

Region of Peel

Mayfield Road

Class Environmental Assessment

Heart Lake Road to Airport Road

Environmental Study Report



STANTEC CONSULTING LTD.
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May 2004

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May 3, 2004
File: 602 10370/49

Regional Municipality of Peel
10 peel Centre Drive – 4th Floor
Brampton, On L6T 4B9

Attention: Binu Korah, Project Manager

Dear Mr. Korah:

**Reference: Mayfield Road, Hurontario Street to Heart Lake Road
Class Environmental Assessment**

We are pleased to present our Final Environmental Study Report for the Mayfield Road, Class Environmental Assessment, from Heart Lake Road to Airport Road in the City of Brampton and Town of Caledon.

The study was completed in accordance with the guidelines for a Schedule "C" Class Environmental Assessment, and has included extensive input from government review agencies, local residents and property owners. The issues arising from the public process and the environmental investigations have been systematically and carefully dealt with, leading to a recommended design concept that we believe best satisfies the overall future transportation needs of the community.

We wish to acknowledge the valuable assistance and support of Region of Peel staff and the Project Coordination Committee throughout the process. We also thank you sincerely for the opportunity to have assisted the Region of Peel with this project.

Sincerely,

STANTEC CONSULTING LTD.

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**MAYFIELD ROAD
CLASS ENVIRONMENTAL ASSESSMENT AND PRELIMINARY DESIGN STUDY
HEART LAKE ROAD TO AIRPORT ROAD**

Executive Summary

Background

Mayfield Road is a major east-west arterial under the jurisdiction of the Region of Peel (Regional Road 14). Mayfield Road essentially forms the boundary between the Town of Caledon and the City of Brampton, and generally consists of a 2 lane paved cross section with gravel shoulders and a posted speed of 80 km per hour.

This Class Environmental Assessment Study examines the potential for improvements to Mayfield Road between Heart Lake Road and Airport Road, a length of approximately 5.5 kilometres.

Based on accelerated growth and traffic volumes in the City of Brampton and the Town of Caledon, the Regional Municipality of Peel determined that a study must be undertaken to examine roadway widening and improvement options for Mayfield Road between Heart Lake Road and Airport Road. The Ministry of Transportation of Ontario's (MTO) proposal to extend Highway 410 to the north, including an interchange at Mayfield Road, is also anticipated to increase traffic volumes on Mayfield Road. In November 2002 Stantec Consulting Ltd. was retained by the Region of Peel to complete a Schedule 'C' Class Environmental Assessment under the Municipal Class EA process for Mayfield Road, between Heart Lake Road and Airport Road. As part of this study a preliminary design of the recommended improvements was also completed.

This project has been directed by a Project Coordination Team made up of staff from the Region of Peel and Stantec Consulting Ltd. and their Subconsultants. Review meetings were held and input was also received from staff of the City of Brampton, Town of Caledon, and Toronto and Region Conservation Authority, Ministry of Natural Resources and other agencies. Two Public Information Centres were also held as part of the Class EA Study.

Problem Statement

The need for improvements and additional roadway capacity for the Mayfield Road corridor in the City of Brampton and Town of Caledon has been previously identified in earlier studies. Population in the City of Brampton and Town of Caledon is projected to grow 56% and 64% respectively over the next 25 years. This growth of population and related employment has a significant impact on traffic growth of all types including cars, trucks, transit vehicles and pedestrians.

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Existing annual average daily traffic (AADT) volumes on Mayfield Road in 2001 ranged from 9,820 east of Airport Road to 16,950 just west of Heart Lake Road. These AADT volumes reflect the role and function of Mayfield Road as a commuter route carrying traffic from the current urban envelope towards the rural areas of north/east Peel Region. Truck volumes on Mayfield Road are approximately 5 to 10 percent during peak hours, with truck volumes ranging as high as 35% for specific turning movements at some intersections.

The maximum volume/capacity ratios for existing volumes at each intersection ranged from 0.71 to 0.95. Based on projected 2012 traffic volumes it was found that the volume/capacity ratio at existing intersections would range from 0.98 to 1.91 if no improvements were to be made to Mayfield Road. If intersection improvements were undertaken and four-lanes constructed between each intersection, the volume/capacity ratio during peak hours would range from 0.86 to 0.99. A similar analysis with 2027 traffic volumes forecasts found that if Mayfield Road was widened to six-lanes, and the intersections improved, the volume/capacity ratio would range from 0.82 to 0.99.

The recommended timing for four or six lane improvements to Mayfield Road were determined based on an analysis of traffic growth, forecasted capacity and level of service for Mayfield Road, between Heart Lake Road and Airport Road. This timing is summarized in the following table and illustrates that Mayfield Road from Heart Lake Road to Dixie Road must be widened to 4 lanes as soon as 2006, and to 6 lanes in 2015.

Timing for Recommended Number of Lanes on Mayfield Road

From	To	When Are Lanes Required	
		4	6
Heart Lake Road	Highway 410	2006	2015
Highway 410	Dixie Road	2006	2015
Dixie Road	Bramalea Road	2012	2020 – 2021
Bramalea Road	Torbram Road	2012	2020 – 2021
Torbram Road	Airport Road	2010	2020 - 2021

Based on Level of Service D Capacity

An analysis of the collisions that occurred on Mayfield Road within the study area between 2000 and 2002 inclusive found that a total of 54 collisions occurred. Nineteen of these collisions included injuries and 35 collisions resulted in property damage only. A further analysis of these collisions found that:



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- 48% of collisions occurred during peak periods.
- 31% of collisions were rear end collisions.
- 22% of collisions involved left turns.
- A majority of the collisions were not caused by environmental conditions.
- 65% of collisions occurred at intersections.
- No fatal collisions occurred between 2000 and 2002 inclusive.

A safety review of the Mayfield Road corridor within the study area made the following recommendations:

- Widening Mayfield Road is not needed on the basis of existing safety performance, however a 4 lane cross section between Heart Lake Road and Dixie Road may improve its operation, therefore potentially reducing rear end and intersection collisions.
- Increasing the paved surface of the shoulders to 0.5 metres (partially paved) will provide a more stable recovery area for errant vehicles and may provide a place for vehicles to avoid rear end collisions.
- A number of roadside improvements should be undertaken including repairing a number of damaged guiderails and extending guiderails.
- Signage should be improved by increasing the letter size and improving the location of street name signs, placing chevron signs on curbs and placing post mounted delineators at driveways that may be considered hidden. In addition the signage around the school zone, near the intersection of Mayfield Road and Bramalea Road, should be modified to improve guidance and reduce driver confusion.

The MTO's proposed northern extension of Highway 410, including a new interchange at Mayfield Road, has been covered under the Class EA for the Highway 410 extension. As a result the limits of the interchange between the eastern and western ramps on Mayfield Road do not form part of this Mayfield Road study limits. However, the traffic report did take into account the change of traffic patterns and volumes that will result from the extension of Highway 410 and it's interchange with Mayfield Road.



Based on the completed traffic forecasts and safety review, the need and justification for this study is summarized by the following problem statement:

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Based on projected growth and development in the City of Brampton and Town of Caledon, Mayfield Road, between Heart Lake Road and Airport Road, will generally operate at unacceptable levels of service (increased congestion and unsafe traffic conditions) if no improvements are undertaken by 2012.

A Notice of Study Commencement was advertised in the Caledon Citizen, Caledon Enterprise and Brampton Guardian inviting the public to comment on this study. The Notice of Study Commencement was also mailed to various agencies and property owners within the study area.

Alternative Solutions

A number of alternative solutions to mitigate the impact of traffic growth on Mayfield Road, between Heart Lake Road and Airport Road, were developed and considered for this study. These alternative solutions are described as follows:

1. **DO NOTHING:** Improvements limited to ongoing maintenance of the existing road.
2. **HIGHER TRANSIT SERVICE:** Improve the level of transit service to reduce traffic volumes on Mayfield Road.
3. **PROMOTE RIDE SHARING:** Promote ride sharing to reduce traffic volumes on Mayfield Road.
4. **UPGRADE OTHER ROUTES:** Traffic currently using Mayfield Road could use upgraded existing road corridors in the vicinity of Mayfield Road.
5. **BUILD OTHER ROUTES:** Traffic currently using Mayfield Road could use new roads built in other locations.
6. **PROVIDE LOCALIZED INTERSECTION IMPROVEMENTS:** Increase the traffic capacity of the intersections, but no improvements undertaken to Mayfield Road between intersections.
7. **WIDEN MAYFIELD ROAD:** Provide additional through lanes on Mayfield Road combined with additional turn lanes at intersections.

Each of the alternative solutions was evaluated with respect to how they address the problem statement developed for this study. This evaluation found that the "widen Mayfield Road" alternative, combined with additional turn lanes at intersections, addresses the capacity, functional and structural deficiencies associated with Mayfield Road within the study area. One or more of the Alternative Solutions eliminated from further consideration can also be combined with the "widen Mayfield Road" solution, to increase the effectiveness of the widen Mayfield Road solution.

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Public Information Centre No. 1

The first Public Information Centre for the Mayfield Road Class Environmental Assessment was held on March 27, 2003 at the Mayfield Secondary School, located at Mayfield Road and Bramalea Road. The purpose of the first Public Information Centre was to provide the public and agencies an opportunity to review the Mayfield Road Class EA study, and to provide comments on the alternative solutions. A drawing showing the "widen Mayfield Road" alternative solution, including intersection improvements, was on display for the public to review.

A total of 39 people signed in at PIC No.1 and six written comments were received. In general, there were no strong objections to the "widen Mayfield Road" alternative solution. A summary of the notices, and public and agency comments received as part of PIC No. 1, can be found in Appendix G and Appendix I.

Alternative Design Concepts

Based on the preferred solution of "widen Mayfield Road", a number of alternative design concepts were considered:

- **Widen Mayfield Road to 4 Lanes Versus 6 Lanes** – The MTO is proposing to complete the Highway 410/Mayfield Road interchange as early as 2006. Since the need for six lanes on Mayfield Road between Heart Lake Road and Dixie Road is less than 10 years later than the proposed construction of the Highway 410/Mayfield Road interchange, the MTO and the Region of Peel propose to construct the structure carrying Mayfield Road over the new Highway 410 to 6 lanes, plus associated lanes for entrance ramps. The remainder of Mayfield Road, between Heart Lake Road and Dixie Road, is also proposed to be constructed to 6 lanes to eliminate the need to taper down to 4 lanes from the 6 lane interchange bridge. Since 6 lanes will be required between Heart Lake Road and Dixie Road within 10 years of construction, it is also considered cost effective to construct the 6 lanes initially. Between Dixie Road and Airport Road, the widening of Mayfield Road to 6 lanes is not required until at least the year 2020, which is beyond the 10 year horizon from the date of this study. Therefore, widening to 4 lanes is considered the best alternative for Mayfield Road between Dixie Road and Airport Road.
- **Widen Road Equally or Unequally on Either Side of Existing Mayfield Road** – There are no environmental or physical constraints that would warrant the unequal widening of Mayfield Road to either the north or south of existing centreline of the road. Therefore, widening Mayfield Road equally on both sides of the existing centreline is considered the preferred design solution, and will result in equal widening into both the Town of Caledon and City of Brampton sides of the corridor.

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- **Curb and Gutter Versus Gravel Shoulder** – Between Dixie Road and Heart Lake Road, curb and gutter with storm sewers is appropriate due to the 6 lane cross section being the ultimate design for the 50 metre road allowance for Mayfield Road. Curb and gutter will tie in to the Highway 410/Mayfield Road interchange curb and gutter, and also provide an area to install sidewalks in their ultimate location. Between Dixie Road and Airport Road, the existing land use is rural or agricultural. By constructing 4 lanes in this section, with partially paved gravel shoulders and ditches, it will maintain the rural nature of the area, allow farm vehicles to travel along the shoulders, and will not require the costly installation of storm sewers and storm water management facilities. In addition, newly constructed gravel shoulder could be used as the road base for the ultimate future 6 lane widening. Each intersection between Dixie Road and Airport Road, and areas in front of some commercial enterprises and the Mayfield Secondary School, will be constructed with curb and gutter to enhance traffic operations and minimize maintenance, in addition to minimizing restoration of private properties.

Public Information Centre No. 2

A second Public Information Centre was held for this study on February 19, 2004. A total of 25 people signed in at PIC No. 2 and no written comments were received. Copies of the attendance sheets and information presented at the PIC are found in Appendix H. A number of agency comments were also received (Appendix I) and addressed in the recommended design concept.

Recommended Design Concept

Based on an evaluation of the alternative design concepts and comments received as part of PIC No. 2, the following design concept is recommended to address the problem statement for this study. The recommended design concept is illustrated in Appendix J of this report and is generally described as follows:

- That Mayfield Road be widened to 6 lanes between Heart Lake Road and Dixie Road, including left turn lanes and right turn lanes at each leg of the Dixie Road and Heart Lake Road intersections.
- That a continuous centre median be installed between Heart Lake Road and Dixie Road, with median breaks provided for turning movements into 4045 Mayfield Road, the North Brampton Pumping Station and the two ramps to Highway 410. Between Heart Lake Road and Dixie Road, curb and gutter and storm sewers will be provided throughout the entire length. A sidewalk location will also be provided behind the curb and gutter between Heart Lake Road and Dixie Road, outside the Highway 410 interchange limits.

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- That Mayfield Road be widened to 4 lanes with partially paved gravel shoulders and ditches, between Dixie Road and Airport Road.
- That all intersections have semi-mountable curb and gutter with paved shoulder to accommodate large farm equipment, a minor storm sewer network, short concrete median islands and upgraded traffic signals. In addition, each intersection leg will require a left turn lane and right turn lane.
- That the typical cross-section for all sections of Mayfield Road consist of 3.75 metre wide through lanes and 3.5 metre wide turn lanes.
- That a 3 metre gravel shoulder be constructed between Dixie Road and Airport Road, of which 0.5 metres is partially paved.
- That existing drainage patterns be maintained where possible with ditches and storm sewers outletting to existing drainage courses and road crossing culverts. Storm water management will be addressed through the use of flat bottom ditches in the rural areas, and by oil/grit separators in the urban areas. Details of the storm water management will be finalized as part of detailed design.
- That portions of approximately 40 properties be purchased by the Region of Peel to widen Mayfield Road in accordance with the recommended design concept.
- That all driveways and field entrances within the study limits be modified to accommodate the widening of Mayfield Road, as required.
- That lost landscape trees removed as part of improvements to Mayfield Road be reviewed in conjunction with any streetscaping/landscaping design completed as part of detailed design.
- That further discussion with the TRCA be held during detail design to address appropriate mitigation measures and to determine where compensation will be required, for the two tributaries of the West Humber River which are considered cool water habitat.
- That sediment barriers be installed along the edge of construction areas for all culvert extensions, to protect the natural areas to be retained along the watercourses.
- That the in-stream work for the tributaries of Etobicoke Creek, be undertaken between June 30 to March 30, and between June 30 to September 15 for tributaries of the West Humber River.

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- That monitoring of the environmental mitigation measures be undertaken before, during and after construction activities. Following each site inspection the inspecting biologist should provide a written report identifying any observed deficiencies and recommendations for correction. The results of the monitoring should also be documented in a brief report to be submitted to the TRCA, DFO and MNR.
- That Bell Canada, Region of Peel Watermain and Sanitary Forcemain Division, Brampton/Hydro One, Enbridge Consumers Gas, and Roger Cable be contacted prior to and throughout the detailed design stage to ensure their affected plant is relocated prior to construction.
- That a detailed Traffic Management Plan be developed during the detailed design stage. Since Mayfield Road will generally be widened equally on both sides of the existing centreline, it should allow two-way traffic to be maintained during construction. This can be achieved by constructing the widened portion on both sides of Mayfield Road, while traffic is maintained on the existing two lanes. This initial stage to be followed by traffic on the newly widened portion of Mayfield Road, while the existing Mayfield Road pavement is being rehabilitated.
- An opinion of probable cost developed for the recommended design concept for Mayfield Road within the study area, has estimated the costs of improvements to Mayfield Road as follows:

Heart Lake Road to Dixie Road	\$ 5, 567,000.00
Dixie Road to Bramalea Road	\$ 8,860,000.00
Bramalea Road to Torbram Road	\$ 4,996,000.00
Torbram Road to Airport Road	<u>\$ 6,147,000.00</u>
	\$25,570,000.00

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**MAYFIELD ROAD
CLASS ENVIRONMENTAL ASSESSMENT STUDY REPORT
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1.0 Introduction and Background

1.1 INTRODUCTION AND STUDY AREA

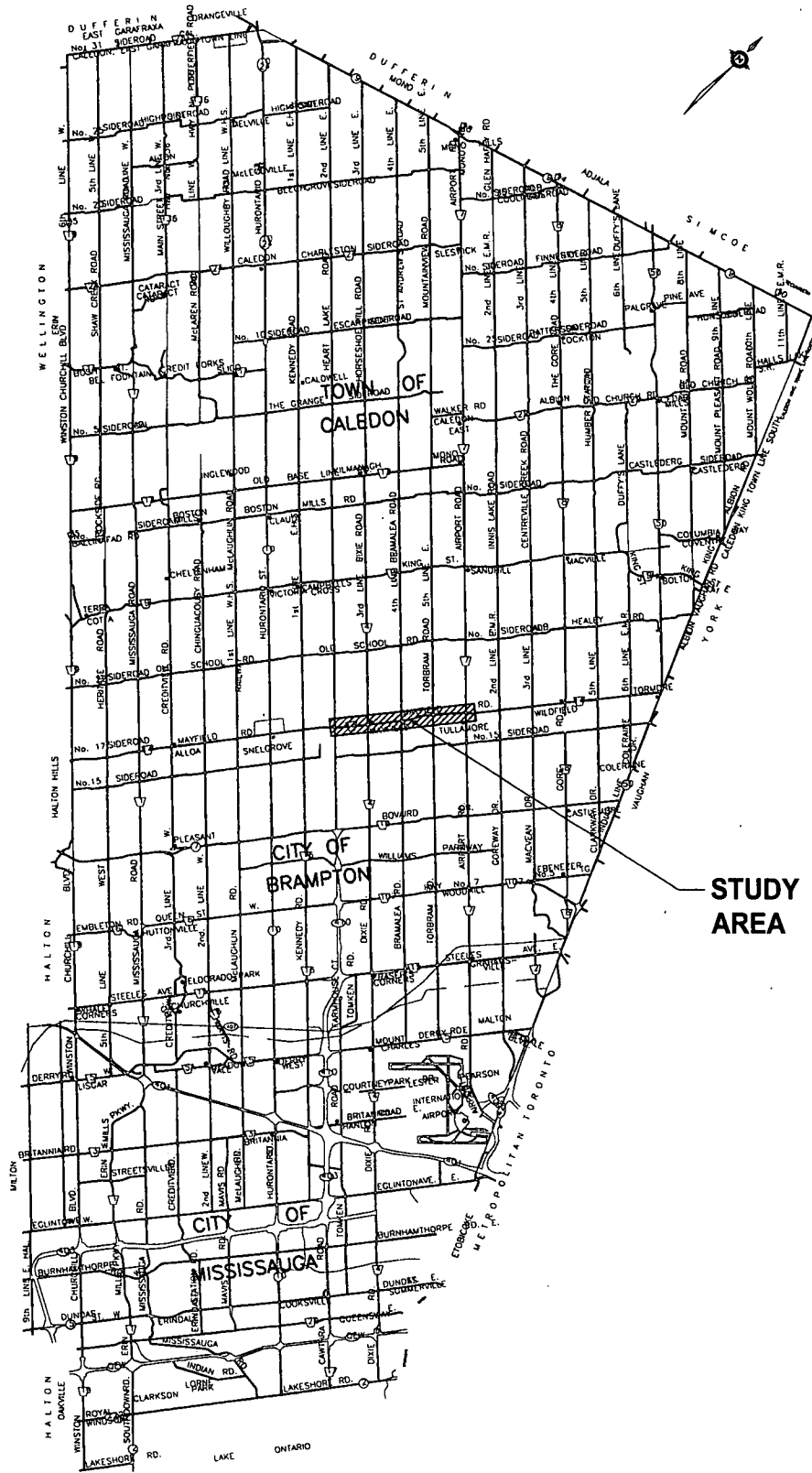
The Regional Municipality of Peel is responsible for monitoring growth on its transportation network and implementing required improvements in a timely manner. Based on accelerated growth and traffic volumes in the City of Brampton and Town of Caledon, the Regional Municipality of Peel determined that a study must be undertaken to examine roadway widening and improvement options for Mayfield Road between Heart Lake Road and Airport Road. The Ministry of Transportation of Ontario's (MTO) proposal to extend Highway 410 to the north, including an interchange at Mayfield Road, is also anticipated to increase traffic volumes on Mayfield Road, and must be addressed in the project "need and justification".

Mayfield Road is a major east-west arterial under the jurisdiction of the Region of Peel (Regional Road 14), and runs from the western Region boundary at Winston Churchill Boulevard (Region Road 19) to the eastern Region boundary at Regional Road 50 (formerly Provincial Highway No. 50) as illustrated in Figure 1.1. Mayfield Road essentially forms the boundary between the Town of Caledon and the City of Brampton, with the exception of near Hurontario Street within the settlement of Snelgrove, where Mayfield Road is entirely in the City of Brampton.

This Class Environmental Assessment Study examines the potential for improvements to Mayfield Road between Heart Lake Road and Airport Road (Regional Road 7). The Study Area, as illustrated in Figure 1.2, extends over a length of approximately 5.5 kilometres.

Mayfield Road generally consists of a two lane paved cross section with gravel shoulders and a posted speed of 80 km/h. Within the study area, Mayfield Road intersects with five (5) north/south roads (Heart Lake Road, Dixie Road, Bramalea Road, Torbram Road and Airport Road) all of which form signalized intersections. These intersections are spaced at approximately 1.3 – 1.4 kilometre intervals along Mayfield Road. In the vicinity of Bramalea Road and Airport Road, the posted speed on Mayfield Road decreases to 60 km/h.

The Ministry of Transportation of Ontario (MTO) is planning a northerly extension of Highway 410, which will also intersect Mayfield Road just east of Heart Lake Road. This extension will include a full interchange with Mayfield Road and may be completed in 2006 within the vicinity of this project's study limits. However, the Highway 410 / Mayfield Road interchange does not form part of this study, as the



STUDY AREA

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**CLASS ENVIRONMENTAL ASSESSMENT
 KEY PLAN**



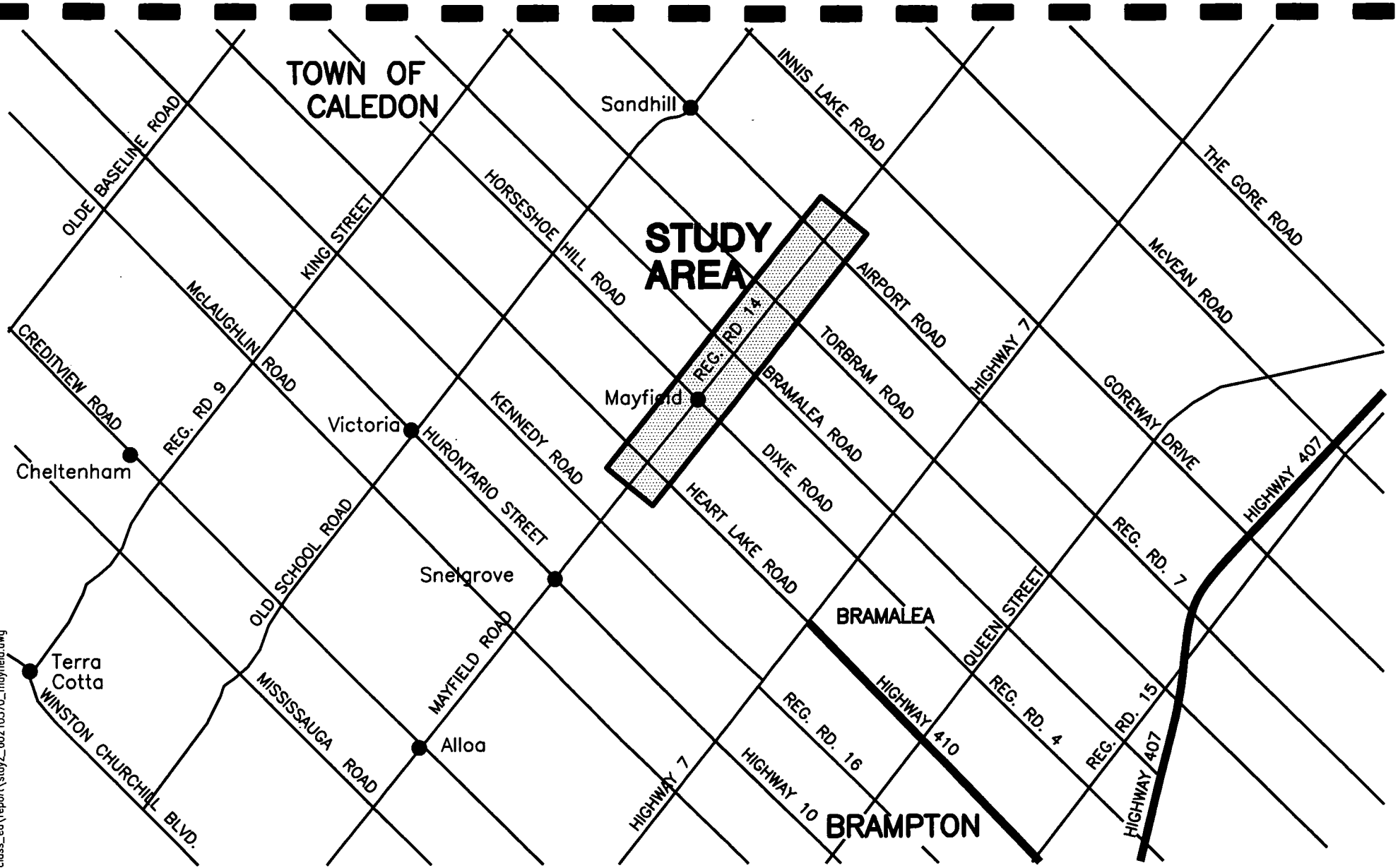
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Date: 04.07.04 Scale: N.T.S. Project No. 602-10370 Figure No. 1.1

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CLASS ENVIRONMENTAL ASSESSMENT
STUDY AREA

Date:	Scale:	Project No.	Figure No.
04.07.04	N.T.S.	60210370	1.2

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HEART LAKE ROAD TO AIRPORT ROAD**

INTRODUCTION

interchange was addressed as part of the MTO's Class EA for the Highway 410 extension.

