Ontario

HIGHWAY 11

ACCESS REVIEW AT HIGH FALLS ROAD / HOLIDAY PARK DRIVE
FROM MUSKOKA ROAD 117 NORTHERLY FOR 6.3 KM
GWP 322-00-00

CLASS ENVIRONMENTAL ASSESSMENT FOR PROVINCIAL TRANSPORTATION FACILITIES
"GROUP B"

TRANSPORTATION ENVIRONMENTAL STUDY REPORT (TESR)

NOVEMBER 2010

TRANSPORTATION ENVIRONMENTAL STUDY REPORT (TESR)

Highway 11 Access Review at High Falls Road / Holiday Park Drive
From Muskoka Road 117 northerly for 6.3 km
GWP 322-00-00

Class Environmental Assessment for Provincial Transportation Facilities "Group B"

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NOVEMBER 2010

PUBLIC RECORD

ONTARIO MINISTRY OF TRANSPORTATION

HIGHWAY 11 ACCESS REVIEW AT HIGH FALLS ROAD / HOLIDAY PARK DRIVE
FROM MUSKOKA ROAD 117 NORTHERLY FOR 6.3 KM (GWP 322-00-00)
TRANSPORTATION ENVIRONMENTAL STUDY REPORT

Copies of this document have been sent to the following office of the Ministry of the Environment to be placed in the public record:

Ministry of the Environment
54 Cedar Pointe Drive
Barrie ON L4N 5R7

This Transportation Environmental Study Report is available for review during regular business hours at the following locations:

Ministry of Transportation
Northeastern Region
1st Floor, Lobby, 447 McKeown Avenue
North Bay ON P1B 9S9

Ministry of Natural Resources
Bracebridge Area Office
1350 High Falls Road
Bracebridge ON P1L 1W9

Town of Bracebridge
Clerk's Office
1000 Taylor Court
Bracebridge ON P1L 1R6

District Municipality of Muskoka
Clerk's Office
70 Pine Street
Bracebridge ON P1L 1N3

Bracebridge Public Library
94 Manitoba Street
Bracebridge ON P1L 2B5

CLASS EA PROCESS AND ENVIRONMENTAL DOCUMENTATION

This project is being carried out in accordance with the requirements of the Class Environmental Assessment (EA) for Provincial Transportation Facilities, a process that has been accepted and approved under Ontario's Environmental Assessment Act, as described in Section 1.0 of this report.

Other required aspects of the Class EA process and environmental documentation are contained in the *Class Environmental Assessment for Provincial Transportation Facilities* (2000). Readers interested in these matters are encouraged to refer to that document. The consultant project manager or environmental planner are also available to discuss this information and may be contacted as follows:

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Executive Summary

Overview of the Undertaking

This planning, preliminary design, and environmental assessment study was initiated by the Ministry of Transportation (MTO) in 2009 to identify a plan to upgrade the existing four-lane Highway 11 from Muskoka Road 117/Cedar Lane northerly for 6.3 km to north of Alpine Ranch Road to a fully-controlled access freeway, with access restricted to interchange locations only.

This *Transportation Environmental Study Report* (TESR) documents the study process and details of the Recommended Plan.

Outline of Environmental Assessment Process

The project was carried out following the requirements of the *Ministry of Transportation's Class Environmental Assessment (Class EA) for Provincial Transportation Facilities* (2000). The Class EA process is for projects of a defined scope and magnitude, where the impact can effectively be determined and mitigated. This project falls within the scope of a Group "B" project, which includes introducing or eliminating municipal road access to local areas, new interchanges, and improvements that significantly modify highway/roadway traffic access to and from the facility (i.e. Highway 11).

Consultation Process

The public was formally contacted several times throughout the study process, including at two Public Information Centres (PICs) and at individual meetings during the study. To make sure that all interested members of the public were contacted, an extensive notification process was used. It consisted of:

- Newspaper notices in *Muskoka Today* and the *Bracebridge Examiner*
- Canada Post Bulk Mailings to properties within the study area (approximately 630 residences/businesses) to advise of the study commencement
- Direct mailings to external agencies, stakeholders, and property owners in the study area as well as members of the public who indicated an interest in the study

External agencies and stakeholders, including the Ministry of Natural Resources (MNR), the District Municipality of Muskoka, Town of Bracebridge, and Muskoka Active Transportation Committee, were invited to two External Agency Meetings that coincided with the PICs. Additional meetings were also held with MNR, the Town of Bracebridge, and the District Municipality of Muskoka during the study.

Council presentations to both the Town and District Councils were held in advance of each of the Public Information Centres.

Transportation Needs Assessment

The *Highway 11: Preliminary Design Study for the Ultimate Freeway Design* was completed in 1992 to identify a Recommended Plan to eliminate the remaining at-grade intersections and accesses by either closing roads or building interchanges or flyovers. The Recommended Improvements for this section of Highway 11 identified in the study were not constructed.

The *problem* with the existing facility is that traffic volumes along this section of Highway 11 have been increasing over time to a point where the removal of the at-grade intersection and entrances will provide

significant safety and operational benefits for the travelling public. These ultimate stage improvements were identified in the 1992 *Preliminary Design Study*.

This study addressed the transportation *opportunity* to update the design that was developed as part of the 1992 *Highway 11 Preliminary Design Study for the Ultimate Freeway Design*, including updating Environmental Assessment approvals, identifying a range of interchange and access alternatives (including the Recommended Plan from the previous study), and updating the design alternatives to make sure that current geometric highway design standards are achieved.

Four conceptual Alternatives to the Undertaking were considered. However the 'do nothing', manage transportation demand, and alternate modes of transportation were not considered to be viable alternatives. The 'improvements to existing highways' alternative was carried forward for this study.

Existing Conditions

Background studies and site specific field investigations were carried out for traffic operations, archaeology, fisheries and aquatic resources, terrestrial resources, drainage and noise. All work was carried out in accordance with the requirements of the *Environmental Reference for Highway Design* (ERHD, 2006), which provides standards for scope of work, evaluation of potential impacts and proposed mitigation measures for MTO undertakings.

Natural Environment

Within the study area, a network of creeks and rivers were identified. These watercourses flow towards the North Muskoka River, which is located at the south end of the study area. Warmwater, coolwater, and coldwater fish habitat are all present in the study area. The coldwater watercourses in the study area were identified as having a high sensitivity level.

A locally significant Life Science and a locally significant earth science site were identified in the study area. Deer wintering areas were identified north, south, and west of Highway 11.

Habitat for several Species-at-Risk, including the Snapping turtle, Blanding's turtle, Eastern milksnake, Eastern hog-nosed snake, and Northern long-eared bat, was identified within the greater Highway 11 study area.

Socio/Economic Environment

The study area is in the District Municipality of Muskoka and the Town of Bracebridge.

The Town of Bracebridge's urban centre is south of the study area and is primarily accessed from the Highway 11/Taylor Road interchange, south of the study area. The study area includes scattered rural and waterfront properties, rural and recreational open space, and Crown land.

The Bracebridge Resource Management Centre (BRMC) is located on the east side of Highway 11 and covers a significant amount of the study area. The BRMC provides an extensive network of recreational trails that are maintained by the Town of Bracebridge and groups of volunteers, and includes year-round recreation trails and a picnic area.

There are a number of recreational areas and trails located within the study area, including a hiking and cross-country ski trail network in the Bracebridge Resource Management Area (BRMC) and the Trans Canada Trail.

Cultural Environment

This study included a *Stage 1 and Stage 2 Archaeological Assessment* and a *Cultural Heritage Inventory*.

Investigations identified three archaeological sites in the study area and identified the heritage resources around High Falls as having significant heritage value.

EVALUATION OF ALTERNATIVES

A range of potential access alternatives were developed and presented to the public at a Public Information Centre (PIC) on November 18, 2009.

The following six access alternatives were developed by combining the viable options for potential interchange locations and North Muskoka River crossing options adding the necessary road connections to make each alternative a stand-alone plan. The alternatives were generally described as:

- Access Alternative 1—Parclo A/B interchange located approximately 3 km north of the existing Muskoka Road 117/Cedar Lane interchange; east and west service roads; a flyover at Alpine Ranch Road; and a connection to Lone Pine Drive
- Access Alternative 2—Diamond interchange located approximately 3 km north of the existing Muskoka Road 117/Cedar Lane interchange; a west side service road from High Falls Road to Concession Road 10; and an east side service road from Holiday Park Drive to Alpine Ranch Road
- Access Alternative 3—Split-Diamond interchange located at High Falls Road/Holiday Park Drive; a one-way southbound service road from High Falls Road to Cedar Lane; a one-way northbound service road from Muskoka Road 117 to Holiday Park Drive; a flyover at Alpine Ranch Road; and a connection to Lone Pine Drive
- Access Alternative 4—Flyover at High Falls Road/Holiday Park Drive; a west side service road from Cedar Lane to High Falls Road; a flyover at Alpine Ranch Road; and a connection to Lone Pine Drive
- Access Alternative 5a—Flyover at High Falls Road/Holiday Park Drive; an east side service road from Muskoka Road 117 to Holiday Park Drive; a flyover at Alpine Ranch Road; and a connection to Lone Pine Drive
- Access Alternative 5b—Flyover at High Falls Road/Holiday Park Drive; an east side service road from Muskoka Road 117 to Holiday Park Drive; an east side service road from Holiday Park Drive to Alpine Ranch Road; and the closure of Concession Road 10 at Highway 11

Following the first PIC, the alternatives were evaluated using an objective evaluation process. The goal of the evaluation process was to select a cost-effective improvement plan that controls access in the Highway 11 corridor between High Falls Road/Holiday Park Drive and Alpine Ranch Road, and provides safe operations and reasonable local access to the surrounding area, while minimizing the impacts to the environment.

Following the second Public Information Centre, the project team met with Muskoka and Bracebridge staff to discuss the Preferred Plan in relation to the proposed future Bracebridge North Transportation Corridor (BNTC). Based on the discussions at the meeting, three additional alternatives were considered that located a grade-separated crossing north of High Falls Road/Holiday Park Drive (at the location of the 1992 Recommended Plan crossing). A conceptual connection to the proposed BNTC was also considered for each alternative. The additional alternatives that were considered are discussed in Section 5.5.

The additional alternatives were evaluated based on the same criteria as the original alternatives. At the conclusion of the evaluation, Alternative 5b remained the highest ranked access alternative.

RECOMMENDED PLAN

The Recommended Plan includes closure of the existing Highway 11 intersections at High Falls Road/Holiday Park Drive and Alpine Ranch Road; a new East Service Road from Muskoka Road 117 to Holiday Park Drive to provide access to Holiday Park Drive; a new grade-separated road connection from Holiday Park Drive to High Falls Road, to provide access to High Falls Road; a new East Service Road from Holiday Park Drive to Alpine Ranch Road, to provide access to the Bracebridge Resource Management Centre and Alpine Ranch Road; and a large box culvert under High Falls Road to provide access to the Ministry of Natural Resources storage area, and to accommodate the Trans Canada and snowmobile trails. The Recommended Plan is illustrated on Exhibit 1.

The Recommended Plan was selected based on the results of the analysis and evaluation, and on the consideration of comments and input received. The Recommended Plan was selected because:

- Highway safety and operations are improved with a cost-effective plan that eliminates all at-grade highway access
- Access to and from the highway is consolidated at one interchange location, which minimizes the number of traffic conflict locations on Highway 11
- Traffic volumes on the East Service Road located between the existing interchange ramp terminal at Muskoka Road 117 and Holiday Park Drive will be relatively low, and will not significantly impact the surrounding area
- Reasonable access is provided to the Ministry of Natural Resources District Office, Bracebridge Resource Management Centre and Alpine Ranch Road (east portion)
- The East Service Road between Muskoka Road 117 and Holiday Park Drive provides a continuous municipal road connection and convenient local access to and from the Cedar Lane/Muskoka Road 117 interchange
- The grade-separated crossing of the highway at High Falls/Holiday Park Drive provides a safe pedestrian/cyclist crossing of the highway, which enhances access to the Bracebridge Resource Management Centre
- The existing picnic area and access to High Falls are preserved
- The new crossing of the North Muskoka River is located on Crown Land and very little private property is required

- The existing vegetation and recreational trails within the Bracebridge Resource Management Centre are preserved

ENVIRONMENTAL IMPACTS AND MITIGATION

Natural Environment

The Recommended Plan was selected, in part, because it minimizes impacts to the significant natural features, including areas of potential Species-at-Risk habitat, High Falls, and the Bracebridge Resource Management Centre, and does not impact the larger watershed or ecosystem.

