# Revision and Version Tracking

## CP Rail Crossing at New Coronation Road Class EA Study – Project File Report

<table>
<thead>
<tr>
<th>Version #</th>
<th>Filename and Description</th>
<th>Author</th>
<th>Checker</th>
<th>Approver</th>
<th>Date</th>
</tr>
</thead>
</table>

This document has been formatted for double side printing.

This document has been prepared for the titled project or named part thereof and should not be relied upon or used for any other project without an independent check being carried out as to its suitability and prior written authorization of Hatch Mott MacDonald being obtained. Hatch Mott MacDonald accepts no responsibility or liability for the consequence of this document being used for a purpose other than the purposes for which it was commissioned. Any person using or relying on the document for such other purpose agrees, and will by such use or reliance be taken to confirm their agreement to indemnify Hatch Mott MacDonald for all loss or damage resulting there from. Hatch Mott MacDonald accepts no responsibility or liability for this document to any party other than the person by whom it was commissioned.

To the extent that this report is based on information supplied by other parties, Hatch Mott MacDonald accepts no liability for any loss or damage suffered by the client, whether through contract or tort, stemming from any conclusions based on data supplied by parties other than Hatch Mott MacDonald and used by Hatch Mott MacDonald in preparing this report.

Copyright © 2014, all rights reserved
# Table of Contents

Executive Summary ........................................................................................................... 1

1 Introduction ....................................................................................................................... 1

1.1 Background .................................................................................................................... 1

1.2 Environmental Assessment Process ............................................................................. 3

1.3 Study Organization ........................................................................................................ 6

2 Problem and Opportunity Statement .............................................................................. 7

2.1 Need and Justification .................................................................................................. 7

2.2 Problems and Opportunities ......................................................................................... 9

3 Existing and Future Conditions ..................................................................................... 10

3.1 Natural Environment .................................................................................................. 10

3.2 Socio-Economic Environment ...................................................................................... 14

3.3 Transportation ............................................................................................................. 20

3.4 Engineering ................................................................................................................ 21

4 Alternative Solutions ...................................................................................................... 24

4.1 Description of Alternatives ......................................................................................... 24

4.2 Assessment Criteria ..................................................................................................... 29

4.3 Analysis of Alternatives .............................................................................................. 30

4.4 Evaluation of Alternatives ......................................................................................... 31

5 Project Description .......................................................................................................... 38

5.1 Design Criteria ............................................................................................................ 38

5.2 Intersection and Entrances .......................................................................................... 38

5.3 Temporary Road and/or Rail Detours ......................................................................... 42

5.4 Drainage and Stormwater Management ...................................................................... 42

5.5 Illumination ................................................................................................................ 42

5.6 Landscaping/Urban Design ......................................................................................... 42

5.7 Utilities ....................................................................................................................... 42

5.8 Property Requirements ............................................................................................... 43

5.9 Preliminary Cost Estimate ......................................................................................... 43

5.10 Timing ....................................................................................................................... 43

6 Potential Environmental Effects, Mitigation Measures and Commitments to Further Work ................................................................................................................................. 45

6.1 Natural Environment .................................................................................................. 45

6.2 Socio-Economic and Cultural Environment .............................................................. 47

6.3 Transportation and Safety .......................................................................................... 48

6.4 Engineering and Property ............................................................................................ 49

6.5 Monitoring ................................................................................................................ 49
List of Figures

Figure 1 – Technically Recommended Routes for the West Durham Link and New Coronation Road ................................................................. 2
Figure 2 – Site Location and Study Area .................................................. 3
Figure 3 – Municipal Class EA Process ....................................................... 4
Figure 4 – Vegetation Communities .......................................................... 11
Figure 5 – Archaeological Potential ......................................................... 16
Figure 6 – Cultural Heritage Resources .................................................... 19
Figure 7 – Plan and Profile for At-Grade (Do Nothing) Alternative .................. 26
Figure 8 – Plan and Profile for Overpass Alternative .................................... 27
Figure 9 – Plan and Profile for Underpass Alternative ................................... 28
Figure 10 – Typical Cross-Section for Grade Separation .............................. 40
Figure 11 – Sight Distance Calculations for Adjacent Property ....................... 41
Figure 12 – Preliminary Property Requirements for Grade Separation .............. 44

List of Tables

Table 1 – Road Exposure Index Analysis.................................................. 8
Table 2 – Provincially and Regionally Rare and Uncommon Species ............... 12
Table 3 – Cultural Heritage Resources ................................................... 17
Table 4 – Assessment of Alternatives ....................................................... 33
Table 5 – Design Criteria ................................................................. 38
Table 6 – Consultation Activity and Tracking Table .................................... 56

Appendices

Appendix A Consultation
Appendix B Transportation Report
Appendix C Natural Environment Report
Appendix D Rail Crossing Noise Impact Report
Appendix E Stage 1 Archaeological Assessment
Appendix F Cultural Heritage Assessment Report
Appendix G Drainage and Stormwater Management Report
Appendix H Desktop Geotechnical Letter Report
Appendix I Cost Estimate
Appendix J Design Criteria
Executive Summary

Introduction

The Highway 407 East Individual Environmental Assessment Study (407 East EA) identified the need for a future freeway connection between Highway 401 and the future Highway 407 east extension. The Technically Recommended Route for the connection (the West Durham Link) is parallel and to the west of the existing Coronation Road, aligning over the existing Halls Road right-of-way from south of Rossland Road to north of Taunton Road. The displacement of Halls Road is addressed in the 407 East EA, West Whitby Secondary Plan and Whitby Transportation Master Plan, through the provision of a new arterial road corridor referred to as realigned, or New, Coronation Road. The 407 East EA established the need, justification and alignment for this new road.

The implementation of New Coronation Road will result in a new crossing of the Canadian Pacific (CP) Rail Belleville Subdivision. The 407 East EA provides for an at-grade crossing of the railway, but acknowledges that a “potential future grade separation by others” is conceivable. In addition, given the inherent conflict between railways and the road system, the Town’s Official Plan designates the future crossing as the location of a Proposed Grade Separation.

In 2013, the Town of Whitby initiated a study to investigate alternative solutions for the proposed CP Rail crossing at New Coronation Road in accordance with the requirements of the Municipal Class Environmental Assessment. The purpose of this Schedule “B” Municipal Class EA study was to identify the preferred solution and preliminary design for the rail-road crossing, taking into consideration future traffic demands, road and rail safety, and the potential impact to the surrounding environment. The site location and study area are shown in Figure ES-1.

Figure ES-1
Site Location and Study Area
Problem and Opportunity Statement

The Road Exposure Index (REI) is a calculation used to assess whether a grade-separated crossing is justified. The REI is based on a formula using the total number of train movements per day multiplied by the annual average daily traffic volume in passenger car units. While there is no set (or legislated) threshold to warrant a grade-separated crossing in Canada, most road authorities and railways use a minimum cross-product of 200,000 as a general rule of thumb. The REI for this crossing exceeds this threshold, suggesting a grade separated crossing would be warranted.

Given the anticipated traffic volumes and the angle of intersection, an at-grade rail-road crossing is expected to pose safety concerns to both road and railway users. An at-grade crossing may also cause excessive delay to traffic on the road system. An opportunity exists to identify a solution that can accommodate future traffic demand and improve the safety and operation of the proposed crossing for both road and railway users, while minimizing impacts on the natural, social and cultural environments.

Existing Environment

The area in the immediate vicinity of the crossing certain exhibits environmental features to consider. Six cultural heritage resources were identified within or adjacent to the study area, including two built heritage resources and four cultural heritage resources. In addition, the study area is located within the floodplains of the Kinsale Branch and the L6 Tributary of Lynde Creek. Currently flows from the two tributaries are constrained to the north of the CP Rail embankments due to undersized culverts and spill eastward due to backwater conditions. Hydrogeotechnical investigations determined that the groundwater table is expected to be very high across the study area, lying typically about one metre or less below the existing grade.

Alternative Solutions

Assuming New Coronation Road is constructed in its currently approved alignment, the only viable alternative to an at-grade crossing is grade separation, in which the road passes over or under the railway. On this basis, the following three alternative solutions were considered, in keeping with the requirements of the Municipal Class EA process to consider a range of options:

- **At-Grade (Level Crossing)** – As required by the Municipal Class EA, the level crossing or “Do Nothing” option was considered. While grade separated options are more expensive to construct and require more property, the At-Grade alternative would not be consistent with the policies of the Town’s Official Plan, which designates a grade-separated crossing of the CP Rail for New Coronation Road. This alternative would also not address the Problem and Opportunity Statement due to the skewed crossing of the tracks, and the inherent conflict between railways and the road system.
- **Underpass (Road Under Rail Grade Separation)** – Based on the evaluation completed, the Underpass alternative is the least preferred alternative as it would not address several key evaluation factors. It would not improve wildlife crossing opportunities and would continue backwater drainage spills across the tributaries. In addition, implementation would require more complicated and costly staging due to the requirement to construct a temporary rail diversion. The underpass would also require an expensive pumping station to address the localized flooding attributed to high groundwater levels, which will pose on-going operation and maintenance costs.

- **Overpass (Road Over Rail Grade Separation)** – Based on the evaluation completed, the Overpass alternative is preferred. It provides improved road safety, traffic operations, and roadway connectivity, and addresses safety concerns associated with a skewed crossing. In addition, the overpass has the potential for improved wildlife crossing (underneath the structure). This alternative best satisfies the Problem and Opportunity Statement, while posing the least impact on the environment.

**Preliminary Design of Preferred Alternative**

Figure ES-2 shows the plan and profile of the preferred alternative, the Overpass. To achieve required clearances, the grade of New Coronation Road will rise (and descend) at 5.0% over the railway track to approximately 9.0m at the crossing to provide 7.0 m of vertical clearance with a 2.0 m deep structure. The cross-section of the grade separation features four 3.50 m general purpose lanes and 1.70 m shoulders. The overpass will include a 3.00m multi-use path on the east and a 2.00 m sidewalk on the west. The structure will be fully illuminated by roadway lighting.

There are no intersections within the project limits of the grade separation. To ensure proper visibility of approaching vehicles, future driveways accessing New Coronation Road should be located no closer than 250m from the vertex of the crossing.

The preferred alternative will improve stormwater management by separating and reducing the floodplains of the two tributaries. New Coronation Road at the grade separation will feature two system storm sewers to convey the 5-year minor system design flows generated from the impervious road catchments between Twin Streams Road and the crossing, as well as generated between Rossland Road and the crossing. Both will outlet via enhanced grassed swales.

The preliminary cost estimate for the grade separation is in the range of $9.4 million (excluding property costs), and includes the construction of approximately 250m of arterial road on each approach to the structure. It is anticipated that the construction of both New Coronation Road and the grade separation will commence within the next 5 to 10 years, pending funding approval and the completion of the detailed design.
Potential Environmental Effects, Mitigation Measures and Commitments for Further Work

Temporary impacts during the construction of New Coronation Road over the CP Railway are anticipated, as well as permanent impacts including loss of vegetation. Potential impacts were reviewed as part of the preliminary design and have been minimized to the extent possible. The following provides a brief summary of potential impacts and proposed mitigation measures.

Natural Environment:

- **Vegetation** – A total of 4.48 ha of land will be impacted by the overpass structure, including 2.52 ha of swamp wetland and 0.68 ha of forest/plantation. There will be no direct impacts to provincially or regionally rare or uncommon plant vegetation species communities during construction. Standard mitigation measures such as erosion control fence, tree removal and disposal plan, and vegetation salvage plan will be implemented to minimize disturbance.

- **Wildlife** – Although the overpass provides an opportunity for wildlife crossings underneath the roadway, the removal of vegetation and increased noise and light within the woodland associated with road construction, roadway lighting and vehicle traffic have the potential to disturb wildlife and their habitat. Construction activities will comply with the required migratory bird nesting season.

- **Aquatic Habitat** – Construction has the potential to affect fish and fish habitat as the proposed structure will cross over a drainage feature. Mitigation measures will be implemented to reduce impacts to water quality and downstream fish habitat.

Socio-Economic and Cultural Environment:

- **Noise** – Noise analysis completed for the proposed Chelseahill Development located north-east of the CP Rail line illustrated that the construction of New Coronation Road will not increase noise in the area by more than 5 dB, which is the threshold for mitigation. As well, the CP Rail line is the predominant noise source within the study area currently and in the future. As the noise generated by the rail line is significantly higher than the predicted traffic noise from New Coronation Road, there are no additional mitigation requirements. Future development in the vicinity may require noise mitigation measures based on the rail line. All construction activities carried out are required to abide by municipal noise control by-laws.