Adjacent land use is primarily rural in nature with several operating farms, some commercial enterprises and rural residential homes. The Mayfield Secondary School on the north/east corner of Mayfield Road and Bramalea Road and the community of Tullamore in the vicinity of Airport Road are the two major development features within the study limits.

The Heart Lake Wetland Complex, which is considered provincially significant, is located within the study area in the vicinity of the Highway 410 Interchange. Portions of the wetland have also been designated as environmentally sensitive areas, a Regional Life Science Area of Natural and Scientific Interest and have also been identified in the Region of Peel Official Plan as a core area of the Greenland System.

Eleven intermittent and/or permanent watercourses and channels cross Mayfield Road within the study area. The TRCA has designated several fill regulated areas directly associated with several of these watercourses. The area adjacent to Mayfield Road is primarily agricultural land, however old field habitats, hedgerows and landscape areas are also common.

1.2 THE ENVIRONMENTAL ASSESSMENT APPROACH

The purpose of the Ontario Environmental Assessment Act is "The betterment of the people of the whole or any part of Ontario by providing for the protection, conservation and wise management in Ontario of the environment." Environment is applied broadly and includes the natural, social, cultural, built and economic components. There are two basic types of Environmental Assessment (EA) processes:

Individual EA

- Requires Terms of Reference approved by the Ministry of the Environment (MOE) of Ontario.
- Requires that an EA Report be submitted to the MOE for review and approval by the Province.

Class EA

- Project is approved subject to compliance within approved Class EA process for a group or "class" of projects.

Under the Class EA process, projects are categorized according to the magnitude of their anticipated environmental impact. The three categories are described below:

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INTRODUCTION

- Schedule A projects are limited in scale, have minimal adverse environmental affects and include a number of municipal maintenance and operational activities. Schedule A projects generally include normal or emergency operational and maintenance activities. These projects are pre-approved and the municipality can proceed without further approval under the EA Act.
- Schedule B projects have the potential for some adverse environmental effects. Schedule B projects generally include improvements and minor expansions to existing facilities. For these projects, the proponent is required to proceed through a screening process including consultation with directly affected public and agencies.
- Schedule C projects have the potential for significant environmental effects and must proceed under the full planning and documentation procedures for a Municipal Class EA. Schedule C projects generally include the construction of new facilities and major expansions to existing facilities. Schedule C projects also require that an Environmental Study Report (ESR) be prepared and filed for review by the public and review agencies.

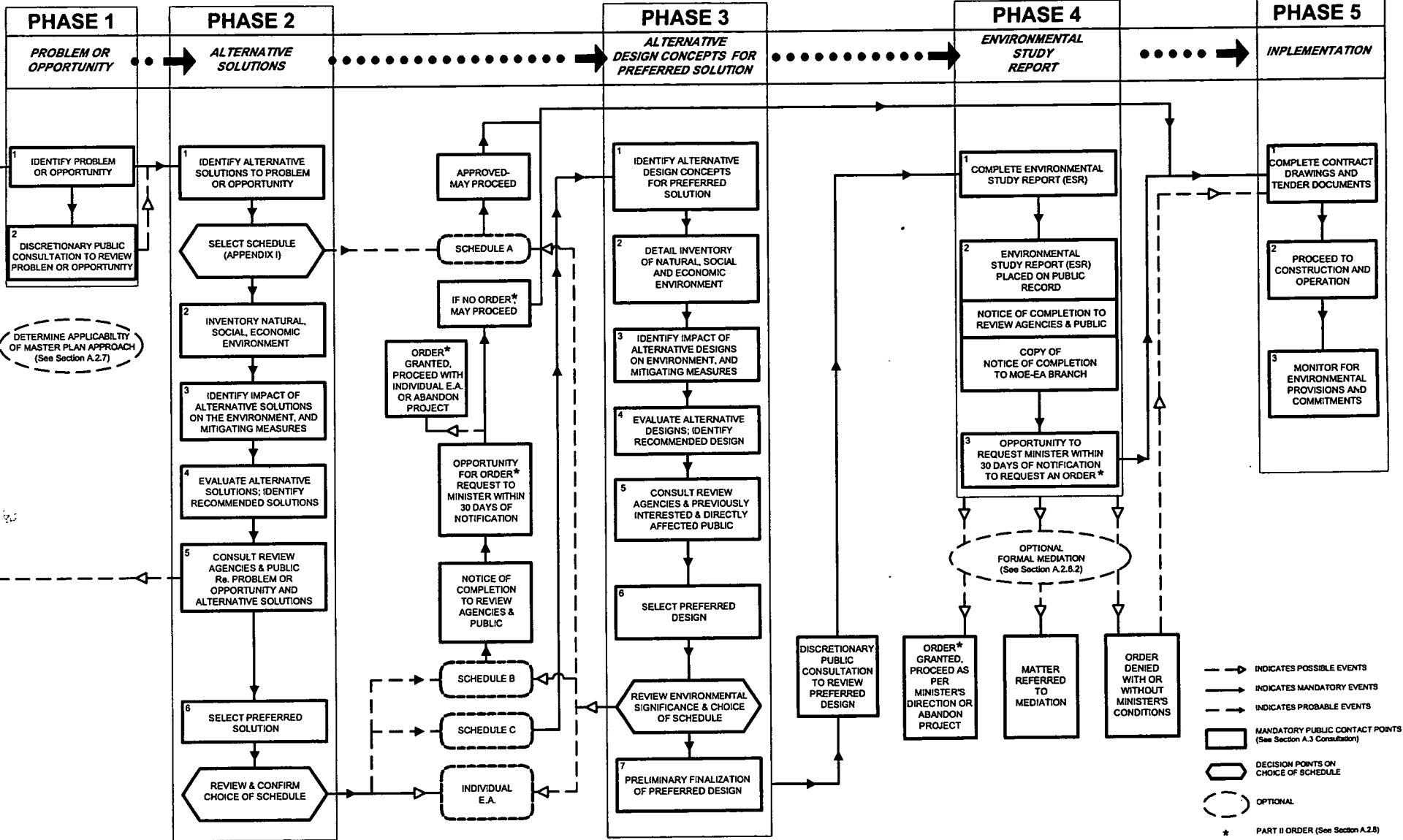
The planning and design for the Mayfield Road Improvements project is proceeding in accordance with Schedule C of the Municipal Class EA Act, since the capacity of Mayfield Road is being examined, and the total cost of improvements would likely be over \$1.5 Million.

Provided the approved Class EA planning process is followed, the proponent or municipality has complied with Section 13 (3) of the EA Act. The Class EA process ensures that an adequate Environmental Assessment process is followed for various types of projects. Class EA's place emphasizes on project assessment and public and agency involvement rather than on review and approvals. The Municipal Engineers' Class EA Planning and Design Process is illustrated in Figure 1.3. This flow chart should be read in conjunction with the full Municipal Class EA Document, produced by the Municipal Engineers' Association in June 2000.

Phase 4 of the Municipal Class EA Act represents the culmination of the planning and design procedures set out in the Class EA. This report, known as the Environmental Study Report (ESR), documents the activities undertaken to date to Phases 1, 2 and 3 of the Municipal Class EA. It is intended to be a record of the decision-making process for the project and includes the following general requirements:

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 2004-04-08 03:18PM By: bwhite



NOTE: This flow chart to be read in conjunction with Part A of the Municipal Class EA.



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**MAYFIELD ROAD
 HEART LAKE ROAD TO AIRPORT ROAD
 REGION OF PEEL**

**CLASS ENVIRONMENTAL ASSESSMENT
 PLANNING AND DESIGN PROCESS**

Date: 04/08/04 Scale: N.T.S. Project No. 60210370 Figure No. 1.3

**MAYFIELD ROAD
CLASS ENVIRONMENTAL ASSESSMENT STUDY
HEART LAKE ROAD TO AIRPORT ROAD**

INTRODUCTION

- a) A description of the problem or opportunity and other background information.
- b) The rationale employed in selecting the preferred solution to the problem.
- c) The rationale employed in selecting the preferred design.
- d) A description of the environmental considerations and impacts.
- e) The mitigating measures which will be undertaken to minimize environmental affects.
- f) A description of the consultation process and an explanation of how concerns raised by the public and review agencies have been addressed in developing the project.
- g) A description of the monitoring program which will be carried out during construction, and if necessary, during operation of the facility.

This ESR will be filed with the Ministry of Environment and at the Regional and Municipal Clerk Departments and placed on the Public Record for at least 30 Calendar days for review by the public and review agencies. The public and review agencies are notified by means of a Notice of Completion of ESR, published in local newspapers and by direct correspondence as required. During this 30 day review period, members of the public, interest groups and review agencies may request the Minister of Environment to instruct the proponent to comply with Part II of the EA Act before proceeding with the proposed undertaking. A person or party with a concern regarding the project should bring their concerns to the attention of the proponent. If these concerns cannot be resolved, the person or party may contact the Minister of Environment and request a "Part II Order" to elevate the project to an individual Environmental Assessment. This Part II Order request must be copied to the proponent. Requests made or received after the 30 Calendar day review period will not be considered by the Minister.

1.3 PROJECT COORDINATION TEAM / SCHEDULE

Stantec Consulting Ltd. was engaged by the Region of Peel in November 2002 to complete a Class Environmental Assessment under the Municipal Class EA process, and also undertake the preliminary design for the recommended improvements, for Mayfield Road between Heart Lake Road and Airport Road.



A Project Coordination Team made up of staff from the Region of Peel, City of Brampton, Town of Caledon, other agencies and Stantec Consulting and their subconsultants has directed this project. A list of staff involved in the various project coordination meetings and other aspects of the project, include:

**MAYFIELD ROAD
CLASS ENVIRONMENTAL ASSESSMENT STUDY
HEART LAKE ROAD TO AIRPORT ROAD**

INTRODUCTION

Region of Peel			
Binu Korah Project Manager	Philip Rowe	Kathy Cater	Damian Albanese
Jim Hoddinott	Sean Ballaro	Eleanor Gillon	Greig Bumstead
Damian Jamroz	Vince Zammit	Jose Montouto	Andrew Shea
Jeff Smith	Gayle Gorman	Nadeen Siddiqui	Murray McLeod
Margie Chung	Michael Hynes	Brian Hudson	Sabbir Saiyed
Joe Gallagher	Maureen Van Ravens	Jimmy Chong	Bill Turner
Anthony Parente			

Ministry of Transportation			
Dean Kemper			

Stantec Consulting Ltd. (Including Subconsultants)			
Garry Leveck, Project Manager	Dave Hallman	Martin Goorts	Carl Wong, iTrans Consulting
Jennifer Wright Natural Resource Solutions Inc.			

Town of Caledon			
Tim Manley			

City of Brampton			
Peter Anderson	Karl Lin	Colin Sizer	Kevin Gorman
Henrik Zbogor	Mike Hoy	John McMahon	Frank Vivacqua
Adrian Smith			

Stantec Consulting utilized a number of specialty subconsultants on this project. They included

- Natural Environment; Natural Resource Solutions Inc.
- Traffic Forecasting and Safety Study; iTrans Consulting,
- Archeological/Heritage; Meyer Heritage Consultants Inc,
- Geotechnical; Thurber Engineering Limited.

Public Information Centres were held for this study on March 27, 2003 and February 19, 2004 at the Mayfield Secondary School cafeteria. This Class EA Study was completed in the spring of 2004.

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**MAYFIELD ROAD
CLASS ENVIRONMENTAL ASSESSMENT STUDY REPORT
HEART LAKE ROAD TO AIRPORT ROAD**

2.0 Problem Statement

2.1 TRAFFIC FORECASTS AND OPERATIONS

A Traffic Study was undertaken to determine the need and justification for improvements on Mayfield Road between Heart Lake Road and Airport Road. The Traffic Study was completed by iTrans Consulting Inc., as a subconsultant to Stantec Consulting Ltd., with assistance and input from Region of Peel Public Works and Planning staff.

The need for improvements and additional roadway capacity for the Mayfield Road corridor in the City of Brampton and Town of Caledon has been previously identified in earlier studies, including the Mayfield Road Environmental Assessment and Preliminary Design Study (Huronario Street to Heart Lake Road), the Mayfield Road Corridor Feasibility Study (Huronario Street to Dixie Road) and the Region of Peel Official Plan. The above mentioned studies were reviewed to extract relevant traffic data, forecast, analysis and recommendations. A Traffic Study for this Class Environmental Assessment has been completed in parallel with the Caledon Transportation Needs Study. The conclusions and recommendations for both studies, relative to traffic issues must be coordinated to ensure consistency of results.

iTrans Consulting, with the assistance of Regional staff and information from the noted previous traffic studies, prepared traffic forecasts for the study area for the years 2012 and 2027. Traffic analysis was then undertaken at the link and intersection level under various future road network scenarios, as follows:

- 2012 on the existing two lanes of Mayfield Road
- 2012 with Mayfield Road widening to four lanes and intersection improvements
- 2027 traffic on Mayfield Road to confirm alternate road network and lane configurations

In the vicinity of the study area, substantial growth is projected to occur. Population (P) and employment (E) growth, on a citywide basis is projected at 28% (P) and 44% (E) from 2002 to 2012, and 56% (P) and 76% (E) from 2002 to 2027 for the City of Brampton. Other growth statistics for Region of Peel, City of Brampton, and Town of Caledon are illustrated in the **Tables 2.1** and **Table 2.2**.

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**MAYFIELD ROAD
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PROBLEM STATEMENT

Table 2.1 Projected Population Growths

	2002	2007	2012	2027	10-year Growth	25-year Growth
Peel Region	1,059,660	1,141,460	1,219,000	1,408,074	15%	33%
City of Brampton	380,200	436,200	488,200	591,383	28%	56%
Town of Caledon	51,500	59,000	66,900	84,450	30%	64%

Table 2.2 Projected Employment Growths

	2002	2007	2012	2027	10-year Growth	25-year Growth
Peel Region	533,180	597,080	655,410	781,141	23%	47%
City of Brampton	153,000	188,000	220,100	269,355	44%	76%
Town of Caledon	17,800	21,800	25,700	34,400	44%	93%

This growth of population and employment has a significant impact on traffic growth of all types, including cars, trucks, transit vehicles and pedestrians. With this growth as the basis, goals and objectives for the future transportation network have been identified in the Region of Peel Official Plan. Peel's Official Plan identifies a 50 m right-of-way for Mayfield Road along its entire length across the Region of Peel. The 50 m right-of-way designation is in place to protect for the future widening of Mayfield Road to accommodate the growth in Brampton, Caledon and in the Region.

Characteristics of the existing major roadway network within the general study area are described as follows.

Mayfield Road is east/west arterial road under the jurisdiction of the Region of Peel (Regional Road 14). Mayfield Road has a two-lane paved cross section, and has signalized intersections at Heart Lake Road, Dixie Road, Bramalea Road, Torbram Road and Airport Road. The posted speed on Mayfield Road within the study area is 80 km/h, with the exception of near Bramalea Road and near Airport Road where the posted speed decreases to 60 km/h. The Ministry of Transportation has planned for a northerly extension of Highway 410, which will intersect Mayfield Road between Heart Lake Road and Dixie Road. This extension will include a full interchange and has a scheduled completion date of approximately 2006.

Heart Lake Road is at the western study limit, and is a two lane north/south arterial road under the jurisdiction of the City of Brampton south of Mayfield Road, and under the jurisdiction of the Town of Caledon north of Mayfield Road. Heart Lake Road currently carries significant volumes to and from Highway 410, between Bovaird

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PROBLEM STATEMENT

Drive and Mayfield Road. Once the Highway 410 extension is constructed, Heart Lake Road is planned to be a major collector road, which will continue to carry local traffic. The Highway 410 extension will then carry through traffic currently using Heart Lake Road.

Dixie Road is a two lane north/south arterial road, under the jurisdiction of the Region of Peel (Regional Road 4). Dixie Road will be the subject of a future Class EA Study from Bovaird Drive to Mayfield Road.

Bramalea Road is a two lane north/south arterial road, which intersects Mayfield Road east of Dixie Road. Bramalea Road is under the jurisdiction of the City of Brampton south of Mayfield Road, and under the jurisdiction of the Town of Caledon north of Mayfield Road.

Torbram Road is a two lane north/south arterial road, which intersects Mayfield Road east of Bramalea Road. Torbram Road is under the jurisdiction of the City of Brampton south of Mayfield Road, and under the jurisdiction of the Town of Caledon north of Mayfield Road.

Airport Road is at the eastern study limit, and is a two lane north/south arterial road, under the jurisdiction of the Region of Peel (Regional Road 7). Airport Road is planned for widening from two to four lanes between Countryside Drive and Mayfield Road, in 2004.

The Region of Peel provided Existing and Historical Annual Average Daily Traffic (AADT) volumes on Mayfield Road (from 1992 to 2001). **Table 2.3** presents the 2001 AADT volumes on Mayfield Road.

Table 2.3 Existing 2001 AADT on Mayfield Road

Location	Eastbound AADT	Westbound AADT	Two-Way AADT
1.3 km West of Heart Lake Road	7,310	9,640	16,950
0.7 km West of Dixie Road	5,980	7,080	13,060
0.7 km East of Dixie Road	5,230	5,430	10,660
0.5 km East of Torbram Road	4,200	4,130	8,330
1.1 km East of Airport Road	4,730	5,090	9,820

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AADT volumes on Mayfield Road generally decrease from west to east in the eastbound direction, and increase from east to west in the westbound directions. The AADT reflects the role and function of Mayfield Road as a commuter route carrying traffic from the current urban envelope of Brampton (west of Heart Lake Road) towards the rural areas of north/east Peel Region, and across the Peel boundary to York Region and the rest of the Greater Toronto Area (GTA).

Current data indicates that truck volumes on Mayfield Road are approximately 7 to 12% trucks between 5:30 a.m. and 8:30 a.m., with peak hour volumes of 5 to 10%. At some intersections, truck volumes ranged as high as 35% for specific turning movements. These high truck percentages indicate that Mayfield Road, and intersecting major roads, are key truck routes serving the existing mineral aggregate resources located west and north of the study area, and high development and construction activity in Brampton.

In order to understand the operational characteristics of Mayfield Road, and specifically the existing signalized intersections, two common measures of performance were considered as part of this traffic study:

- The "capacity" of the intersection, which requires the calculations of volume/capacity (v/c) ratio, is a measure of intersection utilization. It is calculated by dividing the estimated traffic demand by the capacity for each intersection movement.
- The "level of service" (LOS) of an intersection is defined in terms of control delay, which is an indicator of driver inconvenience. The various level of service definitions are illustrated in **Table 2.4**.

Table 2.4 Definition of Level of Service for Signalized Intersections

Level of Service	Control Delay per Vehicle (seconds/veh)
A	less than 10
B	10 to 20
C	20 to 35
D	35 to 55
E	55 to 80
F	greater than 80

Source: Table 16-2. Highway Capacity Manual

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PROBLEM STATEMENT

Table 2.5 summarizes the current operating conditions for existing Mayfield Road intersections.

Table 2.5 Existing Level of Service at Signalized Intersections along Mayfield Road

Signalized Intersection	Time Period	V/C ⁽¹⁾	LOS ⁽²⁾
Mayfield Road and Heart Lake Road	AM Peak	0.82	D
	PM Peak	0.95	C
Mayfield Road and Dixie Road	AM Peak	0.71	D
	PM Peak	0.87	C
Mayfield Road and Bramalea Road	AM Peak	0.75	D
	PM Peak	0.79	D
Mayfield Road and Torbram Road	AM Peak	0.74	D
	PM Peak	0.73	C
Mayfield Road and Airport Road	AM Peak	0.75	C
	PM Peak	0.79	C

(1) V/C – maximum volume / capacity ratio for critical movement

(2) LOS – overall intersection level of service

To determine the future widening needs on Mayfield within the study area, travel forecasts were prepared based on 2007, 2012 and 2027 horizon years. The transportation modeling for the travel forecast reflects planned, committed, and proposed land use and roadway improvements as well as projected population and employment for the Region of Peel and City of Brampton. The transportation modeling also reflects the impacts of the committed Highway 410 extension by the Ministry of Transportation of Ontario.

Based on projected 2012 traffic volumes, the traffic study found that all intersections within the study area would experience significant operational deficiencies if no improvements were made to Mayfield Road and its intersections with the side streets. **Table 2.6** illustrates the overall level of service in 2012 for the existing “two lane” road network.

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PROBLEM STATEMENT

Table 2.6 2012 Overall Level of Service at Intersections (Existing Road Network)

Signalized Intersection	Time Period	V/C ⁽¹⁾	LOS ⁽²⁾
Mayfield Road and Heart Lake Road	2012 AM Peak	1.66	F
	2012 PM Peak	1.27	F
Mayfield Road and Dixie Road	2012 AM Peak	1.49	F
	2012 PM Peak	1.91	F
Mayfield Road and Bramalea Road	2012 AM Peak	1.18	E
	2012 PM Peak	1.12	D
Mayfield Road and Torbram Road	2012 AM Peak	1.10	D
	2012 PM Peak	0.98	C
Mayfield Road and Airport Road	2012 AM Peak	1.30	F
	2012 PM Peak	1.61	F

(1) V/C – maximum volume / capacity ratio for critical movement

(2) LOS – overall level of service

If Mayfield Road was widened to four lanes including improved intersections, the 2012 traffic volumes, forecasted by the traffic study, would be handled reasonably well and result in acceptable overall levels of service. The forecasted levels of service at each intersection within the study area based on 2012 traffic volumes and widening of Mayfield Road to four lanes plus intersection improvements are illustrated in **Table 2.7**.

Table 2.7 2012 Overall Level of Service at Intersections (with Improvements)

Signalized Intersection	Time Period	V/C ⁽¹⁾	LOS ⁽²⁾
Mayfield Road and Heart Lake Road	2012 AM Peak	0.99	D
	2012 PM Peak	0.86	C
Mayfield Road and Dixie Road	2012 AM Peak	0.86	C
	2012 PM Peak	0.79	C
Mayfield Road and Bramalea Road	2012 AM Peak	0.96	C
	2012 PM Peak	0.94	C
Mayfield Road and Torbram Road	2012 AM Peak	0.91	C
	2012 PM Peak	0.93	C
Mayfield Road and Airport Road	2012 AM Peak	0.94	C
	2012 PM Peak	0.91	D

(1) V/C – maximum volume / capacity ratio for critical movement

(2) LOS – overall level of service



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PROBLEM STATEMENT

A similar analysis with 2027 traffic volume forecasts confirms the need for six lanes plus improved intersections, to maintain acceptable overall level of service at intersections. The resulting operational characteristics, assuming Mayfield Road is widened to six lanes plus improved intersections are summarized in the **Table 2.8**.

Table 2.8 2027 Overall Level of Service at Intersections (With Improvements)

Signalized Intersection	Time Period	V/C ⁽¹⁾	LOS ⁽²⁾
Mayfield Road and Heart Lake Road	2027 AM Peak	0.95	C
	2027 PM Peak	0.96	C
Mayfield Road and Dixie Road	2027 AM Peak	0.99	D
	2027 PM Peak	0.82	B
Mayfield Road and Bramalea Road	2027 AM Peak	0.91	C
	2027 PM Peak	0.91	C
Mayfield Road and Torbram Road	2027 AM Peak	0.92	C
	2027 PM Peak	0.97	C
Mayfield Road and Airport Road	2027 AM Peak	0.96	C
	2027 PM Peak	0.96	C

(1) V/C – maximum volume / capacity ratio for critical movement

(2) LOS – overall level of service

Based on the analysis of traffic growth, forecasted capacity and level of service for Mayfield Road between Heart Lake Road and Airport Road to the year 2027, the recommended timing for four or six lane improvements to Mayfield Road were determined. This timing is summarized in **Table 2.9** and illustrates that Mayfield Road from Heart Lake Road to Dixie Road must be widened to 4 lanes as soon as 2006, and to 6 lanes in 2015.

Table 2.9 Timing for Recommended Number of Lanes on Mayfield Road

From	To	When Are Lanes Required	
		4	6
Heart Lake Road	Highway 410	2006	2015
Highway 410	Dixie Road	2006	2015
Dixie Road	Bramalea Road	2012	2020 – 2021
Bramalea Road	Torbram Road	2012	2020 – 2021
Torbram Road	Airport Road	2010	2020 - 2021

Based on Level of Service D Capacity

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PROBLEM STATEMENT

Complete details of the Traffic Study Report for Mayfield Road between Heart Lake Road and Airport Road, completed by iTrans Consulting, are found in Appendix 'A'.

2.2 SAFETY PERFORMANCE REVIEW

iTrans Consulting undertook a safety review of the existing conditions of Mayfield Road between Heart Lake Road and Airport Road. This safety review consisted of a review of collision history and traffic operations which was combined with issues observed and measures during a site investigation. An understanding of the collision history and observed traffic operations provides a background for selecting safety counter measures.

2.2.1 Collision History

Collision reports were received for the years 2000 to 2002 from the Region of Peel. This collision history was reviewed to determine possible trends such as collision location, time of day and environmental collisions. A summary of the collision history of the entire corridor is provided in **Table 2.10**.