The Recommended Plan requires a new crossing of the North Muskoka River, as well as work at two low sensitivity and three high sensitivity watercourses.

Vegetation removal associated with the Recommended Plan is generally limited to areas adjacent to the existing highway to minimize encroachment in the contiguous forested areas both east and west of the highway. Vegetation removal will be minimized, where possible. There are no impacts to the deer yards or locally sensitive areas identified in the study area.

Additional work will be required during Detail Design to confirm areas of potential species-at-risk habitat.

Socio/Economic Environment

Two property acquisitions are required to accommodate the Recommended Plan. Both properties are located on the west side of Highway 11 at the intersection with Alpine Ranch Road. An additional five properties will have direct property impacts where portions of the property are required.

During the study, local residents indicated that they were concerned about the visual impact of the proposed North Muskoka River bridge. The Ministry will review the potential to incorporate aesthetic features into the design of the proposed bridge during the Detail Design stage.

The new crossing road over the highway provides safe pedestrian/cyclist connection between High Falls Road, the Trans Canada Trail, and the BRMC trails. The large box culvert (5 m x 5 m) under High Falls Road maintains the existing Trans Canada Trail connection and provides a safer crossing of High Falls Road.

The Noise Study indicates noise mitigation is not warranted for the Recommended Plan.

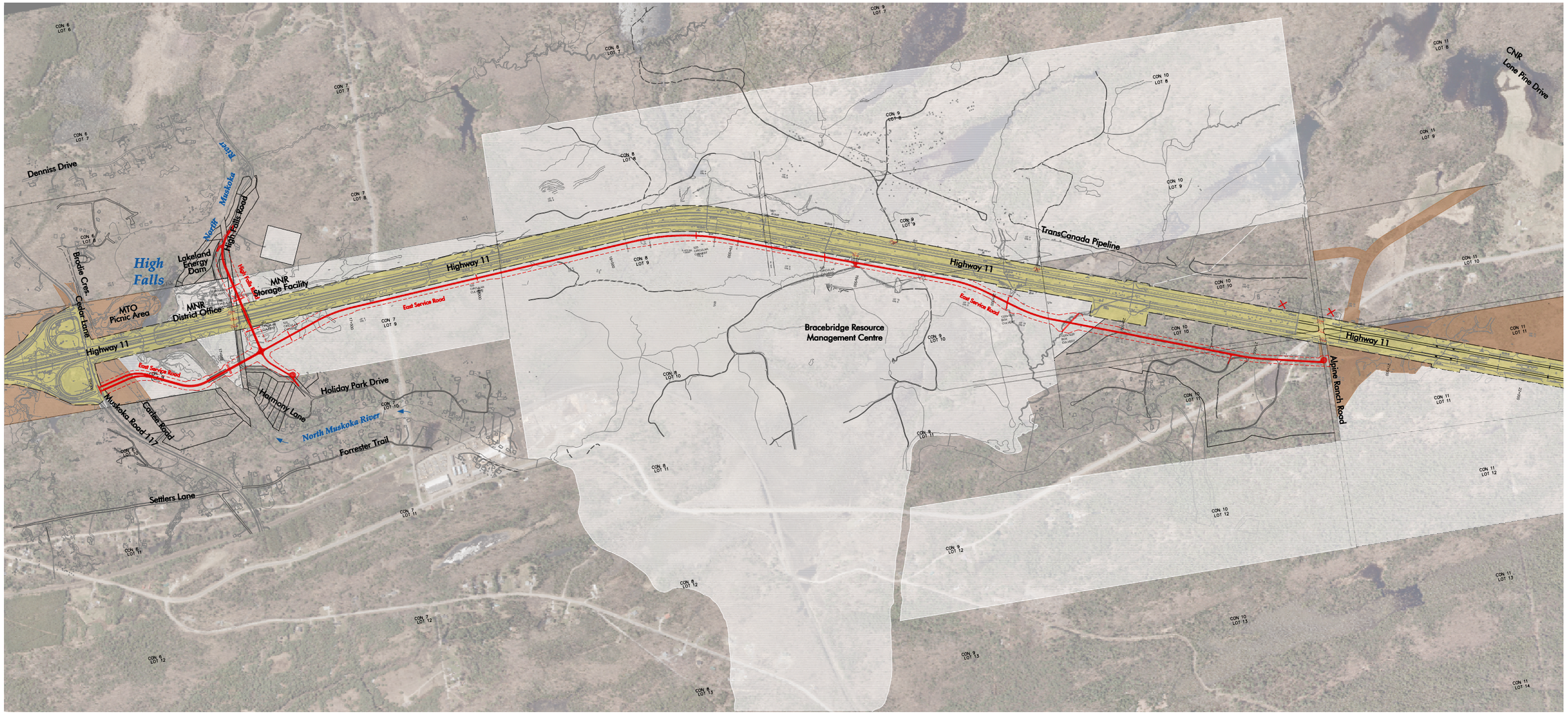
Cultural Environment

The Recommended Plan was selected, in part, since it avoided impacts to the cultural heritage resources identified in the vicinity of the Muskoka River, west of Highway 11.

Stage 2 Archaeological investigations did not identify any archaeological resources in the study area. The Ministry of Culture c*oncurred* with the recommendations provided in the *Stage 1 and Stage 2 Archaeological Assessment*.

FUTURE CONSULTATION AND SUMMARY OF IDENTIFIED CONCERNS, MITIGATING MEASURES, AND FUTURE COMMITMENTS

Sections 7.11 and 7.12, and Table 16 provide a description of future consultation and a summary of identified concerns, mitigating measures and future commitments.



Highway 11 Access Review

at High Falls Road, Holiday Park Drive, and Alpine Ranch Road from Muskoka Road 117 / Cedar Lane northerly for 6.3 km

GWP 322-00-00

Existing Limit of MTO Right-of-way

Property Owned by MTO but Not Designated for Right-of-way

Crown Land

New Roadway

Close Entrance or Median Closure

Property Acquisition

200m

1:15 000

EXHIBIT 1

Recommended Plan

Alternative 5B

1.0 Overview of the Undertaking

This planning and preliminary design study was initiated by the Ministry of Transportation (MTO) in 2009 to identify a plan to upgrade the existing four-lane Highway 11 from Muskoka Road 117, northerly 6.3 km to north of Alpine Ranch Road, to a fully-controlled access freeway, with access restricted to interchange locations only.

Stantec Consulting Ltd. was retained by MTO to carry out the study (GWP 322-00-00), including developing and evaluating access alternatives and confirming a Recommended Plan for access to and from Highway 11 between Holiday Park Drive/High Falls Road and Alpine Ranch Road.

The study area is shown in Exhibit 2.

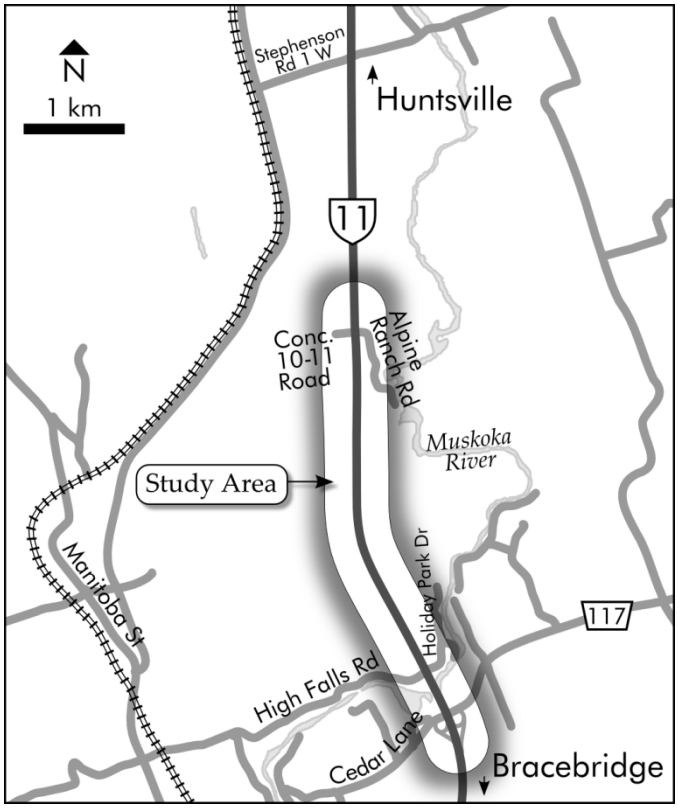


Exhibit 2: Study Area

1.1 Project Background

1.1.1 Project History

The following is a chronological history of Highway 11 as it relates to this current study:

- 1970—An Order-in-Council was approved designating Highway 11 as a Controlled Access Highway after initial studies concluded that the existing Highway 11 should be widened to four lanes, with the northbound and southbound lanes separated by a median
- 1972—The *Muskoka-Parry Sound Area Highway Planning Study* recommended that Highway 11 be widened to four lanes between Highway 169 in Gravenhurst and Municipal Road 3 in Huntsville
- 1980s—Highway 11 was expanded to a four-lane facility between Gravenhurst and Huntsville
- 1992—The Ministry of Transportation completed the *Highway 11 Preliminary Design Study for the Ultimate Freeway Design.* The Recommended Plan included an interchange north of High Falls Road/ Holiday Park Drive, a grade-separated crossing of Highway 11 at Alpine Ranch Road, and the closure of all at-grade intersections and entrances on Highway 11

1.1.2 Previous and Adjacent Studies

1.1.2.1 Highway 11 Preliminary Design Study

Highway 11 in the study area was four-laned as a result of the *Muskoka-Parry Sound Area Highway Planning Study* conducted in 1972, which recommended that the highway be four-laned from Highway 169 in Gravenhurst to Municipal Road 3 in Huntsville.

Several interchanges were recommended and constructed following the original 1972 study. It was predicted that the remaining at-grade intersections would eventually begin to experience operational difficulties. In response to the predicted future increases in traffic volumes, the Ministry carried out the *Highway 11: Preliminary Design Study for the Ultimate Freeway Design* between 1990 and 1992, which identified a Recommended Plan to eliminate the remaining at-grade intersections by either closing roads or building interchanges or flyovers.

The ultimate stage within the study limits included an interchange north of High Falls Road/Holiday Park Drive, a grade-separated crossing of Highway 11 at Alpine Ranch Road, and the closure of all at-grade intersections and entrances on this section of Highway 11. The Recommended Plan from the previous study was not constructed.

A copy of the 1992 Recommended Plan is provided in Exhibit 3. The previous Recommended Plan was screened out from further consideration because the proposed interchange is too close to the existing interchange at Muskoka Road 117/Cedar Lane, based on current highway standards. This current study has included a review of that plan and the development and consideration of new access alternatives.

1.1.2.2 Highway 11, Interchange at South Mary Lake Road

In 2005, MTO completed a Detail Design study to upgrade Highway 11 to a fully controlled access freeway from the Town of Bracebridge/Town of Huntsville boundary at Stephenson Road 1, northerly for 5.2 km. This study area is located to the north of this current study.

The Recommended Plan from the study included an interchange at South Mary Lake Road, and flyovers at Stephenson Road 1 and Stephenson Road 2.

The Recommended Plan was documented in a *Transportation Environmental Study Report* (TESR) that was made available for a 30-day public review period and received Environmental Clearance in 2005.

1.1.2.3 Northern Ontario Highways Strategy (2005)

Of overall guidance to this study and others in Northern Ontario is the Ministry of Transportation's *Northern Ontario Highways Strategy (2005)* (NOHS). This strategy outlines the future directions and commitments to improving transportation in Northern Ontario.

The NOHS indicates that '*the construction of new or redesigned interchanges on provincial highways is an effective means of increasing the safety and efficiency of travel in Northern Ontario, particularly near urban areas*' (NOHS 2005) and notes that numerous interchanges will be constructed as part of the Highway 11 four-laning initiative. The four-laning of Highway 11, including updating the design from the 1992 *Highway 11 Ultimate Freeway Design* is one of the MTO's current priorities.

1.2 Purpose of Study

The purpose of this study is to identify a Recommended Plan to upgrade Highway 11 from the Muskoka Road 117/Cedar Lane interchange, northerly 6.3 km to north of Alpine Ranch Road to a fully-controlled access highway with access restricted to interchange locations only. The removal of the existing at-grade intersections and entrances will significantly improve safety on Highway 11 through the study area.