- **Land Use** – Additional property will be required from adjacent landowners to accommodate embankments, abutments and future sanitary sewer and water supply infrastructure. Property will be negotiated by the Town with individual landowners during detailed design.
• **Archaeology** – Property located outside of the previously assessed or disturbed areas, including additional land required to accommodate the overpass structure will be subject to a Stage 2 Archaeological Assessment to be completed during detailed design.

• **Cultural Heritage** – The proposed grade separation will result in alteration to the setting of the CP Rail railscape (CHL1), including obstruction of views to and from the railway and soil disturbance. The treeline along the west side of Lot 33/east side of Lot 34, Concession 3, south of the CP Rail (CHL 3) will be removed, and the culvert under the CP Rail line (BHR 1) carrying the L6 Tributary will need to be replaced in the future to prevent overtopping of the railway during storm events. Resource-specific heritage impact assessments will be conducted for these three cultural heritage resources to identify landscape features to be retained and to finalize grading limits in advance of proposed improvements.

**Transportation and Safety:**

• The proposed four-lane grade separation will address future traffic demand in the West Whitby area, increase network capacity, improve connectivity, and provide a safer crossing location for road and rail users, as well as pedestrians and cyclists.

**Engineering and Property:**

• Further geotechnical investigations will be required during detailed design for more in-depth design and construction recommendations.

**Public and Agency Consultation**

Public and agency consultation was conducted throughout the study, in accordance with the Municipal Class EA process. Required notices were issued to potentially impacted review agencies, First Nation communities, interested stakeholders and the general public at appropriate points in the process (i.e. commencement, in advance of public meetings and completion) to inform and solicit input.

Early in the study, the Project Team met with the following agencies and stakeholders deemed to have a more pertinent interest in the undertaking to introduce the study and solicit information and comments:

• Central Lake Ontario Conservation Authority
• Canadian Pacific Railway
• West Whitby Landowners Group
• Highway 407 East Development Group

The Notice of Study Commencement was posted on the Town of Whitby website on November 23, 2013, published in the local newspaper on November 27, 2013 and mailed to review agencies, stakeholders and the public on November 28, 2013.
Two Public Information Centres (PICs) were held to solicit feedback. The first PIC was held on January 29, 2014. Three members of the public and one representative from the West Whitby Landowners Group attended the PIC. No comments were received. The second PIC was held on May 29, 2014. The meeting was attended by three members of the public, including two adjacent landowners and a nearby resident. Comments received throughout the study are documented in a Table 6 of this report.

The Notice of Study Completion was posted on the Town of Whitby’s website, and distributed to those on the Project Contact list on October 23, 2014. It was published in the local newspaper on October 29, 2014 to start the 30-day calendar review period from October 29th, 2014 to November 28th, 2014.

No comments were received regarding the analysis completed to identify the recommended solution.

Summary

The Class EA for CP Rail Crossing at New Coronation Road was completed in accordance with the Municipal Class EA (2011). The recommended solution is a road over rail structure (overpass grade-separation) for New Coronation Road at the CP Rail crossing.

The Municipal Class EA Project File Report documents the study process followed, including the public and agency consultation, evaluation process, preferred design, as well as impacts and mitigation measures. The detailed design and construction will be completed as outlined in this report.
1 Introduction

1.1 Background

The Highway 407 East Individual Environmental Assessment Study (407 East EA) completed by the Ministry of Transportation and approved by the Minister of the Environment on June 3, 2010, identified the need for a future freeway connection between Highway 401 and the future Highway 407 east extension, east of Lake Ridge Road in the Town of Whitby. The Technically Recommended Route for the connection, known as the West Durham Link (WDL), is parallel and to the west of existing Coronation Road, aligning over the existing Halls Road right-of-way from south of Rossland Road to north of Taunton Road. Figure 1 shows the alignment for the WDL from the 407 East EA.

The displacement of Halls Road is addressed in the 407 East EA, as well as the West Whitby Secondary Plan (WWSP) (Phases 1 and 2) and the Whitby Transportation Master Plan (WTMP), through the provision of a new arterial road corridor referred to as Realigned, or New, Coronation Road. This new road will be aligned to the west of existing Coronation Road from north of Dundas Street to Taunton Road, as shown in Figure 1 from the 407 East EA. The future connection of New Coronation Road to existing Coronation Road north of Taunton Road is denoted in the WWSP.

Implementation of New Coronation Road will result in a new crossing of the Canadian Pacific (CP) Rail Belleville Subdivision, located approximately midway between Rossland Road and Taunton Road. The 407 East EA provides for an at-grade crossing of the railway (p. 8-16), but acknowledges that a “potential future grade separation by others” is conceivable, as stated on Figure 1. The figure indicates that the need and timing for the future grade-separated crossing would be determined by others.

In 2013, the Town of Whitby initiated a study to investigate alternative solutions for the proposed CP Rail crossing at New Coronation Road in accordance with the requirements of the Municipal Class Environmental Assessment, which is an approved process under the Ontario Environmental Assessment Act. The purpose of the study was to identify the preferred solution and preliminary design for the rail-road crossing, taking into consideration future traffic demands, road and rail safety, and the potential impact to the surrounding environment. The site location and study area are shown in Figure 2.

It is noted that the 407 East EA established the need, justification and alignment for New Coronation Road. This study did not address those matters.
Figure 1 – Technically Recommended Routes for the West Durham Link and New Coronation Road
(Source: Highway 407 East Individual Environmental Assessment Study, Excerpt of Figure 8.7, p. 8-8, 2009)
1.2 Environmental Assessment Process

1.2.1 Municipal Class Environmental Assessment

Under the provisions of the Ontario Environmental Assessment Act and Regulation 334, certain types of provincial and municipal undertakings can meet the requirements of the Act through the use of an approved environmental planning process referred to as a Class Environmental Assessment (Class EAs).

The Class EA process is a self-assessing procedure by which a group or “class” of undertakings can be planned and implemented in a way that fulfills the requirements of the Act without proponents having to prepare an Individual Environmental Assessment for approval. These undertakings do not require formal submission to the Ministry of the Environment and Climate Change for approval. Upon completion of the appropriate process, the undertaking is considered approved.

The Municipal Class EA prepared by the Municipal Engineers’ Association (dated October 2000, as amended in 2007 and 2011) outlines the approved process for the planning and design of municipal infrastructure. Figure 3 summarizes the five phases of this process. As the figure notes, review agencies and members of the public are contacted to solicit input and comments at key consultation milestones throughout. This input is essential to ensure that issues are identified early in the process and can be addressed prior to moving forward and making final recommendations.
The Municipal Class EA process recognizes that there are varying levels of impact requiring a greater or lesser amount of assessment, depending on the nature of the work, the estimated cost and the potential impacts on the environment (which includes natural, social, economic, cultural and technical). There are four levels or “schedules” of undertakings defined in the Municipal Class EA to account for this variation, being:

Schedule A: These projects are limited in scale and include emergency operational and maintenance activities. Schedule A projects are deemed pre-approved without the need for further assessment.

Schedule A+: As introduced in the 2007 amendment to the Municipal Class EA, Schedule A+ projects are also pre-approved, but require the proponent to advise the public of the initiative prior to implementation.
Schedule B: These projects have the potential for some adverse environmental effects and include improvements and minor expansions of existing facilities. For Schedule B projects, the proponent must undertake a screening process, including consultation with those who may be affected by the undertaking. At the conclusion of the process, the proponent prepares a Project File, often in the form of a report, to document the findings.

Schedule C: These projects have the potential for significant environmental effects and include new facilities and major expansions to existing facilities. Schedule C projects must follow the full planning and consultation process outlined in the Class EA, including the preparation of an Environmental Study Report.

In scoping the study, the Town of Whitby assumed the project would fall under Schedule B of the Municipal Class EA, as the preliminary cost estimate to construct a grade separation at this location (if this option was selected as the technically preferred solution) was less than $9.5 Million. This value is the current cost threshold for differentiating between Schedule B and C for new grade separations. Accordingly, the study followed the planning and design process for a Schedule B project, which was ultimately confirmed as the appropriate schedule for this undertaking.

1.2.2 Project File Report

The Project File Report (PFR) documents the planning process followed for Schedule B projects through Phases 1 and 2 of the Municipal Class EA. The report clearly documents the steps taken to select the technically preferred solution. The PFR is finalized with the issuance of a Notice of Study Completion inviting the public to review and provide input on the document within the 30 calendar day review period. The Notice will identify the location(s) where the PFR can be reviewed.

1.2.3 Part II Order

It is recommended that all stakeholders work together to determine the preferred means of addressing the problem. If concerns regarding the project cannot be resolved through discussions with the proponent (for this study, the proponent is the Town of Whitby), the Municipal Class EA process does include an appeal mechanism.

For Schedule B projects, a person or party with a concern is to bring the issue to the attention of the proponent in Phase 2 of the planning and design process. If the concern is not resolved through discussions with the proponent, the person or party raising the objection may request that the proponent voluntarily elevate the Schedule B project to a Schedule C. If the proponent declines and the person or party with the concern wishes to pursue the matter further, they may write to the Minister of the Environment and Climate Change to request a Part II Order. The request should be copied to the proponent at the same time that they are submitted to the Minister. The
Minister will determine whether or not the request is necessary and the decision is considered final.

A written request must be submitted to the Minister within the 30 calendar day review period after the Notice of Completion has been issued. The Minister of the Environment and Climate Change can be contacted as follows:

The Ministry/Minister of Environment and Climate Change
77 Wellesley Street West
11th Floor, Ferguson Block
Toronto, ON M7A 2T5
Fax (416) 314-8452

1.3 Study Organization

The study was led by Mr. Horace Look, P.Eng., of the Town of Whitby Public Works Department. The Consultant Team and their roles included:

- Hatch Mott MacDonald
  - Project Management
  - Consultation
  - Environmental Assessment Planning
  - Traffic and Safety Impact
  - Drainage and Stormwater Management
  - Noise
  - Road and Structure Design
  - Cost Estimation

- Beacon Environmental
  - Natural Environment

- Archaeological Services Inc.
  - Archaeology and Cultural Heritage

- SPL Consultants
  - Geotechnical and Hydrogeology
2 Problem and Opportunity Statement

2.1 Need and Justification

New Coronation Road is being planned as a Type B Arterial Road to serve future development growth in the WWSP area as the primary north-south spine. According to the Town of Whitby Official Plan:

“Type B Arterial Roads are designed to move moderate volumes of traffic at moderate speeds from one part of the Region to another. Such roads provide an average level of service relative to other types of arterial roads and occasionally extend beyond Municipal boundaries. These roads generally intersect with other arterial and collector roads.” (Policy 8.1.3.3)

The future alignment for New Coronation Road established by the 407 East EA and the WWSP provides for a continuous arterial road connection from Dundas Street to north of Taunton Road, with a crossing of the CP Rail Belleville Subdivision approximately 450 m north of Rossland Road. Recognizing the inherent conflict between railways and the road system, the Town’s Official Plan designates the future crossing as the location of a Proposed Grade Separation on Schedule ‘D’ (Transportation). The plan states that:

“The Town will seek to eliminate all railway at-grade crossings as indicated on Schedule ‘D’ on a priority basis using criteria including frequency of rail traffic, road traffic, road blockage and accidents.” (Policy 8.1.3.9.1 a))

The Road Exposure Index is a measure often used to assess the merit of eliminating at-grade rail-road crossings. The index is calculated using the following formula:

\[ \text{Road Exposure Index} = A \times B \]

where,
\[ A = \text{Total Number of Train Movements per Day} \]
\[ B = \text{Annual Average Daily Traffic (AADT) Volume in Passenger Car Units (pcu)} \]

While there is no set (or legislated) threshold to warrant a grade-separated crossing in Canada, most road authorities and railways use a minimum cross-product of 200,000 as a general rule of thumb. This value has been referenced in recent studies of this nature and confirmed with CP Rail as their usual threshold.

Table 1 summarizes the calculation of the Road Exposure Index for the CP Rail crossing at New Coronation Road. The analysis is based on:

- The projected 2018 morning (am) and afternoon (pm) peak hour traffic volumes obtained from the draft West Whitby Transportation Study – Part 1, Road Needs
Assessment, prepared by GHD for the West Whitby Landowner Group in November 2012. The report is still under review by the Town of Whitby and Durham Region, but was assumed to provide reasonable traffic projections for the purposes of this Class EA Study;

- A factor of 4% applied to the peak hour volumes to account for heavy vehicle traffic (e.g. large trucks) not captured in the estimates. This factor was determined from existing Coronation Road volumes;

- The heavy vehicle traffic volumes converted to PCUs by using a heavy vehicle equivalent factor of 2.5;

- A k-factor of 9 applied to convert the peak hour traffic volumes to AADTs. This factor was calculated from the 24-hour ATR counts collected on Lake Ridge Road south of Taunton Road on June 19, 2012, as supplied by Durham Region; and

- A total of 16 daily train movements, as provided by CP Rail. This figure reflects current volumes on the CP Rail Belleville Subdivision, with no growth in rail traffic assumed.