Table 2.10 Summary of Reported Collisions along Mayfield Road from Heart Lake Road to Airport Road (2000 to 2002)

Location	Total	Injury	PDO ⁽¹⁾	Collision types
Heart Lake Road	8	3	5	Rear-end Angle Left-turn
Dixie Road	12	3	9	Rear-end Angle Left-turn
Bramalea Road	3	1	2	Rear-end Angle Lost-control
Torbram Road	2	0	2	Rear-end Left-turn
Airport Road	10	3	7	Rear-end Angle
Road Segment	19	9	10	Lost-control Rear-end Animal
TOTAL	54	19	35	

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(1) Property Damage only

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PROBLEM STATEMENT

The overall collision analysis findings for the entire corridor are:

- 48% of collisions occurred during peak periods of 6 to 9 a.m. and 3 to 6 p.m. (26 of 54)
- 31% of collisions are rear-end (16 of 54)
- 22% of collisions are left-turn (12 of 54)
- Majority of collisions not caused by environmental conditions (72% during daylight, 76% during clear weather, 67% with dry road surface)
- 65% of collisions occur at intersections (35 of 54)
- No fatal collisions from 2000 to 2002

Specific findings for collisions at each intersection and road segment are as follows:

2.2.2 Collision History at Intersections

Heart Lake Road at Mayfield Road – Of the total of eight collisions reported at this intersection there were three injury collisions and no fatalities. Summaries of the collisions by type are shown in **Table 2.11**.

Table 2.11 Collision Summary by Type – Heart Lake Road at Mayfield Road

Collision Type	Total Collisions	NB	SB	EB	WB
Rear-end	3	1	0	2	0
Angle	2	2 SB/WB			
Left-turn	3	0		3 EB/WB	

It can be noted that two of three rear-end collisions at this intersection occurred under wet road conditions. It did not appear that weather conditions were a factor in any of the left turn collisions, however they may be a result of left turning vehicles using small gaps, or using the "intergreen" (amber transition) phase to complete their maneuver. The angle type collisions at intersections generally indicate an issue with sight distance, signal head visibility, or driver awareness of the intersections.

Dixie Road at Mayfield Road – There were a total of twelve collisions reported, including three injury collisions. A collision summary is shown in **Table 2.12**.

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PROBLEM STATEMENT

Table 2.12 Collision Summary by Type – Dixie Road at Mayfield Road

Collision Type	Total Collisions	NB	SB	EB	WB
Rear-end	3	0	0	0	3
Angle	3	2 EB/NB, 1 SB/EB			
Left-turn	5	1 NB/EB, 3 NB/SB, 1 EB/WB			
Right-turn	1	0	1	0	0

The westbound rear-end collisions all occurred around the p.m. peak period. This may indicate congestion and queuing at the intersection. The angle collisions may indicate an issue with sight distances, signal head visibility, or driver awareness of the intersections.

Weather conditions do not appear to be a factor for the left turn collisions at the Dixie Road intersection. Therefore the left turn collisions may be an indication of small gaps for left-turning vehicles, or that left-turning motorists are using the intergreen phase to complete their maneuver.

The only right turn collision at the Dixie Road intersection involved a south bound tractor trailer making a wide right turn onto Mayfield Road, and a passenger vehicle in the "No Zone" to the right of the tractor trailer.

Bramalea Road at Mayfield Road – There were a total of three collisions noted at the Bramalea Road intersection as summarized in **Table 2.13**. One of the collisions resulted in injury.

Table 2.13 Collision Summary by Type – Bramalea Road at Mayfield Road

Collision Type	Total Collisions	NB	SB	EB	WB
Rear-end	1	0	0	0	1
Angle	1	NB/WB			
Lost-control	1	WB left-turn			

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PROBLEM STATEMENT

No common trends are apparent from the collision diagrams and the number of collisions does not seem significant for this intersection.

Torbram Road at Mayfield Road – There were a total of two property damage collisions reported for the Torbram Road intersection as summarized by **Table 2.14**.

Table 2.14 Collision Summary by Type – Torbram Road at Mayfield Road

Collision Type	Total Collisions	NB	SB	EB	WB
Rear-end	1	0	0	1	0
Left-turn	1	NB left struck vehicle stopped at stop bar on west leg			

No common trends are apparent from the collision diagrams and the number of collisions does not seem significant for this intersection.

Airport Road at Mayfield Road – There were a total of ten collisions reported for Airport Road intersection as summarized in **Table 2.15**.

Table 2.15 Collision Summary by Type – Airport Road at Mayfield Road

Collision Type	Total Collisions	NB	SB	EB	WB
Rear-end	5	1	2	2	0
Angle	3	2 NB/EB		1 SB/EB	
Left-turn	1	0	0	WB/EB	
Right-turn	1	SB right-turn struck by WB vehicle			

Similar to the other intersections, the rear-end collisions indicate congestion or queuing at this intersection. There may also be poor signal head visibility or high operating speeds contributing to these collisions.

The angle collisions may indicate an issue with sight distances, signal head visibility, or driver awareness of the intersections. The left-turn collision may require the investigation of the intergreen time, left-turn lane offset, and intersection alignment. The right-turn collision may have involved a vehicle turning right on a red signal.

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PROBLEM STATEMENT

2.2.3 Collision History on Road Segments

Of the 19 collisions that occurred on the road segments of this corridor (i.e. – between intersections), seven were lost-control collisions, four were rear-end, four were animal related, two were left-turn collisions at driveways, one was a right-turn collision at a driveway, and one was an on-road debris collision. Nine of the segment collisions resulted in injury.

These collisions are insufficient to establish trends for each segment. However, the entire corridor will be reviewed to determine if any improvements may be made to increase safety.

2.2.4 Field Investigation

A field investigation was conducted on the afternoon of February 19, 2003. The entire corridor was driven and each intersection reviewed based on the findings of the preliminary investigation. It should be noted that a night time investigation was not conducted due to the low number of night time collisions.

The following documents the observations made during the field investigations.

Lane Configuration and Road Surface – As part of the investigation, the lane configuration and continuity, road surface condition and pavement markings were observed. In terms of safety, the existing lane configurations at intersections and along the road segments appear to be adequate. There are no lane shifts through intersections, or lane drops that may contribute to collisions. This is also reflected in the collision history of the corridor. Most collisions along this corridor occur with a dry road surface, however various areas of polishing and wearing of the pavement surface was noted.

Signs and Signals – For this part of the field investigation, signal head visibility, signage, potential driver distractions, dilemma zone, intergreen period, congestion or queuing and gap size were observed.

Signal heads at all intersections are adequately visible to approaching traffic. Amber time appears adequate at all intersections for the observed operating speeds along the corridor.

Street name signs at the intersections have letter heights of approximately 10 cm. For most directions, these signs are mounted on the shoulder in advance of the intersection. Signs with larger letter heights, and placed in more prominent locations would provide better guidance to drivers. Queuing was observed for traffic traveling westbound at the intersection of Heart Lake Road and Mayfield Road.

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Geometry and Sight Distance – Horizontal and vertical curves, sight distances to intersections and driveways, left-turn lane offset, intersection alignment and sightlines were reviewed for this portion of the field investigation. It was found that intersection alignment and sightlines currently provide drivers with sufficient sight distance to make appropriate decisions.

Road Segments – For the field investigation, posted speed limits, general operating speeds, shoulder type and width, guide rails, sideslopes and clear zone were observed.

The posted speed limit is 80 km/h from Heart Lake Road to approximately 100 metres west of Bramalea Road, where the posted speed limit becomes 60 km/h. The speed limit increases to 80 km/h approximately 100 m east of the eastern Mayfield Secondary School parking lot access (east of Bramalea Road). Approximately 150 m west of Airport Road, the speed limit is reduced to 60 km/h. Operating speeds were observed to be generally higher than the posted speed, however precise speed measurements were not taken.

Along Mayfield Road the shoulder typically consists of a 20 cm wide pavement edge line and a 1.5 m to 2.0 m gravel surface. Beyond the shoulder, the roadside varies from ditches to steep sideslopes that sometimes lead into marshy areas. There are guide rails at most vertical sag locations, however some of these are damaged or of insufficient length.

There is a line of utility poles predominantly along the south side of Mayfield Road for the length of this study area. Mayfield Road is not illuminated, except at the signalized intersections.

Pavement markings along the corridor, including painted areas in turn lanes at intersections, are faded.

There were no excessive distractions (i.e. - frequent billboards or commercial signage) noted along the corridor. For the most part, the surrounding land use is open field, with some residences, individual commercial enterprises and a high school. Snow fences were observed on the north side of Mayfield Road along certain segments.

Mayfield Road has a number of vertical curves between Heart Lake Road and Airport Road. There are horizontal curves just west of Heart Lake Road, between Bramalea Road and Torbram Road, and just east of Airport Road. It was noted that the demarcation of these horizontal curves could be improved.

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Sight distances to the intersection crowns are somewhat impeded by the vertical curves on Mayfield Road at Airport Road and Heart Lake Road. The signal heads at each intersection are visible to all approaches. Two driveways were noted between Heart Lake Road and Dixie Road that might be considered "hidden driveways" but not marked as such.

The Mayfield Secondary School, located on the northeast corner of Mayfield Road and Bramalea Road, has two accesses to Mayfield Road, just east of Bramalea Road. There is a dedicated left-turn lane for eastbound vehicles and a dedicated right-turn lane between the two driveways. The western access is signed as an entrance only, and the eastern access is signed as an exit only.

There are a number of signs related to this school zone including speed limit reduction to 60 km/h, School Bus Turning, street name sign, and a yellow and green School Area sign. Currently, the street name sign blocks the view of the School Area sign. Just east of Bramalea Road, a Community Safety Zone starts. This zone ends just east of the eastern high school access.

Similarly for westbound vehicles, east of the eastern access to the school, motorists are proceeding through a horizontal curve and presented with similar information. One significant difference is that the "School Bus Turning" sign is not present; instead, there is a "School Bus Stop Ahead" sign. Also, there is an information sign for the Mayfield Recreation Complex, with an arrow pointing to the right. This sign is located east of the exit-only high school access, which drivers may incorrectly assume is the access for the Recreation Complex

Although there is a significant amount of information for a motorist to observe and react to near the Mayfield Secondary School, there were no reported collisions related directly to the high school accesses.

2.2.5 Safety Review Recommendations

Based on the safety review undertaken by iTrans Consulting as part of this study, the following recommendations are provided.

1. Four Lane Cross Section For Mayfield Road

- A widening of Mayfield Road to four lanes is not needed on the basis of the existing safety performance. However it is recognized that a four lane cross section between Heart Lake Road and Dixie Road may reduce queuing at the intersections and improve operations, therefore potentially reducing rear-end and intersection collisions.

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- A two-way left turn lane was also considered during the field investigation from Dixie Road to Airport Road. Due to the current driveway spacing, it is felt that a two-way left turn lane would not reduce a significant amount of traffic conflicts. In addition, a two-way left turn lane type of cross-section may encourage higher speed or passing manoeuvres.

2. Shoulder and Roadside Improvements

- The number of lost-control collisions along this corridor suggests that shoulder treatments and roadside improvements may increase safety by aiding errant vehicles to regain control and safely recover to the roadway.
- Increasing the paved surface of the shoulders to 0.5 metres (partially paved) will provide a more stable recovery area for errant vehicles. This additional width may also provide a place for vehicles to avoid rear-end collisions, and will provide a semi-turning lane for vehicles turning right into driveways. To help drivers to differentiate between the travel lanes and shoulder, consideration may be given to using a surfacing material of different appearance for the shoulder than the type of material used on the travel lanes.
- The roadside along Mayfield Road could be improved to help errant vehicles to recover safely to the travelled way. These improvements should include upgrading the existing roadside furniture and appurtenances to roadside standards, repairing a number of the damaged cable guide rails and extending existing guide rails in vertical sag locations to further prevent vehicles from leaving the right-of-way.
- Other suggested roadside improvements include providing an adequate clear zone and recoverable slopes. These improvements could be scheduled with future roadway improvements using the design parameters set out in the AASHTO Roadside Design Guide 2002 where possible.
- Shoulder rumble strips do not appear to be warranted at this time, as the "run-off-road" collisions appear to be the result of poor weather conditions as opposed to drowsy or inattentive drivers.

3. Pavement Surface and Pavement Markings

- Various anti-icing treatments or increasing the road surface friction by implementing appropriate pavement surface treatments (i.e. microsurfacing, slurry seal, resurfacing, new pavement, etc.) to increase the surface friction in areas where the road surface appears polished, may reduce poor weather collisions and rear-end collisions.
- Additional snow fencing may reduce the number of winter-weather collisions (i.e. - lost control collisions).

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- Since many of the pavement markings along Mayfield Road are faded, it is recommended that these markings be maintained regularly, or repainted after any resurfacing projects.

4. Signage

- Street name signs at intersections should be placed on existing overhead signal arms. This prominent location improves the conspicuity of the sign. In addition, the letter size should be increased, and the font should have upper and lower case letters, to match the guidelines in OTM Book 1. Advanced signage may still be provided, however it is recommended that the current signs be replaced with signs with bigger font.
- Chevron signs should be placed on the curve between Bramalea Road and Torbram Road for both directions of travel.
- To increase awareness of certain driveways that may be considered hidden, it is recommended that post-mounted delineators be provided to demarcate the driveway openings along Mayfield Road.

5. School Zone

Due to the significant amount of information for drivers as they approach the intersection with Bramalea Road and the Mayfield Secondary School, the following are suggestions to improve guidance and reduce driver confusion:

- The information on the current signs could be made clearer by providing consistency of signs. It is suggested that the existing signage be modified to provide the following signs:
 - 1) 60 km/h posted speed limit
 - 2) "School Area" (OTM Wc-1 or Wc-101)
 - 3) Community Safety Zone (OTM Rc-9) Begins (tab)
 - 4) Community Safety Zone (OTM Rc-9) Ends (tab)

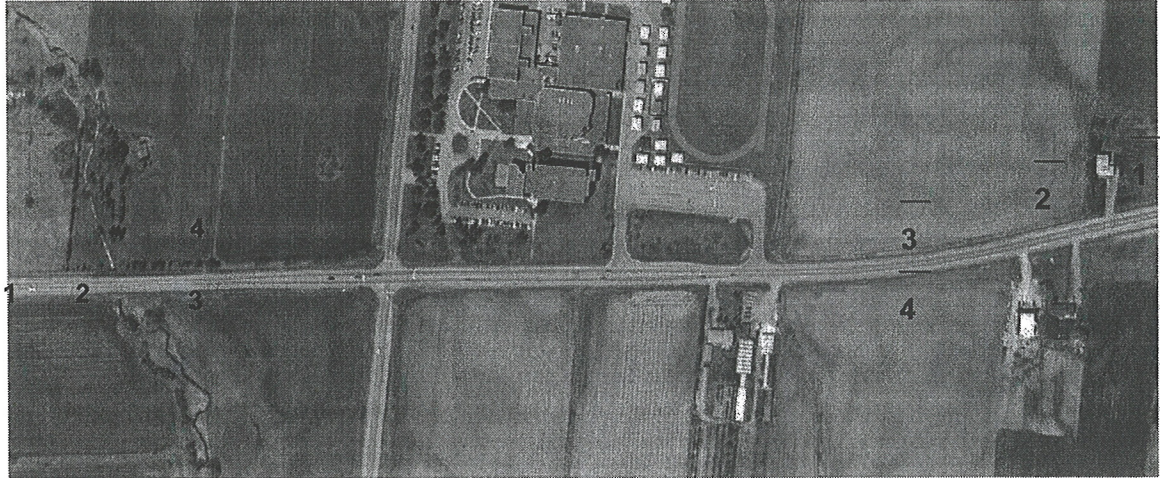
The Region may wish to extend the existing Community Safety Zone further west, to encompass the intersection of Bramalea Road and Mayfield Road. In a Community Safety Zone, the order of signs is quite important. Figure 2.1 illustrates suggested positioning for the above signage. Exact sign locations should be determined using the guidelines set out in the Ontario Traffic Manual (OTM).

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Figure 2.1 Suggested positioning of signage for School Zone (Bramalea Road)



Existing information signage for the Mayfield Recreation Complex should be moved closer to the entrance-only (western) access to the high school. Or, if the sign is intended to direct motorists to Bramalea Road, then the sign may be placed closer to the intersection, after the school accesses.

2.3 HIGHWAY 410 AND AIRPORT ROAD/MAYFIELD ROAD INTERSECTION

The Ministry of Transportation completed a Class Environmental Assessment Study for the proposed Highway 410 extension from Bovaird Drive to Highway 10 (Huronario Street) in 1989. The proposed Highway 410 intersects this Mayfield Road Study area between Heart Lake Road and Dixie Road. The MTO's Class Environmental Assessment Report (EAR) was updated in 1995 and approved by the Minister of the Environment in 1997. As part of the Highway 410 extension, it is proposed to construct an interchange at Highway 410 and Mayfield Road.

Since the interchange of Mayfield Road and Highway 410 was covered under the MTO's EA for the Highway 410 extension, the limits of the interchange between the eastern and western ramps on Mayfield Road do not form part of this Mayfield Road study limits. However, the Traffic Report did take into account the change in traffic patterns and volumes that will result from the extension of Highway 410 and its interchange with Mayfield Road.

In summary, the "project need and justification" for this Class EA study include the results and traffic impacts of constructing the Highway 410 extension to Mayfield Road. However, the "impacts and mitigation measures" of the recommended alternative do not include the area between the ends of both the eastern and western ramps with Highway 410 on Mayfield Road. The location of the ramps for the

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Mayfield Road/Highway 410 interchange is illustrated on the drawings in this report. All drawings presented to the public indicated that the Highway 410/Mayfield Road interchange was not part of the Mayfield Class EA. Although exact timing of Highway 410 construction has not been firmly established, construction of the Highway 410/Mayfield Road interchange could be completed as early as 2006.

The Region of Peel has also completed a Class EA Study for Airport Road at Mayfield Road. Improvements to this intersection are scheduled for 2004. Since construction of the section of Mayfield Road between Torbram Road and Airport Road is not anticipated until the year 2010, the intersection improvements determined as part of the Airport Road Class EA study have been illustrated on the drawings presented in this report. As a result, the impacts and mitigation measures for this study only extend as far as the western limit of the Airport Road/Mayfield Road intersection.

2.4 PROBLEM STATEMENT

The need for improvements and additional roadway capacity for the Mayfield Road corridor has been identified in earlier studies including the Mayfield Road Class Environmental Assessment (Huronario Street to Heart Lake Road), the Mayfield Road Corridor Feasibility Study (Huronario Street to Dixie Road) and the Region of Peel Official Plan. These studies recommended the widening of Mayfield Road from its current two lane cross section.

Travel demands forecasts for Mayfield Road have been developed for this study, as detailed in Section 2.1 of this report. This traffic forecast determined that Mayfield Road between Heart Lake Road and Airport Road would generally be operating at an unacceptable level of service by 2012 if no improvements are undertaken to Mayfield Road (i.e. – Level of Service D or less). Based on existing traffic volumes and operations on Mayfield Road, combined with the proposed widening of Mayfield Road west of Heart Lake Road and the proposed interchange with Highway 410, there is an existing need to widen Mayfield Road between Heart Lake Road and Dixie Road, by the year 2006.

Fifty-four collisions have occurred on Mayfield Road between Heart Lake Road and Airport Road between the years 2000 and 2002. Nineteen (35%) of these collisions resulted in injuries with no fatalities reported. Thirty-five (65%) of the collisions occurred at intersections. A comprehensive safety review undertaken for the existing Mayfield Road found that reducing vehicle queues at intersections, and providing additional and larger signage would improve safety and increase driver awareness.

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The need and justification for this study, as outlined in the previous sections is summarized by the following problem statement for this study:

Based on projected growth and development in the City of Brampton and the Town of Caledon, Mayfield Road, between Heart Lake Road and Airport Road, will generally operate at unacceptable levels of service (increased congestion and unsafe traffic conditions) if no improvements are undertaken by 2012.

2.5 PUBLIC CONSULTATION

A Notice of Study Commencement was advertised in the Caledon Citizen on December 11 and December 18, 2003 and in the Brampton Guardian on December 11 and December 15, 2003. Copies of this notice are found in Appendix B. This notice satisfies the requirement for the first mandatory public contact that is outlined in Phase 2 of the Class EA, by inviting the public to comment on the study. The notice also advised that additional public review and comments would be invited at future Public Information Centres.

A Notice of Study Commencement was also mailed to the various agencies and property owners within the study area. Copies of the letters and mailing list are also attached in Appendix B. The comments received from the agencies and the public as a result of this Notice of Study Commencement mailout are contained in Section 3.4.4.

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3.0 Alternative Solutions

3.1 EXISTING ENVIRONMENT

3.1.1 Roadway

Within the study area, Mayfield Road is a rural two-lane paved roadway, approximately 7.2 meters wide with gravel shoulders varying in width between 1.5 meters to 2 meters. The existing asphalt pavement surface is generally in fair to good condition, with some wear or "polishing" of the surface noted as part of a safety review.

Drainage is primarily by means of rural ditches, although underground storm drains exist at some intersections where curb and gutter has been installed. There are eleven (11) surface watercourses that cross Mayfield Road within the study area, including one (1) crossing within the limits of the Highway 410 interchange. Eight (8) of these watercourses have intermittent flows and three (3) of the watercourses have permanent flows. In general, the intermittent watercourses are conveyed across the Mayfield Road right-of-way by means of corrugated metal culvert pipes, and concrete culverts of various sizes convey the permanent watercourses. Additional details regarding the watercourses and culverts can be found in Item 3.1.7 and 3.1.10 respectively of this report.

Within the project limits, five (5) public roads intersect Mayfield Road. They include Heart Lake Road, Dixie Road (Regional Road 4), Bramalea Road, Torbram Road and Airport Road (Regional Road 7). These intersections are spaced at approximately 1.35 kilometre intervals along Mayfield Road. Traffic at the intersections is controlled by traffic signals, with various left and right turn lanes installed on all four legs of each intersection.

The posted speed limit is 80 km/hr from Heart Lake Road to approximately 100 m west of Bramalea Road, where the posted speed limits become 60 km/h. The speed limit increases to 80 km/h approximately 100 m east of the eastern Mayfield Secondary School parking lot access located east of the Bramalea Road. Approximately 150 metres west of Airport Road, the speed limit is reduced to 60 km/h. The vertical profile of Mayfield Road traverses a rolling terrain and in general meets the requirements for a 90 km/h design speed. However, "sags" at some culvert locations have substandard vertical curves that are deficient for the design speed resulting from the existing posted speed. There are horizontal curves just west of Heart Lake Road, between Bramalea Road and Torbram Road and just

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east of Airport Road. The existing Mayfield Road road allowance varies from 25 metres to 40 metres with additional right-of-way provided where required for grading purposes. In the Region of Peel Official Plan, as well as both the City of Brampton and Town of Caledon Official Plans, Mayfield Road is designated as a major or arterial roadway and designated to have a 50 metre road allowance width.

3.1.2 Utilities

Public utilities located within the Mayfield Road road allowance include underground watermain, sanitary forcemain, some minor storm sewers, culverts, natural gas mains, and Bell cables. Overhead poles with hydro and Rogers Cable T.V. lines exist throughout the project limits predominantly on the south side of Mayfield Road. These overhead hydro poles are generally approximately 10 metres from the edge of existing pavement. No road illumination exists along Mayfield Road with the exception of each intersection where illumination is provided in conjunction with the existing traffic signals.

3.1.3 Proposed Highway 410 Extension

Highway 410 presently runs north from Highway 401 and ends at Bovaird Drive (Highway 7) in Brampton. At this point, Highway 410 connects to Heart Lake Road. The Ministry of Transportation plans to extend Highway 410 north of Bovaird Drive on an alignment that runs east of Heart Lake Road until it crosses Mayfield Road. North of Mayfield Road, Highway 410 is proposed to swing to the west where it will parallel Mayfield Road until it connects to Highway 10 (Hurontario Street) north of the community of Snelgrove. This Highway 410 Extension is shown in the Region of Peels Official Plan as a "Freeway Extension".

At Mayfield Road, Highway 410 is proposed to be six-lanes wide, with Mayfield Road being carried over Highway 410 by means of a new bridge. Ramps carrying traffic off of Highway 410 onto Mayfield Road are proposed for both the south/east and north/west quadrant, with ramps carrying traffic from Mayfield Road onto Highway 410 proposed for all four quadrants of the interchange.

The Highway 410 Extension is currently under construction from approximately Bovaird Drive to Sandalwood Parkway. The remainder of the Highway 410 extension is still in the planning and design stages with the earliest estimates for completion in the vicinity of Mayfield Road to be 2006. Traffic now using Mayfield Road and Heart Lake Road, to connect between Highway 10 north of Snelgrove and Highway 410 at Bovaird Drive, will be able to use the Highway 410 extension when it is completely constructed.

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Although the proposed new interchange of Highway 410 at Mayfield Road is within the boundaries of this Class EA Study, it is not included in the study limits, as the impacts resulting from the interchange have been addressed under the Ministry of Transportation Environmental Assessment for Highway 410. However, the drawings for this Mayfield Road Class EA Study include drawings of the interchange of Highway 410/Mayfield Road for information purposes.

3.1.4 Airport Road/Mayfield Road Intersection Improvements

At the intersection of Mayfield Road and Airport Road, both Mayfield Road and Airport Road currently consist of one (1) through lane in each direction with turning lanes at each leg. The Region of Peel has completed a Class Environmental Assessment for the widening of Airport Road from Mayfield Road to Countryside Drive. This study recommended that Airport Road be widened to two-lanes in each direction with turn lanes at Mayfield Road including upgrading the intersection legs (only) of Mayfield Road to one-lane in each direction plus turning lanes. The Traffic Study undertaken for this Mayfield Road Class EA study generally confirmed the turn lane configuration developed as part of the Airport Road Study. Therefore the Mayfield Road Class EA Study limits were considered to be the western limit of the Airport Road right-of-way. All drawings developed as part of the Mayfield Road study include the proposed Airport Road improvements including the improvements to the Mayfield Road legs of its intersection with Airport Road, highlighted in a contrasting colour. However, prior to detail design, the turn lane configuration at the Airport Road/Mayfield Road intersection must be reconfirmed by means of an updated traffic analysis.