This Planning, Preliminary Design, and Environmental Assessment Study included:

- Identifying and evaluating Highway 11 access alternatives
- Identifying and evaluating North Muskoka River crossing alternatives
- Engineering and environmental investigations
- Confirming a Recommended Plan

1.3 Purpose of the Report

The purpose of this report is to describe the project; input received from the public, external ministries, agencies and municipalities; and the alternatives considered during the study. The *Transportation Environmental Study Report* (TESR) documents environmentally significant aspects of the planning, design, construction and operation of specific types of projects that fall within the definition of the *Class Environmental Assessment (EA) for Provincial Transportation Facilities* (2000). The report provides a description of the Recommended Plan, associated environmental impacts, and proposed mitigation.

This TESR fulfills the documentation requirements of the Class EA process for Provincial Transportation Facilities (2000) for 'Group B' projects, as described in the sections that follow. As required by the Class EA, this report is being submitted for a 30-day Public Review Period.

If a 'Bump Up' request or Part II Order for an Individual Environmental Assessment is received during the public review period for this report, the Minister of Environment will determine the need for an Individual Environmental Assessment.

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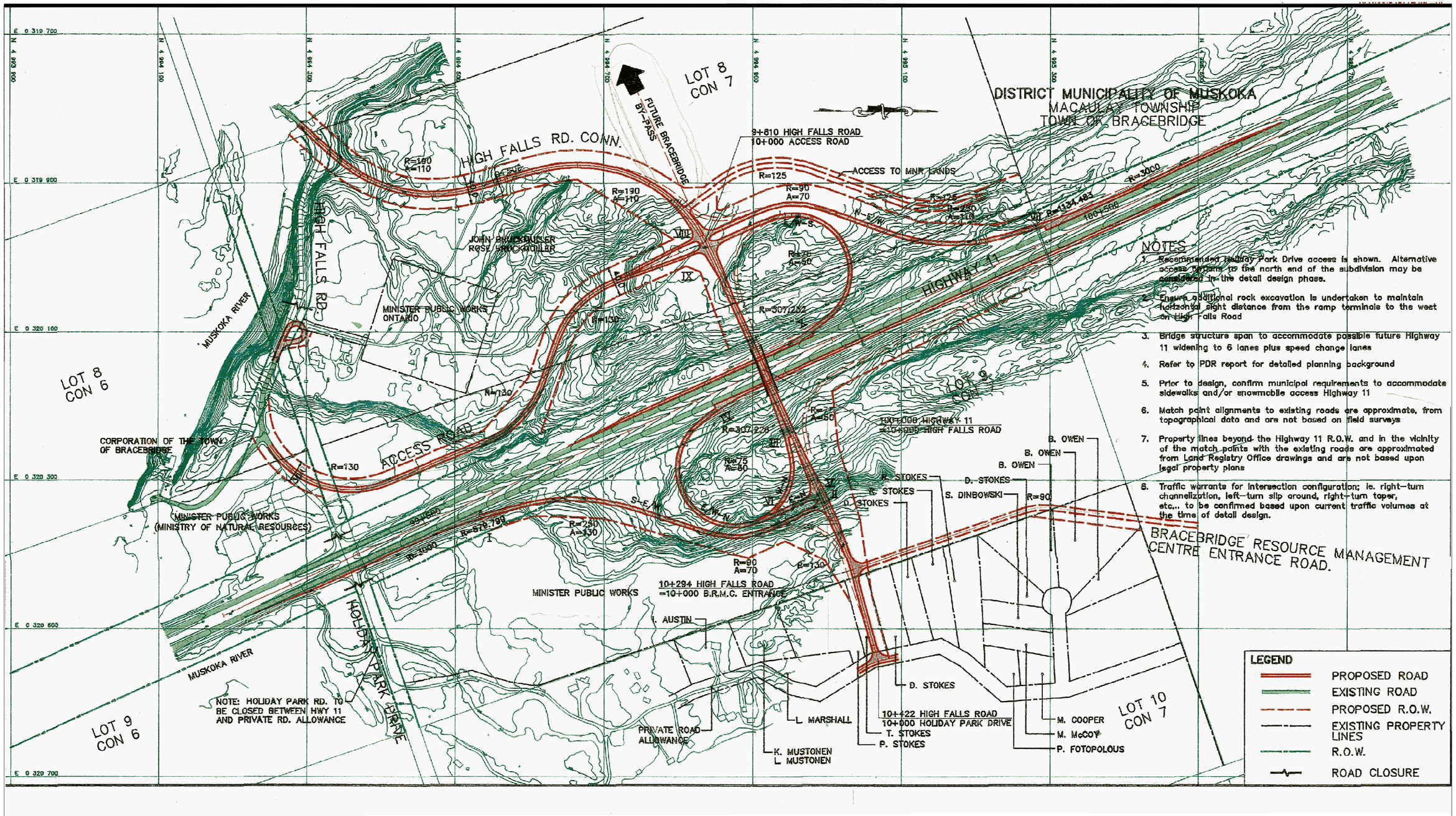


NOTES

1. Recommended Holiday Park Drive access is shown. Alternative access options to the north end of the subdivision may be considered in the detail design phase.
2. Ensure additional rock excavation is undertaken to maintain horizontal sight distance from the ramp terminals to the west on High Falls Road
3. Bridge structure span to accommodate possible future Highway 11 widening to 6 lanes plus speed change lanes
4. Refer to PDR report for detailed planning background
5. Prior to design, confirm municipal requirements to accommodate sidewalks and/or snowmobile access Highway 11
6. Match point alignments to existing roads are approximate, from topographical data and are not based on field surveys
7. Property lines beyond the Highway 11 R.O.W. and in the vicinity of the match points with the existing roads are approximated from Land Registry Office drawings and are not based upon legal property plans
8. Traffic warrants for intersection configuration; ie. right-turn channelization, left-turn slip around, right-turn taper, etc... to be confirmed based upon current traffic volumes at the time of detail design.

LEGEND

- PROPOSED ROAD
- EXISTING ROAD
- PROPOSED R.O.W.
- EXISTING PROPERTY LINES
- R.O.W.
- ROAD CLOSURE

Ontario

Stantec

HIGHWAY 11 ACCESS REVIEW

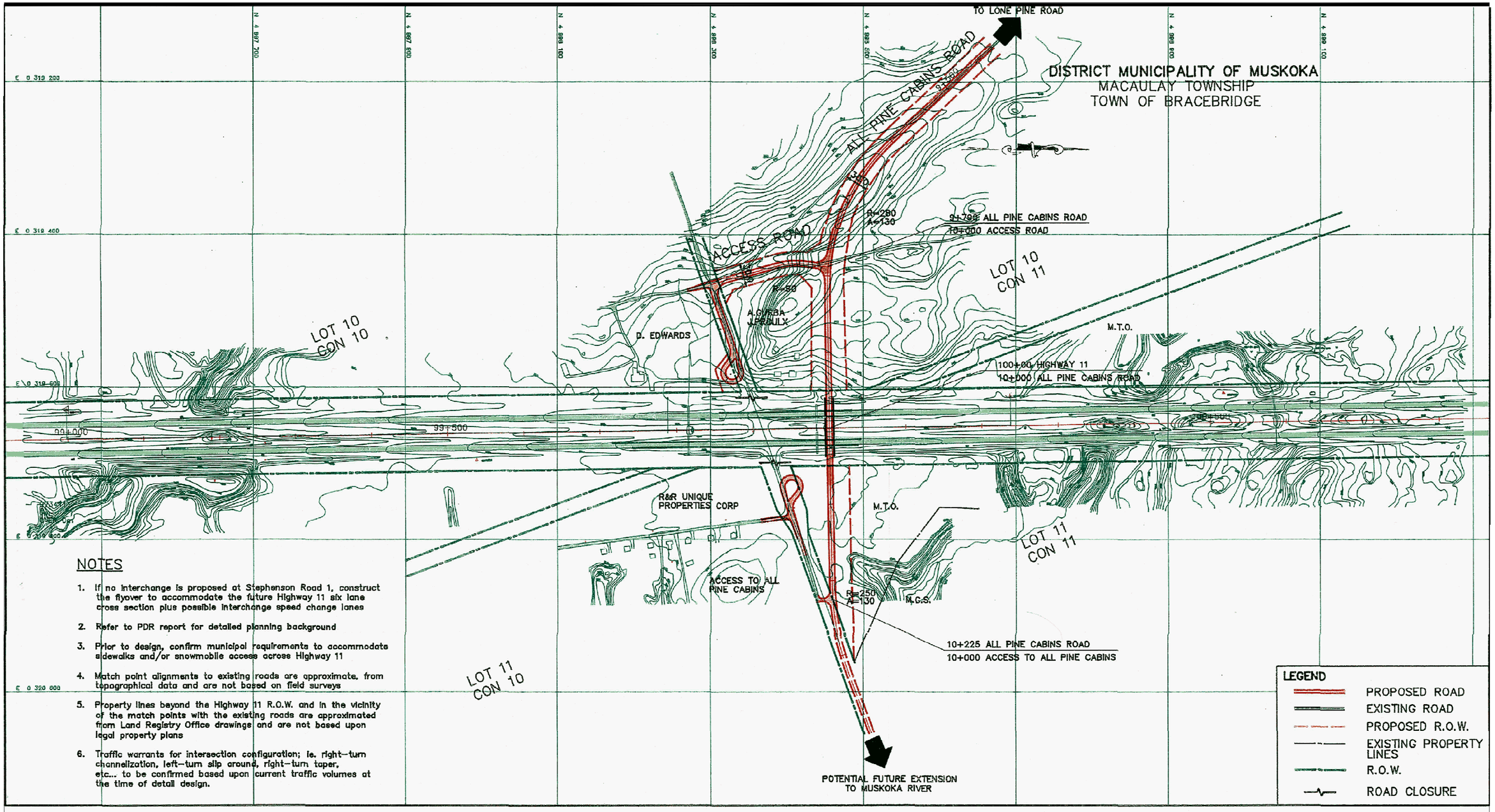
at High Falls Road, Holiday Park Drive, and Alpine Ranch Road from Muskoka Road 117 / Cedar Lane northerly for 6.3 km

GWP 322-00-00

EXHIBIT 3a

1992 Recommended Plan

Part 1 of 2



NOTES

1. If no interchange is proposed at Stephenson Road 1, construct the flyover to accommodate the future Highway 11 six lane cross section plus possible interchange speed change lanes
2. Refer to PDR report for detailed planning background
3. Prior to design, confirm municipal requirements to accommodate sidewalks and/or snowmobile access across Highway 11
4. Match point alignments to existing roads are approximate, from topographical data and are not based on field surveys
5. Property lines beyond the Highway 11 R.O.W. and in the vicinity of the match points with the existing roads are approximated from Land Registry Office drawings and are not based upon legal property plans
6. Traffic warrants for intersection configuration; ie. right-turn channelization, left-turn slip around, right-turn taper, etc... to be confirmed based upon current traffic volumes at the time of detail design.

Ontario

Stantec

HIGHWAY 11 ACCESS REVIEW

at High Falls Road, Holiday Park Drive, and Alpine Ranch Road
from Muskoka Road 117 / Cedar Lane northerly for 6.3 km

GWP 322-00-00

1992 Recommended Plan

Part 2 of 2

EXHIBIT
3b

2.0 Outline of Environmental Assessment Process

2.1 Project Specific Study Process

The project was carried out following the requirements of the *Ministry of Transportation's Class Environmental Assessment (Class EA) for Provincial Transportation Facilities* (2000). The Class EA process is for projects of a defined scope and magnitude, where the impact can effectively be determined and mitigated. This project falls within the scope of a Group "B" project, which includes introducing or eliminating municipal road access to local areas, new interchanges, and improvements that significantly modify highway/roadway traffic access to and from the facility (i.e. Highway 11).

Other aspects of the Class EA process and environmental documentation required by the process are contained in the *Class EA document.* Readers interested in these matters are encouraged to refer to that document, which is available from the MTO Research Library Online Catalogue (www.library.mto.gov.on.ca/webopac) and from Publications Ontario (www.publications.serviceontario.ca). The study process is illustrated in Exhibit 4.