Table 1 – Road Exposure Index Analysis

<table>
<thead>
<tr>
<th>AADT Based on Peak Hour</th>
<th>Trains per Day</th>
<th>Equivalent AADT (pcu)</th>
<th>Road Exposure Index</th>
<th>Grade Separation Warrant Met (&gt;200,000)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A</td>
<td>B (AxB)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AM</td>
<td>64</td>
<td>18,922</td>
<td>302,752</td>
<td>Yes</td>
</tr>
<tr>
<td>PM</td>
<td>71</td>
<td>20,944</td>
<td>335,111</td>
<td>Yes</td>
</tr>
</tbody>
</table>

The table illustrates that the estimated Road Exposure Index exceeds the minimum threshold of 200,000 for the projected AADT volumes and current rail traffic of 16 trains per day. This indicates that a grade separation would be warranted for the CP Rail crossing at New Coronation Road by the year 2018, or within six years of the West Whitby development commencing.

The CP Rail crossing at New Coronation Road is also a candidate for grade-separation based on other factors. The crossing will exhibit many characteristics typically expected to reduce safety performance, including a significantly skewed angle of intersection (which limits sight distance and visibility for vehicles approaching on the road), higher speeds on both road and rail approaches, and potentially multiple railway tracks in the future.

Appendix B provides further details regarding the traffic and safety analysis.
2.2 Problems and Opportunities

As currently planned, New Coronation Road will be a significant north-south arterial road with a skewed crossing of the CP Rail line. Given anticipated traffic volumes and the angle of intersection, an at-grade rail-road crossing is expected to pose safety concerns to both road and railway users. An at-grade crossing may also cause excessive delay to traffic on the road system.

An opportunity exists to identify a solution that can accommodate future traffic demand and improve the safety and operation of the proposed crossing for both road and railway users, while minimizing impacts on the natural, social and cultural environments.
3 Existing and Future Conditions

3.1 Natural Environment

Appendix C documents the natural heritage assessment completed by Beacon Environmental. Below is a summary of the pertinent findings.

3.1.1 Vegetation

The study area is located in the west part of the Town of Whitby. Ecological Land Classification (ELC) analysis completed for the study area is presented in Figure 4. The study area consists largely of agricultural fields and old field meadow. A large forested block is centrally located within the study area, comprised of a mix of deciduous swamp, deciduous forest, mixed forest, plantation, and cultural woodland. A large meadow marsh is located near the southeast corner of the site. The CP Rail line bisects the woodland in an east-west direction.

3.1.2 Flora

Site investigations conducted for this study and the 407 East EA identified a total of 154 plant species in the study area. The majority of the species identified are common and secure in Ontario. Twelve plant species identified in the study area are considered provincially or regionally rare or uncommon. A number of regionally rare and uncommon plant species were recorded in the study area and are listed in Table 2. The three butternut species are found within the general area, but not near the crossing.

3.1.3 Aquatic Resources

The study area is located in the Lynde Creek Watershed and straddles the Lynde Main and Kinsale subwatersheds. There are two tributaries of the Lynde Creek flowing south through the study area toward Lake Ontario. For the purpose of this report the watercourse located in the eastern portion of the study area is referred to as the L6 Tributary or Watercourse A, and the watercourse in the western portion as the Kinsale Branch or Watercourse B (see Figure 4).

The L6 Tributary (Watercourse A) is a small permanent tributary to the main branch of Lynde Creek. It originates in agricultural land approximately 1 km north of the study area and flows into the main branch of Lynde Creek approximately 3 km downstream of Rossland Road. CLOCA classifies this subwatershed as cool/warm water, with some groundwater discharge areas south of the study area at Rossland Road. Upstream of the CP Rail crossing the stream banks are well vegetated and appear stable. The channel appears to have been modified in the past but is starting to naturalize. Near the CP Rail crossing, part of a concrete culvert has fallen into the stream causing water to back up. Downstream of the culvert, the tributary flows into two channels – a small pond and a channel that flows southeast toward Rossland Road where it converges with the main branch and flows under Rossland Road through a concrete box culvert.
Figure 4 – Vegetation Communities
Table 2 – Provincially and Regionally Rare and Uncommon Species

<table>
<thead>
<tr>
<th>Scientific Name</th>
<th>Common Name</th>
<th>COSEWIC¹/COSSARO²</th>
<th>S-Rank³</th>
<th>Durham⁴</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acer nigrum</td>
<td>Black Maple</td>
<td>S4</td>
<td>R4</td>
<td></td>
</tr>
<tr>
<td>Anemone cylindrical</td>
<td>Long-fruitied Anemone</td>
<td>S4</td>
<td>U</td>
<td></td>
</tr>
<tr>
<td>Aralia racemosa ssp. Racemosa</td>
<td>American Spikenard</td>
<td>S5</td>
<td>U</td>
<td></td>
</tr>
<tr>
<td>Cicuta maculate</td>
<td>Spotted Water-hemlock</td>
<td>S5</td>
<td>U</td>
<td></td>
</tr>
<tr>
<td>Cyclipedium reginae</td>
<td>Showy Lady's-slipper</td>
<td>S4</td>
<td></td>
<td>R11</td>
</tr>
<tr>
<td>Elymus hystrix</td>
<td>Bottle-brush Grass</td>
<td>S5</td>
<td>R3</td>
<td></td>
</tr>
<tr>
<td>Galium Asprellum</td>
<td>Rough Bedstraw</td>
<td>S5</td>
<td>U</td>
<td></td>
</tr>
<tr>
<td>Juglans cinera</td>
<td>Butternut</td>
<td>END/END</td>
<td>S3</td>
<td></td>
</tr>
<tr>
<td>Juglans nigra</td>
<td>Black Walnut</td>
<td>S4</td>
<td>U</td>
<td></td>
</tr>
<tr>
<td>Lobelia siphilitica</td>
<td>Great Blue Lobelia</td>
<td>S5</td>
<td>U</td>
<td></td>
</tr>
<tr>
<td>Pinus resinosa</td>
<td>Red Pine</td>
<td>S5</td>
<td>R1</td>
<td></td>
</tr>
<tr>
<td>Sipranthes ceruna</td>
<td>Nodding Ladies'-tresses</td>
<td>S5</td>
<td>U</td>
<td></td>
</tr>
</tbody>
</table>

Notes:

1. COSEWIC (Committee of the Status of Endangered Wildlife in Canada) – END = Endangered
2. COSSARO (Committee of the Status of Species at Risk in Ontario) – THR = Threatened; END = Endangered; SC = Special Concern
3. S-Rank – S3 = vulnerable; S4 = apparently secure; S5 = secure; SNA = Not applicable, species not a priority for conservation (exotic/introduced species)
4. Durham – Regional Status (Varga et al, 2005). U = Uncommon; R = Rare (no. of records indicated when less than 20)

At the time of investigation there was evidence of beaver activity in the pond along the L6 Tributary. Water was also observed flowing along the CP Rail line to the west of the pond and into the minnow marsh.

The Kinsale Branch (Watercourse B) is a small, permanent watercourse that originates approximately 6 km north of the study area. The tributary was identified as coldwater upstream of the study area and becoming coolwater downstream. There are no known in-stream barriers within the Kinsale subwatershed affecting the Kinsale Branch. Upstream of the CP Rail crossing the channel flows through an agricultural field. The channel appears to have been modified. Stream banks are well vegetated and appear stable. At the CP Rail crossing a new culvert has recently been installed to accommodate construction of the WDL. The culvert, which replaces an existing undersized pipe, extends approximately 30 m from the rail line. Downstream of the rail crossing, the channel has been slightly modified with a concrete structure. Further downstream near Rossland Road the creek appears to have been realigned, also to accommodate construction of the WDL.
3.1.4 Fish Community

Lynde Creek and its tributaries support a mix of warm and coldwater fish species including migratory salmonids from Lake Ontario. Species observed include Rainbow Trout, Brook Trout, White Sucker, Smallmouth Bass, Largemouth Bass, and Yellow Perch. All of these fish species are common in Ontario. The provincially endangered Redside Dace has also been recorded in Lynde Creek. However, according to the Ministry of Natural Resources (MNR), this species has not historically been found in the study area. There are no known fish barriers between the L6 Tributary and the main branch of Lynde Creek. Eight fish species were identified in the Kinsale Subwatershed through fish sampling completed by CLOCA in 2001, including a mix of cold/cool and warm water fish. The tributaries of Lynde Creek located within the study area likely provide low quality fish habitat. In addition, there is no suitable habitat identified upstream or downstream of the CP Rail crossing for Redside Dace.

3.1.5 Wildlife

Wildlife surveys conducted during field investigations for this study were limited to recording incidental observations. Species observed include Mink and Eastern Cottontail. Amphibians documented in the study area as part of previous studies conducted in 2003 and 2006 include American Toad and Grey Tree Frog.

A total of 55 species of birds were recorded on the subject property, most of which were breeding or suspected to be breeding. The majority of the species recorded are common in forested or agricultural communities in southern Ontario. Five of the species recorded have been designated Species at Risk by both national (COSEWIC) and provincial (COSSARO) governing bodies. Bank Swallow (Riparia riparia), Barn Swallow (Hirundo rustica) and Bobolink (Dolichonyx oryzivorus) are all designated Threatened both nationally and provincially. Wood Thrush (Hylocichla mustelina) is a species of Special Concern provincially and Threatened nationally. Eastern Wood-pewee (contopus virens) is a species of Special Concern both nationally and provincially. In addition, six species listed as area-sensitive species by MNR were recorded on the subject property. The recorded locations of the SAR were identified and only Wood Thrush and Eastern Wood-Pewee were recorded in the immediate surroundings of the proposed crossing location. As both of these are species of Special Concern, there is no protection for them under the Endangered Species Act (ESA 2007).

The Breeding Bird Summary completed in August 2014 has been appended to the Natural Environment Report in Appendix C.

3.1.6 Environmentally Sensitive Areas

Valleylands associated with the watercourses near the study area form part of the Westerly Creek Valleys Environmentally Sensitive Area (ESA), which identifies these lands as an area of low to moderate sensitivity.
3.2 Socio-Economic Environment

3.2.1 Land Uses

The study area falls within the WWSP area, which is bounded by Lyndebrook Road to the north, the Town’s built boundary to the east, Highway 401 to the south, and Lake Ridge Road to the west. The WWSP provides land use planning direction in the form of policies and designations to support future population and employment growth of approximately 21,340 people and 5,720 jobs, respectively, within this part of the municipality. Official Plan Amendment 91 implementing the WWSP was approved by Town Council on June 22, 2010.

Existing land uses within the WWSP area are predominantly agricultural, with some residential and commercial uses. The residential area east of the WWSP is conventional suburban in form, with predominantly single detached lots and a network of parks and open spaces located alongside Lynde Creek.

The WWSP designates the following future land uses in the vicinity of the CP Rail crossing at New Coronation Road: Environmental Protection Area and Low Density Residential to the northeast; Mixed Use to the southeast; Environmental Protection Area to the southwest; and Prestige Industrial to the northwest. Potential exists for medium density development on the east side of New Coronation Road. New Coronation Road and existing natural heritage features provide buffers to ensure compatibility between proposed industrial land uses to the west and residential development to the east.

The CP Rail line creates a barrier to north-south pedestrian movement within the study area. Construction of pedestrian facilities is included as a future consideration in the WWSP to provide linkages and accessibility.

The future WDL is also within the WWSP area, representing a total land area of 257 hectares or 17 percent of the WWSP area. The WDL is located to the west of the study area, and was under construction at the time of this study.

3.2.2 Noise

Appendix D documents the noise impact assessment. Below is a summary of the pertinent findings.

As noted above, current and future land uses within and immediately adjacent to the study area are principally agricultural, residential and commercial (some) in nature. Of these, residential uses are most sensitive to noise and govern the assessment.

Four Points of Reception (POR) were chosen to represent existing noise sensitive areas in close proximity of the New Coronation Road Overpass. These POR were located both north-east and south-east of the Overpass, 1.2 m above grade during the day. Using the Average Annual Daily Traffic values and basic topographical information, the
daytime levels were evaluated at each POR. In all cases, the overall noise level experienced by each receptor is predicted to be dominated by the rail line in 2018, as well as 2028. Noise levels at all PORs resulting from the overpass are predicted to not exceed 65 dBA in 2018 or 10 years later in 2028. In addition, predicted noise levels 10 years following the completion of the overpass will not increase by more than 5 dBA, which is the threshold for mitigation according to the MTO “Environmental Guide for Noise” (Version 1.1, October 2006). As well, the CP Rail line is the predominant noise source within the study area now and in the future. Noise generated by the rail line is significantly higher than the predicted traffic noise from New Coronation Road, suggesting the road will not introduce any additional noise mitigation requirements.

