT
PAVEMENT MARKING
SIDEWALK

IBI GROUP

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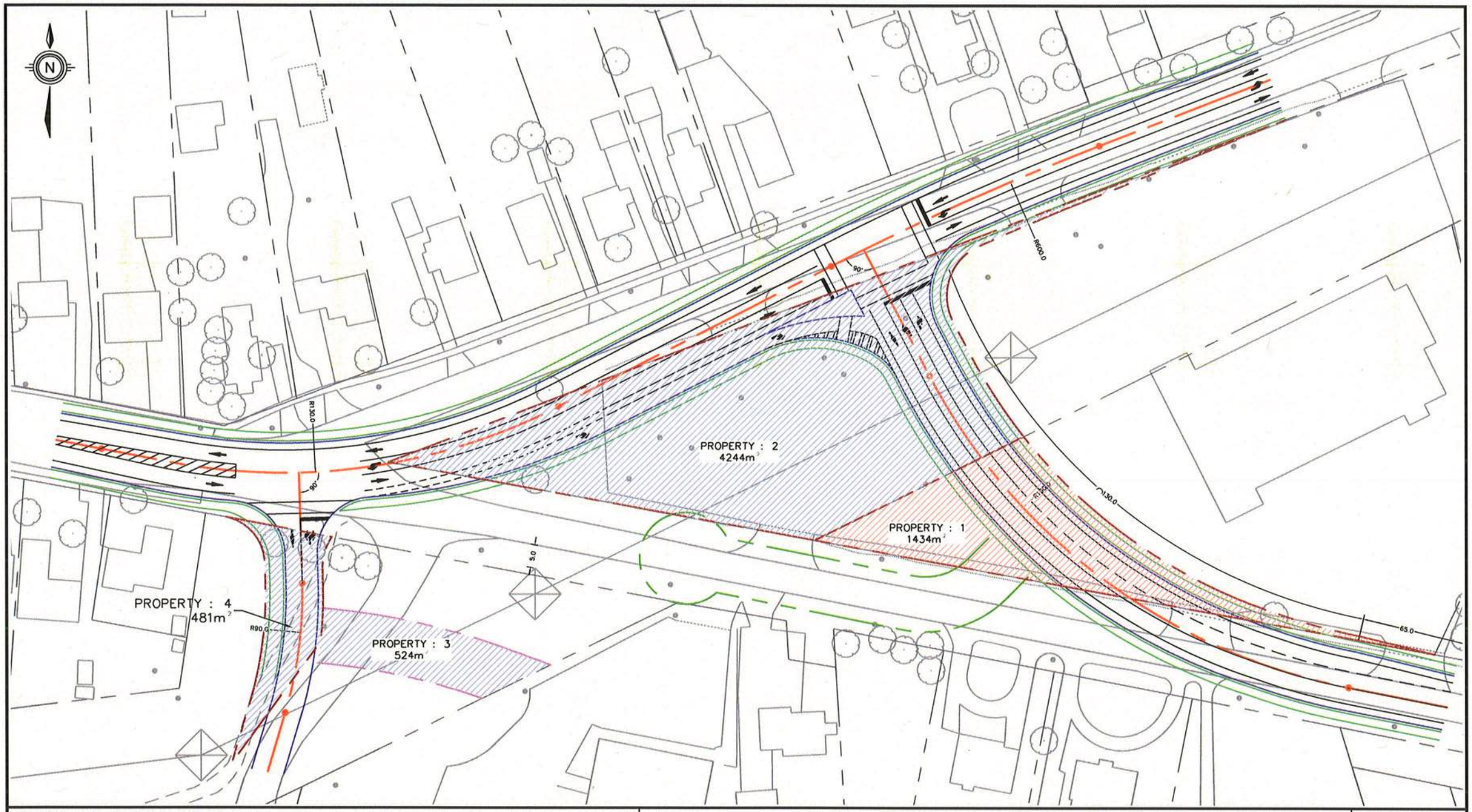
Appendix 'B'

Option 2 / Signalized Intersection



OPTION 2 - ALTERNATIVE 1
HAMILTON / GORE INTERSECTION
PRELIMINARY CONCEPT

SCALE 1:750
DATE NOV 2010
PROJECT No. 28160

LEGEND

- CENTRELINE
- ROW
- ACCESS OPT 1
- ACCESS OPT 2
- EDGE OF PAVEMENT
- PAVEMENT MARKING
- SIDEWALK

IBI GROUP

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