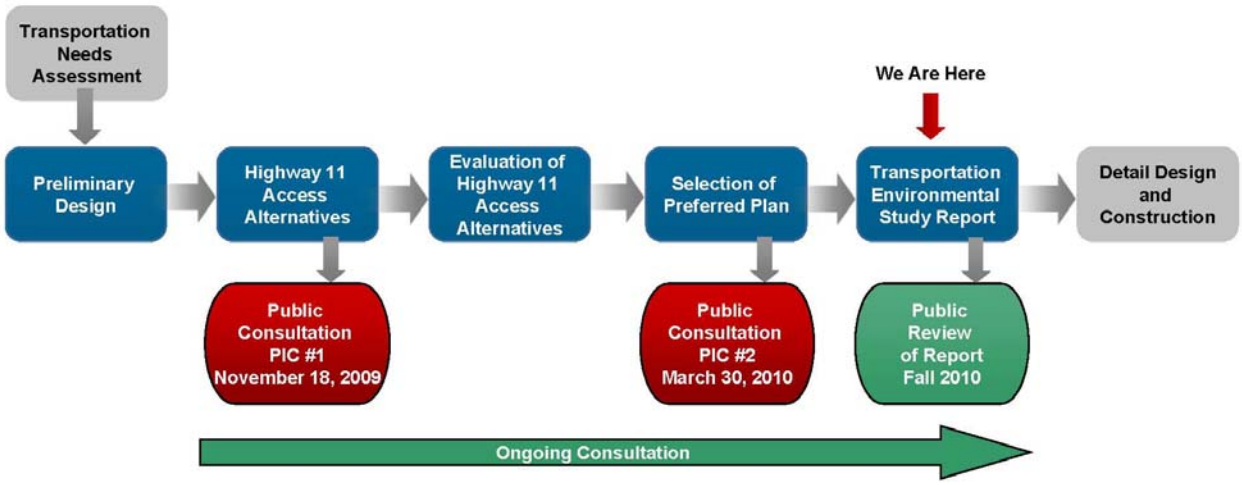


Exhibit 4: Class EA Study Process

2.2 Environmental Assessment Approval Regulations

The work on a planning and preliminary design study of this type must be carried out in accordance with the applicable environmental legislation and the current government policies and procedures. The policies and legislation that apply to this study are described below.

2.2.1 Ontario Environmental Assessment Act

The *Ontario Environmental Assessment Act* (EAA) governs the conduct of planning and preliminary design studies in the province of Ontario. The purpose of the EAA is to make sure that:

- A reasonable and traceable planning process is followed
- The need for the project is demonstrated
- The public has input into the process and investigations

- The study includes a review of a full range of alternatives
- The selected alternative minimizes any environmental impacts or provides mitigation strategies to minimize impacts resulting from the improvements

2.2.2 Canadian Environmental Assessment Act

The *Canadian Environmental Assessment Act* (CEAA, 2005) is legislation that applies to federal authorities when they are taking certain actions in support of a project or a component of the project such as providing Federal land, funds, or regulatory approvals identified in the CEAA Law List Regulations. In addition, where a federal authority is a proponent or co-proponent of a project, CEAA may be triggered.

There is the potential that CEAA will be triggered for this project as a result of approvals required under the *Navigable Waters Protection Act* (NWPA) or as a result of a *Fisheries Act Authorization* (FAA).

2.2.3 Project Specific Environmental Assessment Process

For more information on the environmental assessment process for provincial transportation facilities, the public may contact the Ministry of Environment, Environmental Assessment Branch. Documents are available to assist with understanding the process. Relevant publications include:

- *Class Environmental Assessment for Provincial Transportation Facilities*, MTO, 2000
- *MTO Environmental Reference for Highway Design*, MTO, 2006
- The Ministry of the Environment (MOE) *Code of Practice – Preparing, Reviewing, and Using Class Environmental Assessments in Ontario* (draft August 2007)

Publications are available from Publications Ontario.

2.2.4 Other Approvals Required

Undertaking an Environmental Assessment can require consideration of other approvals and review agencies. They include:

- Federal Review Agencies
  - Department of Fisheries and Oceans (DFO) – *Fisheries Act* Authorizations (FA)
  - Transport Canada – *Navigable Waters Protection Act* (NWPA)
  - Environment Canada – *Species-at-Risk Act* (SARA)
- Provincial Review/Policy Requirements
  - *Provincial Policy Statement* (2005)
  - Ministry of the Environment – *Environmental Assessment Act, Environmental Protection Act, Ontario Water Resources Act*, Certificates of Approval, Permits to Take Water, Ontario Noise Protocol, *Species-at-Risk Act*
  - Ontario Access and Privacy Office – *Freedom of Information and Protection of Privacy Act*
  - Ministry of Agriculture and Food – *Ontario Foodlands Preservation Guidelines*

  - Ministry of Natural Resources – MTO/DFO/OMNR Fisheries Protocol, Ontario Wetlands Policy, *Endangered Species Act* (ESA)
  - Ministry of Culture – Ontario Archaeological Protocol, *Ontario Heritage Act*
- Municipal Policy (District Municipality of Muskoka; Town of Bracebridge)
  - Development control, Official Plans
  - Noise Bylaws
  - Zoning Bylaws
  - Transportation Planning Policy

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3.0 Transportation Needs Assessment

An assessment of needs can result in a number of recommendations, including initiating a study, initiating major or minor improvements, initiating routine maintenance, monitoring a situation, or doing nothing. Because of the range of potential outcomes, the transportation needs assessment process includes the following:

- Identify transportation problems and opportunities
- Evaluate and selecting reasonable alternatives, including 'do nothing'
- Develop potential transportation study objectives
- Initiate the study process

This section of the Transportation Environmental Study Report (TESR) describes the transportation needs assessment process undertaken for this project.

3.1 Existing Highway

The role of Highway 11 as a provincial facility is to move people and goods safely and efficiently. At some time in the future the existing highway will not be able to safely accommodate the traffic demand resulting from inter-provincial traffic growth. To address the future demand, MTO initiated several studies to expand the two-lane Highway 11 (discussed in Section 1.1.1) and completed interim improvements to the existing highway.

Highway 11 in the study area was four-laned as a result of the *Muskoka-Parry Sound Area Highway Planning Study* conducted in 1972, which recommended that the highway be four-laned between Highway 169 in Gravenhurst to north of Huntsville. Several interchanges were included in the original design, and they were implemented over the 1970's and 1980's as traffic volumes grew and safety and operational improvements were required.

In response to predicted future increases in traffic volumes, the Ministry carried out the *Highway 11: Preliminary Design Study for the Ultimate Freeway Design* between 1990 and 1992, which identified a Recommended Plan to eliminate the remaining at-grade intersections and accesses by either closing roads or building interchanges or flyovers.

The ultimate stage within the study limits included an interchange north of High Falls Road/Holiday Park Drive, a grade-separated crossing of Highway 11 at Alpine Ranch Road, and the closure of all at-grade intersections and entrances on this section of Highway 11. This stage of the 1992 Preliminary Design Plan has not been constructed.

3.2 Problem and Opportunity

Highway 11 was originally constructed as a two-lane highway to serve provincial traffic through to the City of North Bay. As a gateway to Northern Ontario, and as a main local commuter route, use of Highway 11 has grown steadily. The upgrading of Highway 11 to a four-lane controlled-access highway has been supported by the Province of Ontario and is one of the Ministry of Transportation's current mandates.

The *problem* with the existing facility is that traffic volumes along this section of Highway 11 have been increasing over time to a point where the removal of the at-grade intersection and entrances will provide

significant safety and operational benefits for the travelling public. These ultimate stage improvements were identified it the 1992 *Preliminary Design Study*.

The Ministry, residents and the local municipality have indicated that there are safety and operational concerns with the existing at-grade intersections. Upgrading this section of Highway 11 will also provide design consistency in the area since it is located south of approved Highway 11 improvements from Stephenson Road 1 to South Mary Lake Road.

The transportation *opportunity* is for the Ministry of Transportation to update the design that was developed as part of the 1992 *Highway 11 Preliminary Design Study for the Ultimate Freeway Design*. This includes updating Environmental Assessment approvals, identifying a range of interchange and access alternatives (including the Recommended Plan from the previous study), and updating the design alternatives to make sure that current geometric highway design standards are achieved.

The objective of this study is to close all at-grade intersections and entrances on the four-lane Highway 11 while providing reasonable access to the adjacent local and regional road network.

The study has the potential to support the current Ministry mandate to upgrade the Highway 11 corridor and to provide the following benefits to Ontario motorists and visitors:

- Improve the safety and operations of the Highway 11 corridor
- Improve travel times between northern and southern population centres
- Reduce the likelihood and duration of road closures due to collision clean-up and accident investigations
- Improve access to serviced areas, allowing for continued growth of northern industry and the tourism and recreational sectors

3.2.1 Timing of Improvements

This planning study is being initiated in advance of the actual need for highway improvements. At some time in the future, the existing highway will not be able to accommodate the traffic demand resulting from inter-provincial traffic growth. The updating of the plan and investigation of reasonable alternatives in advance of the need promotes a better planning and decision-making process. The resulting future property requirements will be protected in anticipation of the ultimate corridor improvements.

3.3 Alternative Transportation Options ("Alternatives To")

The Class EA Process requires that "reasonable alternatives" be considered in addressing the identified deficiency. This involves two levels of analysis. The Alternatives to the Undertaking considers a broad range of alternatives that could address the project needs. Once the best alternative is selected, the Alternative Methods of Carrying out the Undertaking are studied.

For this project, four Alternatives to the Undertaking were identified. They included:

- Do nothing
- Manage the transportation demand
- Improve the existing transportation facilities or methods of movement (modes) which use the facilities
- Introduce a new facility or mode of transportation

Additional information on these alternatives is provided in Table 1.

Table 1: Alternatives to the Undertaking

Alternative	Options	Possible Improvements
Do Nothing		• "Status Quo" – No improvements are planned or improvements made
Manage Transportation Demand	Spread the Peak Period	• Reduce, shift or eliminate the transportation demand to avoid the need for improvements • Spread travel over a longer period of time
	Shift Travel Elsewhere	• Shift the travel from Highway 11 to another corridor where capacity is available or operational problems do not exist
	Eliminate Growth	• Control development and growth to restrict traffic both within and external to the study area
	Manage the System	• Control the use of the existing corridor through metered access to balance the demand and capacity
	Reduce Demand	• Reduce the demand by using fewer vehicles to move people and goods – requires larger trucks and a higher auto occupancy
Improve the Existing Facilities	Roadway Improvement	• Improve the existing highway facilities in the corridor
	Operational Improvements	• Introduce traffic control signals, intersection improvements, alignment improvements, truck climbing/passing lanes
	Infrastructure Improvements	• Identify highway widening/access control
	Infrastructure Addition	• Identify New Roadway/By-Pass Roadway
	Modal Addition	• Introduce/Expand local/regional bus service, high occupancy vehicle lanes, bicycle lanes, walkways
	Railway Improvements	• Improve the existing railway features
	Regional Rail Service	• Improve Toronto—North Bay rail service
	Local Transit Service	• Improve local transit service

Alternative	Options	Possible Improvements
Introduce New Modes	Introduce New Modes	• Add a new mode of travel that does not exist in the study area
	Air Transportation System	• Provide local/regional air connections
	Water Transportation System	• Provide a local/regional ferry or water taxi service

3.4 Screening and Evaluation of Transportation Options

The four conceptual alternatives include the full range of possible transportation options available within the study area. The screening process is designed to evaluate these options and select only the most reasonable alternatives for more detailed study. Unreasonable alternatives are eliminated from consideration.

The screening of the conceptual alternatives uses two screening criteria. They are:

- Does the alternative realistically address all of the problem/opportunity statements?
- Does the alternative, when used in combination with other alternatives, make a significant contribution towards realistically addressing all of the problem/opportunity statements?

Each alternative is briefly discussed below:

(1) Do Nothing

The 'do nothing' alternative involves retaining the existing at-grade intersections and entrances on Highway 11. Although the existing Level of Service (LOS) on the highway and at the intersections meets current standards, local residents, the Municipality, and MTO have indicated that there are concerns with collisions and sight distance at the existing at-grade intersections.

Since vehicular travel on Highway 11 has been increasing steadily and is expected to increase with the construction of additional highway expansion south and north of the study area; and since continued economic development and tourism has been identified as a regional priority; it is foreseeable that traffic conditions will eventually deteriorate, and safety would be compromised. Upgrading Highway 11 to a fully-controlled access highway has been identified as a provincial priority. Maintaining at-grade intersections and entrances through this section of Highway 11 will not meet driver expectations when the four-laning and access-control for the remainder of Highway 11 is completed.