3.2.3 Archaeology

Appendix E documents the Stage 1 Archaeological Assessment completed by Archaeological Services Inc. (ASI). Below is a summary of the pertinent findings.

The Stage 1 Archaeological Assessment denoted 20 registered archaeological sites within 1 km of the study area and identified other assessments that overlap. A review of the area historical and archaeological contexts also suggested that it has potential for the identification of Aboriginal and Euro-Canadian archaeological resources given the long-term use and settlement of the lands.

Eight previously registered archaeological sites are located within the study area. Four were subject to Stage 4 archaeological salvage excavation as part of the Highway 407 East project and one as part of the Currie Property development application.

The CP Rail right-of-way possesses no archaeological potential due to deep and extensive ground disturbance. A portion of the study area, south of the CP Rail line, also exhibits no archaeological potential due to low and wet conditions. These areas require no further study.

The remainder of the study area has archaeological potential and will require Stage 2 Archaeological Assessment, including test-pit survey and pedestrian survey at 5 m intervals as indicated in Figure 5 to determine potential.

3.2.4 Cultural Heritage

Appendix F documents the Cultural Heritage Assessments completed by Archaeological Services Inc. (ASI). Below is a summary of the pertinent findings.

The Cultural Heritage Assessment identified six cultural heritage resources located within or adjacent to the study area, including two built heritage resources and four cultural heritage landscapes, as shown in Table 3 below. The identified cultural heritage resources are historically, architecturally, and contextually associated with nineteenth and twentieth century land use patterns in the Town of Whitby. Figure 6 identifies the cultural heritages resources within the study area.
Figure 5 – Archaeological Potential
### Table 3 – Cultural Heritage Resources

<table>
<thead>
<tr>
<th>Resource</th>
<th>Location</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BHR 1</td>
<td>Lot 33, Concession 3, through the CP Rail embankment</td>
<td>Culvert</td>
<td>This BHR is an early twentieth century concrete culvert for the passage of a watercourse through the embankment for the CP Rail. The culvert is constructed from cast-in-place concrete, with a peaked arch.</td>
</tr>
<tr>
<td>BHR 2</td>
<td>Southeast corner of Lot 33, Concession 3</td>
<td>Barn</td>
<td>This resource is a historic barn, likely dating to the early twentieth-century. The single storey barn features a front gable galvanised steel roof, and vertical barn board siding. In addition, the barn features a vertical barn-board sided shed extension to its east, and a newer galvanised steel sided extension to the west. The barn is associated with a late-twentieth century single-storey house to its south. The barn is set within a former agricultural landscape, just south of the CP Rail, with associated established and mature trees.</td>
</tr>
<tr>
<td>CHL 1</td>
<td>CP Rail Belleville Subdivision</td>
<td>Railscape</td>
<td>The CP Rail line is a historically important transport route traversing Canada. Within the study area the rail line is typified by steep, high embankments with shallow ditches, and evidence of older rail hardware. The line featured rails, rail ties, and a bed of ballast. A historic wooden pole and line two spar hydro line runs alongside the rail alignment throughout the study area, significantly contributing to its historic character. In addition, the CP Rail features a historic culvert within the southeast of the study area (BHR 1).</td>
</tr>
</tbody>
</table>
### Table 3 – Cultural Heritage Resources

<table>
<thead>
<tr>
<th>Resource</th>
<th>Location</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHL 2</td>
<td>East side of Lake Ridge Road, south of CP Rail</td>
<td>Treeline</td>
<td>This resource is a mature treeline running along a field boundary adjacent to a watercourse and Lake Ridge Road. The treeline features a mix of deciduous tree types. Historic treelines mark historic land divisions, and aesthetic value.</td>
</tr>
<tr>
<td>CHL 3</td>
<td>West side of Lot 33 / east side of Lot 34, Concession 3, south of the CP Rail</td>
<td>Treeline</td>
<td>This resource is a mature treeline running north-south towards the CP Rail along a wooden post-and-pagewire fence within the southeast of the study area. The treeline also runs east along the edge of the CP Rail line. The treeline features a mix of deciduous tree types. Historic treelines mark historic land divisions and aesthetic value.</td>
</tr>
<tr>
<td>CHL 4</td>
<td>West side of Lot 33, Concession 3, north of the CP Rail</td>
<td>Treeline</td>
<td>This resource is a mature treeline within the northeast of the study area, running north-south from the CP Rail north to the top of the study area. The treeline also runs east along the northern edge study area. The treeline features a mix of coniferous and deciduous tree types. Historic treelines mark historic land divisions and have an aesthetic value.</td>
</tr>
</tbody>
</table>
Figure 6 – Cultural Heritage Resources
3.3 Transportation

3.3.1 Roads

The road network in the vicinity of the study area is comprised of the following key facilities:

- **New Coronation Road** – As noted in Section 2 above, the Town of Whitby Official plan designates New Coronation Road as a Type B Arterial Road, serving as the major north-south arterial in the study area. As a Type B Arterial Road, New Coronation Road is intended to move moderate volumes of traffic at moderate speeds. The road will be designed for 70 km/h and posted at 60 km/h consistent with this objective. Initial construction of New Coronation Road will be a two (2) lane cross-section, with protection for a future four (4) lane facility. The nearest alternative north-south arterial roads are Lake Ridge Road (about 1 km to the west) and Cochrane Street (about 2 km to the east).

- **Existing Coronation Road** – Existing Coronation Road currently serves the north-south Type B Arterial Road function in this area, but is planned to be realigned easterly and transitioned to a local road within the WWSP area.

- **Rossland Road** – Rossland Road is an east-west Type B Arterial Road under the jurisdiction of the Town. The roadway is currently a two-lane rural cross-section with a posted speed limit of 60 km/h where New Coronation Road will cross Rossland Road. The CP Rail line crosses Rossland Road east of the study area with a grade separation. In the future, Rossland Road will be a four-lane urban cross-section in this vicinity.

- **Lake Ridge Road** – Lake Ridge Road is a north-south Type A Arterial Road under the jurisdiction of Durham Region. The roadway is currently a two-lane rural cross-section with a posted speed limit of 80 km/h. The CP Rail line crosses Lake Ridge Road northwest of the study area with a grade separation.

- **Twin Streams Road** – Twin Streams Road is an east-west Collector Road under the jurisdiction of the Town. The roadway is currently a two-lane urban cross-section with a statutory (unposted) speed limit of 50 km/h (posted 40 km/h near parks and schools). Twin Streams Road currently terminates east of existing Coronation Road, but is proposed to be extended westerly to New Coronation Road with development of the WWSP area.

- **West Durham Link** – The WDL is a four-lane north-south toll freeway connecting future Highway 407 East and Highway 401 with interchanges in the vicinity of the study area at Taunton Road and Dundas Street. Currently under construction, the freeway is parallel and to the west of existing Coronation Road, aligning over the existing Halls Road right-of-way from south of Rossland Road to north of Taunton Road.
3.3.2 Transit

Durham Region Transit currently operates bus service on Rossland Road (916) and Taunton Road (915) in the vicinity of the study area. It is likely that transit service will be provided along New Coronation Road in the future with development of the WWSP area.

3.3.3 Active Transportation

The Town of Whitby Cycling and Leisure Trails Plan proposes a boulevard multi-use path for New Coronation Road, which will connect with proposed boulevard multi-use paths on Taunton Road and Rossland Road. According to Town staff, the multi-use path will be 3.0m wide and located on the east side of New Coronation Road. A sidewalk will be provided on the west side.

3.3.4 Rail

The CP Rail Belleville Subdivision will cross New Coronation Road in the east-west direction at an angle of approximately 40°. The rail line currently consists of one mainline track that carries 16 trains per day (2013). The maximum speed for trains using the rail line is currently 100 km/h (60 mph). CP Rail indicated that the railway may consider adding a second track south of the mainline in the future.

3.4 Engineering

3.4.1 Utilities

There are no existing utilities within the study area.

New trunk water supply and sanitary sewage infrastructure is being planned within the New Coronation Road corridor to serve future development in the WWSP area. According to the Durham Region Works Department, a 450 mm diameter sanitary sewer (at an elevation between 95.00 and 96.00) and a 400 mm diameter watermain (requiring a minimum 1.8 m depth of cover) are proposed to cross the railway within the corridor. The Region has also requested provision for a future 750 mm diameter transmission watermain requiring a minimum 1.8 m depth of cover. The alignment for this watermain is not determined yet and will be subject to a Municipal Class EA, but New Coronation Road is an option that may be considered.

3.4.2 Bridges and Culverts

There are no bridge structures within the study area currently. Two culverts cross under the CP Rail line within the study area:

- A 1.6 m x 1.8 m elliptical concrete culvert crossing for the L6 Tributary.
• A new 10.6 m wide x 2.8 m high precast concrete arch culvert crossing is being constructed for the Kinsale Branch as part of the WDL project to replace the existing 2.41 m x 1.7 m CSP culvert. A temporary CSP culvert extension is currently in place under the CP Rail diversion track being built to facilitate construction of the new railway grade separation at the WDL.

3.4.3 Drainage and Stormwater Management

Appendix G documents the drainage and stormwater management assessment. Below is a summary of the pertinent findings.

The study area is located within the floodplains of the Kinsale Branch (west of the proposed road) and the L6 Tributary (east of the proposed road) of Lynde Creek. Currently, flows from the two tributaries are constrained to the north at the CP Rail embankments due to undersized culverts and spill eastward due to backwater conditions. As part of the WDL construction, a new, larger arch culvert is being installed at the Kinsale Branch crossing of the CP Rail line (as noted above), which will alleviate backwater flood conditions west of New Coronation Road. But until the L6 Tributary culvert is replaced, backwater conditions will still exist east of New Coronation Road. Replacement of the culvert will occur with future development and the construction of New Coronation Road.

Based on existing topography, all stormwater runoff generated from the study area is expected to flow uncontrolled southwards over flat/gently sloping land from New Coronation Road into the nearest branches of Lynde Creek. The proposed elevated profile of the new roadway will effectively split the existing combined floodplain of the Kinsale Branch and the L6 Tributary west and east of the road, respectively.

3.4.4 Geotechnical and Hydrogeological

Appendix H documents the desktop geotechnical and hydrogeological assessment completed by SPL Consultants. Below is a summary of the pertinent findings.

The study area is dominated by drumlinized till plain with intervening glaciolacustrine deposits. Ontario Geologic Survey overburden thickness mapping suggests the depth to bedrock is approximately 10 m in the vicinity of the crossing. The closest borehole to the crossing was drilled on the centreline of New Coronation Road just south of the CP Rail corridor to a depth of 8.2 m below grade (as part of the field investigation for the West Whitby Development Area Water Supply and Sanitary Sewage Servicing Class EA for Durham Region in 2012). The boring reveals favourable soil conditions for structures including a thin veneer of silty clay fill soil overlying stiff hard silty clay, which in turn overlies hard clayey silt glacial till. Perched groundwater was found in the fill at a depth of 0.2 m. The soil types anticipated to be encountered within the study area have a wide range of compressibility and load bearing properties ranging from favourable to unfavourable. In addition, the groundwater table is expected to be very high across the
study area, lying typically about one metre or less below the existing grade. The permeability of the subsoils is also expected to vary considerably across the study area.
4 Alternative Solutions

4.1 Description of Alternatives

The implementation of New Coronation Road will create a crossing of the CP Rail Belleville Subdivision approximately 450 m north of Rossland Road. As noted in Section 2.2, a level rail-road crossing is expected to pose safety concerns given anticipated traffic volumes and the angle of intersection, and may cause excessive delay to users of the road system.

The Town of Whitby wishes to assess alternatives to a level crossing that can accommodate future traffic demand and improve the safety and operation of the proposed crossing for both road and railway users, while minimizing impacts on the natural, social and cultural environments. Assuming New Coronation Road is constructed in its currently approved alignment, the only viable alternative to an at-grade crossing is grade separation, in which the road passes over or under the railway. On this basis, three alternative solutions were considered for the study:

- A level crossing herein referred to as the At-Grade alternative. This option is also referred to as the Do Nothing alternative since no improvements or changes would be made to the current proposal to solve the identified problems and opportunities. However, it does not mean that no further development would occur in the WWSP area;

- An above-grade crossing (road passing over top of the rail line), herein referred to as the Overpass alternative; and

- A below-grade crossing (road passing underneath the rail line), herein referred to as the Underpass alternative.

For all three alternatives, a four-lane urban roadway cross-section was assumed for New Coronation Road at the CP Rail crossing based on projected traffic volumes. Appendix B provides the traffic analysis justifying the four-lane configuration.