3.1.5 Adjacent Land Uses

Mayfield Road, between Heart Lake Road and Airport Road, is entirely within the Region of Peel and forms the boundary between the City of Brampton to the south and the Town of Caledon to the north. The adjacent land uses are mainly rural or agricultural, with some pockets of commercial enterprises and isolated areas of individual residences. In addition, Mayfield Secondary School is located on the northeast corner of Mayfield Road and Bramalea Road.

The Region of Peel Official Plan designates the area north of Mayfield Road, in the Town of Caledon, as "Prime Agricultural Area", and is classified as "Rural System" in the Regional Structure. The area south of Mayfield Road, in the City of Brampton, is classified as "Urban System" in the Peel Official Plan Regional Structure.

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The study area is located within an area of "High Potential Mineral Aggregate Resources". However any road widening alternatives within the designated 50 m

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road allowance for Mayfield Road, should not have a significant impact on these resources.

3.1.6 Archaeological and Built Heritage

Mayer Heritage Consultants Inc. undertook a Stage 1 Archaeological Assessment and a Heritage Impact Assessment for the study limits of Mayfield Road, as subconsultants on behalf of Stantec Consulting Ltd. Their findings are summarized in two reports dated February 2003 and August 2003, contained in Appendix C.

3.1.6.1 Archaeological Assessment Stage 1

The Stage 1 Archaeological Assessment was conducted in order to determine if potential construction activities would have direct and/or indirect impacts on archaeological resources that might be present within the study limits. The Stage 1 Archeological Assessment was completed by conducting background research in order to complete the following tasks:

- Compile all the readily available information on any previous archaeological surveys in the general area;
- Determine the locations of any registered and unregistered sites; and
- Develop a historical framework for assigning levels of potential significance to any new sites discovered during fieldwork.

The recommendations from the Stage 1 Archaeological Assessment are summarized as follows:

- Additional assessment or mitigative measures are not warranted because the study area exhibits low potential for the recovery of archaeological resources.
- Although reasonable efforts were made to locate all archaeological resources, it is possible that some remains may be discovered within the study area. Should deeply buried archaeological material be found during construction the Ministry of Culture and Mayer Heritage Consultants Inc. should be immediately notified.
- As on virtually any property in southern Ontario, it is possible that Aboriginal or Euro-Canadian burials could be present within the study area. In the event that human remains are encountered during construction, the proponent should immediately contact both the Ministry of Culture and the Cemeteries Regulation Unit of the Ontario Ministry of Consumer and Commercial Relations, as well as the appropriate Municipal Police, Local Coroner, and Mayer Heritage Consultants Inc.

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3.1.6.2 Heritage Impact Assessment

The objective of the Heritage Impact Assessment for Mayfield Road was to identify sites/structures/facilities of potential historic or heritage significance within the study limits including short portions beyond the east and west limits of the Mayfield Road study area west of Heart Lake Road and east of Airport Road. Also included were short portions of each road intersecting with Mayfield Road within the study limits.

The study method for the Heritage Impact Assessment consisted of background research and a field survey. The background research was conducted for the study in order to develop a heritage/historical framework for assigning potential heritage significance to any site/structure/facility noted during fieldwork and to make recommendations for further study of any such noted site/structure/facility. Relevant archival material and published reference sources were accessed as part of the background research.

A field survey was also conducted including taking photographs and field notes that are included in the Heritage Impact Assessment report found in Appendix C.

The crossroads community of Mayfield is located at the Mayfield Road and Dixie Road intersection. Although only a few farm residences exist today, 125 years ago the community of Mayfield had a population of approximately 50 people. There was a general store and post office, a blacksmith shop, a hotel and a brick schoolhouse. A hotel was located on the south/west corner, and the general store on the south/east corner of the intersection. None of these structures remain today. The farm residence at 4524 Mayfield Road just east of Dixie Road on the north side of Mayfield Road will be impacted by any road widening as it currently sits very close to the existing roadway. In addition, further east on the south side of Mayfield Road at 4615 Mayfield Road, a concrete block house is situated. This building appears to be the residence of an early rural automotive garage, circa 1920's. Although it is set back from the road, grading for a road widening may impact portions of the property.

At the Mayfield Road/Airport Road intersection the community of Tullamore exists. In the past, Tullamore consisted of a hotel as well as a number of stores and a post office. There are currently a number of houses and commercial enterprises in Tullamore. Although there are some structures remaining today from the earlier times of the community of Tullamore, none of these structures will be impacted by potential road construction as part of this study. However there may be impacts to some structures and the cemetery at Tullamore as part of the proposed works on Airport Road by the Region of Peel as part of another project.

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The Heritage Impact Assessment recommended that the noted structures/facilities should be subject to further study. The two noted structures/facilities within the community of Tullamore are not within the Mayfield Road study limits and are therefore are not impacted by this study. However the structures at 4524 Mayfield Road and 4615 Mayfield Road should each be the subject of further study when it is determined that road construction will impact these structures. It is noted that the building at 4524 Mayfield Road would be impacted by any proposed road construction, however the detail design process should explore methods to minimize impacts to 4615 Mayfield Road.

3.1.7 Natural Environment

3.1.7.1 Background

Natural Resource Solutions Inc. (NRSI), on behalf of Stantec Consulting Ltd., completed a Natural Environment Technical Report for Mayfield Road between Heart Lake Road and Airport Road. A copy of the complete NRSI report is found in Appendix D. The objective of this Natural Environment Report is to:

- Document existing natural and environmental features within the study area;
- Evaluate, from an environmental perspective, the various alternatives proposed for carrying out the undertaking;
- Recommend, from an environmental perspective, the preferred alternative for carrying out the undertaking;
- Determine the potential impacts to the natural environmental features from the construction and operation of the preferred alternative;
- Formulate mitigation measures and recommendations to reduce or eliminate the identified impacts; and
- Recommend appropriate monitoring to evaluate the accuracy of impact predictions and to ensure protection of the natural environmental features.

The natural environment inventory consisted of collection and review of background information including agency contacts, site inspections and inventories. The fieldwork was undertaken on various dates from February 2003 to August 2003. The NRSI Report describes the existing natural environment for the entire study area from Heart Lake Road to Airport Road, including the area of the Highway 410 Mayfield Road interchange. However, the Ministry of Transportation completed a Class Environmental Assessment for the proposed Highway 410 extension including the Highway 410/Mayfield Road interchange. Therefore the NRSI Report did not include the Mayfield Road interchange area in its analysis of the alternatives or

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impact analysis. For details regarding the environmental impacts associated with the Highway 410/Mayfield Road interchange, reference should be made to the Environmental Study Report prepared by Cole Sherman and Associates (1999), which is not included with this report.

The following sections, as well as **Figure J11 – J15** in Appendix J, summarize NRSI's findings.

3.1.7.2 Existing Natural Environment Conditions

A portion of the Heart Lake Wetland Complex is located between Heart Lake Road and Dixie Road. Portions of the wetland have been designated as an Environmentally Sensitive Area (ESA), a regional life science Area of Natural and Scientific Interest (ANSI) known as Heart Lake Forest and Bog and the Regional earth sciences (ANSI), the Brampton Buried Esker. The wetland has also been identified in the Region of Peel Official Plan as a core area of the green land system. The Town of Caledon also indicates this area as an "Environmental Constraint Policy Area" and an "Environmental Policy Area". However the portion of the Heart Lake Wetland Complex, between Dixie Road and Heart Lake Road falls entirely within the study limits for the Highway 410/Mayfield Road interchange and thus is not within the study area for this Mayfield Road Class EA. Portions of the Heart Lake Wetland Complex west of Heart Lake Road may be impacted if additional widening is required on Mayfield Road west of Heart Lake Road.

The area surrounding Mayfield Road, between Heart Lake Road and Airport Roads, is primarily agricultural land. However old field habitats, hedgerows and landscaped areas are also common.

A total of 117 vegetation species were recorded during site visits as part of this study. Of the species recorded, 41 are non-native to Ontario. The hedgerows are predominately Norway Spruce and Pine species. The landscaped areas associated with buildings and developed properties, contain a variety of trees such as willow species, apple, honey locust and pines. In some locations individual trees line the road. The Natural Habitat Communities are described in additional detail in the NRSI report found in Appendix D.

Incidental wildlife observations were made during field visits, and background information and habitat preferences documented. Lists of wildlife species including birds, mammals, reptiles, and amphibians are contained in the NRSI report in Appendix D. No significant species of wildlife were observed during the field visits or documented in the background information.

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There are eleven (11) surface watercourses within the study area, which include tributaries of Etobicoke Creek and the West Humber Water Sheds. These tributaries flow from north to south and are illustrated on Figure J11 to J15 in Appendix J. **Table 3.1** refers to the creeks as Creek One through Creek Eleven numbered from west to east along Mayfield Road, and provides an overview of the habitat characteristics and conditions found along the creek corridor immediately up-stream and downstream of the road right-of-way.

Table 3.1 Overview of the watercourse crossings found within the study area (Heart Lake Road to Airport Road)

Watercourse No. and Drainage	Channel Type	Flow Characteristics ¹	Riparian Features	Adjacent Land-use	Instream Habitat	TRCA Fill Regulated Area
Creek One Etobicoke Creek	Intermittent	No flow, standing water at culvert	> 5m, marsh and some meadow upstream	70% wetland and 30% meadow	Limited, pools at culvert, channel choked with vegetation	Fill regulated extension area
Creek Two Etobicoke Creek	Intermittent, no defined channel	Dry	Absent	100% crop	Absent, plowed through	No
Creek Three Etobicoke Creek	Intermittent	No flow, standing water	Absent	100% crop	Absent, plowed through	No
Creek Four Etobicoke Creek	Intermittent	No flow, standing water in large pool downstream	< 5m, terrestrial vegetation	50% farm and pasture 50% crop	Absent, suspended waste from cattle	No
Creek Five Etobicoke Creek	Intermittent, no defined channel	Dry	Absent	100% crop	Absent, plowed through	No
Creek Six West Humber River	Intermittent	Minor flow	< 5m, terrestrial vegetation	100% crop	Limited, small riffle area and pools	Fill regulated extension area
Creek Seven West Humber River	Permanent	Good flow	> 5m downstream (and absent upstream (lawn))	50% residential 40% crop 10% meadow	Riffle/pools, woody debris, undercut banks, aquatic vegetation and boulder/cobbles	Fill regulated area
Creek Eight West Humber River	Intermittent	No flow, standing water	< 5m, terrestrial vegetation	50% crop 25% meadow 25% developed	Limited, Minor boulder and cobble	Fill regulated extension area (downstream)
Creek Nine West Humber River	Intermittent	No flow, standing water	Absent	100% crop	Limited, Minor boulder and cobble, ploughed through	Fill regulated extension area (downstream)
Creek Ten West Humber River	Permanent	Beaver dam approx. 75m on downstream side	> 5m, trees and shrubs	75% crop 25% meadow	Riffle/pools, woody debris, undercut banks, aquatic vegetation and boulder/cobbles	Fill regulated area
Creek Eleven West Humber River	Permanent	No flow, standing water	> 5m, meadow	70% meadow 30% crop	Limited, small pools and channel choked with vegetation	Fill regulated extension area

Creeks One through Five are headwater tributaries of Etobicoke Creek. Etobicoke Creek has been included as a core area within the green land system for the Region of Peel. All five creeks are intermittent, un-named drainage channels that appear to flow in the wetter months collecting the runoff from the lands from the north side of

¹ Observations were made during the July and August 2003 field visit.

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Mayfield Road. In addition Creek One is within the area of the Highway 410/Mayfield Road interchange and is not considered further in this study.

Creeks Six to Eleven are headwater tributaries of the West Humber River. Three of the six creeks (Creeks Six, Eight, and Nine) flow on an intermittent and seasonal basis. Creeks Seven and Ten are permanent watercourses that provide good quality fish habitat and were sampled as part of the field investigations. Creek Eleven is a permanent watercourse but does not provide quality fish habitat.

Creek Seven is located west of Bramalea Road and flows through residential private property on the north side of the road. On the south side of Mayfield Road the creek meanders within the boundaries of an adequate vegetative buffer comprised of shrubs and trees. Aquatic habitat consisted of pool-riffle-run sequences, boulder, instream vegetation, woody debris and undercut banks. The substrate included sand, gravels, small cobble, and boulder, which are utilized by non-specialist fish species for spawning purposes. A total of 535 fish were sampled within a 100 linear metre reach of stream located downstream of Mayfield Road and through the culvert. During sampling the water temperature was 23⁰C and the air temperature was 28⁰C and the water clarity was good.

Table 3.2 Fish community sampled at Creek Seven located immediately to the west of Bramalea Road (July 29, 2003).

Scientific Name	Common Name
<i>Catostomus commersoni</i>	white sucker
<i>Etheostoma nigrum</i>	johnny darter
<i>Micropterus salmoides</i>	largemouth bass
<i>Rhinichthys atratulus</i>	blacknose dace
<i>Semotilus atromaculatus</i>	creek chub

Although not found during our sampling efforts, historical records indicate that brook trout have been sampled in Creek Seven and local residents have also observed trout in the upstream reaches of this tributary.

Creek Ten is located east of Torbram Road and flows through a well-established riparian zone on the north and south side of Mayfield Road. Aquatic habitat consists of pool-riffle-run sequences, boulder, instream vegetation, woody debris, undercut banks and backwater areas. The substrate consisted of a mixture of sand, gravel, small cobble, and boulder and fine sediments were also present within pool areas.

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A Livestock Access Restriction Project partially funded by the Metro Rural Clean Water Program, in conjunction with the TRCA and supported by the landowner, was completed at Creek Ten in 1996. This project entailed the erection of fencing to restrict cattle access to the creek and provide an alternative source of water for the cattle. A total of 1300 m of fencing was placed on both the north side and south side of Mayfield Road. No vegetation was planted, and a small area has been made available for cattle to drink from the creek due to calf dehydration concerns. In addition, a significant beaver dam was found approximately 80 m downstream of Mayfield Road.

During the field visit the water clarity was generally fair and the current was slow. The water temperature was recorded as 18°C and air temperature as 27°C. The water temperature is considered cool water, which may indicate ground water input upstream of the study area. A total of 294 fish were sampled within a 75 m reach of the creek as summarized in Table 3.3.

Table 3.3 Fish community sampled at Creek Ten located to the east of Torbram Road (July 29, 2003).

Scientific Name	Common Name
<i>Ambloplites rupestris</i>	rock bass
<i>Catostomus commersoni</i>	white sucker
<i>Etheostoma caeruleum</i>	rainbow darter
<i>Etheostoma flabellare</i>	fantail darter
<i>Etheostoma nigrum</i>	johnny darter
<i>Lepomis gibbosus</i>	pumpkinseed
<i>Micropterus salmoides</i>	largemouth bass
<i>Notropis cornutus</i>	common shiner
<i>Pimephales notatus</i>	bluntnose minnow
<i>Pimephales promelas</i>	fathead minnow
<i>Rhinichthys atratulus</i>	blacknose dace
<i>Semotilus atromaculatus</i>	creek chub

No reddsides were captured at either Creeks Seven or Ten during field sampling efforts, although the fish community found at Creek Ten included the common shiner and creek chub. The reddsides is known to utilize the nests of common shiner and creek chub for spawning activity to increase egg survivorship. Observations noted at Creek Seven and Ten indicate that current habitat conditions are adequate for the reddsides life stage requirements. Thus, the current habitat provides a

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potential for the provincially threatened redbreasted sunfish species to re-establish a population or to migrate upstream into the reaches of Creek Seven and Ten.

Creek Eleven is a permanent watercourse that appears to convey minor flow year round from upstream ponds located north of Mayfield Road. The creek channel was choked with aquatic vegetation (i.e. – cattails and duckweed) and terrestrial grasses. Due to poor instream visibility, standing water and vegetation choking the channel, Creek Eleven appeared very limited in terms of opportunity for fish habitat and therefore was not sampled.

In summary, the natural environment investigation found that:

- There are no significant wildlife species found within the study area.
- Nine (9) tributaries of the Etobicoke Creek and West Humber River Water Sheds are intermittent streams (with the exception Creek Eleven which is permanent), and have no direct fish habitat value and are not considered to be significant nor highly sensitive aquatic environments.
- Two (2) tributaries of the West Humber River are ecologically functioning headwater reaches. One (1) is cool water habitat (Creek Ten), and the other (Creek Seven) has cool water potential with historical occurrences of brook trout. Both creeks have the potential for redbreasted sunfish (VTE species) due to existing habitat conditions and historical occurrences.
- Specific considerations during construction should consider the protection of
 - Riparian vegetation and overhanging vegetation to maintain cool water temperatures, buffering capacity for the stream, fish habitat, and feeding opportunities for fish.
 - Instream fish habitat such as substrate, woody debris and undercut banks.
 - Best management practices should be utilized for sediment and erosion control to reduce the impacts on water clarity.

3.1.8 Stormwater Management

The general design principles for the drainage from the proposed Mayfield Road include maintaining existing drainage boundaries as much as possible, for all eleven identified channels that currently cross the right-of-way and particularly the divide between the Etobicoke Creek watershed and the West Humber River watershed. This watershed divide is located approximately 500 m east of Dixie Road, between Dixie Road and Bramalea Road. Stormwater management measures will vary

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depending on the ultimate road cross section (urban or rural section) and the outlet location.

The project is broken into two distinct phases, the first of which is located between Heart Lake Road and Dixie Road. This section is scheduled for construction in conjunction with the construction of Highway 410, which will cross this portion of Mayfield Road. This area is proposed to consist of six lanes of traffic with curb and gutter and storm sewer drainage mechanisms, and will include a bridge over Highway 410. All drainage is tributary to the Etobicoke Creek system, and will be divided as follows:

- Between Heart Lake Road and Highway 410 (250 m), runoff will be directed to ditches located west of Heart Lake Road, which direct flows to the existing low point approximately 100 m west of the intersection. Due to the short length of road, and the temporary nature of the ditch outlet, it is proposed to provide water quality control by discharging to ditches west of Heart Lake Road. When Mayfield Road west of Heart Lake Road is widened at some future date, a stormwater management facility will likely be implemented at this location and it can incorporate the drainage from east of Heart Lake Road
- The bridge over Highway 410 (700 m) will drain to the highway storm sewer and stormwater management systems
- Between Highway 410 and Dixie Road (400 m), drainage will be directed easterly and outlet to existing ditches on Dixie Road, which ultimately collect drainage from this area under existing conditions. Stormwater management controls for this section will be provided via an oil/grit separator (i.e. – stormceptors) at the outlet of the storm sewer network and prior to discharge to the ditch
- The three existing drainage culverts between Highway 410 and Dixie Road will be maintained and extended to ensure that current drainage patterns beyond the limits of the road allowance are maintained and that road drainage is not mixed with other runoff

The remainder of the study area is proposed to have four lanes of traffic and a rural road cross section (roadside ditches). Ultimately, this area will be upgraded to a six lane urban section, but not likely until approximately 2020, subject to development in the area. The drainage from all of these sections will continue to outlet to their current locations/culverts and water quality control will be provided by grass-lined roadside ditches which will have a minimum 0.75 m wide bottom and maintain longitudinal slopes as flat as possible to maximize the contact between vegetation and runoff. Existing culverts will be extended to maintain current drainage patterns. The primary culvert crossings documented in the Natural Heritage Technical Report include:

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- 4 – Etobicoke Creek – located 125 m east of Dixie Road
- 5 – Etobicoke Creek – located 425 m east of Dixie Road
- 6 – West Humber River – located 650 m east of Dixie Road
- 7 – West Humber River – located 250 m west of Bramalea Road
- 8 – West Humber River – located 350 m east of Bramalea Road
- 9 – West Humber River – located 400 m west of Torbram Road
- 10- West Humber River – located 500 m east of Torbram Road
- 11 – West Humber River – located 300 m west of Airport Road

Under long-term ultimate conditions, drainage from Mayfield Road and areas to the north may be picked up by urban drainage networks (conveyance and stormwater management measures) associated with development in the City of Brampton. During detail design, detailed drainage area maps should be developed to delineate the detailed drainage characteristics in the study area.

3.1.9 Geotechnical Conditions

Thurber Engineering Ltd., on behalf of Stantec Consulting Ltd., undertook a preliminary geotechnical investigation on Mayfield Road within the study limits. The purpose of the investigation was to review existing geotechnical information and obtain subsurface soil and groundwater information to provide preliminary geotechnical recommendations related to the design of potential recommended alternatives. Prior to detail design of the recommended alternative, additional geotechnical investigations should be undertaken in selected areas to provide a more complete documentation of the geotechnical conditions within the study area.

Complete details of the preliminary geotechnical investigation undertaken by Thurber Engineering is contained in Appendix E. This section summarizes the conclusions from the Thurber Engineering Report.

A visual pavement survey indicates that the existing Mayfield Road pavement between Heart Lake Road and Airport Road is fair to good condition. The need for rehabilitation or reconstruction of the existing pavement should be re-examined prior to implementing any improvements to Mayfield Road so that necessary improvements to the existing pavement may be tied into construction of Mayfield Road.

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If Mayfield Road is to be widened, construction will involve pavement being placed in the area of the existing shoulders and placement of fill on each side of the roadway. In areas of road widening, all topsoil, organics, soft and deleterious materials should

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be stripped from the subgrade areas. The exposed subgrade is expected to consist of granular fill in the shoulder areas or stiff clayey silt/silty clay/glacial till on either side of the existing road embankments except in the wetlands and near watercourses. Any exposed subgrade should be compacted and proofed rolled. Embankment fill may then be placed for road widenings, consisting of either granular fill or local inorganic glacial till materials. Fill and cut slopes should be no steeper than 2 horizontal: 1 vertical. Permanent cut and fill slopes and ditch slopes should be vegetated immediately after construction to minimize the likelihood of erosion.

Wetland areas adjacent to existing Mayfield Road were probed with a steel rod. Based on this probe it is estimated that there is at least 0.75 m to 1.0 m of soft soils adjacent to the existing roadway. There are two options of embankment construction in the wetland areas:

- Complete or partial removal of organic and soft soils from the footprint of the widening.
- Construct the embankment widening directly on the wetland by bridging the organic deposits with geogrid and granular fill.

The choice of appropriate design for the wetland areas will depend upon the actual thickness of soft and organic soils determined by additional boreholes during the detail design phase. Regardless of which method of embankment construction is chosen, some advanced fill construction and surcharging may be required to achieve sufficient consolidation of the wetland areas in advance of construction.

Based on projected traffic volumes for the year 2027, a pavement design recommended as part of the preliminary geotechnical investigation is summarized in Table 3.4.

Table 3.4 Recommend Preliminary Pavement Design

Material	Thickness (millimeters)
Road Segments (Between Intersections):	
Asphalt HL-1	40
Asphalt Heavy Duty Binder Course - HDBC	100
OPSS Granular Base Course	200
OPSS Granular Subbase Course	450

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Material	Thickness (millimeters)
Major Intersections:	
Asphalt HL-1	50
Asphalt Heavy Duty Binder Course - HDBC	100
OPSS Granular 'A' Base Course	150
OPSS Granular 'B' Subbase Course	550

In the event that existing culverts will need to be extended as part of the improvements to the Mayfield Road, information obtained from existing and new boreholes were reviewed. The review of this information indicated that the footings for the concrete box culverts and arch culverts are all founded in stiff to very stiff clayey silt, silt/clay till or silty clay. Assuming the existing culvert footings are below the scour depth and the depth of frost penetration, the footings for a new culvert extension should be at the same elevation as the existing culvert footings. It is anticipated that the new footings will likely be below the groundwater level. Successful dewatering of footing excavations in these areas may require temporary diversion of watercourses during construction and installation of a sheet pile enclosure. During footing construction, it will be important to keep the water table at least one metre below the design footing base elevation so that the base does not boil and reduce the bearing capacity of the foundation soils.

For extensions of existing corrugated steel pipe culverts, the native stiff clayey silt till should be a good subgrade for the culverts. No organics, topsoil, ice, snow, or soft soils should be allowed to remain in the subgrade. Additional boreholes should be drilled at each major culvert location during the detail design stage to confirm preliminary recommendations.

If new sewers or watermains must be installed as part of the recommended improvements to Mayfield Road, their excavations are likely to encounter predominately silty clay fill, silty clay and silty clay/clayey silt fill with occasional boulders. Purged water or groundwater may also be encountered depending on the final grades and alignment of sewers. Pumping from properly filtered sumps should keep the excavations dry for pipe installation. Additional boreholes should be drilled along the sewer alignment during the detail design stage to confirm the above preliminary recommendations.

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Selected soil samples were also subjected to some environmental analytical testing. A sample taken from the borehole near the eastern limit of the Highway 410/Mayfield Road interchange indicates that none of the parameters tested exceed the MOEE

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Table A Guidelines, except for electrical conductivity and sodium absorption ratio. These results likely reflect the impact of past and present road salting operations. The limited test data indicates that the materials tested can be classified as non-subject waste material. Limited hydrocarbon testing conducted on samples from a borehole near a gas station at Airport Road does indicate the presence of heavy oil and diesel. The oil concentration is below the MOEE Table A Guideline, however the diesel concentration exceeds the MOEE Table A Guideline. The diesel concentration is lower than the MOEE Table B Guideline concentration for a non-potable groundwater condition. A TCLP Leachate Test (inorganic parameters) was also conducted and found that the parameters tested were below the Ontario Regulation 558 Schedule 4 Leachate Quality Criteria, indicating that the material is not a subject waste. Additional drilling investigations and analytical testing is recommended to confirm the extent and level of hydrocarbon impact in the area and to assess the source of impact.