MTO is committed to making Ontario's highways, roads, and bridges safer and more reliable. Since the Ministry is committed to Highway 11 as a primary north-south route in the Province, the 'do nothing' alternative is not considered to be a reasonable alternative.

This option has not been carried forward for further consideration.

(2) Manage Transportation Demand

This alternative has the potential to extend the timeframe for improvements but does not eliminate the need for a plan for long-term capacity requirements in the study area.

Managing demand includes reducing, shifting, or eliminating transportation demand to the point where there is no longer a need for improved transportation infrastructure or operation within the study area. This option does not address the issue of driver exception or the provincial commitment to maintain Highway 11 as a primary north-south route.

This option was not carried forward for further consideration.

(3) Improve Existing Highways

Highway improvements can include standard maintenance, operational and safety improvements to the highway, and intersection improvements.

- Standard maintenance would include short-term improvements and minor repairs to the pavement structure, patch repairs to culverts and bridges, and localized ditch cleaning. Although some interim improvements have been undertaken, this option will not correct the identified operational deficiencies and was not carried forward for further consideration.
- Operational and safety improvements could include improvements to intersections and improving highway geometrics. Minor safety improvements are short-term solutions that would not significantly improve the operations of the facility. Upgrading the highway to a controlled access highway with access at interchanges only would improve the safety and operations of Highway 11. The most important benefit of access management is providing a safer highway and decreasing the number of severe collisions. This is accomplished by limiting the number of conflicts (removing accesses) and separating potential conflict points by providing access at interchanges.
- The *Highway 11 Preliminary Design Study for the Ultimate Freeway Design* identified a Recommended Plan for a future Highway 11 as discussed in Section 1.1.1. This option addresses the long-term need to improve traffic operations and safety on Highway 11. Since a number of years have passed since the study was carried out, there is a potential that some of the conditions that were originally assumed (i.e. traffic volumes, land use, geometric design, and interchange spacing) could have changed in that time period. In order to provide a facility that will accommodate future traffic conditions, the study must be reviewed and updated to current engineering and environmental standards. Since the Recommended Plan was previously approved, it is reasonable to include it as an alternative. This option is consistent with the Government's strategy to improve northern highways based on preserving existing infrastructure; planning, designing, and building for the future; and enhancing safety and efficiency.

This option has been carried forward for further consideration.

(4) Alternate Modes of Transportation

Ontario Northland provides passenger bus service to and from Toronto and North Bay, with service to the Town of Bracebridge.

- **Improve Railways** – This alternative may suit future long-distance travel needs. However, the demand for this type of service, the feasibility and cost effectiveness will not address the problem of operations and safety on Highway 11 locally.

- **Air Transport** – Improvements to air transportation for regional travel will continue to be market driven by the cost and the demand. The Muskoka Airport is a small domestic airport located between Gravenhurst and Bracebridge, and provides private and commercial service to approximately 45,000 passengers per year. Air transportation in a local context is not a reasonable or a cost-effective alternative.
- **Active Transportation** – the District of Muskoka has established an Active Transportation (AT) Committee to identify and implement AT Strategies in the District.

Some of the traffic increases on Highway 11 in the study area are due to an on-going rise in tourism, recreation, and business development in the Bracebridge and Huntsville area and beyond, leading to an increase in traffic, particularly on summer weekends, While there may be a possibility to promote alternate modes of transportation, it is not likely that the demand for alternate modes of transportation will increase to a point where the level of service of Highway 11 (especially for vehicle turning and crossing movements at the at-grade intersections) is improved to the point where physical improvements are not required.

The Ministry of Transportation continues to promote alternative modes of transportation. However, this alternative was not considered to be an appropriate option for this study since it does not address the operations of the highway and intersections.

This option was not carried forward for further consideration.

3.4.1 Result of Screening and Evaluation of Transportation Options

Since the 'do nothing', manage transportation demand, and alternate modes of transportation were not considered to be viable alternatives, the Ministry of Transportation initiated this study to identify alternatives for the closure of at-grade access to Highway 11 in the study area.

4.0 Existing Conditions

This section of the report provides an overview of the natural, social and cultural environmental conditions of the study area.

Background studies and site specific field investigations were carried out for traffic operations, archaeology, fisheries and aquatic resources, terrestrial resources, drainage and noise. All work was carried out in accordance with the requirements of the *Environmental Reference for Highway Design* (ERHD, 2006), which provides standards for scope of work, evaluation of potential impacts and proposed mitigation measures for MTO undertakings.

Existing Environmental Conditions in the study area are depicted on Exhibit 5.

4.1 Natural Environment

The natural environment along the Highway 11 corridor from Gravenhurst to Huntsville was originally studied as part of the *Highway 11: Preliminary Design for the Ultimate Freeway Design* (WP 341-87-00) in 1992. The study produced an inventory of the natural environment from a review of previous studies, field inventories, and information provided from external agencies and the public. Detailed terrestrial resources and aquatic studies have been conducted as part of this project since information from the previous study was primarily gathered from secondary sources.

Photo 1: Highway 11, looking north from the interchange at Cedar Lane/Muskoka Road 117

A search of the Ministry of Natural Resources (MNR) Natural Heritage Information Centre (NHIC) indicates that one Life Science and one Earth Science site are located in the study area. Neither site is considered to be provincially significant.

4.1.1 Topography and Geology

The Highway 11 corridor is in an area of lowlands and flats interrupted by bedrock outcroppings.

The site is located in the area of the Canadian Shield where extensive glaciation has occurred, and is within the physiographic region known as the Number 11 Strip. This area is comprised of a narrow strip of land that follows Highway 11 from Gravenhurst to North Bay. The local topography is undulating as the highway traverses areas which alternate between steep rock ridges and low lying swampy areas. The native overburden soils consist mainly of fine sands and silts.

The existing highway traverses several different geological units including:

- Glaciolacustrine delta comprising sands and gravels
- Bedrock knobs and ridges
- Bedrock outcrops, where bedrock is exposed or under a relatively thin soil veneer
- Sandy ground moraine deposits over bedrock
- Sandy alluvial plain and sand and gravel outwash plains east of Highway 11 along the North Muskoka River
- Localized wetland areas containing peat, silt, sand and clay deposits, typical of the Northern Ontario Region

Soils in the study area consist primarily of fine sands and silts.

4.1.2 Drainage, Stormwater Management, and Groundwater

The District Municipality of Muskoka lies within the Muskoka River Watershed and the Black-Severn River Watershed. Within the project limits there are a total eight culverts crossing both lanes of Highway 11 along with four culverts crossing both lanes but separated by a ditch in the median. Networks of creeks and rivers convey flows towards the North Muskoka River. Water from the North Muskoka River eventually discharges into Lake Muskoka.

The North Muskoka River flows northwesterly to a dam located approximately 150 metres west of Highway 11. The dam is operated by Bracebridge Generation, and was originally constructed in 1947.

The Ministry of Natural Resources (MNR) has identified the Muskoka River system as a priority for water management planning due to its social (recreational), environmental, and economic importance. The *Muskoka River Water Management Plan* (2003) provides an overview of the preferred operational strategy for waterpower facilities and operational dams in the watershed.

Highway runoff is collected in the median and grass swales/ditches along the outside shoulders of the highway and drain towards ditch inlet catchbasins and their associated watercourses.

4.1.3 Fisheries and Aquatic Resources

Lakes, rivers, streams, ponds and many wetlands provide fish habitat. Intermittent and seasonally flooded areas can also provide important habitat for some fish species at certain times of the year. In addition, in-water structures such as logs, stumps and other woody debris, pools and riffle areas, riparian and aquatic vegetation and groundwater recharge/discharge areas also provide fish habitat. Fish habitat

includes the watercourses that act as corridors that allow fish to move from one area to another. Fish habitat provides food, cover, and conditions for successful reproduction and support of fish life-cycles.

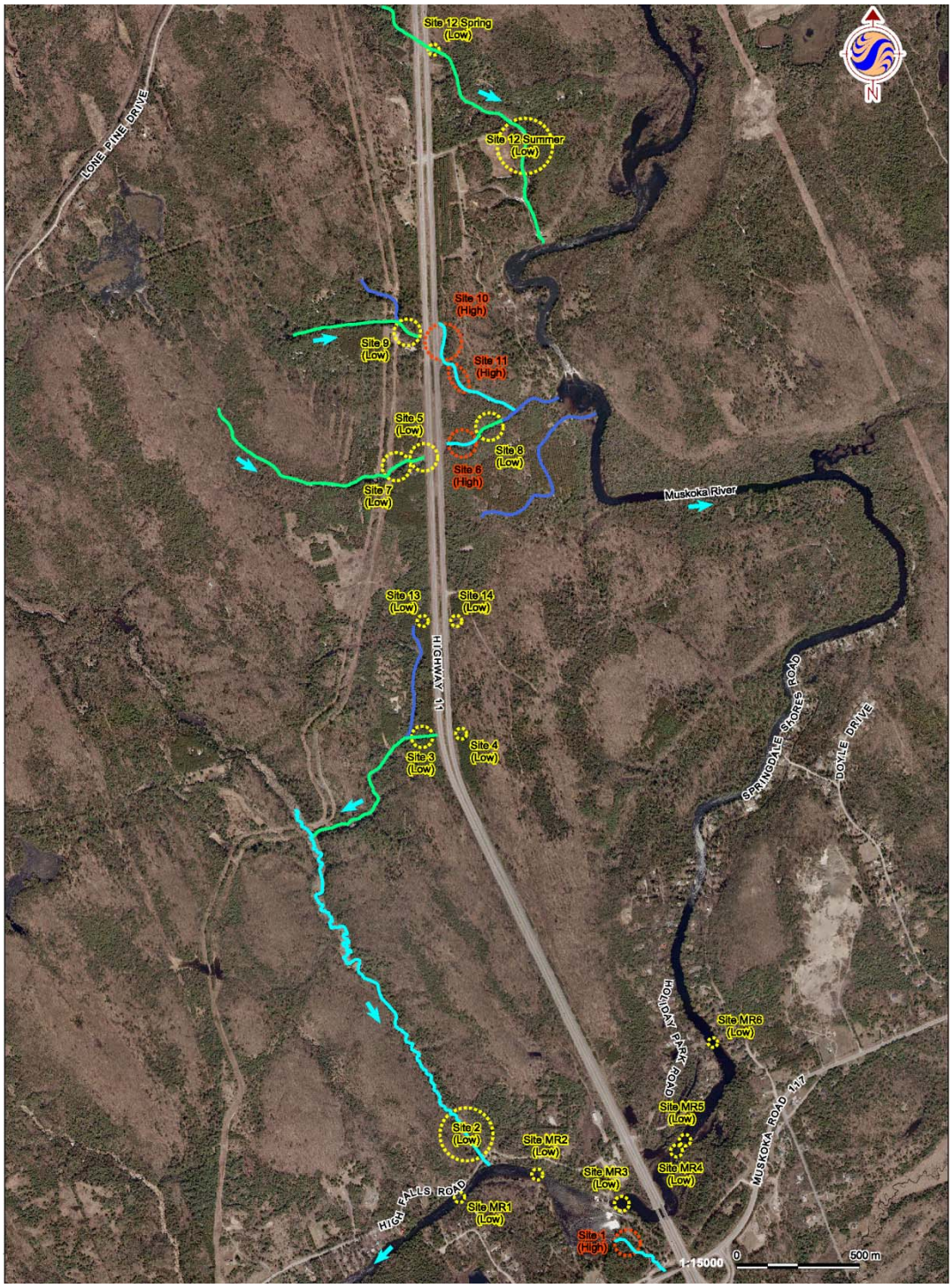
Primary fisheries concerns related to transportation projects include fish habitat impacts such as sedimentation (related to construction activities) and harmful alterations (construction activities that occur in the water). These concerns are generally centered on water crossings and work adjacent to watercourses or lakes.

A *Fisheries and Aquatic Ecosystems Study* was carried out as part of this study with fieldwork conducted in June, September and October 2009. The *Fisheries and Aquatic Ecosystems Report* is on file with the Ministry of Transportation. All field investigations were conducted according to the MTO *Environmental Reference for Highway Design* (2006) and the MTO *Environmental Guide for Fish and Fish Habitat* (2006).