It is noted that each alternative requires additional property beyond the maximum 36 m road allowance for a Type B Arterial Road to implement the solution. The additional area required is stated in the assessment of alternatives provided in Table 4 in Section 4.4 below. The final right-of-way for New Coronation Road may be less than 36 m (but greater than 30 m), and will be confirmed through the future EA study for the road.

4.1.1 At-Grade (Do Nothing) Alternative

The At-Grade alternative would feature a level crossing of New Coronation Road and the CP Rail line at an approximately 40° angle, as shown in Figure 7. The crossing would feature warning bells, signals, gates and signing to alert roadway users of potential conflicts.
As noted above, the proposed roadway cross-section includes four travel lanes – two 3.75 m outside lanes and two 3.50 m inside lanes. A 3.00 m multi-use path is proposed on the east side of the road, and a 1.50 m sidewalk on the west side.

Road drainage would be conveyed by a system of catch basins and storm sewers to outlet to the L6 Tributary.

4.1.2 Overpass Alternative

For the Overpass alternative, New Coronation Road crosses above the CP Rail line as shown in Figure 8. The roadway would rise (and descend) at a grade of 5.0% to a height of approximately 9.0 m above the railway track to provide 7.0 m vertical clearance for trains at the crossing, assuming a structure depth of 2.0 m.

The proposed roadway cross-section for the Overpass alternative includes four 3.50 m travel lanes and two 1.70 m shoulders. A 3.00 m multi-use path is proposed on the east side of the road, and a 2.00 m sidewalk on the west side.

Road drainage would be conveyed by a system of catch basins and storm sewers to outlet to the L6 Tributary.

4.1.3 Underpass Alternative

For the Underpass alternative, New Coronation Road crosses below the CP Rail line as shown on Figure 9. Travelling north along New Coronation Road, the roadway grade would descend at 3.5% to pass under the railway, and then rise at 3.0% to tie back in north of the rail line. The road would be lowered approximately 6.5 m below the railway track to provide 5.0 m vertical clearance for vehicles at the crossing, assuming a structure depth of 1.5 m.

The proposed roadway cross-section for the Underpass alternative includes four 3.50 m travel lanes and two 2.60 m shoulders. A 3.00 m multi-use path is proposed on the east side of the road, and a 2.00 m sidewalk on the west side.

Road drainage would be conveyed by a system of catch basins and storm sewers to outlet to the L6 Tributary. All overland major system flows would drain to the low point of the road under the crossing, necessitating a pumping station to avoid flooding the subway (underpass) during extreme storm events.
4.2 Assessment Criteria

The analysis and evaluation of the rail-road crossing alternatives is based on a set of assessment criteria divided into five major groupings: Natural Environment, Socio-Economic Environment, Transportation, Engineering, and Cost. The effects of the alternatives are defined based on factors within each of the groupings. The factors for each of the groupings are as follows:

- **Natural Environment** – This grouping addresses effects of the alternatives on the natural environmental features within the study area. The factors within the grouping are defined as follows:
  - Compliance with Natural Heritage Policies – Effects/compatibility with regard to relevant natural heritage policies (i.e. Town Official Plan, Greenbelt Plan).
  - Aquatic Resources, Vegetation and Flora, Wildlife – Impacts to aquatic resources, vegetation and flora, and wildlife within the study area.
  - Species at Risk – Presence and impacts to endangered species and identified Species at Risk within the study area.
  - Environmentally Sensitive Areas (ESA) – Impacts to the Westerly Creek Valleys ESA.

- **Socio-Economic and Cultural Environment** – This grouping addresses effects of the alternatives on “man-made” aspects of the environment and community features within the study area. The factors within the grouping are defined as follows:
  - Compliance with Land Use Policies – Effects/compatibility with regard to relevant land use planning policies (i.e. Town Official Plan, Greenbelt Plan).
  - Noise – Predicted change in noise level and impacts to noise-sensitive land uses.
  - Existing and Future Land Uses – Property effects and impacts to access.
  - Archaeology – Impacts to archaeological resources within the study area.
  - Cultural and Built Heritage – Impacts to cultural and built heritage resources within the study area.

- **Transportation and Safety** – This grouping identifies the extent to which the alternatives can provide safe and efficient transportation service. The factors within the grouping are defined as follows:
  - Safety – Impacts on roadway and railway safety.
  - Pedestrians and Cyclists – Ability to meet the needs of active transportation users.
  - Roadway Traffic Service – Ability to meet the transportation needs of the existing and future road network, including opportunities to enhance transit operation.
• Engineering and Property – This grouping identifies technical considerations for implementation of the alternatives. The factors within the grouping are defined as follows:

  - Property – Additional property required outside the maximum 36 m road allowance for a Type B Arterial Road.
  - Utilities – Conflicts with existing and future utilities.
  - Drainage and Stormwater Management – Drainage and stormwater management measures needed to meet hydraulic and hydrologic requirements.
  - Geotechnical and Hydrogeological – Geotechnical and hydrogeological considerations.
  - Roadway Geometry – Compliance with roadway geometric design standards, which include design speed, maximum grade, minimum vertical curvature, etc.
  - Construction Staging – Complexity of construction staging.

• Cost – This grouping identifies the cost required to build, operate and maintain the alternatives. The factors within the grouping are defined as follows:

  - Capital – Estimated construction cost, comprising roadway and drainage, plus other alternative-specific elements (e.g. structure, rail diversion, signals). The estimate also includes a percentage for engineering and contingency (15%). Appendix I provides preliminary estimates for all three alternatives. Also consideration for capital rehabilitation/replacement costs.
  - Operating and Maintenance – On-going costs, including energy and unique operating and/or maintenance requirements (e.g. pumping station).

4.3 Analysis of Alternatives

An analysis was carried out to determine the impacts of each crossing alternative on the environment. Table 4 summarizes this assessment by grouping and factor. The evaluation illustrated that the Natural Environment and Socio-Economic Environment factors are comparable for all three alternatives, with the following exceptions:

• For the Natural Environment factors:
  - The Overpass alternative has slightly greater impact to vegetation than the other two alternatives; and
  - The Overpass alternative provides the potential for improved wildlife crossings, and is therefore preferred to the other alternatives;

• For the Socio-Economic and Cultural Environment factors:
  - The Underpass alternative poses less noise impact than the other two alternatives, which are comparable; and
- The At-Grade alternative provides greater flexibility for access to the future development lands located southeast of the crossing than the other two alternatives since sightlines are not impeded by a structure.

- For the Transportation and Safety factors:
  - The At-Grade alternative is least preferred as both grade separation alternatives provide a safer crossing for all users (road, rail, pedestrians and cyclists) and improve roadway connectivity. Grade-separating the crossing would also improve traffic operation and corridor efficiency, especially as traffic demand increases.

- For the Engineering and Property factors:
  - The Underpass alternative is least preferred. Groundwater in the area is quite high and, as a result, localized flooding of the underpass may occur. This will require a costly pumping station to minimize impact. The Underpass alternative also does not address the backwater issues north of the CP Rail line. The potential for continued spills across the tributaries remains; and
  - While the Overpass alternative requires the most additional property, it best addresses the safety issues and separates and reduces the floodplains of the two tributaries.

- For the Cost factors:
  - The Underpass alternative is also least preferred. This option will require a temporary rail diversion to allow construction of the underpass structure and a pumping station to facilitate drainage.
  - The Overpass alternative is less expensive to construct, as it will not require the rail diversion of pumping station.
  - The At-Grade alternative is least costly to implement, as there are no structures or other expensive features required.

4.4 Evaluation of Alternatives

The three crossing alternatives were evaluated based on the analysis described in Section 4.3 and summarized in Table 4. Overall, the Underpass alternative is least preferred as it would not address several key evaluation factors. An underpass grade separation would not improve wildlifecrossing opportunities and would allow for continued spills across the tributaries. In addition, implementation would require more complicated and costly staging due to the requirement to construct a temporary rail diversion. Furthermore, the Underpass alternative would require an expensive pumping station to address localized flooding attributed to high groundwater levels, which poses additional, on-going operation and maintenance costs.
When comparing the At-Grade and Overpass alternatives, the overpass is preferred. It provides improved road safety, traffic operations, and roadway connectivity, and addresses safety concerns associated with a skewed crossing. While the Overpass alternative is more expensive and requires more property, the At-Grade alternative would not be consistent with policies of the Town’s Official Plan, which designates a grade-separated crossing of the CP Rail for New Coronation Road.

Based on the foregoing, the Overpass was identified as the recommended solution for the CP Rail crossing at New Coronation Road. Taking into consideration the advantages and disadvantages noted in Table 4, this alternative best satisfies the Problem and Opportunity Statement described in Section 2.3, while posing the least impact on the environment.
## Table 4 – Assessment of Alternatives

<table>
<thead>
<tr>
<th>Factor/Criteria</th>
<th>At-Grade (Do Nothing)</th>
<th>Overpass (Road Over Rail)</th>
<th>Underpass (Road Under Rail)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Natural Environment</strong></td>
<td>• No impact as crossing outside “Key Natural Heritage and Hydrologic Features” associated with watercourses</td>
<td>• No impact as crossing outside “Key Natural Heritage and Hydrologic Features” associated with watercourses</td>
<td>• No impact as crossing outside “Key Natural Heritage and Hydrologic Features” associated with watercourses</td>
</tr>
<tr>
<td>Compliance with Natural Heritage Policies</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Aquatic Resources, Vegetation and Flora, Wildlife | • Minimal impact to aquatic resources  
• Minimal impact to vegetation  
• No improvement for wildlife crossing opportunities  
• Potential impact to American Toad and Gray Tree Frog, and Brown Creeper recorded in forest/swamp near railway | • Minimal impact to aquatic resources  
• Moderate impact to vegetation  
• Potential for improved wildlife crossing (through overpass)  
• Potential impact to American Toad and Gray Tree Frog, and Brown Creeper recorded in forest/swamp near railway | • Minimal impact to aquatic resources  
• Minimal impact to vegetation  
• No improvement for wildlife crossing opportunities  
• Potential impact to American Toad and Gray Tree Frog, and Brown Creeper recorded in forest/swamp near railway |
<p>| Species at Risk                 | • Eastern Wood-Pewee and Wood Thrush (species of Special Concern) recorded in immediate vicinity of crossing location | • Eastern Wood-Pewee and Wood Thrush (species of Special Concern) recorded in immediate vicinity of crossing location | • Eastern Wood-Pewee and Wood Thrush (species of Special Concern) recorded in immediate vicinity of crossing location |</p>
<table>
<thead>
<tr>
<th>Factor/Criteria</th>
<th>At-Grade (Do Nothing)</th>
<th>Overpass (Road Over Rail)</th>
<th>Underpass (Road Under Rail)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmentally Sensitive Areas</td>
<td>• No impact to Westerly Creek Valleys ESA (associated with valleylands of watercourses east and west of study area) – low to moderate sensitivity</td>
<td>• No impact to Westerly Creek Valleys ESA (associated with valleylands of watercourses east and west of study area) – low to moderate sensitivity</td>
<td>• No impact to Westerly Creek Valleys ESA (associated with valleylands of watercourses east and west of study area) – low to moderate sensitivity</td>
</tr>
<tr>
<td>SUMMARY</td>
<td>Least Preferred</td>
<td>Preferred</td>
<td>Least Preferred</td>
</tr>
<tr>
<td>Socio-Economic and Cultural Environment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Compliance with Land Use Policies</td>
<td>• Aligns with Official Plan and WWSP</td>
<td>• Aligns with Official Plan and WWSP</td>
<td>• Aligns with Official Plan and WWSP</td>
</tr>
<tr>
<td>Noise</td>
<td>• Moderate increase in noise</td>
<td>• Moderate increase in noise</td>
<td>• Minimal increase in noise</td>
</tr>
</tbody>
</table>
| Existing and Future Land Uses         | • Potential aesthetic impacts  
  • Maintains access for property located southeast of crossing | • Potential aesthetic impacts  
  • Potential impact to access for property southeast of crossing | • Improved aesthetics  
  • Potential impact to access for property southeast of crossing |
| Archaeology                           | • Stage 2 Archaeological Assessment required for lands north and south of the CP Rail line | • Stage 2 Archaeological Assessment required for lands north and south of the CP Rail line | • Stage 2 Archaeological Assessment required for lands north and south of the CP Rail line |
| Cultural and Built Heritage           | • Potential impact to Built Heritage Resources and Cultural Heritage Landscapes (CP Rail alignment, CP Rail culvert and mature treelines) | • Potential impact to Built Heritage Resources and Cultural Heritage Landscapes (CP Rail alignment, CP Rail culvert and mature treelines) | • Potential impact to Built Heritage Resources and Cultural Heritage Landscapes (CP Rail alignment, CP Rail culvert and mature treelines) |
| SUMMARY                               | Least Preferred                                                                       | Least Preferred                                                                           | Preferred                                                                                 |
### Table 4 – Assessment of Alternatives