3.1.10 Concrete Culverts

As part of this study, the Region of Peel provided Stantec Consulting Ltd. with information regarding the three (3) concrete culverts within the study limits. This culvert information is based on a survey completed in May of 2002, contained in Appendix F. The concrete culverts are identified as follows:

- Region of Peel Structure No. 141090, 0.9 km east of Dixie Road (Regional Road 4), located on Creek Seven as noted in Section 3.1.7.
- The Region of Peel Structure No. 140890, 0.9 km west of Airport Road (Regional Road 7), located on Creek Ten as noted in Section 3.17.
- The Region of Peel Structure No. 140810, 0.3 km west of Airport Road (Regional Road 7), located on Creek Eleven as noted in Section 3.1.7.

All culverts were noted as consisting of reinforced concrete with open footings. No immediate repair needs were identified, with the remaining service life of each culvert estimated to be 11 years or greater.

A visual inspection undertaken by Stantec staff in 2003 as part of this study, confirmed that these culverts had no immediate repair needs. Although some cracking has occurred in the concrete, this cracking appears stable and the culverts appear to be in fair to good condition.

Region of Peel Structure No. 140890 on Creek Ten is a reinforced concrete arch culvert. If Mayfield Road is to be widened in this location, specific design criteria for concrete arch culverts must be employed. The other two subject culverts on Creek

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Seven and Creek Eleven are reinforced rectangular concrete culverts, and extensions to these culverts can be designed utilizing standard design principles.

3.2 ALTERNATIVE SOLUTIONS

As part of Phase 2 of the Class EA, reasonable and feasible solutions must be identified and evaluated to determine if they address the study "Problem Statement" and project purpose. A number of alternative solutions were identified as part of this study that may address the problem statement that *"Mayfield Road, between Heart Lake Road and Airport Road, will generally operate at unacceptable levels of service (increased congestion and unsafe traffic conditions), if no improvements are undertaken by 2012"*.

A number of alternative solutions to mitigate the impact of traffic growth on Mayfield Road, between Heart Lake Road and Airport Road, were developed and considered for this study. These alternative solutions are described as follows:

1. DO NOTHING: Improvements limited to ongoing maintenance of the existing road.
2. HIGHER TRANSIT SERVICE: Improve the level of transit service to reduce traffic volumes on Mayfield Road.
3. PROMOTE RIDE SHARING: Promote ride sharing to reduce traffic volumes on Mayfield Road.
4. UPGRADE OTHER ROUTES: Traffic currently using Mayfield Road could use upgraded existing road corridors in the vicinity of Mayfield Road.
5. BUILD OTHER ROUTES: Traffic currently using Mayfield Road could use new roads built in other locations.
6. PROVIDE LOCALIZED INTERSECTION IMPROVEMENTS: Increase the traffic capacity of the intersections, but no improvements undertaken to Mayfield Road between intersections.
7. WIDEN MAYFIELD ROAD: Provide additional through lanes on Mayfield Road combined with additional turn lanes at intersections.

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3.3 EVALUATION OF ALTERNATIVE SOLUTIONS

Each of the alternative solutions was evaluated with respect to how they address the problem statement for this study. The results of this evaluation are summarized in the following portions of Section 3.3.

3.3.1 Do Nothing

Under the "Do Nothing" alternative solution, improvements would only consist of ongoing regular maintenance, of existing Mayfield Road. The roadway capacity is not increased and will not accommodate the projected future traffic volumes on Mayfield Road.

This alternative solution does not address the study problem statement noted in Section 2.4, and therefore is not considered a reasonable solution. The "*Do Nothing*" alternative solution was eliminated from further consideration.

3.3.2 Higher Level of Transit Service

Brampton Transit currently operates bus service within some portions of the Mayfield Road study area. However, the Region of Peel Official Plan does not include the Mayfield Road area in any of their proposed High Order Transit Network for existing or improved Bus Transit, Transitways, Rapid Transit or GO Rail. Even with increasing the level of transit service, transit modal share will likely not exceed 5 percent and the corresponding reduction in vehicles will not address future capacity constraints on Mayfield Road.

This alternative solution does not address the study problem statement noted in Section 2.4, and therefore is not considered a reasonable solution. The "*Higher Level of Transit Service*" alternative solution was eliminated from further consideration as a stand-alone alternative.

3.3.3 Promote Ride Sharing

Extensive use of ride sharing could reduce the number of vehicles using Mayfield Road. Ride sharing has only experienced modest success in the Greater Toronto Area, but may result in vehicle reductions of up to 5 percent. Existing traffic volumes are currently at or near the capacity of Mayfield Road and are anticipated to rise by over 40 percent by 2012. Therefore, the anticipated reduction in traffic volumes resulting from ride sharing will not address the future capacity constraints on Mayfield Road.

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This alternative solution does not address the study problem statement noted in Section 2.4, and therefore is not considered a reasonable solution. The "*Promote Ride Sharing*" alternative solution was eliminated from further consideration as a stand-alone alternative.

3.3.4 Upgrade Other Routes

By upgrading other routes in the vicinity of Mayfield Road, traffic currently using Mayfield Road could be diverted to these other improved road facilities. However, the traffic volume projections developed for Mayfield Road within the study area already assume other planned road network improvements will be undertaken in the area. Even with other road network improvements, Mayfield Road traffic volumes within the study area are projected to grow by over 40 percent by 2012. Since Mayfield Road is currently operating at or near its existing capacity, the projected traffic volumes for 2012 will mean that Mayfield Road will operate at well over its existing capacity.

This alternative solution does not address the problem statement noted in Section 2.4, and therefore is not considered a reasonable solution. The "*Upgrade Other Routes*" alternative solution was eliminated from further consideration as a stand-alone alternative.

3.3.5 Build Other Routes

Traffic currently using Mayfield Road could use new road facilities built in the vicinity of Mayfield Road. However, the traffic volume projections developed for Mayfield Road within the study area already assume other road network improvements will be undertaken in the area. For instance, the Mayfield Road traffic projections assume the Highway 410 extension will be constructed by 2006. Even with the Highway 410 extension in place, Mayfield Road traffic volumes are projected to grow by over 40 percent by 2012, which will result in Mayfield Road operating well over its existing capacity.

This alternative solution does not address the problem statement noted in Section 2.4 and therefore is not considered a reasonable solutions. The "*Build Other Routes*" alternative solution was eliminated from further consideration as a stand-alone alternative.

3.3.6 Provide Localized Intersection Improvements

Constructing additional turn lanes, extending existing turn lanes, installing new traffic signals or revising the traffic signal timing at intersections within the study area would

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improve the operation and capacity of the intersections on Mayfield Road between Heart Lake Road and Airport Road. However, this alternative solution does not provide for improvements to the road and approaches between the intersections, so the full potential of additional intersection improvements would not be fully realized.

This alternative solution does not fully address the problem statement noted in Section 2.4, and is therefore not considered a reasonable solution. The "*Localized Intersection Improvements*" alternative solution was eliminated from further consideration as a stand-alone alternative.

3.3.7 Widen Mayfield Road

Providing additional through lanes on Mayfield Road throughout the study area, combined with additional turn-lanes at the intersections, would increase the overall capacity of Mayfield Road and fully realize Mayfield Road's arterial function as stated in the Region's and local municipalities Official Plans. In addition, widening Mayfield Road provides the opportunity to reconstruct the roadway to address some of the operational deficiencies and allow any required additional underground services to be installed with minimal disruption.

The "*Widen Mayfield Road*" (combined with additional turn lanes at intersections) alternative solution addresses the capacity, functional and structural deficiencies associated with Mayfield Road within the study area.

3.3.8 Combination of Alternative Solutions

Combining a number of the specific alternative solutions (i.e. higher level of transit service, ride sharing and localized intersection improvements) may result in some decrease in traffic volumes or increased capacity of Mayfield Road. However by 2012, Mayfield Road will likely still operate over its capacity if only the intersections are improved and traffic volumes are reduced as a result of ride sharing and improved transit service. Combining a number of the alternative solutions eliminated from further consideration does not address the problem statement noted in Section 2.4. However, one or more of the stand alone alternative solutions eliminated from further consideration can be combined with the "*Widen Mayfield Road*" solution which addresses the capacity and functional deficiencies associated with Mayfield Road. Therefore, it is recommended that current initiatives to promote ride sharing, upgrade other routes and enhancing transit service (as development increases) be continued, to increase the effectiveness of the "*Widen Mayfield Road*" alternative solution.

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3.4 PUBLIC CONSULTATION

3.4.1 General

The first Public Information Centre for the Mayfield Road Class Environmental Assessment was held on March 27, 2003 from 6 p.m. to 9 p.m. at the Mayfield Secondary School cafeteria on the north/east corner of Mayfield Road and Bramalea Road. The purpose of the first Public Information Centre (PIC No. 1) was to provide the public an opportunity to review the Mayfield Road Class EA Study process and to provide comments on the alternative solutions developed for Mayfield Road. A preliminary drawing showing the potential "Widen Mayfield Road" alternative solution, including intersection improvements, was on display for the public to review.

3.4.2 Public and Agency Notification

Notices advising of PIC No.1 were advertised in the Caledon Citizen on March 12 and 19, 2003, Caledon Enterprise on March 12 and 22, 2003 and the Brampton Guardian on March 14 and 21, 2003. Copies of the notices were also mailed to property owners who abut Mayfield Road within the study area on March 14, 2003. A letter and PIC No. 1 Notice was also sent to the various agencies advising them of the PIC and requesting additional comments. Copies of the notices and details regarding the mailings to the public and various agencies can be found in Appendix G.

3.4.3 Public Information Centre (PIC) No. 1

Approximately 39 people "signed-in" at PIC No. 1. Information handouts, containing copies of the display boards were available to all who attended PIC No. 1. Comment sheets were also available for PIC attendees to record their comments and send them into the Region of Peel or Stantec Consulting Ltd. Copies of the sign-in sheets and all the text display boards are found in Appendix G.

The text display boards at PIC No. 1 included information on the following:

- Purpose of PIC No. 1
- Background Information Regarding the Project and the Class Environmental Assessment Process
- Official Plan Documentation
- Summary of Existing Conditions
- Problem Statement

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- Traffic Background Information
- Alternative Solutions
- Intersection/Road Widening Design Concept
- Summary of the Study Consultation Plan
- Summary of the Next Steps Required for Completion of the Study

In addition to the display boards, a drawing of the initial concept for intersection improvements and road widening was displayed in order to identify potential impacts. This initial road widening concept was based on the findings of the traffic study undertaken for the project and is described as follows:

- Although not part of the Mayfield Road Study, the concept shows the proposed intersection improvements at Mayfield Road and Airport Road, and the proposed interchange at Mayfield Road and Highway 410 in order to provide an understanding of all the work proposed within the study area.
- Intersection improvements at all Mayfield Road intersections (Heart Lake Road, Dixie Road, Bramalea Road, Torbram Road and Airport Road) include two through lanes in each direction on Mayfield Road, additional or extended left and/or right turn lanes on all four legs of the intersection, median islands, and upgraded traffic signals.
- Between Heart Lake Road and Dixie Road, three through lanes in each direction with a centre raised median throughout. Included with the proposed Highway 410 interchange is a six (through) lane bridge, and exit and entrance ramps to Highway 410. Curb and gutter and storm sewers are also provided in this block.
- Between Dixie Road and Airport Road, two through lanes in each direction are provided, with gravel shoulders, and ditches to accommodate drainage.
- In general, the initial road widening concept for Mayfield Road is to be widened equally on either side of the existing (two-lane) road centre line. The drawings noted that several road crossing culverts will likely have to be extended or replaced to maintain off road drainage, and some adjustments to road grades could be made to improve vehicle site visibility.
- Actual private property purchases for a widened Mayfield Road were not yet finalized, however potential grading or construction limits were identified on the initial plans. The plans also illustrated the designated ultimate 50 m right-of-way for reference purposes. However, actual property required to widen Mayfield Road will be subject to detailed design and utility relocation requirements.

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3.4.4 Public and Agency Comments: PIC No. 1

A total of 39 people "signed in" at P.I.C. No. 1 and 6 written comments were received. The "sign-in" sheets and copies of the comments received as a result of PIC No. 1 can be found in Appendix G.

The comments received from both the public and agencies have been addressed as part of this study. A summary of the comments received and how they are addressed as part of this study is contained in **Table 3.5**.

TABLE 3.5 Mayfield Road Improvements RESPONSE TO COMMENTS RECEIVED AS A RESULT OF INITIAL NOTIFICATION AND PUBLIC INFORMATION CENTRE NO. 1	
PUBLIC COMMENTS:	
Signs indicating "This is an active Agricultural Area" could be placed on Mayfield Road for Tractors	<ul style="list-style-type: none"> Signage will be reviewed as part of detailed design. A partially paved shoulder and "rollover" curbs at intersections will assist in accommodating farm vehicles. Additional lanes on Mayfield Road will make it easier for traffic to pass farm equipment.
Build 6 lanes on Mayfield Road now – to reduce traffic on Caledon Roads	<ul style="list-style-type: none"> 6 lanes will be built between Heart Lake Road and Dixie Road initially. The need for 6 lanes between Dixie Road and Airport Road is not anticipated until approximately 2020.
Widening Mayfield Road will attract more trucks, which will encourage them to travel north-south routes in Caledon where no trucks are allowed.	<ul style="list-style-type: none"> If Mayfield Road is not widened, trucks may be encouraged to use other (possibly north-south) routes even more frequently due to lack of capacity on Mayfield Road.
What effect will busy traffic have on the environment in Caledon, i.e. air pollution.	<ul style="list-style-type: none"> Widening Mayfield Road should reduce traffic congestion, compared to not widening Mayfield Road. Free flow traffic conditions generally create comparatively fewer air emissions than congested traffic conditions. In addition, legislation is being implemented is encouraging new fuel and engine technologies that have generally reduced vehicle emissions.

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**TABLE 3.5
Mayfield Road Improvements
RESPONSE TO COMMENTS RECEIVED AS A RESULT OF
INITIAL NOTIFICATION AND PUBLIC INFORMATION CENTRE NO. 1**

<p>What are the intentions regarding existing driveways on to Mayfield Road?</p>	<ul style="list-style-type: none"> In general, all existing driveways and field entrances will be reviewed as part of detail design. At this point in the study, it is not intended to prohibit any access to properties, if an access already exists. If during detail design a geometric or safety issue is found to exist with an existing entrance, detailed discussions will be held with the property owner regarding relocation, removal, or modifications to the entrance. Since Mayfield Road is being widened, all existing entrances will generally have to be modified to match the new widened edge of Mayfield Road.
<p>Speirs Fruit Market needs a left turn lane and right turn lane into the market.</p>	<ul style="list-style-type: none"> The Region of Peel is prepared to provide a left turn lane into the Speirs Fruit Market at the time of detail design. However, provision of these turn lanes may impact the existing Fruit Market property due to the additional road allowance required. Detailed discussions will be undertaken during detail design to fully explore the impacts on private property due to constructing the turn lane.
<p>The Speirs Fruit Market needs existing parking and access road on their property.</p>	<ul style="list-style-type: none"> An alternative to provide a left turn lane on Mayfield Road at Speirs Fruit Market, allows for a significant amount of widening occurring on the opposite side of Mayfield Road (south side). During detail design, detailed property requirement plans will be developed for discussion with the property owner.
<p>A map or sketch of the Mayfield Road study area should be provided at the PIC's.</p>	<ul style="list-style-type: none"> A key plan of the study area was included with the Notices for the project and as part of the PIC handout information. Additional specific preliminary drawings were provided as required.

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<p>How will vehicles exiting private property be able to turn on to a 4-lane wide Mayfield Road, when it is currently difficult to make left turns onto the existing two lane Mayfield Road?</p>	<ul style="list-style-type: none"> • Four lane roads generally provide more gaps in traffic for turning movements and also provide an additional lane to accelerate and merge. If the driveway is close to a left turn lane at an intersection, the turn lane or taper may be able to be used for merging.
<p>Ditches on Mayfield Road should be constructed to prevent water from running onto private property.</p>	<ul style="list-style-type: none"> • Ditches are generally constructed to accommodate spring run-off flows as well as road drainage. If adjacent property is at a lower elevation than the surrounding area, ditch backslopes may not be able to be constructed unless significant private property is purchased.
<p>Is it possible to install watermains on Mayfield Road for private residences to connect to?</p>	<ul style="list-style-type: none"> • No watermains are currently planned as part of this study. Installation of new watermain is generally initiated by new development in the area, and could be the subject of an additional separate Class EA. If a future watermain is to be installed for the purpose of local service connections, all property owners will be advised of the details of the project.
<p>How much property will be required for widening Mayfield Road, and will trees on private property that require removal be replaced or will compensation be provided.</p>	<ul style="list-style-type: none"> • Each property purchase requirement is treated individually. During detail design, detailed property purchase plans will be prepared for the Region of Peel staff to present to each property owner. Based on these plans, discussions will take place to finalize any property purchases/ requirements. A preliminary estimate of property required for widening Mayfield Road has been developed, which must be confirmed as part of detailed design. • Any trees on private property that are required to be removed are generally replaced with nursery stock. The actual number of replacement trees can form part of the discussions pertaining to property purchases as part of detail design.

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Will the road contractor be using private property for their construction operations?	<ul style="list-style-type: none"> Generally, contractors are restricted from entering private property unless there is a need to restore driveways, install services etc. Occasionally, contractors make individual arrangements with owners to use private property, and any restoration should be made at that time.
Will new fence be installed along Mayfield Road?	<ul style="list-style-type: none"> New fencing is generally the responsibility of the private property owner. However, any fencing damaged or required to be removed for construction is replaced at no cost to the owner.
Are combination right/through lanes appropriate on Mayfield Road at Torbram and Bramalea Road?	<ul style="list-style-type: none"> Separate right turn lanes will be provided at each leg of intersections. The only exception is the east leg of Dixie Road, where the westbound right turn lane could also be used as a through lane.
Access design to North Brampton Pumping Station (south side of Mayfield Road, east of Heart Lake Road).	<ul style="list-style-type: none"> The access to the North Brampton Pumping station is located within the limits of the Highway 410/ Mayfield Road interchange. Separate discussions have taken place with MTO with regards to the access.
Sidewalks should be placed on the bridge on the Highway 410/Mayfield Road interchange to accommodate pedestrians from high school and developments in the area.	<ul style="list-style-type: none"> Separate discussions (outside the scope of this study) should be held with the MTO regarding sidewalks in the vicinity of the interchange.
AGENCY COMMENTS:	
Niagara Escarpment Commission	
The N.E.C does not have a direct interest in this project.	<ul style="list-style-type: none"> No further action required.
Toronto and Region Conservation Authority	
The TRCA is expressing an interest in this EA and would like to be put on the mailing list. TRCA would like to participate in the study by providing formal comments.	<ul style="list-style-type: none"> TRCA has been kept advised of the study. A meeting was held with TRCA and MNR in December 2003, to review the Natural Environment Report.
Fisheries and Oceans Canada - Coast Guard - Central & Arctic Region	
Request to prepare and submit an application in accordance with Navigable Waters Protection Act for any construction in "navigable waters". No construction should take place without approval under the Act.	<ul style="list-style-type: none"> The Coast Guard confirmed that no watercourses within the study limits are considered "navigable".

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Peel District School Board	
Interested in being involved in any discussion regarding future improvements to Mayfield Road.	<ul style="list-style-type: none"> A meeting was held with Peel School Board staff in December 2003.
Forward preliminary design drawings or information for the section that forms the frontage of Mayfield Secondary School.	<ul style="list-style-type: none"> Drawings were forwarded to Peel District School Board
Dufferin Peel Catholic School Board	
This project does not appear to have any consequence to the policies and/or mandate of the DPCSB.	<ul style="list-style-type: none"> No further action required.
Enbridge Gas Distribution Inc.	
Enbridge does not have any gas main on Mayfield Road between Bramalea Road East to approximately 410 m West of Airport Road. Enbridge may want to install new main at this location in coordination with the project.	<ul style="list-style-type: none"> Enbridge to be contacted as part of detail design to address specific impacts the project may have on their plant.
The depth of main and services in relation to the road reconstruction and grade changes is unknown. Enbridge strongly recommend that test holes verify conflicts in advance. Enbridge does not provide this information with their mark-ups.	<ul style="list-style-type: none"> As part of detail design, Enbridge will be contacted to confirm the location of their plant and to co-ordinate any impacts due to road construction.
The location of Enbridge pressure reducing stations may be compromised with road widening work.	<ul style="list-style-type: none"> As part of detail design, Enbridge will be contacted to confirm the location of their plant and to co-ordinate any impacts due to road construction.
Ontario Ministry of Environment - Central Region	
A number of water wells are located within the study area along Mayfield Road. Care should be taken to ensure that water supplies and/or monitoring activities would not be adversely affected by any proposed roadway improvements.	<ul style="list-style-type: none"> No deep excavations are anticipated as part of construction.
Background data should be obtained which define existing water quality and quantity relationships and this information should be in the ESR.	<ul style="list-style-type: none"> No deep excavations are anticipated as part of construction.
If construction activities are likely to encounter water, than an assessment of impact is required.	<ul style="list-style-type: none"> No deep excavations are anticipated as part of construction.
In cases where trenching, grading or cuts will be deep, an assessment of the subsequent impact on wells, streams, wetlands, or any known contaminant plumes should be carried out.	<ul style="list-style-type: none"> No deep excavations are anticipated as part of construction.
Construction techniques designed to limit impacts should be employed and a Contingency Plan for dealing with adverse effects on surface water and ground water should be developed that includes reporting to this Ministry.	<ul style="list-style-type: none"> No deep excavations are anticipated as part of construction.

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The Contingency should at a minimum outline the Region's responsibilities for supplying water to affected persons if ground water supplies are impacted by construction or dewatering activities associated with the undertaking.	<ul style="list-style-type: none"> No deep excavations are anticipated as part of construction.
Careful consideration should be taken regarding potential impacts to fish habitat in the numerous tributaries that cross Mayfield road within the study.	<ul style="list-style-type: none"> Mitigation measures have been developed as part of this study, and the detail design will be submitted to the TRCA and MNR as required.
Measures should be put in place during all phases of construction to minimize disturbance and ecological impacts to these water features from inputs of soil and other materials	<ul style="list-style-type: none"> Mitigation measures have been developed as part of this study, and the detail design will be submitted to the TRCA and MNR as required.
Measures should also be included in the planning and design process to ensure that storm water impacts will be minimal and that water features are protected as part of the proposed construction.	<ul style="list-style-type: none"> Mitigation measures have been developed as part of this study, and the detail design will be submitted to the TRCA and MNR as required.
Strategies to address potential water quantity and erosion impacts related to storm water from sheet flow into streams and wetlands should be incorporated into the ESR.	<ul style="list-style-type: none"> Measures will be taken during detail design and construction to minimize sediment discharge. Submissions will be made to the TRCA and MNR as required.
A Storm Water Management Plan/Report should be prepared as part of project planning and included in the ESR. The report should integrate existing background information e.g., sub-watershed information, wetland information, existing drainage conditions, storm water management options, selections of storm water approaches (including alternative road drainage systems), information on mitigation including erosion and sediment control during construction, and information on maintenance and monitoring commitments.	<ul style="list-style-type: none"> A stormwater management (SWM) strategy will be developed as part of this study. Any proposed SWM facilities will be submitted to the TRCA and MOE as required during detail design.
A plan or diagram explaining what drainage and mitigation measures will be undertaken related to runoff and storm water management within the right of way and adjacent lands should be included as part of the Plan/Report.	<ul style="list-style-type: none"> A stormwater management (SWM) strategy will be developed as part of this study. Any proposed SWM facilities will be submitted to the TRCA and MOE as required during detail design.
The most recent version of the MOE Storm Water Management Practices Planning and Design Manual and the MOE Guidelines should be used for designing Storm Water Management Plan/Report	<ul style="list-style-type: none"> To be addressed as part of detail design.

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A water quality assessment should be prepared and included in the ESR. The assessment should include the use of applicable standards and technical protocols such as Provincial Water Quality Objectives/Guidelines (PWQO).	<ul style="list-style-type: none"> No deep excavations are anticipated as part of construction, which will significantly impact groundwater.
An assessment of existing and projected chloride levels should occur in order to ensure that the project maintains or reduces the amount of chlorides entering the creeks crossings Mayfield Road. MOE request that limits to de-icing chemicals and application of road salts also be considered in the ESR.	<ul style="list-style-type: none"> Road salt will continue to be used on Mayfield Road. Any SWM quality controls will meet the requirements as set out by TRCA and MOE.
With respect to removal and/or movement of soils, if contamination is suspected, they should be tested. If soils are contaminated, a decision on how and where they are to be disposed of will be required. The Ministry's Guideline for Use at Contaminated Site in Ontario Feb. 1997 should be used with respect to the removal and/or movement of soils. If contaminated sites are identified in or adjacent to the Study Area, the MOE Halton-Peel District office in Burlington should be contacted.	<ul style="list-style-type: none"> Preliminary soil testing has been undertaken in two areas including near gas stations at Airport Road. During detail design, additional testing should be undertaken to meet disposal regulations.
All waste generated during construction activities must receive proper disposal.	<ul style="list-style-type: none"> To be addressed as part of detail design and construction.
Areas for which existing conditions potential effects of the proposed project that should be identified are: the two small lakes north of Mayfield Road and west of Airport road as well as the Heart Lake Conservation Area (and its associated wetlands) and a landfill site adjacent to the northwest corner of this area.	<ul style="list-style-type: none"> Measures will be identified to protect the ecosystem to watercourses etc. as part of this preliminary study.
Any impact to Oak Ridges Moraine, and important ecosystem linkages and habitats to the West Humber River Watershed should be avoided and project planning should incorporate measures to protect and enhance the ecosystem connectivity functions within the study area.	<ul style="list-style-type: none"> Measures will be identified to protect the ecosystem to watercourses etc. as part of this preliminary study.
The study should incorporate background information on ecosystem features including water quality and quantity, aquatic habitats, and protection and restoration strategies from the Report Card on Health of the Humber River Watershed, July 2000 and the 1997 Humber Watershed Legacy: A Strategy for a Healthier Humber.	<ul style="list-style-type: none"> A natural environment report is included with this ESR that addresses the various ecosystem features.