Photo 2: North Muskoka River Bridges

The main watercourse in the study area is the North Muskoka River. Highway 11 crosses the river north of the Muskoka Road 117/ Cedar Lane interchange. The North Muskoka River has a number of rapids and hydro-electric dams that are a barrier to the upstream movement of fish along the watercourse.

Fisheries resources in the study area were identified through on on-site sampling and data provided by the Ministry of Natural Resources (MNR) and Department of Fisheries and Oceans (DFO). A summary of fish and aquatic resources in the study area is provided in Table 2 and Table 5 and illustrated on the following page. Warmwater, coolwater, and coldwater fish habitat are all present in the study area.


Site 12 Spring (Low)
Site 12 Summer (Low)
LONE PINE DRIVE
Site 10 (High)
Site 9 (Low)
Site 11 (High)
Site 5 (Low)
Site 8 (Low)
Site 6 (High)
Site 7 (Low)
Muskoka River
Site 13 (Low)
Site 14 (Low)
HIGHWAY 11
Site 3 (Low)
Site 4 (Low)
SPRINGDALE SHORES ROAD
DOYLE DRIVE
HOLIDAY PARK ROAD
Site MR6 (Low)
Site MR5 (Low)
MUSKOKA ROAD 117
Site 2 (Low)
Site MR2 (Low)
Site MR3 (Low)
Site MR4 (Low)
HIGH FALLS ROAD
Site MR1 (Low)
Site 1 (High)
1:15000
0
500 m

Fish and Fish Habitat Survey Locations and Sensitivities

Fieldwork carried out for a recent Ministry of Transportation culvert replacement identified fish spawning habitat in the North Muskoka River tributary located near the Highway 11/ Muskoka Road 117 interchange.

There are no known occurrences of aquatic Species-at-Risk in the study area.

A summary of existing fisheries and aquatic resources is provided in Table 2 and Table 3.

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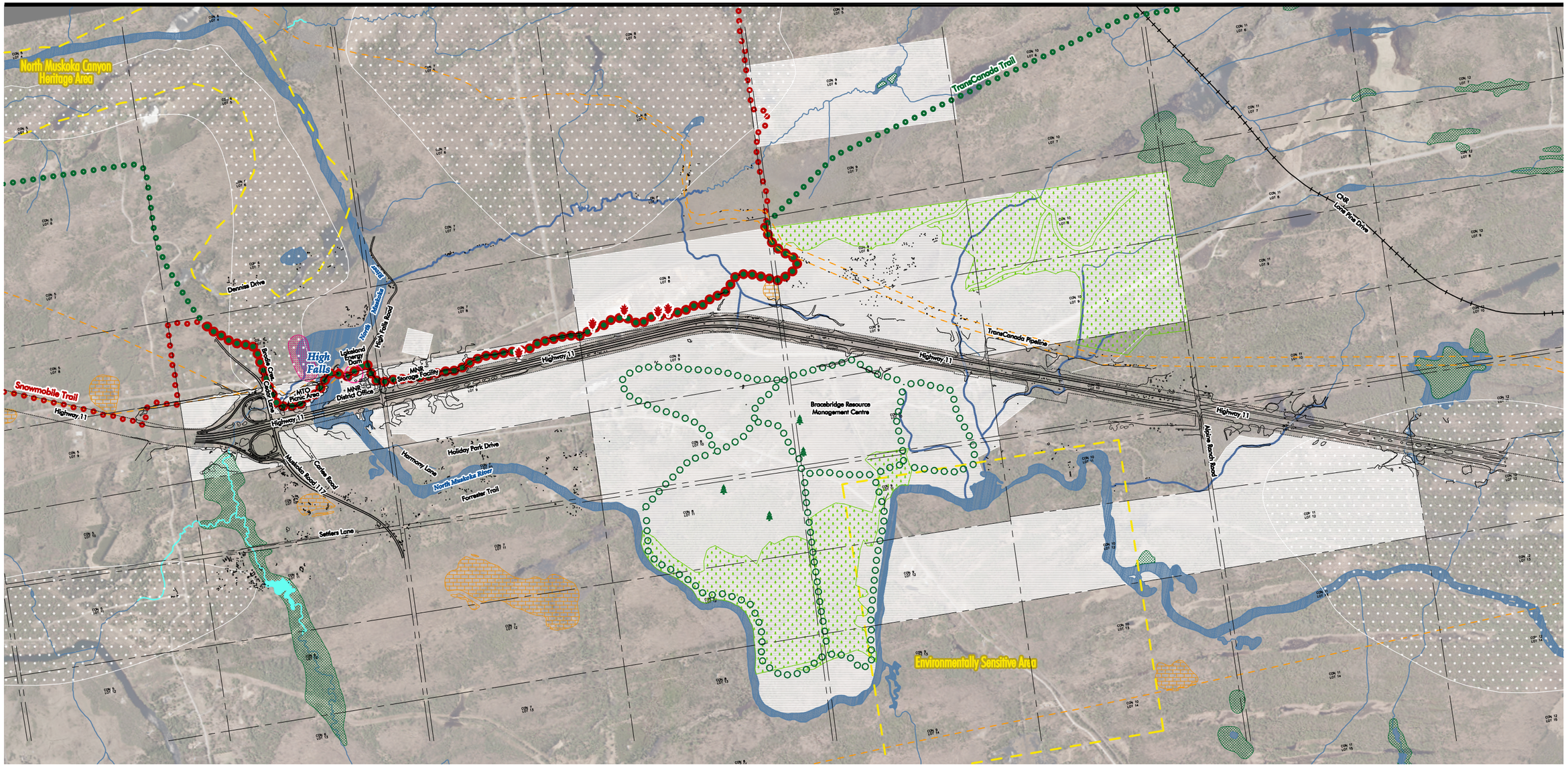


Road
Utility Line
Nesting Site
Multi-use Trails
TransCanada Trail
Snowmobile Trail
Snowmobile/TransCanada Trail
Wetland
Water
Watercourse
Spawning Area
Deer/Moose Wintering Area
Aggregate Resources
Managed Forest
Archaeological Potential
Crown Land
Environmentally Sensitive Area
Forest Research Plot
Red Oak Forest Research Plot

Ontario

Stantec

HIGHWAY 11 ACCESS REVIEW

at High Falls Road, Holiday Park Drive, and Alpine Ranch Road
from Muskoka Road 117 / Cedar Lane northerly for 6.3 km

GWP 322-00-00

data sources:
Ontario Ministry of Natural Resources (NRVIS/LIO, 2009)
Town of Bracebridge (Official Plan, 2006)
District Municipality of Muskoka (Orthophoto, Nov. 2008)
TransCanada Trail (on.gpx, 2009)

EXHIBIT 5

Existing Environment

300m
1:20 000

Table 2: Summary of Fish and Fish Habitat Existing Conditions

Site Number (see Exhibit 5)	Flow / Thermal Regime	Substrate Type / Morphology	Vegetation (riparian and instream)	Directly Supports a Fishery	Fish Species Present[b]	Sensitivity (MNR)	Comments
Site 1: South Tributary of Muskoka River	Permanent Coldwater[a]	Pool and Runs primarily bedrock Gravel and Sand Riffle Width: 0.7 to 5 m	Riparian: alder, spruce, raspberry, blackberry, goldenrod, white pine, red maple, joe-pye weed Instream: none	Yes	Brook Trout, Pearl Dace, Creek Chub, Fathead Minnow , Northern Redbelly Dace, Finescale Dace	High	Migration barriers (2 falls) 45% instream cover, 30 – 60% overhead canopy Possible brook trout spawning habitat
Site 2: North Tributary of Muskoka River (west and parallel to Highway 11)	Permanent Coldwater[a]	Run morphology: sand, silt and detritus Width: 1.5 to 3 m	Riparian: alder, grass, goldenrod, spruce, red maple, red pine, fern Instream: arrowhead, grass and potamogeton	Yes	Creek Chub, Common Shiner, White Sucker, Blacknose Dace, Bluntnose Minnow, Rock Bass	Low	No migratory barriers 35% instream cover, 1 – 30% overhead canopy New culvert being installed at High Falls Road Despite coldwater designation, MNR allowable construction window is July 1 to March 31
Site 3: Tributary to Site 2 (unnamed watercourse)	Intermittent Warmwater			?	Too shallow for fish in spring, dry in summer	Low	
Site 4: Tributary to Site 2 (unnamed watercourse)	Intermittent Warmwater			?	No catch in spring, dry in summer	Low	

Site Number (see Exhibit 5)	Flow / Thermal Regime	Substrate Type / Morphology	Vegetation (riparian and instream)	Directly Supports a Fishery	Fish Species Present[b]	Sensitivity (MNR)	Comments
Site 5 and 7: Unnamed E-W watercourse	Permanent Warmwater	Mostly riffle with some pool and run habitat, consisting of sand and silt	Riparian: alder, grass, burreed, aster, spruce, maple, white birch, white pine, white cedar Instream; grass, algae, burreed	Yes	Creek Chub	Low	Seeps observed No migratory barriers 55% instream cover, 1 – 30% overhead canopy
Site 6: Unnamed E-W watercourse	Permanent Coldwater	Mostly riffle with 20% pool, 20% run, consisting of sand, gravel, silt	Riparian: alder, grass, goldenrod, yellow birch, white spruce, white pine Instream: none	Yes	Brook Trout, Creek Chub	High	Seeps and iron staining observed No trout redds observed Beaver dam downstream of culvert pool 45% instream cover, 30 – 60% overhead canopy
Site 8: Unnamed E-W watercourse in deep valley	Premanent Warmwater	Mostly riffle with 30% run, 10% pool, consisting of sand, clay, silt	Riparian: alder, grass, aster, spruce Instream: none	Yes	No catch	Low	Iron staining observed No trout redds observed Stream disappears beneath bank and may be migration barrier 30% instream cover, 30 – 60% overhead canopy
Site 9: Unnamed E-W watercourse in deep valley	Permanent Warmwater	50% run, 35% pool, 15% riffle, consisting of sand, silt, detritus	Riparian: alder, grass, aster, touch-me-not, red maple, goldenrod, raspberry, fern, spruce, white birch, balsam fir Instream: grasses	Yes	Creek Chub	Low	No migratory barriers 50% instream cover

Site Number (see Exhibit 5)	Flow / Thermal Regime	Substrate Type / Morphology	Vegetation (riparian and instream)	Directly Supports a Fishery	Fish Species Present[b]	Sensitivity (MNR)	Comments
Sites 10 and 11: Unnamed E-W watercourse in deep valley	Permanent Coldwater	70% run, 15% pool, 15% riffle, consisting of sand, silt, clay	Riparian: alder, grass, touch-me-not, goldenrod, hemlock, balsam fir, red maple, aster, ferns, white pine, white spruce Instream: none	Yes	Brook Trout, Creek Chub	High	No migratory barriers Seeps observed No trout redds observed 95% instream cover, 30 – 60% overhead canopy
Site 12: Unnamed Tributary to the Muskoka River	Permanent Warmwater	59% run, 40% pool, 10% riffle, consisting of sand, silt, gravel	Riparian: alder, aster, grass, touch-me-not, balsam fir, red maple, ferns, white pine, red pine, spruce, yellow birch, raspberry Instream: small amount of watercress	Yes	Northern Redbelly Dace, Creek Chub	Low	Watercress and iron staining observed Possible seasonal migration barrier (low flow) 65% instream cover
Sites 13 and 14	Intermittent Warmwater	n/a	n/a	No	Too shallow to fish in spring, dry in summer	Low	
North Muskoka River	Permanent Coolwater[a]	See Table 3		Yes	Not fished – MNR species list includes Northern Pike, Rock Bass, White Sucker, Yellow Perch, Pearl Dace	Low	

[a] thermal regimes provided by MNR from MNR file data; all other designations assigned by MNR based on Stantec 2009 fish community surveys

[b] all fish community data are from Stantec's 2009 field surveys, with the exception of Site 1 and North Muskoka River

Table 3: Summary of Fish and Fish Habitat Existing Conditions – North Muskoka River

Station Name	Flow	Thermal Regime	Width/Max. Depth	Morphology	Substrate Types	Aquatic Vegetation	Instream Cover
North Muskoka River	Permanent	Coolwater[a]					
MR1			40 m wide, 3 m deep	95% run 5% riffle	50 to 80% boulder (location-dependent), 10% sand, 10% gravel	Potamogeton	90% boulders + large woody debris, instream vegetation
MR2			50 m wide, 3.4 m deep	100% run	85% sand, 10% silt, 5% detritus	Generally absent but small patch of Potamogeton present	15% vascular plants, 5% large woody debris
MR3			67 m wide, 5.4 m deep	100% pool	70% silt, 25% sand, 5% detritus	15% of area covered by aquatic veg (Potamogeton, floating, emergent)	Moderate: 15% instream vascular plants, 10% organic debris, 10% large woody debris, 5% undercut banks
MR4			49 m wide, 4.8 m deep	100% run	90% sand, 5% silt, 5% detritus	<10% of area covered by aquatic veg (submergent and floating)	15% large woody debris, 10% organic debris, instream vascular plants
MR5			52 m wide, 4.1 m deep	100% run	80% sand, 10% gravel, 10% silt, 5% detritus	25% of area with submergent, floating and emergent	20% instream vascular plants, 15% large woody debris, <5% organic debris
MR6			48 m wide, 4.5 m deep	100% run	65% sand, 10% silt, 20% gravel, 5% detritus	15% submergent and emergent	Aquatic vegetation, woody debris

4.1.4 Terrestrial Ecosystems

The terrestrial ecosystem includes vegetation, forested areas, wetlands, and wildlife.