<table>
<thead>
<tr>
<th>Factor/Criteria</th>
<th>At-Grade (Do Nothing)</th>
<th>Overpass (Road Over Rail)</th>
<th>Underpass (Road Under Rail)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Transportation and Safety</strong></td>
<td></td>
<td>• Skewed rail-road intersection angle and level crossing adversely impact safety</td>
<td>• Potential safety improvement</td>
</tr>
<tr>
<td><strong>Safety</strong></td>
<td>• Not consistent with Transport Canada and CP Rail initiatives to eliminate/avoid new level crossings</td>
<td>• Consistent with Transport Canada and CP Rail initiatives to eliminate/avoid new level crossings</td>
<td>• Consistent with Transport Canada and CP Rail initiatives to eliminate/avoid new level crossings</td>
</tr>
<tr>
<td><strong>Pedestrians and Cyclists</strong></td>
<td>• Level crossing adversely impacts safety</td>
<td>• Potential safety improvement</td>
<td>• Potential safety improvement</td>
</tr>
<tr>
<td></td>
<td>• Improved route connectivity</td>
<td>• Improved route connectivity</td>
<td>• Improved route connectivity</td>
</tr>
<tr>
<td><strong>Roadway Traffic Service</strong></td>
<td>• Train delays diminish operational efficiency and level of service</td>
<td>• Potential operational improvement</td>
<td>• Potential operational improvement</td>
</tr>
<tr>
<td></td>
<td>• Improved roadway connectivity</td>
<td>• Improved roadway connectivity</td>
<td>• Improved roadway connectivity</td>
</tr>
<tr>
<td><strong>SUMMARY</strong></td>
<td>Least Preferred</td>
<td>Most Preferred</td>
<td>Most Preferred</td>
</tr>
<tr>
<td><strong>Engineering and Property</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Property</strong></td>
<td>• Additional 22,290 m² (approx.) of property required outside maximum 36 m road allowance</td>
<td>• Additional 36,510 m² (approx.) of property required outside maximum 36 m road allowance</td>
<td>• Additional 13,880 m² (approx.) of property required outside maximum 36 m road allowance</td>
</tr>
<tr>
<td></td>
<td>• Most additional property required</td>
<td>• Most additional property required</td>
<td>• Least additional property required</td>
</tr>
</tbody>
</table>
## Table 4 – Assessment of Alternatives

<table>
<thead>
<tr>
<th>Factor/Criteria</th>
<th>At-Grade (Do Nothing)</th>
<th>Overpass (Road Over Rail)</th>
<th>Underpass (Road Under Rail)</th>
</tr>
</thead>
</table>
| Utilities       | • Can accommodate future municipal services  
• No existing utilities to impact | • Can accommodate future municipal services  
• No existing utilities to impact | • Can accommodate future municipal services  
• No existing utilities to impact |
| Drainage and Stormwater Management | • Potential for continued spills across the tributaries remains | • Improved stormwater management – separates and reduces floodplains of tributaries | • Potential for continued spills across the tributaries remains  
• Localized flooding of underpass below grade will require pumping station |
| Geotechnical and Hydrogeological | • No considerations | • No considerations | • Groundwater is very shallow  
• May require permanent groundwater lowering (i.e., pumping station)  
• May increase long-term maintenance of roadway pavement |
| Roadway Geometry | • Meets design criteria | • Meets design criteria | • Meets design criteria |
| Construction Staging | • No staging required | • No staging required, provided bridge abutments constructed outside railway right-of-way | • Requires construction of temporary railway diversion and complex staging of work |

**SUMMARY**  
Most Preferred | Preferred | Least Preferred
Table 4 – Assessment of Alternatives

<table>
<thead>
<tr>
<th>Factor/Criteria</th>
<th>At-Grade (Do Nothing)</th>
<th>Overpass (Road Over Rail)</th>
<th>Underpass (Road Under Rail)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cost</strong></td>
<td>• $2.904 M (est.) &lt;br&gt;• Least construction cost – signal equipment, crossing surface &lt;br&gt;• No extraordinary rehabilitation requirements over life-cycle</td>
<td>• $9.365 M (est.) &lt;br&gt;• High construction cost – structure &lt;br&gt;• Rehabilitation of structure over life-cycle</td>
<td>• $14.067 M (est.) &lt;br&gt;• Highest construction cost – structure, rail diversion, pumping station &lt;br&gt;• Rehabilitation of structure and pumping station over life-cycle</td>
</tr>
<tr>
<td>Operating and Maintenance</td>
<td>• Moderate – energy for signal equipment, and on-going maintenance of signal equipment, gates and crossing surface</td>
<td>• Minimal – on-going maintenance of structure</td>
<td>• Moderate – energy for pumping station, and on-going maintenance of structure and pumping station</td>
</tr>
</tbody>
</table>

**SUMMARY**<br>Most Preferred<br>Less Preferred<br>Least Preferred

**OVERALL**<br>Preferred<br>Most Preferred<br>Least Preferred
5 Project Description

This section describes the preliminary design developed for the Overpass alternative.

5.1 Design Criteria

Table 5 summarizes the design criteria for the proposed New Coronation Road grade separation, which are detailed in the project Design Criteria Sheet found in Appendix J. To achieve required clearances, the grade of New Coronation Road will rise (and descend) at 5.0% over the railway track to approximately 9.0 m (7.0 m vertical clearance, assuming 2.0 m structure) at the crossing.

<table>
<thead>
<tr>
<th>Design Criteria</th>
<th>Design Standard</th>
<th>Proposed Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classification</td>
<td>Type B Arterial</td>
<td>Type B Arterial</td>
</tr>
<tr>
<td>Design Speed</td>
<td>70 km/h</td>
<td>70 km/h</td>
</tr>
<tr>
<td>Posted Speed</td>
<td>60 km/h</td>
<td>60 km/h</td>
</tr>
<tr>
<td>Number of Lanes</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Minimum Vertical Curve (‘K’ Value Crest)</td>
<td>36</td>
<td>36</td>
</tr>
<tr>
<td>Maximum Grade</td>
<td>5.0%</td>
<td>5.0%</td>
</tr>
<tr>
<td>Minimum Sight Distance</td>
<td>140 m Stopping 250 m Decision</td>
<td>140 m Stopping 250 m Decision</td>
</tr>
<tr>
<td>Right-of Way</td>
<td>30 m Minimum</td>
<td>Varies – 30 m Minimum</td>
</tr>
<tr>
<td>Lane Width</td>
<td>3.5 m</td>
<td>3.5 m</td>
</tr>
<tr>
<td>Shoulder Width</td>
<td>1.5 m</td>
<td>1.7 m</td>
</tr>
<tr>
<td>Multi-use Path Width</td>
<td>3.0 m</td>
<td>3.0 m</td>
</tr>
<tr>
<td>Sidewalk Width</td>
<td>1.5 m</td>
<td>2.0 m</td>
</tr>
</tbody>
</table>

Figure 10 illustrates the typical cross-section for the overpass.

5.2 Intersection and Entrances

There are no intersections within the project limits of the grade separation. Entrances to properties are anticipated on both sides of New Coronation Road. An entrance is planned to the future development property located southeast of the crossing. From a sight distance perspective, the access to New Coronation Road should be located no closer than 250 m to the vertex of the crossing to ensure proper visibility of approaching
vehicles. The actual location and configuration of any access will be confirmed and approved by the Town through its review of the future development application(s). Figure 11 depicts the sight distance calculations.
NEW CORONATION ROAD – OVERPASS TYPICAL SECTION

POINT OF MINIMUM VERTICAL CLEARANCE

CONCRETE BARRIER WALL (TYP.)

PROFILE CONTROL (T/P)

* Dimensions as per TAC Geometric Design Guide
(To be reviewed in the detailed design stage)
5.3 Temporary Road and/or Rail Detours

Temporary road and/or rail detours will not be required if the grade separation is constructed at the same time as New Coronation Road (prior to opening the road) and is located outside the operating envelope for the rail line, as is currently proposed.

5.4 Drainage and Stormwater Management

The grade separation will feature the following drainage and stormwater management system:

- A minor system storm sewer network to convey the 5-year design flows from the impervious road catchments between Twin Streams Road and the crossing (~2.65ha). This network will outlet to a low point approximately 200 m south of Twin Streams Road before discharging into the L6 Tributary via enhanced grassed swales.

- A second storm sewer network to convey the 5-year design flows generated between Rossland Road and the crossing (~1.64 ha). This network will outlet to a low point north of Rossland Road into the L6 Tributary via enhanced grassed swales.

- Oil grit separators (OGS) in combination with low impact development (LID) techniques (i.e., bio-filtration swales) to provide end-of-pipe treatment from each storm sewer network. The OGS units and LID features will offer additional removal of TSS and water quality benefits.

- All overland major system flows are expected to spill over at the lowest elevations of the road into the enhanced grassed swales.

5.5 Illumination

The grade separation will be fully illuminated by roadway lighting. Pole locations will be identified during detailed design. Illumination will be provided in accordance with Town of Whitby standards.

5.6 Landscaping/Urban Design

A landscape plan will be developed for the grade separation during detailed design. Opportunities for urban design treatments, such as plantings, streetscaping, decorative parapet walls and public art, will be examined at that time.

5.7 Utilities

There are no existing utilities in the vicinity of the grade separation, and therefore no relocations are required. All future services must be routed around the structure,
requiring additional property. Maintenance access will be addressed during detailed design.

5.8 Property Requirements

Figure 12 illustrates the preliminary property requirements for the grade separation. As noted in Section 4.1 above, construction of the grade separation will require additional property beyond the maximum 36 m road allowance for a Type B Arterial Road. This additional area required is shown in yellow hatch in the figure. The final right-of-way for New Coronation Road may be less than 36 m (but greater than 30 m), and will be confirmed through the future Municipal Class EA study for the road.

5.9 Preliminary Cost Estimate

Appendix I provides the preliminary cost estimate for the grade separation. The estimated cost is in the range of $9.4 M, and includes the construction of approximately 250 m of arterial road on each approach to the structure. An allowance for engineering and construction contingency (15%) has been incorporated in the estimate. Property costs are not included.

5.10 Timing

It is anticipated that the construction of both New Coronation Road and the grade separation will commence within the next 5 to 10 years, pending funding approval and the completion of the detailed design.
Figure 12 – Preliminary Property Requirements for Grade Separation
6 Potential Environmental Effects, Mitigation Measures and Commitments to Further Work

6.1 Natural Environment

6.1.1 Vegetation

A total of 4.48 ha of land will be impacted by the proposed grade separation, including 2.52 ha of swamp wetland and 0.68 ha of forest/plantation.

The proposed alignment for New Coronation Road passes through the forest/swamp block north of the CP Rail line and cuts into the edge of the forest/swamp block on the south side of the railway. There are no provincially or regionally rare or uncommon plant species vegetation communities recorded in the study area. As such, there will be no direct impacts to any such species as a result of the overpass construction.

Potential impacts to vegetation in the vicinity of the crossing include damage to non-target vegetation during construction, increased exposure to wind, light and other edge effects along the road allowance, and the spread of invasive species into the woodlot. The following mitigation measures are recommended to minimize such disturbance:

- Prior to site preparation (clearing, grubbing, grading), fence work limits with temporary tree protection hoarding and sediment and erosion control fencing to prevent encroachments into the surrounding woodlands during construction.

- Fell trees into the right-of-way to the extent possible to avoid damaging non-target vegetation. Chip fallen trees and brush on site.

- Remove, transport and dispose Ash (Fraxinus spp.) trees in compliance with the Canadian Food Inspection Agency (CFIA) guidelines and directives to prevent the spread of Emerald Ash Borer.

- Engage a qualified arborist to inspect trees along the edges of the work area after construction in completed. If necessary, remediate or remove any trees damaged as a result of clearing or construction.

- Implement an edge management plan along the road allowance following construction to protect the newly created forest edges. Place buffer plantings along the forest edge to mitigate disturbances, increase shade, and reduce wind. Spread wood chips from the cleared vegetation in the planting areas.

- Develop a vegetation salvage plan to help retain native biodiversity, and implement the plan prior to site preparation and construction. Consider soil seed bank salvage and/or transplanting individuals or populations of native species from the road alignment to suitable areas on the site. Avoid areas with significant numbers of invasive species, such as Dog-strangling Vine and Common Buckthorn, for plant
salvage unless appropriate measures can be taken to ensure that native species are transplanted without spreading invasive species to other areas of the site.

6.1.2 Wildlife

The overpass grade separation provides the opportunity for wildlife crossings underneath the roadway. However, the removal of vegetation and increased noise and light within the woodland associated with road construction, roadway lighting and vehicle traffic have the potential to disturb wildlife and their habitat. There will be no impacts to any of the species identified or their habitat aside from some vegetation removal required. Specifically, there will be no impacts from the proposed crossing to Bank Swallow, Barn Swallow or Bobolink, which are protected under the ESA 2007.