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<p align="center">TABLE 3.5 Mayfield Road Improvements RESPONSE TO COMMENTS RECEIVED AS A RESULT OF INITIAL NOTIFICATION AND PUBLIC INFORMATION CENTRE NO. 1</p>	
Applicable Brampton and Peel Region Official Plan designations and policies related to the Study Area should be referred to in the ESR and during the Project.	<ul style="list-style-type: none"> Official plan designations have been addressed as part of the study.
An assessment of the socio-economic impacts and proposed mitigation measures that includes information on potential business interruptions and property impacts (if any) should be prepared and included in the ESR.	<ul style="list-style-type: none"> All property impacts have been identified and will be addressed as part of the ESR.
The Ministry of Culture should be contacted to determine the location of any cultural heritage features and required approvals.	<ul style="list-style-type: none"> A Stage 1 archaeological and heritage assessment has been undertaken as part of this study.
Dust, vibration and noise control measures will need to be addressed and included in the ESR and construction plans to ensure that homes, businesses and institutions within the study area are not adversely affected by the undertaking.	<ul style="list-style-type: none"> Standard dust control measures will be undertaken as part of construction. Applicable noise bylaws will be in force during construction.
All mitigation measures should be clearly identified in the ESR document.	<ul style="list-style-type: none"> A section on mitigation measures has been included in this report.
The ESR should provide additional information on how environmental commitments will be implemented. If an environmental inspector will be utilized, please note this and provide details on monitoring and reporting relationships.	<ul style="list-style-type: none"> A section on monitoring has been included in this report.
MOE recommends preparation of a report to relevant agencies and stakeholders documenting environmental conditions at pre-construction, construction and post-construction stages.	<ul style="list-style-type: none"> Submissions will be made to applicable approval agencies during the detail design process.
Project planning documents should include methods to ensure that contractors are aware of all environmental considerations so that all related procedural standards and comments for both construction and operation work are addresses.	<ul style="list-style-type: none"> Contract documents will address environmental considerations to be followed as per approval agency conditions.
Regular monitoring by the proponent of mitigation measures (e.g., silt fencing, check dams) should occur during the construction stages of the project.	<ul style="list-style-type: none"> Monitoring conditions as per approval agencies will be addressed in the construction contract.
Ontario Ministry of Transportation	
Project will have significant impacts on proposed Highway410/Mayfield Road Interchange design. MTO staff and the design consultants should be on the project team and be kept updated to study progress.	<ul style="list-style-type: none"> The proposed Highway 410/ Mayfield Road interchange is not included in the study limits. However, several meetings were held for which MTO staff and consultants were in attendance to co-ordinate issues common to the project.

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The proposed GTA East-West Corridor Needs Study is proposed to commence in the Fall of 2003 and take approximately 24 months to complete. Peel, Brampton and Caledon have or will be, contacted for input into the study.	<ul style="list-style-type: none"> The Mayfield Road Class EA should still proceed, as completion of the proposed GTA East-West Corridor will likely not be completed for several years. In addition the exact location of the corridor has not yet been established.
Four copies of the detailed design plans for review should be submitted to the CMO.	<ul style="list-style-type: none"> To be completed during detail design.
Hydro One Brampton	
Hydro One Brampton (HOB) currently own and operate overhead electrical distribution facilities along the south portion of Mayfield Road for the full limit of the Study. In the event that preliminary design study requires the relocation of HOB's facilities, HOB request that the Region acquire sufficient right-of-way to accommodate such relocations.	<ul style="list-style-type: none"> Preliminary property acquisition requirements as part of this study address the need for hydro facility relocation.
The offset of HOB's poles from the traveled portion of the roadway is usually identified by the Region following the MTO Clear Zone guidelines, however; the offset should never be less than 2 m from the face of curb to face of pole (HOB' poles are typically located at 3.5 m from the limit of the right-of-way).	<ul style="list-style-type: none"> Preliminary property acquisition requirements as part of this study address the need for hydro facility relocation.
Canadian Transportation Agency	
Please advise whether a rail crossing is involved.	<ul style="list-style-type: none"> No rail crossings are part of this study.
Department of Fisheries and Oceans Canada, Bayfield Institute	
DFO issues will be addressed by TRCA for this project and will not respond to the letter	<ul style="list-style-type: none"> TRCA will be contacted for all DFO issues
Hydro One Networks Inc. (Toronto)	
Hydro One asks all proponents to determine whether Hydro One facilities are or may be affected by the proposal. If so, please contact Hydro One with the specifics.	<ul style="list-style-type: none"> No Hydro-One facilities are located within the study limits. Brampton Hydro-One Brampton (HOB) will be contacted regarding HBO facilities.
Peel Regional Police Department	
The Peel PD has no concern regarding the EA portion but would appreciate being informed of the progress of the project. Peel PD is encouraged by any project that would increase safety upon our roadways.	<ul style="list-style-type: none"> Peel Regional Police will be kept on the mailing list for this project.

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<i>Town of Caledon—Planning Department</i>	
<p>The Town of Caledon has developed Tullamore Community Design Guidelines for the Mayfield-Airport Road Area. Council adopted these guidelines on May 15, 2002. The Town of Caledon would like to see streetscape improvements, developed in these guidelines, incorporated into the design of Mayfield Road at the relevant location.</p>	<ul style="list-style-type: none"> • Due to the proposed improvements to the Airport Road/Mayfield Road intersection, proposed to be constructed as a separate project within the next few years, the streetscape improvements should be incorporated into this separate project. During detail design of Mayfield Road, the Town of Caledon should be contacted to incorporate updated streetscape items.
<p>There are areas designated as Environmentally Protected Areas (EPA's) within the study area. The town of Caledon will need to see an impact study on those EPA's affected.</p>	<ul style="list-style-type: none"> • The EPA's will be addressed as part of culvert extensions and impacts on watercourses.
<p>There should be allowance for future sidewalk on the north side of Mayfield Road to accommodate any future development.</p>	<ul style="list-style-type: none"> • An allowance can be made for future sidewalk where curb and gutter is being installed. No sidewalks can be accommodated where gravel shoulders and ditches are installed due to property restrictions. However pedestrians can utilize the outer edges of the gravel shoulders.
<i>Ministry of Culture—Heritage & Libraries Branch</i>	
<p>Principal concern is the adverse effects that development activities might have on cultural heritage resources. The Class EA should address the potential impacts to cultural heritage resources.</p>	<ul style="list-style-type: none"> • A heritage assessment has been completed as part of this report, and its recommendations should be implemented during detail design.
<p>If areas of heritage potential will be impacted by this project, then the Ministry would recommend that a heritage assessment be conducted prior to the initiation of construction activities.</p>	<ul style="list-style-type: none"> • The recommendations of the heritage assessment address this issue.
<p>If any significant heritage or archeological remains are identified, then any negative impacts would have to be mitigated by either avoidance or excavation.</p>	<ul style="list-style-type: none"> • This issue has been addressed as part of the Stage 1 Archaeological Assessment and will be incorporate into the detail design.
<i>City of Brampton—Works and Transportation Department</i>	
<p>Would like to participate through provision of comments w.r.t. potential transit facilities. The Transit Department will require any drawings of above ground services or intersectional improvements.</p>	<ul style="list-style-type: none"> • Brampton Transit was kept advised of the project through the various project co-ordination meetings.

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<p>City is in the process of arranging a Class EA for Torbram Road between Mayfield Road and Sandalwood Parkway.</p>	<ul style="list-style-type: none"> The findings of the Mayfield Road Class EA and Torbram Road Class EA should be co-ordinated depending on the timing of both studies.
<p>Costs to improve the sections of Torbram Road, Bramalea Road and Heart Lake Road south of Mayfield Road, and to be attributed to the City of Brampton, should be identified in the Class EA study.</p>	<ul style="list-style-type: none"> Exact costs of improvements to be attributed to the City of Brampton will be a function of requirements to be determined at the time of detail design. At the initial stages of detail design, the precise requirements for lane configuration, streetscaping, entrance features tree planting etc. should be discussed with the City of Brampton and cost estimates provided at that time.
<p><i>Rogers Cable</i></p>	
<p>Rogers Cable has no conflict; we do not have any buried plant.</p>	<ul style="list-style-type: none"> Rogers Cable issues should be addressed in conjunction with Brampton Hydro-One, as Rogers lines are on hydro poles.
<p><i>Ministry of Natural Resources</i></p>	
<p>There are a number of natural heritage features within the study area including the Heart Lake Wetland Complex (PSW) and tributaries of Etobicoke Creek and West Humber River. MNR should be included in preliminary discussions with respect to Lakes and Rivers Improvement Act approvals for channel works being culver extensions.</p>	<ul style="list-style-type: none"> The Heart Lake Wetland Complex falls entirely within the limits of the Highway 410/Mayfield Road interchange and are therefore outside the limits of the Mayfield Road Class EA. MNR staff reviewed the Natural Environment component of this study and attended a meeting regarding this project in December 2003.
<p><i>City of Brampton</i></p>	
<p>Ensure that future sidewalk platform space is provided on the south side of Mayfield Road.</p>	<ul style="list-style-type: none"> Space is provided for a sidewalk behind the curb between Heart Lake Road and Dixie Road. For the section between Dixie Road and Airport Road, the gravel shoulders and ditches do not allow for adequate area for a sidewalk. Pedestrians may utilize the outside edge of the gravel shoulders if required.

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TABLE 3.5 Mayfield Road Improvements RESPONSE TO COMMENTS RECEIVED AS A RESULT OF INITIAL NOTIFICATION AND PUBLIC INFORMATION CENTRE NO. 1	
<i>Peel Agricultural Advisory Working Group</i>	
Why does the study area not extend to the east of Mayfield Road?	<ul style="list-style-type: none"> Traffic volumes on Mayfield Road are anticipated to be lower east of Airport Road. As a result, improvements to Mayfield Road east of Airport Road are not included in the Region's 10-year Capital Budget.
Lanes at intersections should be wider and rollover curb installed to accommodate farm machinery.	<ul style="list-style-type: none"> Intersections are designed to accommodate large trucks, which should accommodate farm machinery. However rollover curb will also be installed at intersections to assist in accommodating farm equipment. The outside lanes in the area with shoulders will be paved an additional 0.5 m. In addition, the additional lanes on Mayfield Road should make it easier for vehicles to pass farm machinery.
Need for sidewalks on the proposed bridge crossing Highway 410.	<ul style="list-style-type: none"> Separate discussions should be held with the MTO regarding sidewalks in the vicinity of the proposed interchange.
A turn lane may need to be constructed to address traffic and parking concerns at the Spiers Fruit Market.	<ul style="list-style-type: none"> The Region of Peel is prepared to provide a left turn lane, subject to property purchase discussions/requirements.
Curbs should not restrict access for farm machinery to move from field to field.	<ul style="list-style-type: none"> Field access to Mayfield Road will be maintained where possible. During detail design, field accesses will be reviewed with respect to sight visibility and safety

3.5 PREFERRED SOLUTION

Based on an evaluation of the alternative solutions including a review of the comments received from the public and agencies as a result of Public Information Centre No. 1, the "Widen Mayfield Road" Alternative Solution was identified as the preferred solution for the Mayfield Road Class EA Study. Widening Mayfield Road including improving the intersections within the study area, addresses the project problem statement by addressing the capacity and functional deficiencies associated with Mayfield Road between Heart Lake Road and Airport Road. "Widen Mayfield

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Road" was therefore carried forward for further assessment and development of alternative design concepts.

Implementing some of the other alternative solutions that do not fully address the study problem statement (i.e. – higher level of transit service, promote ride sharing, upgrading other routes), in conjunction with the preferred alternative solution of widening Mayfield Road and associated intersection improvements, will enhance the performance of the preferred solution. It is recommended that any current Region of Peel initiatives to introduce a higher level of transit service, promote ride sharing and upgrade other routes, be continued, to assist with the traffic issues associated with Mayfield Road.

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CLASS ENVIRONMENTAL ASSESSMENT AND PRELIMINARY DESIGN STUDY
HEART LAKE ROAD TO AIRPORT ROAD**

4.0 Alternative Design Concepts

4.1 DEVELOPMENT OF ALTERNATIVE DESIGN CONCEPTS

Based on the preferred solution of Widen Mayfield Road including associated intersection improvements, a limited number of alternative design concepts were considered. All alternative design concepts developed for this study have similar impacts. As a result, mitigation measures for each of the concepts are also similar. Section 4.1 outlines various alternative design concepts and the reasons for including them in the recommended design concept based on their potential impacts on the natural, social and physical environment, traffic operations, engineering and geometric design, as well as their estimated costs.

4.1.1 Widen Mayfield Road to Four-Lanes Versus Six-Lanes

As noted in Section 2 of this report, Mayfield Road should be widened from its present two-lanes to four-lanes by 2006 between Heart Lake and Dixie Road, and between 2010 and 2012 for Dixie Road and Airport Road. In addition Mayfield Road should be widened to six-lanes by 2015 between Heart Lake Road and Dixie Road, and by 2020/2021 between Dixie Road and Torbram Road.

The MTO is proposing to complete the Highway 410 extension, including the proposed new Highway 410/Mayfield Road interchange, as early as 2006. However completion by 2006 will be dependent on various budget considerations and other factors that could possibly delay the completion of the Highway 410/Mayfield Road interchange. Since the need for six-lanes on Mayfield Road between Heart Lake Road and Dixie Road is less than 10 years later than the proposed construction of the Highway 410/Mayfield Road interchange, the MTO in conjunction with the Region of Peel are proposing to construct the structure carrying Mayfield Road over the new Highway 410 with three through lanes in each direction plus associated lanes for entrance ramps. By constructing the Mayfield Road structure at Highway 410 to six-lanes now, it will eliminate the future disruption and construction costs associated with widening the structure less than 10 years from initial construction.

Similarly, constructing Mayfield Road between Heart Lake Road and Dixie Road on either side of the proposed new Highway 410/Mayfield Road interchange to four-lanes initially will require Mayfield Road to taper "down" to four-lanes from the six-lane bridge. Since six-lanes will be required within 10 years of construction, it is considered cost effective to construct the six-lanes initially in this section in

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conjunction with the Highway 410/Mayfield Road interchange. It is estimated that constructing this section of Mayfield Road to 6 lanes now will only cost approximately \$600,000 more in capital construction costs (an approximate 15% premium) compared to the cost to construct 4 lanes.

Between Dixie Road and Airport Road the widening of Mayfield Road to six-lanes is not required until at least the year 2020. Since the need for six-lanes is beyond the 10 year horizon from the date of this study, widening Mayfield Road to four-lanes is considered the best alternative for the section between Dixie Road and Airport Road.

The proposed lane configuration for Mayfield Road is therefore considered to be six-lanes from Heart Lake Road to Dixie Road, and four-lanes from Dixie Road to Airport Road.

4.1.2 Widen Road Equally or Unequally on Either Side of Existing Mayfield Road

There are not considered to be any environmental or physical constraints that would warrant the "unequal" widening of Mayfield Road to either the north or south of the existing centerline of the road. Although widening to the south in the vicinity of the Dixie Road intersection could avoid significant impacts to the existing house on the north/east corner of Mayfield Road and Dixie Road, the resultant shift in horizontal alignment to meet required design standards, would significantly impact the residence at 4615 Mayfield Road. Therefore, widening Mayfield Road equally on both sides of the existing centerline is considered the preferred design solution, and will result in equal widening into both the Town of Caledon and City of Brampton sides of the corridor.

4.1.3 Curb and Gutter Versus Gravel Shoulders

Between Dixie Road and Heart Lake Road, curb and gutter with storm sewers are recommended due to the six-lane cross section being the ultimate design for the 50 m road allowance. Curb and gutter in this section of Mayfield Road will also tie in with the curb and gutter proposed at the Highway 410/Mayfield Road interchange. Gravel shoulders and ditches also generally require additional cross section width compared to curb and gutter, and would likely result in additional property outside the designated 50 m road allowance, as well as make it difficult to install sidewalks in their ultimate location.

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Between Dixie Road and Airport Road, the existing land use is generally rural or agricultural in nature. Constructing curb and gutter throughout these sections would make it difficult for farm equipment to travel on Mayfield Road, and may require the

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installation of storm sewers and storm water management (SWM) facilities. By constructing gravel shoulders with ditches between Dixie Road and Airport Road, it will maintain the rural nature of the area, allow farm vehicles to travel along the shoulders and will not require the costly installation of storm sewers and SWM facilities. In addition, newly constructed gravel shoulders could be used as the road base for the ultimate future six-lane widening, thereby saving some future costs.

It is proposed to install predominately gravel shoulders and ditches between Dixie Road and Airport Road. However, each intersection and areas in front of some commercial enterprises and the Mayfield Secondary School are proposed to be constructed with curb and gutter to enhance traffic operations and maintenance, in addition to minimizing restoration on private properties.

4.2 PUBLIC AND AGENCY CONSULTATION

4.2.1 General

A second Public Information Centre (PIC) was held for this study. The purpose of the second PIC was to provide the public an opportunity to review and comment on the preferred design concept for road improvements to Mayfield Road between Heart Lake Road and Airport Road. The PIC was originally scheduled for Tuesday, January 27, 2004 and agencies, property owners and persons who signed at the first PIC were mailed notices of the PIC. However, a severe winter storm with poor driving conditions resulted in the second PIC being postponed to Thursday, February 19, 2004. Additional notices advising of the revised PIC No. 2 date were mailed to all agencies, property owners and member of the public who signed in at the first PIC.

4.2.2 Public and Agency Notification

Notices advising of PIC No. 2 on February 19, 2004 were advertised in the Caledon Citizen on February 4 and 11, 2004, the Caledon Enterprise on February 4 and 14, 2004 and the Brampton Guardian on February 4 and February 15, 2004. Copies of the notices for the February 19, 2004 PIC were also mailed to property owners within the study area on February 6, 2004. A letter and PIC No. 2 notice was also sent to the various agencies advising them of the PIC. Details of both of the public and agency mailing as well as copies of the notices are found in Appendix H.

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4.2.3 Public Information Centre No. 2

Information handouts, containing copies of a number of the display boards, were available to all who attended PIC No. 2. Comment sheets were also available for PIC attendees to record their comments and send them in to the Region of Peel or Stantec Consulting. Copies of the sign-in sheets, comments received from the public and all the text display boards can be found in Appendix H.

The text display boards at PIC No. 2 included information on the following:

- Purpose of PIC No. 2
- Background Information regarding the Project and Class Environmental Assessment Process
- Official Plan Documentation
- Summary of Existing Conditions
- Problem Statement
- Traffic Background Information
- Alternative Solutions Evaluated, and Identification of "Widening Mayfield Road" as the Preferred Solution
- A Description of the Recommended Preferred Design Concept
- A Summary of Other Design Alternatives Considered
- Summary of Recommended Mitigation Measures
- Summary of the Public Consultation Plan for the Project
- Summary of the Next Steps for Project Completion

In addition to the text display boards, a drawing of the recommended preferred design concept for Mayfield Road between Heart Lake Road and Airport Road was on display at PIC No. 2. A preliminary road profile was also available for review. The recommended preferred design concept illustrated at PIC No. 2 is described as follows:

- Between Heart Lake and Dixie Road, three through lanes in each direction are provided with a center median outside the limits of the Highway 410/Mayfield Road interchange. Curb and gutter and storm sewers are also provided in this block. Although not part of this study, the proposed Highway 410/Mayfield Road interchange is illustrated with a six (through) lane bridge, and exit and entrance ramps to Highway 410.

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- Between Dixie Road and Airport Road, two through lanes in each direction are provided, with gravel shoulders and ditches to accommodate drainage. Although not part of this study, the design concept at Airport Road illustrates the proposed intersection improvements at Mayfield Road and Airport Road to be undertaken as a separate project by the Region of Peel
- Recommended improvements at the intersections at Mayfield Road with Dixie Road (east leg), Bramalea Road, Torbram Road and Airport Road include two through lanes in each direction on Mayfield Road, additional or extended left and/or right turn lanes at all four legs of the intersections, median islands and upgraded traffic signals. At Heart Lake Road and the west leg of Dixie Road the intersection improvements include three-lanes in each directions on Mayfield Road.
- In general, the road widening concept provides for Mayfield Road to be widened equally on either side of the existing two-lane road centre line.
- With the widening of Mayfield Road, several road crossing culverts will have to be extended or replaced to maintain off road drainage.
- Some adjustments to the vertical road profile are required to improve the vehicle site visibility.
- Preliminary property requirements for the recommended preferred concept have been illustrated based on preliminary design and preliminary utility relocation requirements. The ultimate 50 m road allowance was also identified on the plans to show the relationship to the property required for the four-lane widening compared to the ultimate six-lane road widening.

4.2.4 Public Comments: PIC No. 2

A total of 25 people "signed in" at PIC No. 2 on February 19, 2004 and no written comments were received. Copies of the "sign-in" sheets are found in Appendix H.

4.2.5 Agency Comments

Copies of responses from the various agencies as a result of the mailout for PIC No. 2 are contained in Appendix I. In addition to the comments received as a result of the mailout for PIC No. 2, various meetings were held with the MTO, Peel District School Board, and the City of Brampton and Town of Caledon. Copies of the minutes of these meetings are contained in Appendix I.

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4.2.6 Responses and Modification to Alternative Design Concepts Resulting from Public and Agency Comments

TABLE 4.1 Mayfield Road Improvements RESPONSE TO COMMENTS RECEIVED AS A RESULT OF INITIAL NOTIFICATION AND PUBLIC INFORMATION CENTRE NO. 2	
AGENCY COMMENTS:	
<i>Peel District School Board (PDSB)</i>	
PDSB wish to be involved in the process to monitor project progress, as it impacts Mayfield Secondary School. Please send any pertinent information.	<ul style="list-style-type: none"> PDSB was kept on the mailing list for the project. Based on a meeting held with PDSB staff, the proposed design for Mayfield Road will maintain the existing entrance and exit locations to the Mayfield Secondary School.
<i>Toronto Region Conservation</i>	
Draft copies of the ESR should be provided prior to filing of the report.	<ul style="list-style-type: none"> The ESR and Natural Environment component of the project incorporate comments from the TRCA as a result of a meeting in December 2003 and a review of the natural environment report.
Study alternatives should be designed to avoid impacts to the natural features.	<ul style="list-style-type: none"> This report, including the Natural Environment Technical Report (Appendix D) addresses impacts to the natural features.
The TRCA should be contacted regarding any work disturbance to TRCA property at the southwest corner of the Heart Lake Road and Mayfield Road.	<ul style="list-style-type: none"> As part of detail design, the TRCA will be contacted.
Relevant Policies and Guidelines related to Natural Features should be followed.	<ul style="list-style-type: none"> A list of the relevant policies and guidelines are contained in the TRCA correspondence in Appendix I.
<i>City of Brampton</i>	
Changes may be required to the proposed intersection improvements on the City of Brampton Roads that intersect with Mayfield Road. The necessary traffic data will be required to evaluate and comment on proposed improvements to roads under the jurisdiction of the City of Brampton.	<ul style="list-style-type: none"> As part of detail design, the proposed improvements to intersecting roads south of Mayfield Road that are under the jurisdiction of the City of Brampton, will be reviewed with Brampton staff.

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TABLE 4.1 Mayfield Road Improvements RESPONSE TO COMMENTS RECEIVED AS A RESULT OF INITIAL NOTIFICATION AND PUBLIC INFORMATION CENTRE NO. 2	
<p>The proposed boulevard widths and intersection areas and associated property requirements should be adequate to incorporate the necessary lanes, as well as entrance and gateway features, sidewalks urban trails and other urban design elements.</p>	<ul style="list-style-type: none"> • There have been accommodations made to incorporate gateway and entrance features. Sidewalks can be accommodated in areas – where curb and gutter is installed, and the gravel shoulder can accommodate pedestrians. As detail design proceeds, the City of Brampton should be contacted to determine specific gateway features and other specific development related requirements they wish to have incorporated into the design of Mayfield Road.
<p>Consideration should be given to transit requirements in the intersection and pavement/property requirements.</p>	<ul style="list-style-type: none"> • During detail design Brampton Transit staff should be contacted to determine specific requirements at the time of construction. The preliminary design for this study has incorporated the turning requirement for buses.
<p>A fully urban 6 lane cross-section for the entire Mayfield Road corridor should be considered when development in the area proceeds. Currently forecasted for 2011 to 2016. The urban section will allow the construction of trails and sidewalks.</p>	<ul style="list-style-type: none"> • As development (and the need for sidewalks) proceeds, consideration should be given to constructing pedestrian facilities on Mayfield Road. As part of detail design, and if development warrants, the need for a storm sewer constructed in its ultimate 6 lane location, should be examined to eliminate the proposed ditches and provide a potential location for sidewalks.
<p>Macro level stormwater management should be addressed to determine requirements for SWM ponds and associated property requirements.</p>	<ul style="list-style-type: none"> • West of Highway 410, a SWM pond as proposed in the completed Mayfield Road, Hurontario Street to Heart Lake Road Class EA will be utilized. East of Highway 410, drainage will be maintained by outletting into existing drainage courses. Treatment of storm water may be by means of stormceptor facilities or grass lined ditches in the rural road cross-section areas.