A *Terrestrial Ecosystems Study* was carried out for this project with fieldwork undertaken in September 2009. No Provincially Significant Wetlands, provincial or national parks, or conservation areas were identified within the Highway 11 study area.

The *Terrestrial Ecosystems Report* is on file with the Ministry of Transportation.

4.1.4.1 Significant Natural Features

Two locally significant Environmentally Significant Areas (ESAs) have been identified in the vicinity of the study area. The North Muskoka Canyon life science ESA is located southwest of the study area, provides wildlife habitat, and is a locally significant wildlife corridor. The Sage Creek Subaquatic Fan (a sand and gravel deposit) is located east of the study area.

4.1.4.2 Vegetation

The study area is located in the Georgian Bay section of the Great Lakes – St. Lawrence Forest Region. The most common forest trees in this region are sugar maple, beech, basswood, yellow birch, eastern hemlock, eastern white pine, red maple, and white ash, which form mixed stands on the uplands.

Fourteen vegetation communities were identified within the Highway 11 study area, with additional anthropogenic (i.e. human-influenced) communities. Vegetation in the study area is dominated by mixed forest and deciduous forest. There are also a number of woodlots and unevaluated wetlands in the study area.

Three wetland communities are present within the study area. Two thicket swamps are located in the southern portion of the study area dominated by speckled alder. A single mixed swamp consisting primarily of red maple and conifers in the canopy and subcanopy is located east of Highway 11 along the western shore of the North Muskoka River. None of the vegetation or wetland communities is considered to be significant at national or provincial scales, according to NHIC rankings.

Managed Forest

Much of the study area is comprised of forested Crown Land that provides contiguous areas of habitat east and west of Highway 11. Forestry resources in the study area are managed by Westwind Forest Stewardship Inc. Areas of managed forest are illustrated on Exhibit 5. The forested area in the Bracebridge Resource Management Centre consists primarily of forest research plots.

There are additional Red Oak forest research plots west of Highway 11, west of the Trans Canada Trail. MNR has indicated that they place a high value on the forest research plots based on the extent of research that has been carried out in the study area and the age of the existing tree specimens.

4.1.4.3 Wildlife and Wildlife Habitat

The provision of wildlife habitat is one of the primary ecological functions of natural heritage features and areas. The protection and management of wildlife habitat is fundamental to the maintenance of self-sustaining populations of wildlife and to biodiversity.

Secondary sources and MNR were used to identify the range of species that are potentially within the study area. One butterfly species, 15 amphibians, 11 reptiles, 95 birds, and 43 mammals are believed to represent the range of species present within or in the vicinity of the study area.

Deer wintering yards were identified by MNR based on the quality and quantity of cover, amount of food available, and relative density of deer population. Deer wintering areas have been identified north, south, and west of Highway 11 as illustrated on Exhibit 5.

Open space linkages are provided in the study area both east and west of the highway.

Avian Species and Migratory Birds

The *Ontario Breeding Bird Atlas* (2005) indicates that the Red-Shouldered Hawk, Osprey, Great Blue Heron, and Merlin are all significant bird species that have the potential to be present within the study area. The Canada Warbler is listed as Threatened and is afforded protection by both the Federal *Species-at-Risk Act* (SARA) and Provincial *Endangered Species Act* (ESA).

The Red-shouldered Hawk is considered a rare (S4) species but not provincially at risk. The Red-shouldered Hawk is an area sensitive species. Habitat for this species is present in the wooded areas of the study area.

Habitat for an additional 24 area sensitive species and 28 Partners-in-Flights priority species are known to be present in the study area.

Species-at-Risk

In Ontario sensitive wildlife species and their habitat are protected under the *Provincial Policy Statement* (2005), the Ontario *Endangered Species Act* (2007), and the federal *Species-at-Risk Act* (2002).

No federally or provincially protected species were observed during field investigations. Based on secondary source materials, five reptile or amphibian and five significant bird species are potentially within the study area.

Of these, the study area provides suitable habitat for the following species:

- Bullfrogs (Area Sensitive) are provincially ranked secure (S5) or apparently secure (S4), and require primarily aquatic habitat, which is present in the study area.
- Snapping turtle – Snapping turtles rarely leave the water unless to travel to deposit their eggs. They are found in both large bodies of water or small ponds.
- Blanding's turtle – Blanding's turtles frequent lakes, ponds, and marshes, and prefer shallow water with abundant aquatic vegetation and a soft bottom. The Blanding's turtle is also known to utilize upland habitats adjacent to wetland areas. During this study, MTO and the Ministry of Natural Resources identified several areas of known Blanding's Turtle habitat within the study area.
- Eastern milksnake – Eastern milksnakes favour open woodlands, fields, and farm buildings and are commonly associated with rural areas.

- Eastern hog-nosed snake – Eastern hog-nosed snakes inhabit areas with sandy soil, in light, dry wooded areas or meadows and also require access to wet areas or areas with an abundance of amphibians. This snake species is also area sensitive, requiring 5 ha of habitat.
- Northern long-eared bat (Provincially Rare) – The northern long-eared bat utilizes a wide variety of habitats therefore specific areas for habitat have been defined within the study area at this time.
- Snowshoe hare (Area Sensitive) – Snowshoe hares require large areas of contiguous forest.

4.2 Socio/Economic Environment

The study area is located in the District Municipality of Muskoka and the Town of Bracebridge.

The Town of Bracebridge's urban centre is south of the study area and is primarily accessed from the Highway 11/Taylor Road interchange, south of the study area.

The study area includes scattered rural and waterfront properties, rural and recreational open space, and Crown land.

4.2.1 Land Use

The Town of Bracebridge *Official Plan* (2005) and the District of Muskoka *Official Plan* (2008) provide guidance for land use and development in the study area.

The study area includes:

- The Bracebridge Resource Management Centre (BRMC) , an extensive recreation area, located east of Highway 11 between the North Muskoka River and Alpine Ranch Road
- A Ministry of Transportation picnic area northwest of the Highway 11/Cedar Lane interchange
- The Ministry of Natural Resources (MNR) Bracebridge District office and storage facility, located on the west side of Highway 11 on High Falls Road

The remainder of the study area is rural and contains rural and shoreline residential properties, open resource and recreation areas, and Crown land. There are two hunt camps located on the west side of Highway 11 that currently have direct access to the highway.

The MNR Crown Land Use Policy Atlas identifies the area as part of the Bracebridge General Use Area

The relevant policy provides direction for the management of Crown Land, with the following sections that are applicable to the study area:

- Resource Management Centres – these are intended to provide resource products, recreation facilities and contribute to public understanding of resource management
- Timber Research Plots - established to generate knowledge, and to develop techniques and methods in the fields of forest biology and management, in order to manage the forest more effectively

The policy indicates the Province's intent to maintain the areas identified above.

4.2.2 Emergency Services

Fire and ambulance services are available from the Town of Bracebridge. The fire station in Bracebridge is located on Dominion Street in Bracebridge. The Muskoka Ambulance Communication Service Centre is located on Cedar Lane just southwest of the Highway 11/Taylor Road interchange.

Police service in the Town of Bracebridge is provided by the Bracebridge Detachment of the Ontario Provincial Police.

Emergency service providers that respond to crises in and around the study area were requested to complete an Emergency Service Providers Questionnaire.

The questionnaire returned by the Bracebridge Fire Department indicated the following existing estimated response times in the study area:

- Holiday Park Drive – 7 minutes
- High Falls Road – 7 minutes
- Alpine Ranch Road – 9 minutes
- Bracebridge Resource Management Centre – 8 ½ minutes

The estimated response times are assumed to be a measurement of time to travel from the existing Fire Departments to the Highway 11 intersections with the above-noted municipal roads.

4.2.3 Recreation

There are a number of recreational areas and trails located within the study area, including a hiking and cross-country ski trail network in the Bracebridge Resource Management Area (BRMC) and the Trans Canada Trail. Active transportation routes and opportunities, potential impacts to the existing recreational trail network and connectivity between trails across Highway 11 were all considered during the study.

4.2.3.1 Bracebridge Resource Management Centre (BRMC)

The Bracebridge Resource Management Centre (BRMC) is an area of Crown Land located on the east side of Highway 11 and covers a significant amount of the study area. The lands were purchased by the Crown to promote recreation and resource management. Forests on the property are managed as part of a Forest Management Plan. The trails within the BRMC are occasionally used as forestry haul roads.

The BRMC provides an extensive network of recreational trails that are maintained by the Town of Bracebridge and groups of volunteers, and includes year-round recreation trails and a picnic area. The BRMC is well used and an informal survey carried out in the 1990's counted approximately 800 vehicles entering and exiting the BRMC parking lot over a winter weekend.

The MNR, District of Muskoka, Town of Bracebridge, and local residents identified an interest in maintaining good access to the BRMC.

4.2.3.2 Recreational Trails and Active Transportation

The Trans Canada Trail is located within the study area. The Trans Canada Trail crosses the North Muskoka River on a bailey bridge east of the High Falls dam, west of the Highway 11 North Muskoka River bridge, follows High Falls Road easterly and then continues north along the west side of Highway 11 for approximately 2 km. Past this point the trail heads northwest outside of the study area.

A local snowmobile trail follows approximately the same alignment as the Trans Canada Trail.

During the study, the Muskoka Trails Council and the Municipality's Active Transportation Committee expressed an interest in improving active transportation, providing safe pedestrian and cyclist opportunities and maintaining connectivity with recreational trail networks on both sides of Highway 11 within the study area. Local residents and stakeholders also noted that cyclist access (i.e. Active Transportation) across Highway 11 at High Falls Road is very important.

The west side of Highway 11 also includes a network of ATV trails located on Crown Land that are used recreationally and to access nearby hunt camps. During the study, MNR noted that there are currently non-permitted entrances on Highway 11 that provide access to private hunting camps.

4.2.4 Noise

This study included a *Noise Study* that was carried out in accordance with the *MTO Noise Guide* (2006). The Noise Study is on file with the Ministry of Transportation.

The study confirmed that highway traffic is the predominant source of noise in the study area. Noise levels from the existing highway fluctuate and depend on the topography, seasonal traffic volumes and percentage of truck traffic. Existing sound levels at residential Outdoor Living Areas (OLAs) were predicted to be in the range of 51 dBA to 59 dBA, which are within the provincial thresholds.

Noise impacts and mitigation are discussed in Section 7.10.2.5.

4.3 Cultural Environment

4.3.1 Archaeology

A *Stage 1 Archaeological Assessment* was carried out as part of the study in accordance with the provisions of the *Ontario Heritage Act* (1990) and the *Standards and Guidelines for Archaeological Assessments* (2006) provided by the Ministry of Culture (MCL). The report is on file with the Ministry of Transportation.

The assessment included an archival search using the Ontario Ministry of Culture Archaeological Sites Database to determine the presence of any registered (or unregistered) archaeological resources that might be located on or within a 2 km distance of the study area. The archival search identified three registered Archaeological Sites directly within the study area.

A preliminary assessment of archaeological potential in the study area was undertaken based on soil, hydrology, and landform considerations. A review of the area's archaeological potential indicated that the study area has a high archaeological potential for pre-Contact sites due to the proximity of watercourses and a high potential for Historic-era sites, due to its location along a historically surveyed thoroughfare (Highway 11). The results of the Stage 2 investigations are discussed in Section 7.10.3.