The following recommendations are intended to reduce impacts to wildlife:

- Avoid interfering with breeding bird activity during removal of vegetation. The federal Migratory Birds Convention Act protects the nests, eggs and young of most bird species from harassment, harm, or destruction. The breeding bird season in southern Ontario is generally from mid-April to late-July, so the clearing of vegetation should be outside of these dates. For any proposed clearing between mid-April and late July, or where birds may be suspected of nesting outside of typical dates, engage an ecologist to undertake detailed nest searches immediately prior (within two days) to site alteration to ensure that no active nests are present. The presence of territorial birds during the breeding season would be taken to indicate that nests are present.

- To the extent possible, reuse logs and brush removed from the right-of-way on-site to create or enhance wildlife habitat.

- Utilize standard Best Management Practices (BMPs) during the construction phase.

- Develop and implement a comprehensive erosion and sediment control plan to the satisfaction of the Town and CLOCA during the construction phase until stabilization of the site to provide adequate protection to the natural features.

6.1.3 Aquatic Habitat

The construction phase has the potential to affect fish and fish habitat as the proposed grade separation will cross over a drainage feature. Construction activities such as vegetation clearing, grading and excavation can reduce bank stability and cause sediment deposition from erosion of exposed soils, reduce in-stream shading and removal of organic structure. Long term impacts of the grade separation are typically the result of increased impervious cover and reduced riparian and canopy cover leading to increased stream temperatures, surface run off and flow fluctuations.

The following recommendations are intended to reduce impacts to water quality and downstream fish habitat:
• Design the bridge so that stormwater runoff from the bridge deck, side slopes and approaches is directed into a retention pond or vegetated area to remove suspended solids, dissipate velocity and prevent sediment and other deleterious substances from entering the watercourse.

• Install sediment and erosion control measures before starting work to prevent the entry of sediment into the watercourse. Inspect the measures regularly during construction and make necessary repairs promptly if any damage occurs.

• Prevent deleterious substances such as new concrete (i.e., it is pre-cast, cured and dried before use near the watercourse), grout, paint, ditch sediment and preservatives from entering the watercourse.

• Stabilize waste materials removed from the work site to prevent entry into the watercourse. This could include covering spoil piles with biodegradable mats or tarps or planting them with preferably native grass or shrubs.

• Vegetate any disturbed areas by planting and seeding preferably with native trees, shrubs or grasses, and cover such areas with mulch to prevent erosion and to help seeds germinate. If there is insufficient time remaining in the growing season, stabilize the site (e.g., cover exposed areas with erosion control blankets to keep the soil in place and prevent erosion) and vegetate the following spring.

6.2 Socio-Economic and Cultural Environment

6.2.1 Noise

As noted in Section 3.2.2, the CP Rail line is the predominant noise source within the study area now and in the future. At all four Points of Reception, the overall noise level experienced by each receptor is predicted to be dominated by the rail line in the year 2018, as well as the year 2028. Noise levels at all PORs resulting from the overpass are predicted to not exceed 65 dBA in 2018, or in 2028. In addition, predicted noise levels 10 years following the completion of the overpass will not increase by more than 5 dBA which is the threshold for mitigation according to the MTO “Environmental Guide for Noise (Version 1.1, October 2006). Future development in the vicinity of the study area will require noise mitigation measures based on the rail line regardless.

During construction activities, the potential exists for temporary noise level increases. All construction activities carried out by the contractor are required to abide by municipal noise control by-laws. The contract must apply for an exemption permit and have such permit in place before proceeding with any work during prohibited times. Notwithstanding such by-laws, during normal working hours, the contractor will be required to keep idling equipment to a minimum and to main equipment in good working order to help diminish noise from construction activities.
6.2.2 Land Use

The proposed grade separation will connect development north and south of the CP Rail line in the West Whitby area. There are no foreseen changes to the existing and planned land uses within or adjacent to the study area.

Additional property will be required from adjacent landowners for the grade separation embankments and abutments, and to accommodate future sanitary sewer and water supply infrastructure. The Town will negotiate with individual landowners to acquire the property required.

6.2.3 Archaeology

The CP Rail right-of-way was documented to exhibit deep and extensive land disturbance and will not require further archaeological assessment prior to implementation of the grade separation. The New Coronation Road right-of-way was previously assessed as part of the 407 East EA and will also not require further assessment. Property located outside of these previously assessed and disturbed areas, including the additional land required to accommodate the grade separation, will be subject to a Stage 2 Archaeological Assessment during detailed design.

6.2.4 Cultural Heritage

The proposed grade separation will result in alteration to the setting of the CP Rail railscape (CHL1), including obstruction of views to and from the railway and soil disturbance. The treeline along the west side of Lot 33/east side of Lot 34, Concession 3, south of the CP Rail (CHL 3) will be removed as part of the overpass construction. In addition, the culvert under the CP Rail line (BHR 1) carrying the L6 Tributary will be upsized to prevent overtopping of the railway during storm events.

With these impacts to CHL 1, CHL 3 and BHR 1, resource-specific heritage impact assessments should be conducted at these locations in advance, or at the earliest possible stages, of detailed design to identify landscape features to retain. The findings of these studies should be used to inform post-construction landscaping plans, potential tree-hoarding activities during construction, and finalization of grading limits.

The post-construction landscaping and rehabilitation plans should be sympathetic to the overall setting. Wherever possible, landscaping with appropriate/sympathetic historic plant materials is recommended, and fence rows should be preserved where extant.

6.3 Transportation and Safety

The proposed four-lane grade separation of the CP Rail at New Coronation Road will address future traffic demand for the West Whitby area. The overpass will increase network capacity and improve connectivity. The grade separation will also provide a safer crossing location for road and rail users, including pedestrians and cyclists.
6.4 Engineering and Property

6.4.1 Geotechnical

Geotechnical investigation borings, laboratory testing and analyses will be required during detailed design to make more in-depth design and construction recommendations.

6.5 Monitoring

During construction, the on-site Contract Administrator will ensure that implementation of mitigating measures and key design features are consistent with the contract and external commitments. In addition, the effectiveness of the environmental mitigating measures will be assessed to ensure that:

- Individual mitigating measures are providing the expected control and/or protection; and

- Additional mitigating measures are provided, as required, for any unanticipated environmental problems that may develop during construction.

On-site construction administration staff will ensure that the environment measures outlined in this report and further developed during detail design are carried out. In the event that problems arise, appropriate agencies will be contacted to provide further input.

If the impacts of construction are different than anticipated, or if the method of construction is such that there are greater than anticipated impacts, the Contractor’s methods of operation will be changed or modified to reduce those impacts.
7 Consultation

A key component of the Municipal Class EA process is consultation with stakeholders to obtain input and gauge interest in the project. Appendix A provides copies of the consultation material produced and all communication received from review agencies, First Nation communities, interested stakeholders and the general public over the course of the study.

7.1 Review Agencies

Review agencies consulted, either at study commencement or throughout the project, include:

Federal, Provincial and Municipal Governments

Aboriginal Affairs and Northern Development Canada (AANDC)
Environment Canada
Ministry of Aboriginal Affairs
Ministry of Community and Social Services
Ministry of Energy and Infrastructure
Ministry of Municipal Affairs and Housing
Ministry of Natural Resources
Ministry of the Environment
Ministry of Tourism, Culture and Sport
Ministry of Citizen and Immigration
Ontario Growth Secretariat
Ministry of Transportation
Regional Municipality of Durham
Town of Whitby
Transport Canada

Emergency Services

Durham Region EMS
Durham Region Police Services
Town of Whitby Fire Department
Ontario Provincial Police

Utilities and Railways

Bell Canada
Canadian Pacific Railway
Enbridge Gas
Hydro One Networks Inc.
Prestige Telecome Inc.
Rogers Cable Communications Inc.
TransCanada Pipelines Ltd.
Veridian Connections
Whitby Hydro Energy Corporation

School Boards

Durham District Catholic School Board
Durham District School Board
French Catholic District School Board
French District School Board

Conservation Authorities

Central Lake Ontario Conservation

Transportation Service Providers

Durham Region Transit
Durham Student Transportation Services

Table 6 below summarizes the comments received from the different agencies and the responses provided. More in-depth dialogue occurred with the following two agencies:
7.1.1 Central Lake Ontario Conservation

A meeting was held with CLOCA on November 28, 2013 to introduce the study, request information, and obtain feedback on required investigations, permits and approvals. Attachment A contains a copy of the meeting minutes. Key discussions include:

- The study area is part of the Lynde Creek system. However, no fisheries work is required.
- The endangered Redside dace is only found along the main branch of Lynde Creek. No Redside dace has been noted within the study area.
- Stormwater management measures on rural sections of the new road should include enhanced grass swales. Urbanized sections may require storm sewer infrastructure.
- No water quantity control criteria will be required based on existing floodplain assessment, and master plan and watershed studies. Insufficient property exists onsite to use end-of-pipe SWM facilities for quantity control.
- Water quality control measures should incorporate low impact development principles where feasible (i.e. use of grassed swales encouraged).
- The two existing culverts crossing the CP Rail line need to be enlarged to lower floodlines in the area.
- The overpass and underpass grade separation alternatives will have different implications for upstream backwater conditions.

In addition, CLOCA was provided the draft Drainage and Stormwater Management Report in May 2014 to obtain their preliminary feedback. Their comments include the following matters:

- The existing culvert under the CP Rail line for the L6 Tributary should be enlarged prior to the construction of New Coronation Road. If it is not expanded, the road may not be flood proofed.
- New Coronation Road should create a separation between the floodplain for the Kinsale Branch and L6 Tributary.
- Floodwater may spill between the tributaries along the north railway ditch. A question was raised about the elevation/flood event and the potential for spill to cause erosion.
7.1.2 Canadian Pacific Railway

A meeting was held with CP Rail on December 11, 2013 to introduce the study, request information, and obtain feedback on required approvals. Attachment A contains a copy of the meeting minutes. Key comments include:

- The CP Rail Belleville Subdivision currently carries 16 trains per day. No projection of future rail traffic was provided.

- A road over rail grade separation is more straightforward and less expensive to construct because a temporary rail diversion is not required.

- New at-grade rail-road crossings are strongly discouraged, especially skewed intersections, due to safety concerns.

- The crossing should preserve the opportunity for a potential second future track to the south of the existing rail line.

- Steel railway bridges are strongly preferred.

- Railway setback limits, clearance requirements and operational constraints were provided, and are included in Appendix A.

A follow-up email was sent by CP Rail in December 2013 outlining:

- Grade separation tender and design specifications;
- Formal application submission procedure;
- Draft Construction and Maintenance Agreement;
- CP Rail Public Works Agent/Consultation Engagement;
- Current site stats; and
- CP Rail Public Works position on new at-grade crossing proposals.

7.2 First Nation Communities

The following First Nation communities were consulted during the study:

<table>
<thead>
<tr>
<th>Alderville First Nation</th>
<th>Hiawatha First Nation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assembly of First Nations</td>
<td>Kawartha Nishnawbe First Nation</td>
</tr>
<tr>
<td>Chiefs of Ontario</td>
<td>Metis Nation of Ontario</td>
</tr>
<tr>
<td>Chippewas of Georgina Island</td>
<td>Mississaugas of Scugog Island First Nation</td>
</tr>
<tr>
<td>Curve Lake First Nation</td>
<td></td>
</tr>
</tbody>
</table>

Table 6 below summarizes the comments received from the First Nation communities and the responses provided. No specific concerns were noted during the study.
7.3 Other Stakeholders

7.3.1 West Whitby Landowners Group

The West Whitby Landowners Group Inc. (WWLG) is comprised of a number of landowners within the WWSP area. The group works collaboratively to advance development of the West Whitby lands.

The following meetings and discussions were held with representatives of the WWLG over the course of the study:

- An initial meeting was held on November 28, 2013 to introduce the study and request relevant background information. Subsequent to the meeting, the WWLG provided property and development mapping for the WWSP area.
- GHD, engineering consultants for the WWLG, were contacted in January and February 2014 to obtain information about the stormwater management and transportation studies completed for the area.
- A meeting was held on May 20, 2014 to present the material for the second PIC and ensure that all outstanding concerns and information requests had been addressed. Property implications and driveway site distance requirements for the recommended solution were confirmed.

7.3.2 Highway 407 East Development Group

The 407 East Development Group (407EDG) has been engaged by the Ministry of Transportation and Infrastructure Ontario to design, build, finance and maintain the first phase of the Highway 407 East extension. 407EDG is a partnership between SNC Lavalin and Cintra Infraestructuras S.A.