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TABLE 4.1 Mayfield Road Improvements RESPONSE TO COMMENTS RECEIVED AS A RESULT OF INITIAL NOTIFICATION AND PUBLIC INFORMATION CENTRE NO. 2	
Discussions should be held with MTO to determine if the Highway 410 SWM facilities can be utilized for Mayfield Road drainage.	<ul style="list-style-type: none"> MTO have advised that Mayfield Road drainage cannot be accommodated in the Highway 410 SWM facilities.
SWM quality treatment for smaller catchment areas could utilize the use of the City of Brampton's "Cash-in-Lieu" policy for the rural areas.	<ul style="list-style-type: none"> During detail design, the road drainage treatment will be reviewed with the City of Brampton.
Consideration should be given to utilizing future development SWM facilities for the treatment of Mayfield Road drainage. However, future development detail, sufficient to incorporate into this study, is not yet developed.	<ul style="list-style-type: none"> As part of detail design, SWM requirements will be reviewed with the City of Brampton as required.
The intersections of Heart Lake Road, Bramalea Road and Torbram Road are identified as Floral Feature intersections, to include a floral bed at the southwest corner of the intersection.	<ul style="list-style-type: none"> As part of detail design and when determining the specific property requirements required for construction, the City of Brampton should be contacted to determine specific gateway and entrance feature requirements.
Splash strips should be 1.0 m wide with colour impressed concrete.	<ul style="list-style-type: none"> During detail design, the City of Brampton should be contacted as to locations and their requirements for specific locations of splash strips.
Medians should consist of coloured, impressed concrete, except at Airport Road and Dixie Road where the median should consist of a planted, irrigated widened median.	<ul style="list-style-type: none"> During detail design, the City of Brampton should be contacted as to specific requirements for median treatments including responsibility for maintenance and capital costs.
The City's Pathway Master Plan includes two Class I Off Road Pathways that intersect Mayfield Road at the Bramalea Road Intersection and at the valley corridor east of Torbram Road.	<ul style="list-style-type: none"> During detail design, specific requirements for pathway requirements including property requirements should be determined in conjunction with City Staff.
<i>Town of Caledon</i>	
The Mayfield Road corridor should have adequate room for sidewalks at some time in the future.	<ul style="list-style-type: none"> Where curb and gutter is being installed on Mayfield Road between Dixie Road and Heart Lake Road, an area for sidewalk is provided. Between Dixie Road and Airport Road where gravel shoulders and ditches are being installed, property will not be acquired to install a sidewalk. Pedestrians may utilize the outside edge of the gravel shoulders if required. During detail

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TABLE 4.1 Mayfield Road Improvements RESPONSE TO COMMENTS RECEIVED AS A RESULT OF INITIAL NOTIFICATION AND PUBLIC INFORMATION CENTRE NO. 2	
	design, consideration may be given to installing a storm sewer in its ultimate 6-lane configuration to eliminate the ditches and provide an area for a sidewalk.
The Town of Caledon does not require a multi-lane configuration and medians on the north legs of intersections, but only requires the existing lane configuration be maintained and constructed to minimum standards to discourage the use of Caledon's roads by non-local traffic.	<ul style="list-style-type: none"> The intersection configuration illustrated on the drawings represent the recommendations and requirements based on the project Traffic Study and Region of Peel standard practices. During detail design, the Town of Caledon will be contacted to confirm their exact lane configuration requirements at the time of proposed construction.
Cultural heritage resources must be identified as part of this study.	<ul style="list-style-type: none"> A Stage 1 heritage and archaeological assessment is included as part of this study.

4.3 RECOMMENDED DESIGN CONCEPT

Based on the evaluation of the alternative design concepts developed for this project, the recommended design concept does not differ significantly from the preferred design concept presented at PIC No. 2 and as described in Section 4.2.3. The recommended design concept has been modified to incorporate the comments noted in Section 4.2.6, and is fully described in Section 5.0 of this report.

**MAYFIELD ROAD
CLASS ENVIRONMENTAL ASSESSMENT AND PRELIMINARY DESIGN STUDY
HEART LAKE ROAD TO AIRPORT ROAD**

5.0 Recommended Design Concept

5.1 DESCRIPTION OF RECOMMENDED DESIGN CONCEPT

The recommended Design Concept was developed based on the various discussions, comments, investigations, studies etc. undertaken as part of the Class Environmental Assessment Study. The Recommended Design Concept is illustrated in Appendix J, and is described as follows:

BETWEEN HEART LAKE ROAD AND DIXIE ROAD

- Widen Mayfield Road to 6 lanes including:
 - Two additional through lanes in each direction to be constructed such that a total of six through lanes are provided in conjunction with the new Highway 410/Mayfield Road interchange and structure carrying Mayfield Road over Highway 410.
 - West of Heart Lake Road Mayfield Road will be widened to six through lanes to a point of approximately 180 m west of Heart Lake Road. This six-lane section will be tapered down to the proposed four-lane section to be constructed by the Region of Peel in 2005, over a distance of 145 m.
 - The proposed turn lanes were developed in accordance with the Traffic Study undertaken as part of this study (Appendix A). Although new right turn lanes were not necessarily included as part of the recommendations of the Traffic Study, separate right turn lanes were added at all intersection legs in accordance with the Region of Peel standard practice to include right turn lanes at "major" intersections.
 - At the **Heart Lake Road/Mayfield Road** intersection the intersection legs will consist of the following lanes:

The West Leg:

- Three westbound through lanes.
- Three eastbound through lanes.
- One eastbound left turn lane.
- One eastbound right turn lane

The South Leg:

- One northbound through lane.
- One southbound through lane.

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HEART LAKE ROAD TO AIRPORT ROAD**

RECOMMENDED DESIGN CONCEPT

- One northbound left turn lane.
- One northbound right turn lane.

The East Leg:

- Three eastbound through lanes.
- Three westbound through lanes.
- One westbound left turn lane.
- One westbound right turn lane.

The North Leg:

- One northbound through lane.
- One southbound through lane.
- One southbound left turn lane.
- One southbound right turn lane.

• **Dixie Road/Mayfield Road Intersection**

The West Leg:

- Three westbound through lanes.
- Three eastbound through lanes
- One eastbound left turn lane.
- One eastbound right turn lane.

The South Leg:

- One southbound through lane.
- One northbound through lane.
- One northbound left turn lane.
- One northbound right turn lane.

The East Leg:

- Three eastbound through lanes.
- Two westbound through lanes.
- One westbound left turn lane.
- One westbound right turn lane.

The North Leg:

- One northbound through lane.
- One southbound through lane.

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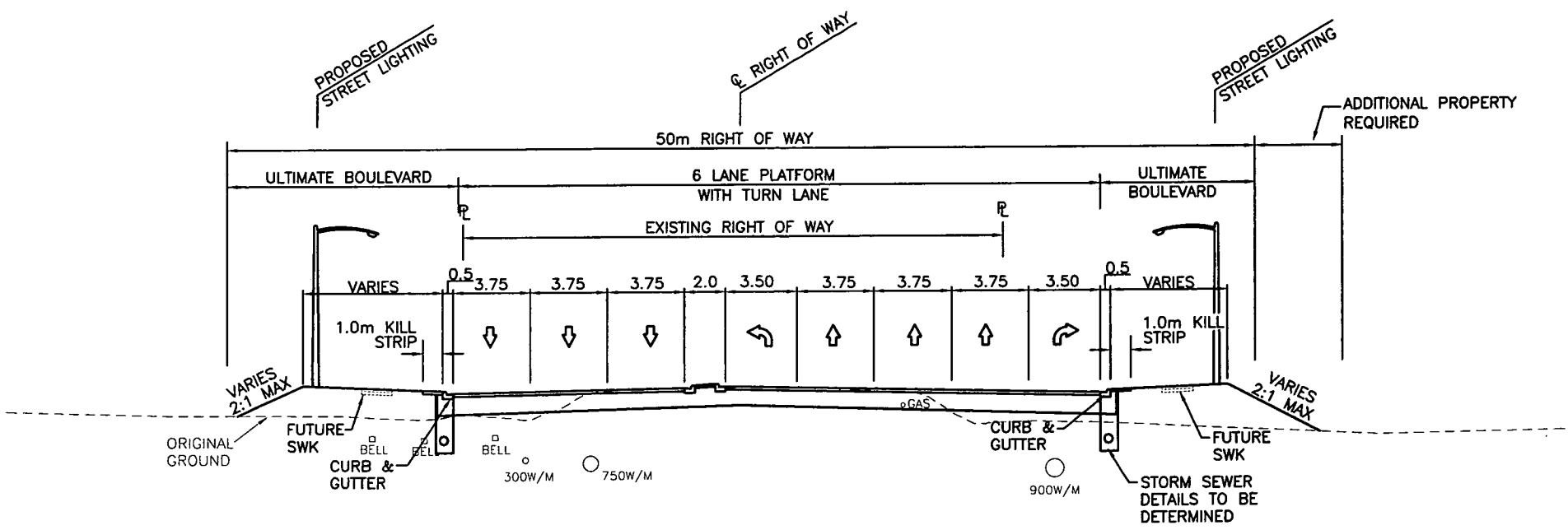
**MAYFIELD ROAD
CLASS ENVIRONMENTAL ASSESSMENT AND PRELIMINARY DESIGN STUDY
HEART LAKE ROAD TO AIRPORT ROAD**

RECOMMENDED DESIGN CONCEPT

- One southbound left turn lane.
- One southbound right turn lane.
- All intersections legs to include short median islands to separate the opposing traffic at the intersections and to provide a location for traffic signal poles. In addition, curb and gutter is installed at all legs of the intersection in the vicinity of the curb radii. All curb and gutter at the intersection will consist of a semi-mountable curb and gutter with paved shoulders to accommodate turning movements for large farm equipment.
- Between Heart Lake Road and Dixie Road, a continuous centre median will be installed for the entire length, including in the vicinity of Highway 410/Mayfield Road interchange. However median breaks will be provided for turning movements into 4045 Mayfield Road. In addition, the MTO will be providing median breaks to allow turning movements at the North Brampton Pumping Station and the two ramps to Highway 410.
- At the intersections, all existing traffic signals will be upgraded to accommodate the new intersection configuration.
- The centreline of Mayfield Road will remain essentially the same as the existing centreline, with equal widening of the through lanes of either side of the existing centreline.
- Curb and gutter and storm sewers will be provided throughout the entire length of Mayfield Road between Dixie Road and Heart Lake Road.
- Storm water management facilities will be required near Heart Lake Road to accept storm drainage from Mayfield Road. A possible storm water management pond location is near the south/west corner of Heart Lake Road and Mayfield Road similar to the pond location shown for the Class EA for Mayfield Road between Hurontario Street and Heart Lake Road. Storm sewers east of the Highway 410/Mayfield Road interchange will empty to existing watercourses at road crossing culverts. Existing culvert locations and drainage patterns to be maintained where possible. Improvements to the existing culverts may be required as a result of detailed design.
- A sidewalk location will be provided behind the curb and gutter throughout the entire length outside of the Highway 410/Mayfield Road interchange limits. No sidewalk is being shown as part of the study, however the location is provided for the local municipalities to construct sidewalk as development occurs in the area.
- A typical cross section for Mayfield Road between Heart Lake Road and Dixie Road is illustrated in Figure 5.1. The through lanes are 3.75 m wide, and turn lanes are 3.5 m wide.

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MAYFIELD ROAD CLASS EA
REGION OF PEEL
HEART LAKE ROAD TO DIXIE ROAD

TYPICAL 6-LANE
URBAN ROAD SECTION



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Date:	Scale:	Project No.	Figure No.
04/07/04	N.T.S.	60210370	Figure 5.1

**MAYFIELD ROAD
CLASS ENVIRONMENTAL ASSESSMENT AND PRELIMINARY DESIGN STUDY
HEART LAKE ROAD TO AIRPORT ROAD**

RECOMMENDED DESIGN CONCEPT

- Subject to detailed design, streetlighting will be provided behind the curb and gutter.
- The design criteria for this section of Mayfield Road is as follows:
 - Urban arterial divided, controlled access.
 - Design speed 90 km/h.
 - Posted speed 80 km/h.
 - Right-of-way - ultimate right-of-way width 50 m.
 - Maximum gradient 6.0%, minimum gradient 0.5%.

DIXIE ROAD TO AIRPORT ROAD

- Road cross section to consist of two through lanes in each direction with partially paved gravel shoulders and ditches.
- On the east leg of Dixie Road the three eastbound through lanes are carried through from the west leg for approximately 170 m, then tapered down to two eastbound through lanes over approximately 120 m. A combination through/right turn lane for westbound traffic is added to the existing two westbound through lanes on the east leg at Dixie Road in order to match up with the three westbound through lanes on the west leg of Dixie Road. In addition, although the Traffic Study did not necessarily recommend separate right turn lanes at all intersections, separate right turn lanes were added to all intersection legs in accordance with the Region of Peels standard practice of including right turn lanes at all "major" intersections. The configuration of the Bramalea Road, Torbram Road and Airport Road intersections are as follows.

- **Bramalea Road**

West Leg:

- Two westbound through lanes.
- Two eastbound through lanes.
- One westbound left turn lane.
- One westbound right turn lane.

South Leg:

- One southbound through lane.
- One northbound through lane.
- One northbound left turn lane.
- One northbound right turn lane.

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CLASS ENVIRONMENTAL ASSESSMENT AND PRELIMINARY DESIGN STUDY
HEART LAKE ROAD TO AIRPORT ROAD**

RECOMMENDED DESIGN CONCEPT

East Leg:

- Two westbound through lanes.
- Two eastbound through lanes.
- One eastbound left turn lane.
- One eastbound right turn lane.

North Leg:

- One northbound through lane.
- One southbound through lane.
- One southbound left turn lane.
- One southbound right turn lane.

• **Torbram Road**

West Leg:

- Two westbound through lanes.
- Two eastbound through lanes.
- One eastbound left turn lane.
- One eastbound right turn lane.

South Leg:

- One southbound through lane.
- One northbound through lane.
- One northbound left turn lane.
- One northbound right turn lane.

East Leg:

- Two eastbound through lanes.
- Two westbound through lanes.
- One westbound left turn lane.
- One westbound right turn lane.

North Leg:

- One northbound through lane.
- One southbound through lane.
- One southbound left turn lane.
- One southbound right turn lane.

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**MAYFIELD ROAD
CLASS ENVIRONMENTAL ASSESSMENT AND PRELIMINARY DESIGN STUDY
HEART LAKE ROAD TO AIRPORT ROAD**

RECOMMENDED DESIGN CONCEPT

• **Airport Road**

West Leg:

- Two westbound through lanes.
- Two eastbound through lanes.
- One eastbound left turn lane.
- One eastbound right turn lane.

South Leg (per Giffel's Class EA Study)

- Two southbound through lanes.
- Two northbound through lanes.
- One northbound left turn lane.
- One northbound right turn lane.

East Leg (per Giffel's Class EA Study):

- Two westbound through lanes – reduced to one lane east of the intersection.
- Two eastbound through lane – reduced to one lane east of the intersection.
- One westbound left turn lane.
- One westbound right turn lane.

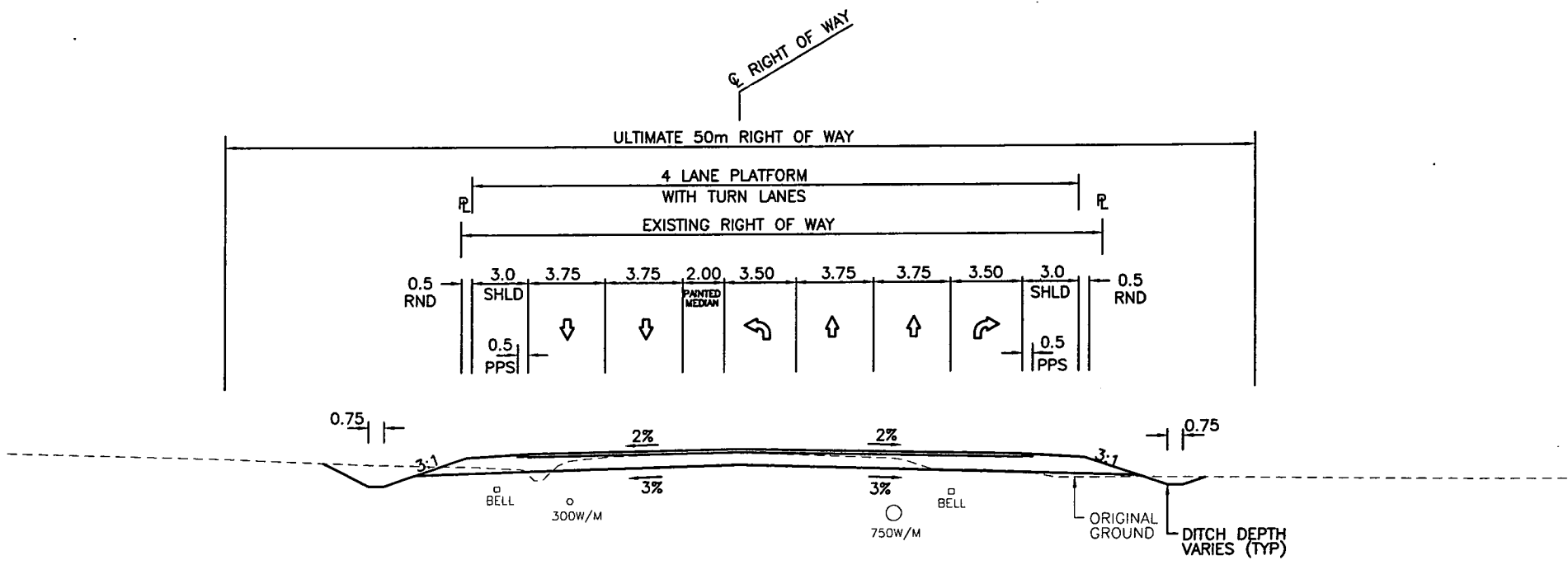
North Leg (per Giffel's Class EA Study):

- Two northbound through lanes.
 - Two southbound through lanes.
 - One southbound left turn lane.
 - One southbound right turn lane.
- All intersections will have semi-mountable curb and gutter with paved shoulders, to accommodate large farm equipment, and a minor storm sewer network and/or curb and gutter outlets to ditches. In addition, each leg of the intersection will have short concrete median islands to separate opposing traffic and to accommodate a centre traffic signal pole.
- A typical cross section for Mayfield Road between Dixie Road and Airport Road is illustrated in Figure 5.2. In general, the road cross section consists of four 3.75 m through lanes, a 3 m gravel shoulder of which 0.5 m is partially paved, with drainage accommodated by ditches.
- The centreline of Mayfield Road will remain essentially the same as the existing centreline, with equal widening of the through lanes of either side of the existing centreline.

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MAYFIELD ROAD CLASS EA
REGION OF PEEL
DIXIE ROAD TO AIRPORT ROAD

TYPICAL 4-LANE
RURAL ROAD SECTION

Date: 04/07/04 Scale: N.T.S. Project No. 60210370 Figure No. Figure 5.2

**MAYFIELD ROAD
CLASS ENVIRONMENTAL ASSESSMENT AND PRELIMINARY DESIGN STUDY
HEART LAKE ROAD TO AIRPORT ROAD**

RECOMMENDED DESIGN CONCEPT

- Existing drainage patterns to be maintained where possible with the use of ditches and existing road crossing culverts. Subject to final design, existing corrugated metal road crossing culverts to be extended or replaced. The two existing concrete culverts between Torbram Road and Airport Road (approximate Stations 14+090 and 14+630) and the concrete culvert west of Bramalea Road (approximate Station 11+960) must also be extended to accommodate the widening of Mayfield Road.
- Various vertical road profile improvements are required to accommodate the required design speed standards. During detailed design the vertical profile improvements at culverts should be examined to determine if additional opening size is required. It is noted that the two concrete culverts at Stations 14+090 and 11+960 will likely require additional culvert relief. It is anticipated that an additional culvert installed under Mayfield Road by directional drilling or "jack and bore techniques" will provide sufficient relief to maintain existing floodlines.
- The following design criteria has been established for Mayfield Road between Dixie Road and Airport Road
 - Urban arterial undivided
 - Bramalea Road to east of Mayfield Secondary School and west of Airport Road – 80 km/h design speed with 60 km/h posted speed.
 - All Other Areas 90 km/h – 100 km/h design speed with 80km/h posted speed.
 - Right-of-way width ultimate 50 m - actual required right-of-way varies from 38 m to 50 m.
 - Maximum gradient: 6%.
 - Minimum gradient: 0.5%.
- Existing drainage patterns including road drainage will be maintained in new ditches and existing or upgraded road crossing culverts. Details of culvert replacements and outlet details to be determined during detail design. Discussions should be held with the TRCA and MNR in the early stages of detail design with respect to permit requirements for work impacting the creeks and drainage courses.
- An alternative to provide a left turn lane at approximately Station 11+700 for the Ken Speirs Orchard property at 4810 Mayfield Road has been illustrated in Appendix J for consideration during detail design and subject to property negotiations with the property owners. Included in the alternative for the left turn lane is curb and gutter on the north side of Mayfield Road to minimize the property purchase requirements and road widening impacts. During detail design it must be determined whether a minor storm sewer and/or gutter outlets will be

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constructed to maintain road drainage on the north side. Construction of the widening of Mayfield Road with or without the turn lanes and with or without the curb and gutter on the north side will be determined as part of property negotiations during detailed design.

- The existing entrance configuration on Mayfield Road for the Mayfield Secondary School is being maintained. A short eastbound left turn lane is being provided for the western entrance to the High School and a westbound right turn lane is being provided into the west entrance. In addition, curb and gutter is proposed along the north side of Mayfield Road along the entire frontage of the Mayfield Secondary School.
- The preliminary geotechnical investigation should be updated with a more comprehensive geotechnical investigation during final design. As part of this study, a preliminary pavement design indicated the newly constructed Mayfield Road pavement structure should consist of the materials in Table 5.1.

Table 5.1 Recommend Preliminary Pavement Design

Material	Thickness (millimeters)
Road Segments (Between Intersections):	
Asphalt HL-1	40
Asphalt Heavy Duty Binder Course - HDBC	100
OPSS Granular Base Course	200
OPSS Granular Subbase Course	450
Major Intersections:	
Asphalt HL-1	50
Asphalt Heavy Duty Binder Course - HDBC	100
OPSS Granular 'A' Base Course	150
OPSS Granular 'B' Subbase Course	550

- Additional drilling investigations and analytical testing is recommended, especially near Airport Road, to confirm the extent and level of potential hydrocarbon impacts in the soils within the road allowance of Mayfield Road.
- The Heritage Impact Assessment recommends that the structures at 4524 Mayfield and 4615 Mayfield Road should each be the subject of further study when it is determined that road construction will impact these structures. It is noted that the building at 4524 Mayfield Road would be impacted by any

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proposed road construction, however the detail design process should explore methods to minimize impacts to 4615 Mayfield Road.

- The Stage 1 Archaeological Assessment recommends that if deeply buried archaeological material be found during construction the Ministry of Culture and Mayer Heritage Consultants Inc. should be immediately notified. In addition, in the event that human remains are encountered during construction, the proponent should immediately contact both the Ministry of Culture and the Cemeteries Regulation Unit of the Ontario Ministry of Consumer and Commercial Relations, as well as the appropriate Municipal Police, Local Coroner, and Mayer Heritage Consultants Inc.
- The TRCA, MNR and DFO should be contacted early in the detail design process to determine approval/permit requirements for road construction and associated works.

**5.2 PROPERTY IMPACTS, PROPERTY PURCHASE REQUIREMENTS,
COORDINATION WITH OTHER PROJECTS AND MITIGATIONS
MEASURES**

5.2.1 Property Purchase Requirements

Anticipated property purchase requirements for the recommended design concept have been identified based on a preliminary design, and noted on the drawings contained in Appendix J. Property requirements have been identified as the minimum required to construct the 4 or 6 lane section of Mayfield Road as identified on the recommended design concept. In addition the ultimate 50 metre road allowance has also been identified to give the property owners an understanding of future property required for the ultimate widening of Mayfield Road and to give them the opportunity to sell the ultimate property requirements.

For the recommended design concept, it is estimated that portions of 40 properties must be purchased by the Region of Peel to widen Mayfield Road.

As part of detail design, additional detailed drawings for each property purchase will be developed showing additional details such as tree removals, driveway modifications etc. Attempts will be made to minimize grading and restoration impacts by use of low retaining walls where practical and where financial consideration permit. During detail design and further discussions with utility companies, the preliminary property requirements may have to be adjusted to address updated utility requirements and approval conditions.

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5.2.2 Driveway Modifications

Almost all driveways and field entrances within the study limits will have to be modified to some extent to accommodate the widening of Mayfield Road. In general, the widened Mayfield Road centre line profile matches the existing Mayfield Road profile as much as possible such that driveway impacts are minimized.

The extent of modifications of all driveways and field entrances will be confirmed as part of detail design. Drawings outlining the modifications to driveways at each individual property will be prepared for discussion with the property owners prior to construction.

5.2.3 Highway 410 Interchange at Mayfield Road

The Highway 410/Mayfield Road Interchange project limits on Mayfield Road correspond to the end of the entrance ramps on both the east and west side of Highway 410. The western limit of a Highway 410/Mayfield Road Interchange is approximately 200 m east of Heart Lake Road, and the eastern limit of the interchange is approximately 450 m west of Dixie Road. Based on various discussions with the MTO, it appears that it would be prudent that the Mayfield Road improvements east and west of the interchange limits should be constructed first in order to allow the interchange ramps and Mayfield Road within the interchange limits to tie into a widened Mayfield Road. The actual details of construction will have to be determined as part of detailed design, and may be dependent on the actual timing of Mayfield Road and the interchange construction. Since Mayfield Road within the interchange limits may still be a two-lane roadway, or be detoured as part of the interchange construction, line markings immediately east and west of the interchange may have to be temporarily revised to accommodate the configuration of Mayfield Road at the interchange during the construction. Detailed co-ordination meetings will have to be held with the MTO during detailed design and during construction to ensure that the appropriate traffic control measures and co-ordination of same, are completed in safe and efficient manner.