A meeting was held with representatives of 407EDG on January 9, 2014 to share information and explore opportunities to coordinate construction of the proposed New Coronation Road grade separation with work being undertaken for the WDL. It became apparent through the meeting that the respective schedules for the two initiatives would not permit construction of the railway overpass with the WDL works. The discussion also confirmed that the existing culvert under the CP Rail line for the Kinsale Branch was being replaced with a much larger arch structure (see Section 3.5.2). Following the meeting, 407EDG forwarded digital drawings for the reconstruction of Rossland Road in the vicinity of the WDL, which served as base plans for the preliminary design completed for this study.
7.4 Public Engagement

7.4.1 Notice of Study Commencement

The Notice of Study Commencement was posted on the Town of Whitby website on November 23, 2013. The notice was also published in the local newspaper on November 27, 2013 and mailed to review agencies, stakeholders and the public on November 28, 2013.

Review agencies and members of the public responded to the Notice of Study Commencement with their request to be involved or not, as well as their input pertaining to the study. Table 6 summarizes the comments received and the responses provided.

7.4.2 Public Information Centres

Public Information Centre No. 1

Public Information Centre (PIC) No. 1 was held on January 29, 2014 from 6:00 to 8:00 p.m. at the Town of Whitby Municipal Building, 575 Rossland Road East, Whitby, in an open house format. The notice advertising PIC No. 1 was issued January 10, 2014 on the Town website and in local newspapers. The notice was also distributed to review agencies, stakeholders and landowners within and adjacent to the study area.

The purpose of PIC No. 1 was to introduce the study and obtain public input on existing conditions and the alternative solutions to address the Problem and Opportunity Statement. The meeting was attended by seven individuals, including three adjacent landowners, three interested members of the public and one representative from the WWLG. No comments were received.

Public Information Centre No. 2

PIC No. 2 was held on May 29, 2014 from 6:00 to 8:00 p.m. at the Town of Whitby Municipal Building, 575 Rossland Road East, Whitby, in an open house format. The notice advertising PIC No. 2 was issued May 14, 2014 on the Town website and to review agencies, stakeholders and landowners within and adjacent to the study area. The notice was also placed in local newspapers on May 21 and 23, 2014.

The purpose of PIC No. 2 was to present the three alternative solutions, the evaluation criteria and analysis, and the preliminary recommended solution. The meeting was attended by three people, including two adjacent landowners and a nearby resident. Table 6 summarizes the comments received and the responses provided.

7.4.3 Notice of Study Completion

The Notice of Study Completion was posted on the Town of Whitby’s website, and distributed to those on the Project Contact list on October 23, 2014. It was published in
the local newspaper on October 29, 2014 to start the 30-day calendar review period from October 29\textsuperscript{th}, 2014 to November 28\textsuperscript{th}, 2014.

### 7.5 Confirmation of Technically Preferred Alternative

Input received from review agencies, stakeholders and the public has been reviewed and considered in finalizing the technically preferred solution presented in this Project File Report. As a result of consultation to date and the review process undertaken, there were no significant changes to the recommended solution identified through the analysis completed in Section 4. This alternative will be carried forward for implementation pursuant to Phase 5 of the Municipal Class EA process.
### Table 6 – Consultation Activity and Tracking Table

<table>
<thead>
<tr>
<th>Agency/Group</th>
<th>Comment/Question</th>
<th>Action Taken/Response</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Review Agencies</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Transport Canada                   | • Advised by email that (January 28, 2014):  
  - Transport Canada is responsible for administration of the Navigable Waters Protection Act (NWPA), and is also responsible for inspecting and auditing federally regulated railway companies subject to the Railway Safety Act.  
  - The Railway Safety Act, with related regulations and rules, provides the legislative and regulatory framework for safe railway operations in Canada. The rail safety program develops, implements and promotes safety policy, regulations, standards and research, and in the case of railway grade crossings, subsidizes safety improvements.  
  - The Act also addresses the construction and alteration of railway works, the operation and maintenance of railway equipment and certain non-railway operations that may affect the safety of federally regulated railways.  
  - If a proposed railway work is of a prescribed kind, the proponent shall not undertake the work unless it has first given notice of the work in accordance with the Notice of Railway Works Regulations. | • Comment noted.  
• No Navigable Waterways within the study area. |
<p>| Ministry of Aboriginal Affairs (MAA) | • Noted that the project appears to be located in an area where First Nation communities may have existing or asserted rights of claims in MAA’s land claims process or                                                                 | • Removed from Project Contact List.                                                  |</p>
<table>
<thead>
<tr>
<th>Agency/Group</th>
<th>Comment/Question</th>
<th>Action Taken/Response</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>litigation that could be impacted by the project, including: Chippewas of Georgina Island; Beausoleil First Nation; and Chippewas of Rama.</td>
<td></td>
</tr>
</tbody>
</table>
### Table 6 – Consultation Activity and Tracking Table

<table>
<thead>
<tr>
<th>Agency/Group</th>
<th>Comment/Question</th>
<th>Action Taken/Response</th>
</tr>
</thead>
</table>
| Central Lake Ontario Conservation (CLOCA) | - The study area is part of the Lynde Creek system. However, no fisheries work is required.  
- The endangered Redside dace is only found along the main branch of Lynde Creek. No Redside dace has been noted within the study area.  
- Stormwater management measures on rural sections of the new road should include enhanced grass swales. Urbanized sections may require storm sewer infrastructure.  
- No water quantity control criteria will be required based on existing floodplain assessment, and master plan and watershed studies. Insufficient property exists onsite to use end-of-pipe SWM facilities for quantity control.  
- Water quality control measures should incorporate low impact development principles where feasible (i.e. use of grassed swales encouraged).  
- The two existing culverts crossing the CP Rail line need | - Addressed comments from November 28, 2013 meeting and review of May 2014 draft Drainage and Stormwater Management Report as follows:  
- Due to the urban profile at the crossing, storm sewers will be required for drainage conveyance through the ROW. However, LID options such as bioretention swales have been considered and proposed for end-of-pipe water quality treatment and for the retention of the 25-mm storm event runoff. Oil/grit separators have also been proposed for additional treatment prior to discharge into the bioretention swales. |
### Table 6 – Consultation Activity and Tracking Table

<table>
<thead>
<tr>
<th>Agency/Group</th>
<th>Comment/Question</th>
<th>Action Taken/Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>CP Rail (Public Works)</td>
<td>• See Section 7.1.2 above</td>
<td>• Addressed comments from December 11, 2013 meeting and follow-up email through study work.</td>
</tr>
<tr>
<td></td>
<td>• to be enlarged to lower floodlines in the area.</td>
<td>• Timing and responsibility for CP Rail culvert replacement to be determined through future development applications and the Municipal Class EA study for New Coronation Road, since the need for the culvert replacement is not a result of the grade separation (solely).</td>
</tr>
<tr>
<td></td>
<td>• The overpass and underpass grade separation alternatives will have different implications for upstream backwater conditions.</td>
<td>• New Coronation Road will create a separation between the floodplains since the road will be elevated, as well as the overpass will enhance the separation.</td>
</tr>
<tr>
<td></td>
<td>• Comments May 2014 - The existing culvert under the CP Rail line for the L6 Tributary should be enlarged prior to the construction of New Coronation Road. If it is not expanded, the road may not be flood proofed.</td>
<td>• Stormwater Management report provides greater detail regarding potential tributary spills and estimated Water Surface Elevation upstream of the tributary crossings for the various intersection alignment options. HEC-RAS modeling found that the proposed overpass option could eliminate spills across the two tributaries.</td>
</tr>
<tr>
<td></td>
<td>• New Coronation Road should create a separation between the floodplain for the Kinsale Branch and L6 Tributary.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Floodwater may spill between the tributaries along the north railway ditch. A question was raised about the elevation/flood event and the potential for spill to cause erosion.</td>
<td></td>
</tr>
</tbody>
</table>
Table 6 – Consultation Activity and Tracking Table

<table>
<thead>
<tr>
<th>Agency/Group</th>
<th>Comment/Question</th>
<th>Action Taken/Response</th>
</tr>
</thead>
</table>
| Durham Region Works Department       | • Requested to be added to the study contact list.  
• Advised that the Region had completed the West Whitby Development Area Water Supply and Sanitary Sewage Servicing Class EA.  
• Offered the following comments (see Section 3.5.1):   
  - A 450 mm diameter sanitary sewer (at an elevation between 95.00 and 96.00) and a 400 mm diameter watermain (requiring a minimum 1.8 m depth of cover) are proposed to cross the railway within the corridor.  
  - A future 750 mm diameter transmission watermain requiring a minimum 1.8 m depth of cover is also proposed. The alignment for this watermain is not determined yet and will be subject to a Municipal Class EA, but the New Coronation Road corridor is an option.  
  - The sizing and material noted for the pipes have not included allowance for liners or other appurtenances that may be required by CP Rail within their property limits.  
• Provided the following property-related comments regarding the alternatives:   
  - Underpass – A 12 m wide easement will be required on the east or west side of New Coronation Road between Stations 2+270 and 2+420 to accommodate the three services noted above.  
  - Overpass – A 12 m wide easement will be required on |
|                                      |                                                                                                                                                                                                                 | • Contact added (December 3, 2013).  
• Town forwarded copy of PIC panels (January 30, 2014).  
• Consultant notified the Region that an overpass is the preferred alternative and asked whether they require a meeting to review the project (June 2014). No meeting requested.  
• Required easement was incorporated as shown on Figure 12 in the PFR. |
## Table 6 – Consultation Activity and Tracking Table

<table>
<thead>
<tr>
<th>Agency/Group</th>
<th>Comment/Question</th>
<th>Action Taken/Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Veridian Connections</td>
<td>• Advised to contact Whitby Hydro Energy Corporation since the study area is not within their service district.</td>
<td>• Comment noted.</td>
</tr>
<tr>
<td>Enbridge Pipelines Inc.</td>
<td>• Confirmed no facilities in the study area.</td>
<td>• Comment noted. Consultant sent follow-up email requesting contact information for personnel at EGD (January 16, 2014).</td>
</tr>
<tr>
<td>Town of Whitby (Heritage)</td>
<td>• None</td>
<td>• Consultant provided copy of Cultural Heritage Assessment</td>
</tr>
</tbody>
</table>
### Table 6 – Consultation Activity and Tracking Table

<table>
<thead>
<tr>
<th>Agency/Group</th>
<th>Comment/Question</th>
<th>Action Taken/Response</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>First Nation Communities</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Alderville First Nation          | • Indicated that the study area is within Alderville First Nation’s Traditional and Treaty Territory.  
• Deemed project a Level 3, having minimal potential to impact Alderville First Nation’s rights.  
• Requested to be kept informed of any changes to the project. | • Comment noted.                                          |
| Chippewas of Georgina Island First Nation | • Requested to be kept informed about the project and remain on study contact list.  
• Offered support for the concerns of other First Nations in the study area. | • Comment noted.                                          |
| **Other Stakeholders**            |                                                                                 |                                                            |
| West Whitby Landowners Group Inc. (WWLG) | • See Section 7.3.1 above                                                      | • Addressed comments through study work.                   |
| 407 East Development Group (407EDG) | • See Section 7.3.2 above                                                      | • Addressed comments through study work.                   |
### Table 6 – Consultation Activity and Tracking Table

<table>
<thead>
<tr>
<th>Agency/Group</th>
<th>Comment/Question</th>
<th>Action Taken/Response</th>
</tr>
</thead>
</table>
| PIC No. 2    | - Comments from attendee of PIC No. 2:  
  - What are the sight lines regarding access to property to northwest of crossing?  
  - Property owner requires that driveway include a 10 m wide culvert to provide access for farm vehicles.  
  - What is the property to northwest of crossing zoned as in Official Plan?  
  - What are the other site plans in the area?  
  - How far west does Twin Streams Road extend past New Coronation Road?  
  - What is the construction timing for the bridge and the road? | - Town sent email advising that (August 2014):  
  - Any future driveway must be located at least 250 m from the vertex of the crossing.  
  - The request for a 10 m culvert will be addressed during detail design phase.  
  - The property is designated Employment, and attached a copy of the West Whitby Secondary Plan with details pertaining to the surrounding land uses.  
  - There are two development plans in the surrounding area, both on the east side of Coronation Road. The lands to the northeast of the crossing are residential, and to the southeast are mixed use.  
  - Currently, Twin Streams Road is planned to terminate at New Coronation Road.  
  - According to the Town’s budget,
Table 6 – Consultation Activity and Tracking Table

<table>
<thead>
<tr>
<th>Agency/Group</th>
<th>Comment/Question</th>
<th>Action Taken/Response</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>construction of the road and structure is expected to take place within a 5 to 10 year time frame, and that both are expected to be constructed at the same time.</td>
</tr>
</tbody>
</table>