Utility co-ordinations as part of the Highway 410/Mayfield Road Interchange should also be coordinated as part of the detailed design of Mayfield Road east and west of the interchange. Although extensive utility relocations will likely be required as part of the Highway 410/Mayfield Road Interchange, they should be done in conjunction with any utility relocations required east and west of the interchange in order to minimize utility relocation costs and disruption to traffic on Mayfield Road.

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5.2.4 Airport Road at Mayfield Road Intersection Improvements

The improvements to Airport Road at Mayfield Road are proposed to be constructed by the Region of Peel in 2004. Since construction of the Mayfield Road improvements between Torbram Road and Airport Road are not anticipated until approximately 2010, there should not be a need for coordination of construction contracts. However, any utility relocations and property purchases required as part of the Airport Road/Mayfield Road improvements being undertaken in 2004 should allow for, where possible, the future widening of Mayfield Road to four-lanes. For example, any utility relocations on the south side of Mayfield Road, west of Airport Road should try to take into account the fact that an east bound right turn lane will be required. Underground utilities and above ground utilities such as hydro poles should be set back the appropriate amount to accommodate this east bound right turn lane, where possible.

5.3 ENVIRONMENTAL IMPACTS, MITIGATION MEASURES AND MONITORING

5.3.1 Environmental Impacts

The recommended alternative was compared to the existing natural features in order to determine the potential direct and indirect impacts.

Direct impacts include footprint impacts that may results in the removal or direct disturbance of a natural feature, habitat or species. Possible direct impacts include impacts to core areas/significant corridors, vegetation loss, significant species of fauna or flora, fisheries and surface watercourses.

Table 5.1 Summarizes the Potential Impacts of the Recommended Alternative

Type of Impact	Heart Lake Road to Dixie Road	Dixie Road to Airport Road
Impacts to Core Areas, Significant Corridors	None	Encroachment into two West Humber River tributary valleys. This area consists of natural vegetation and manicured lawn found directly along the creek corridor.
Vegetation Loss	Some cultural meadow areas and landscape trees would need to be removed.	The road widening would impact cultural meadows, landscape trees and small marsh communities.
Significant Species	None	Redside dace cyprinid species (provincially threatened) has historically and recently occurred in West Humber River tributaries.

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Type of Impact	Heart Lake Road to Dixie Road	Dixie Road to Airport Road
Aquatic	Two intermittent un-named tributaries of Etobicoke Creek. - No in-situ fish habitat present, therefore no direct impacts.	Two intermittent un-named tributaries of Etobicoke Creek and Four un-named tributaries of the West Humber River. - No in-situ fish habitat present, therefore no direct impacts. Two perennial tributaries of the West Humber River with diverse fishery. - No instream work is anticipated. Impacts to redds and dace habitat may be associated with the removal of riparian vegetation and the input of sediment to the creek.
Surface Watercourses	Two intermittent un-named tributaries of Etobicoke Creek. - Maintain flow conveyance through culvert extensions therefore no direct impacts.	Two intermittent un-named tributaries of Etobicoke Creek and Four un-named tributaries of the West Humber River. - Maintain flow conveyance through culvert extensions therefore no direct impacts. Two perennial tributaries of the West Humber River with diverse fishery. -Several metres of the creek channel will be covered with an additional loss of riparian vegetation associated with the channel banks from the culvert extensions.

In summary the direct impacts associated with the section of Mayfield Road from Heart Lake Road to Dixie Road include a loss or reduction of agricultural land and cultural meadows and a loss of landscape trees. The removal of this vegetation is not considered significant. However, the clearing of treed areas will be limited as much as possible and mitigation measures for preserving trees are included in Section 5.3.2. The loss of landscape trees should be reviewed in conjunction with any streetscaping / landscaping design completed as part of the detailed design to consider replanting with native species following the construction of Mayfield Road.

There are no significant watercourses crossing Mayfield Road between Heart Lake Road and Dixie Road outside the area of the Highway 410/Mayfield Road Interchange. There are two ephemeral tributaries to Etobicoke Creek that are ill-defined drainage swales to the north and south of Mayfield Road and flow during localized run-off events. These drainage swales are not considered direct fish



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habitat and therefore no direct impacts are anticipated. Flow conveyance will be maintained through extensions of the existing culverts.

Between Dixie Road and Airport Road the direct impacts associated with widening Mayfield Road include encroachment and loss of vegetation associated with two tributaries of the West Humber River, potential impacts to reaside dace habitat, loss or reduction of agricultural land and cultural meadows, a loss of landscape trees, and of small marsh communities associated with some of the creeks.

The loss of vegetation associated with the creek corridors is a significant impact. The fill required to widen Mayfield Road will be extensive in some areas, particularly at "Creek 10" at the tributary of the West Humber River, due to its steep creek valley slopes. Several methods of reducing the road widening impacts were considered including different methods of side slopes and treatment of the road edge. The different road edge treatments that were considered during the preliminary design in order to reduce the impacts on vegetation and stream valley corridors are as follows:

- **Gravel Shoulder and Ditch** – this treatment generally impacts less natural area than the curb and gutter based on a 2:1 or 3:1 slope. The ditch provides protection from contaminants such as oil and sediment from road run-off to the vegetation and natural features.
- **Curb and Gutter** – curb and gutter generally requires less area than the gravel shoulder and ditch. It provides protection against road run-off directly entering the natural areas.

Amongst other issues, the desire to maintain a rural appearance to Mayfield Road between Dixie Road and Airport Road, and to allow for the passage of farm vehicles has resulted in the gravel shoulder with ditch being the recommended road edge treatment.

The loss of the landscape trees between Dixie Road and Airport Road is not significant. Many of the trees are non-native species, which are desirable species due to their introduced status and invasive character. During the landscaping / streetscaping portion of the detailed design for this section of road, consideration should be given to replanting any removed landscaping trees with native species.

The five intermittent watercourses between Dixie Road and Airport Road are poorly defined drainage channels that generally flow during localized run-off events. In addition, "Creek 11" just west of Airport Road, appears to maintain a minor base flow from ponds located north of Mayfield Road. These drainage channels are not considered significant nor deemed fish habitat and therefore there are no fisheries related direct impacts. Flow conveyance will be maintained through extensions of the existing culverts, thus providing future fisheries opportunities.

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The two tributaries of the West Humber River (Creek 7 and 10) are ecologically functioning headwater reaches. One is cool water habitat (Creek 10) based on temperature monitoring and fish community sampling, and the other (Creek 7) has cool water potential with historical occurrences of brook trout. Both creeks have the potential for redbreast dace (VTE species) due to existing habitat conditions and historical occurrences. Impacts to these two creeks are considered significant and sensitive in terms of the level of protection for the existing habitat features.

The construction of extensions for the concrete structures for these two permanent creeks, specifically excavation required to pour the concrete footings, may involve in-water work and may therefore constitute a harmful alteration, destruction, or disruption (HADD) of fish habitat. Further discussion with the TRCA is recommended to address appropriate mitigation measures and to determine whether compensation will be required. Specific considerations include the protection of:

- Riparian vegetation and overhanging vegetation (canopy) to maintain cool water temperatures, buffering capacity for the stream, fish habitat and feeding opportunities for fish.
- In-stream fish habitat such as substrate, woody debris and undercut banks. This poses a constraint to any in-stream work or channel modifications.
- Water clarity. Best management practices should be utilized for sediment and erosion control to reduce the impact of run-off and siltation on the creek system.

Indirect impacts of the recommended alternative are associated with changes in site conditions, such as drainage. The potential for sedimentation and erosion is increased due to the widening of Mayfield Road, as areas of bare soil will be exposed. It is possible that during rainfall events sediment laden run-off from the construction area could enter watercourses. In order to ensure that run-off from the construction site does not impact the tributaries of Etobicoke Creek and the West Humber River, sediment and erosion control measures will be required during construction.

Sediment barriers should be installed along the edge of the construction area for all culvert extensions the convey flow to tributaries of Etobicoke Creek and the West Humber River. The purpose of the sediment barriers is to protect the natural areas to be retained along the watercourses. Options for this mitigation measure should be included in the tender document for the contractor to select from and / or elaborate on.

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Sediment and erosion control measures should be installed prior to any site clearing or grading. Sediment barriers, rock check dams and straw bails are all examples of sediment control methods that could be employed. As a minimum, erosion /

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sediment control should meet the standards outlined in the Ontario Provincial Standard Specification (OPSS) 577, *construction specification* for temporary erosion and sediment control measures.

There are no new stormwater management (SWM) ponds proposed as part of this study. Two SWM facilities (ponds) are proposed along Mayfield Road within the Highway 410 extension interchange right-of-way. Details regarding the SWM facilities can be found in MTO pre-design report (May 2000).

Between Dixie Road and Heart Lake Road, it is proposed to install curb and gutter and storm sewers. The high point on Mayfield Road in this area is at the Highway 410 interchange. Drainage within the interchange will be accommodated by the MTO design. The short stretch between the interchange and Heart Lake Road is proposed to be outletted in to a SWM pond west of Heart Lake Road included as part of the Class EA for Mayfield between Hurontario Street and Heart Lake Road. Between the Highway 410 interchange and Dixie Road, it is proposed to outlet the storm sewer near Dixie Road into the Dixie Road ditch. Existing drainage from Mayfield Road flows into the existing drainage courses that flow southerly towards Dixie Road.

From Dixie Road to Airport Road, new ditches are proposed to be constructed maintaining the outlets to the existing drainage courses. Due to the relatively small increase in drainage area due to the additional pavement, the ditch drainage should be acceptable for stormwater management. It is proposed to use a standard ditch width with a 0.75 m flat bottom, in accordance with the MOE standard ditch.

5.3.2 Mitigation Measures

The following mitigation measures are recommended to mitigate negative impacts of the project to the terrestrial and aquatic features in the study area.

- Best Management Practices will be developed and employed for sediment and erosion control, to ensure that excessive amounts of sediment are not released into the aquatic habitat. A detailed comprehensive sediment and erosion control plan is required to be prepared prior to any construction. Sediment and erosion control measures must be installed prior to, and maintained during construction. The sediment and erosion control plan will also detail measures to be employed on a day to day basis, and emergency response measures in case of a sediment release. Areas of bare soil should be re-vegetated with native species as soon as feasible to prevent erosion of soils.

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- Appropriate timing of culvert extension activities is an important mitigation measure. Etobicoke Creek is managed as warm water and the West Humber River is managed as cool water riverine habitat. It will be necessary to adopt a construction window that reflects the importance of the creeks to support and provide for the respective fishery. An in-stream construction window of June 30th to March 30th will be respected for the tributaries of Etobicoke Creek, and June 30th to September 15th for Creeks 7, 10 and 11 of the West Humber River. The remaining three tributaries of the West Humber River are intermittent and provide limited fish habitat (thus it is recommended that construction for these tributaries be completed in the dryer months, also respecting the June 30th to September 15th window). Dates that are more specific may possibly be negotiated based on agency knowledge of species – specific timing of spawning activities.
- In areas where construction sites or roadways are located in proximity to wetland features or watercourses, the use of minor grading to direct surface runoff away from the aquatic habitats is recommended. This generally consists of the slope leading to a very shallow swale created by a low ridge of topsoil. The vegetative swale is configured to direct surface runoff along the swale back away from the edge.
- Maintenance and refueling of machinery during construction should occur at a designated location away from the creeks or other natural features.
- In treed areas where clearing will be undertaken, it is recommended that the clearing be minimized as much as possible and care taken to preserve trees where feasible. Existing areas of natural vegetation are to be retained wherever possible. Trees and other areas of vegetation to be retained should be identified and delineated with temporary fencing located beyond the drip line of trees to ensure that vehicle movement or material storage does not disrupt vegetation (especially tree root zones). Any limbs or roots of trees to be retained, that get damaged during construction, should be pruned using appropriate arboricultural techniques
- Any areas of bare soil should be graded and re-vegetated with native species as soon as possible to avoid gullying and erosion problems.

5.3.3 Monitoring

Monitoring of the environmental mitigation measures is required before, during and after construction activities. Prior to construction, it is recommended that landscape plans are prepared for wetland edges, setbacks and vegetated berms. On-site inspections should also be undertaken to monitor the proper installation of sediment and erosion control measures, as well as tree saving measures such as fences installed beyond the drip line of retained trees.

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During construction, the following monitoring activities are recommended.

- Regular monitoring of the pre-construction measures to ensure maintenance and effectiveness, and repaired/replaced as necessary.
- Pruning of any limbs or roots (of trees to be retained) disrupted during construction.
- Fuelling and maintenance of machinery to be done at designated locations away from any wetland areas and watercourses.
- Storage of machinery and material, fill, etc. to be done in designated areas.
- Equipment movement through natural areas and setbacks to be controlled.

Given the nature of the project, it is not considered necessary to have a full-time biologist on site to supervise construction. Many of the routine day-to-day construction activities do not require supervision by a biologist. However, there are certain key aspects of construction where it is considered important to have a supervising biologist on-site. These include:

- Initial placement of environmental protection features such as settling ponds, silt fences, vegetation fences or any other features required day-to-day protection of natural environment features.
- In the event of a spill or any other event that has the potential to cause significant damage to the natural environment.
- Upon completion of the construction project when all clean up and restoration activities have been completed.
- During the planting of any vegetation required as mitigation or compensation for fish habitat impacts or tree loss to ensure that planting is carried out correctly.

Following each site inspection, the inspecting biologist should provide the site engineer with a written report that identifies any observed deficiencies and give recommendations for correction of these deficiencies.

Immediately after construction is complete the proposed plantings along the roadside and watercourses should be monitored to ensure they consist of a mixture of native woody tree and shrub species with native ground cover. In addition the stormwater management controls should be monitored to ensure they are operating effectively.

Once the project is constructed, operational monitoring should occur to ensure that the mitigation and / or compensation measures are functioning effectively. The biologist should visit the site during the first growing season following construction to ensure that:

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- Planted vegetation has become established and die-off is not occurring.
- Watering/tending of new vegetation should be undertaken, and if it does not survive should be replaced with subsequent tending and monitoring.
- Erosion and sedimentation is being controlled such that suspended sediment runoff to the local watercourses is limited.
- Any mitigation or compensation measures implemented with respect to aquatic habitat are functioning effectively and as planned.
- Impact predictions in the Class EA, with respect to aquatic and terrestrial impacts, are confirmed and no additional unanticipated impacts are occurring.

The results of this monitoring event should be documented in a brief report, which should be submitted to the TRCA, DFO and MNR.

5.4 UTILITY RELOCATIONS

All utility companies were contacted during the public notification of this study, and a meeting was held with utility company representatives on July 29, 2003 at the Region of Peel offices. Most of the utility companies plant within the study limits is affected by the proposed widening of Mayfield Road. The general location of their existing plant is illustrated on the recommended design concept drawings. The following utility companies must be contacted throughout the detailed design stage to ensure their affected utility plant is relocated prior to construction or protected during construction:

- Bell Canada: underground cable and conduit on both the south and north sides of Mayfield Road.
- Watermain/Region of Peel: located along the entire corridor
- Hydro One Brampton: mainly aerial lines with some underground plant, mainly on the south side of Mayfield Road.
- Enbridge Consumers Gas: buried gas mains exist between Heart Lake Road and Bramalea Road, and from approximately 400m east of Airport Road to Airport Road. Enbridge have indicated that infilling of their gasmain may be required at the time of construction.
- Rogers Cable: most of Rogers Cable plant is located on existing hydro poles; however, some of the side roads also have buried cable.
- Sanitary Forcemain/Region of Peel: located in the vicinity of Mayfield Secondary School

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5.5 CONSTRUCTION TRAFFIC MANAGEMENT

Traffic management during construction will be subject to actual issues to be addressed as part of detail design prior to construction. In general, and based on the preliminary design, it appears reasonable that two-way traffic can be maintained during construction. A majority of Mayfield Road will be widened equally on both sides of the existing Mayfield Road centreline. This will likely allow the following traffic staging to be implemented between intersections during construction:

Stage 1

Traffic: Two way traffic (one lane in each direction) to be maintained on existing two lanes on Mayfield Road.

Construction: Construct widened portion of both sides of Mayfield Road.

Stage 2

Traffic: Two way traffic to be maintained (one lane in each direction) on new "outside" lanes constructed as part of Stage 1.

Construction: Rehabilitate/reconstruct existing Mayfield Road pavement.

Other considerations, dependant on detail design issues, to be addressed in the final Traffic Management Plan for construction include:

- During Stage 1 construction, the existing shoulders are generally the location of the new widened lanes. The existing shoulders will need to be closed off during construction to facilitate the road widening.
- During detail design it may be found appropriate to construct the widening of Mayfield Road in 3 Stages:
 1. Widen one side, use opposite pavement/shoulder for traffic.
 2. Traffic on newly widened pavement and shoulder, construct opposite side.
 3. Traffic split to outside lanes (one direction on each of newly constructed/ widen area) reconstruct existing/inside pavement.
- Shoulders may have to be temporarily paved to accommodate traffic during the various stages.

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- Utility relocations, small diameter culvert replacements and other underground service installations may require short-term lane closures. Provisions must be made in the construction contract documents for these lane closures, including detours, traffic control, flagpersons, etc. based on discussions with Region of Peel traffic staff.
- Left turn access from Mayfield Road to private driveways and field entrances must be maintained throughout construction wherever possible and practical. Property owners whose access may be impacted should be notified in advance of any short term disruptions to their access(es).
- At intersections, the outside lanes should generally be constructed first, while maintaining traffic on existing pavement. Traffic can then travel on the new widened intersection while the interior lanes are constructed. As part of detail design, a well thought-out traffic staging plan at the intersections should be included in the contract drawings. The intersection staging plans will likely require temporary traffic signals for traffic control.
- For construction of Mayfield Road between Heart Lake Road and Dixie Road, close coordination with MTO is critical with respect to the timing and details of the Highway 410/Mayfield Road interchange. In general, it may be appropriate for the Region of Peel to construct the 6-lane portion of Mayfield Road first, to provide flexibility for the MTO to construct their Mayfield Road detours etc. However, details regarding the coordination of the two contracts, including potential Ministry of Labour issues, should be discussed and finalized as part of detail design.

5.6 COST ESTIMATE

An "opinion of probable cost" for the project has been developed based on the preliminary design and 2003 construction values for similar projects. As part of detail design, updated cost estimates should be prepared taking into account the final details of the project.

The estimated cost of the recommended alternative based on the preliminary design, is contained in the following Tables 5.2, 5.3, 5.4 and 5.5. It should be noted that allowances only have been included for Streetscaping. Details of the Streetscaping will be determined as part of detail design. Discussions should also be held with the City of Brampton during detail design, to include items in accordance with the Street Corridor Master Plan or other standards in effect at the time of construction. Appropriate cost sharing between the Region of Peel and City of Brampton must also be determined during detail design.

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**Table 5.2 Opinion of Probable Cost for Mayfield Road Improvements,
Heart Lake Road to Dixie Road**

<u>Description</u>	<u>Amount</u>
Preparation/Removals	\$ 125,000.00
Storm Sewers	\$ 190,000.00
Roadworks	\$ 1,990,000.00
Signalization	\$ 200,000.00
Watermain Allowance	\$ 75,000.00
Sanitary Allowance	\$ 25,000.00
Landscaping Allowance	\$ 36,000.00
Dixie Road Improvements	\$ 350,000.00
Sub-Total Major Items	\$ 2,991,000.00
Contingency Allowance (20%)	\$ 598,200.00
Sub-Total Construction	\$ 3,589,200.00
Engineering & Disbursements (10%)	\$ 358,920.00
Streetlighting Allowance	\$ 30,000.00
Utility Relocation Allowance	\$ 350,000.00
Property Acquisition Allowance	\$ 875,000.00
Sub-Total Construction, Engineering, Property, Utilities, Streetlighting	\$ 5,203,120.00
G.S.T (7%)	<u>\$ 364,218.40</u>
Total Estimate	\$ 5,567,338.40

NOTES / ASSUMPTIONS

- Preliminary estimate based on Functional plan view drawings and full depth road reconstruction
- Estimate does not include allowances for the proposed Hwy 410 interchange at Mayfield Rd.
- Utility relocation costs may vary upon completion of final design and determination of Cost Sharing
- No provisions have been included for works attributable to cost sharing with the City of Brampton
- Assumed - Mayfield Rd. as 6 Lane New Construction
- Allowances only are provided for streetscaping details, which will be determined during detailed design. Discussions must be held with the City of Brampton in conjunction with their draft street corridor master plan and will be subject to a cost sharing agreement.

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**Table 5.3 Opinion of Probable Cost for Mayfield Road Improvements
Dixie Road to approx. 525m East of Bramalea Road**

<u>Description</u>	<u>Amount</u>
Preparation/Removals	\$ 191,000.00
Storm Sewers	\$ 375,000.00
Roadworks	\$ 3,477,000.00
Signalization	\$ 200,000.00
Watermain Allowance	\$ 153,000.00
Sanitary Allowance	\$ 225,000.00
Landscaping Allowance	\$ 77,000.00
Bramalea Road Improvements	\$ 200,000.00
Sub-Total Major Items	\$ 4,898,000.00
Contingency Allowance (20%)	\$ 979,600.00
Sub-Total Construction	\$ 5,877,600.00
Engineering & Disbursements (10%)	\$ 587,760.00
Streetlighting Allowance	\$ 40,100.00
Utility Relocation Allowance	\$ 450,000.00
Property Acquisition Allowance	\$ 1,325,000.00
Sub-Total Construction, Engineering, Property, Utilities, Streetlighting	\$ 8,280,360.00
G.S.T (7%)	<u>\$ 579,625.20</u>
Total Estimate	\$ 8,859,985.20

NOTES / ASSUMPTIONS

- Preliminary estimate based on Functional plan view drawings and full depth road reconstruction
- Utility relocation costs may vary upon completion of final design and determination of Cost Sharing
- No provisions have been included for works attributable to cost sharing with the City of Brampton
- Assumed - Mayfield Rd. as 4 Lane New Construction
- Allowances only are provided for streetscaping details, which will be determined during detailed design. Discussions must be held with the City of Brampton in conjunction with their draft street corridor master plan and will be subject to a cost sharing agreement.

Stantec

**MAYFIELD ROAD
CLASS ENVIRONMENTAL ASSESSMENT AND PRELIMINARY DESIGN STUDY
HEART LAKE ROAD TO AIRPORT ROAD**

RECOMMENDED DESIGN CONCEPT

**Table 5.4 Opinion of Probable Cost, Mayfield Road Improvements,
Approx. 525m East of Bramalea Road to Torbram Road**

<u>Description</u>	<u>Amount</u>
Preparation/Removals	\$ 87,000.00
Storm Sewers	\$ 125,000.00
Roadworks	\$ 1,593,000.00
Signalization	\$ 200,000.00
Watermain Allowance	\$ 70,000.00
Landscaping Allowance	\$ 35,000.00
Torbram Road Improvements	\$ 200,000.00
Sub-Total Major Items	\$ 2,310,000.00
Contingency Allowance (20%)	\$ 462,000.00
Sub-Total Construction	\$ 2,772,000.00
Engineering & Disbursements (10%)	\$ 277,200.00
Streetlighting Allowance	\$ 20,000.00
Utility Relocation Allowance	\$ 350,000.00
Property Acquisition Allowance	\$ 1,250,000.00
Sub-Total Construction, Engineering, Property, Utilities, Streetlighting	\$ 4,669,200.00
G.S.T (7%)	\$ 326,844.00
Total Estimate	\$ 4,996,044.00

NOTES / ASSUMPTIONS

- Preliminary estimate based on Functional plan view drawings and full depth road reconstruction
- Utility relocation costs may vary upon completion of final design and determination of Cost Sharing
- No provisions have been included for works attributable to cost sharing with the City of Brampton
- Assumed - Mayfield Rd. as 4 Lane New Construction
- Allowances only are provided for streetscaping details, which will be determined during detailed design. Discussions must be held with the City of Brampton in conjunction with their draft street corridor master plan and will be subject to a cost sharing agreement.

Stantec

**MAYFIELD ROAD
CLASS ENVIRONMENTAL ASSESSMENT AND PRELIMINARY DESIGN STUDY
HEART LAKE ROAD TO AIRPORT ROAD**

RECOMMENDED DESIGN CONCEPT

**Table 5.5 Opinion of Probable Cost for Mayfield Road Improvements
Torbram Road to Airport Road**

<u>Description</u>	<u>Amount</u>
Preparation/Removals	\$ 155,000.00
Storm Sewers	\$ 400,000.00
Roadworks	\$ 2,450,000.00
Watermain Allowance	\$ 102,000.00
Landscaping Allowance	\$ 52,000.00
Sub-Total Major Items	\$ 3,159,000.00
Contingency Allowance (20%)	\$ 631,800.00
Sub-Total Construction	\$ 3,790,800.00
Engineering & Disbursements (10%)	\$ 379,080.00
Streetlighting Allowance	\$ 25,000.00
Utility Relocation Allowance	\$ 350,000.00
Property Acquisition Allowance	\$ 1,200,000.00
Sub-Total Construction, Engineering, Property, Utilities, Streetlighting	\$ 5,744,880.00
G.S.T (7%)	\$ 402,141.60
Total Estimate	\$ 6,147,021.60

NOTES / ASSUMPTIONS

- Preliminary estimate based on Functional plan view drawings and full depth road reconstruction
- Utility relocation costs may vary upon completion of final design and determination of Cost Sharing
- No provisions have been included for works attributable to cost sharing with the City of Brampton
- Assumed - Mayfield Rd. as 4 Lane New Construction
- Allowances only are provided for streetscaping details, which will be determined during detailed design. Discussions must be held with the City of Brampton in conjunction with their draft street corridor master plan and will be subject to a cost sharing agreement.

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