4.3.2 Cultural Heritage

A *Cultural Heritage Inventory* was carried out as part of the study. The report is on file with the Ministry of Transportation.

The intent of the study was to identify any cultural heritage features within or near the study area.

The assessment identified the following cultural features:

- The truss bridge that carries the southbound lanes (SBL) of Highway 11 over the North Branch of the Muskoka River
- The Bracebridge Power Generation Station at High Falls
- High Falls and its associated archaeological sites and portage routes
- The house at 1299 High Falls Road

Of these, the heritage resources around High Falls were identified as having significant heritage value. The area around High Falls contains a dense concentration of significant cultural heritage features. The steel truss bridge, the generating station, and the entire falls area (with its associated pre-Contact era archaeological sites and portage routes) represent a significant, multi-layered cultural heritage landscape.

The landscape carries strong associations with regionally-significant historical themes including Pre-Contact habitation, early European Exploration, early European and First Nations contacts, Pioneer settlement, the development of transportation networks, and early Industry.

5.0 Preliminary Design

This section of the report provides information on the evaluation process that was followed to identify and confirm a Preferred Plan for improvements to the Highway 11 corridor between High Falls Road / Holiday Park Drive and Alpine Ranch Road.

A copy of the 1992 Ultimate Stage Recommended Plan is provided in Exhibit 3 in Section 1.1.2.1. The 1992 plan was not constructed. This current study has included a review of that plan and the development and consideration of new access alternatives.

5.1 Development of Alternatives

The development of alternatives began with identifying and evaluating a range of potential interchange and access alternatives to meet the goal of providing a controlled access highway within the study limits. The following sections identify the range of potential alternatives that were considered.

5.1.1 1992 Recommended Plan

The 1992 Recommended Plan was reviewed and ultimately screened out from further consideration because of its proximity to the existing interchange at Cedar Lane/Muskoka Road 117. Closely spaced interchanges are undesirable because they can compromise highway safety. Conflicts can occur between vehicles entering and exiting the highway at different speeds over a relatively short distance.

5.1.2 Potential Interchange Locations

The development of alternatives began with identifying five potential interchange locations. These interchange locations were selected based on the ability to connect the local road network to the interchange to provide reasonable local access to Highway 11. An initial review of the interchange locations was undertaken to determine which locations should be carried forward for further consideration and developed in more detail. The interchange locations that were considered are discussed below.

5.1.2.1 High Falls Road/Holiday Park Drive

An interchange at High Falls Road/Holiday Park Drive was screened out from further consideration because of its proximity to the existing interchange at Cedar Lane/Muskoka Road 117. Closely spaced interchanges are undesirable because they can compromise safety. Conflicts can occur between vehicles entering and exiting the highway at different speeds over a relatively short distance.

5.1.2.2 North of High Falls Road/Holiday Park Drive

A full interchange can be provided north of High Falls Road/Holiday Park Drive. The interchange needs to have sufficient separation between the existing interchange ramps at the Cedar Lane/Muskoka Road 117 interchange and the new interchange ramps to facilitate vehicle movements between these interchange ramps without conflicts. High Falls Road and Holiday Park Drive can be connected to the new interchange to provide local access to the surrounding area.

A potential interchange located north of High Falls Road/Holiday Park Drive was carried forward for further consideration and was included in Alternative 1 and Alternative 2.

5.1.2.3 Combine with Existing Interchange at Cedar Lane/Muskoka Road 117

This alternative would provide a split-diamond interchange, using the south oriented ramps at the existing Cedar Lane/ Muskoka Road 117 interchange, and adding new north oriented ramps at High Falls Road/Holiday Park Drive. The northbound loop ramps at the existing Cedar Lane/ Muskoka Road 117 interchange would be closed.

One-way service roads would be provided on either side of Highway 11 to connect the northbound and southbound ramps.

This alternative was carried forward for further consideration as part of Alternative 3.

5.1.2.4 Alpine Ranch Road

A possible interchange at Alpine Ranch Road was considered but screened out from further consideration because the very limited development in this area does not warrant an interchange and alternative access to the area can be provided.

5.1.2.5 No New Interchange

This option requires the provision of a grade-separated crossing of the highway, a connection to the existing interchange at Cedar Lane/Muskoka Road 117, and the addition of service and/or access roads to provide local access. This option was carried forward for further consideration and was included in Alternative 4, Alternative 5a, and Alternative 5b.

5.1.3 North Muskoka River Crossing Options

For the *No New Interchange Option*, a range of North Muskoka River Crossing alternatives that could provide local access to High Falls Road, Holiday Park Drive, the Ministry of Natural Resources District Office, and the Bracebridge Resource Management Centre were identified and evaluated.

Alternatives that did not meet the basic project requirements or that had significant negative impacts were screened out from further consideration. Those alternatives that had merit were carried forward for future consideration. These options are illustrated on Exhibit 6 and discussed below.

5.1.3.1 Alternative MR1

This alternative involves the extension of Denniss Drive northerly to cross over the North Muskoka River and connect to a realigned High Falls Road. This option was screened out from further consideration because of the complex and costly crossing required to span the North Muskoka River; and the reconstruction that would be required on High Falls Road.

5.1.3.2 Alternative MR2

This alternative includes a local road that extends northerly and westerly from the west ramp terminal at the existing Cedar Lane interchange, avoids the large basin at the base of the falls, and crosses the North Muskoka River about 400 m west of the highway. It provides access to High Falls Road, and the Ministry of Natural Resources District Office and the resource lands to the north. This option was screened out from further consideration because of the complex and costly crossing required to span the North Muskoka River, property impacts, and out-of-way travel associated with the new crossing road.

5.1.3.3 Alternative MR3

This alternative includes a local road that extends northerly from the west ramp terminal at the existing Muskoka Road 117/Cedar Lane interchange and crosses the North Muskoka River about 140 m west of the highway. It provides access to High Falls Road, and the Ministry of Natural Resources District Office and the resource lands to the north. This option provides a favourable crossing of the North Muskoka River and was carried forward for further consideration in Alternative 4.

5.1.3.4 Alternative MR4

This alternative includes a local road that extends northerly from the east ramp terminal at the existing Muskoka Road 117/Cedar Lane interchange and crosses the North Muskoka River about 160 m east of the highway. It provides access to Holiday Park Drive, and the Bracebridge Resource Management Centre. This alternative was screened out from further consideration because of the poor foundation conditions located near the proposed structure.

5.1.3.5 Alternative MR5

This alternative includes a local road that extends northerly from the east ramp terminal at the existing Muskoka Road 117/Cedar Lane interchange and crosses the North Muskoka River about 210 m east of the highway. It provides access to Holiday Park Drive, and to the Bracebridge Resource Management Centre. This option provides a favourable crossing of the North Muskoka River and was carried forward for further consideration in Alternative 5a and Alternative 5b.

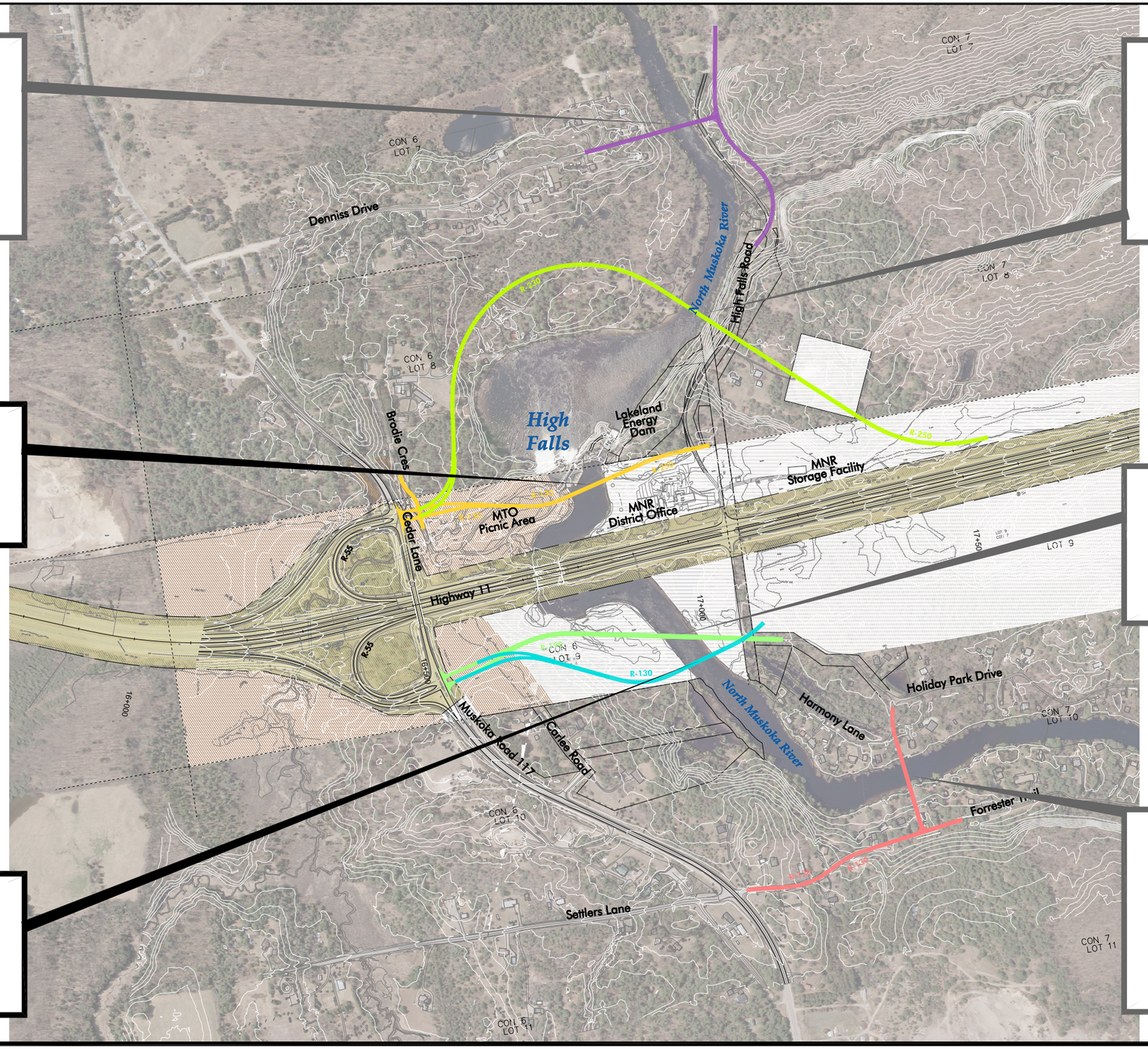
5.1.3.6 Alternative MR6

This alternative involves the reconstruction of a portion of Forrester Trail and an extension from Forrester Trail westerly to cross the North Muskoka River and provide access Holiday Park Drive, and to the Bracebridge Resource Management Centre. This option was screened out from further consideration because of the significant property impacts and out-of-way travel. In addition, a portion of the existing private road that extends from Holiday Park Drive easterly would have to be acquired and turned into a public road.

Photo 3: Vicinity of Hill Falls Dam on North Muskoka River, west of Highway 11

ALTERNATIVE MR1
SCREENED-OUT

ALTERNATIVE MR2
SCREENED-OUT
This option was screened-out from further consideration due to the complex crossing required to span the Muskoka River and property impacts and out-of-way travel associated with the new crossing road.



ALTERNATIVE MR3
CARRIED FORWARD
This option provides for a favourable crossing of the Muskoka River and was carried forward to Alternative 4.

ALTERNATIVE MR4
SCREENED-OUT
This option was screened-out from further consideration due to the poor foundation conditions near the structure.

ALTERNATIVE MR5
CARRIED FORWARD
This option provides for a favourable crossing of the Muskoka River and was carried forward to Alternative 5.

ALTERNATIVE MR6
SCREENED-OUT
This option was screened-out from further consideration due to significant property impacts, out-of-way travel associated with the new crossing road, and lack of access to a public road.

Ontario

Stantec

HIGHWAY 11 ACCESS REVIEW
at High Falls Road, Holiday Park Drive, and Alpine Ranch Road
from Muskoka Road 117 / Cedar Lane northerly for 6.3 km

GWP 322-00-00

EXHIBIT 6

Muskoka River Crossing Alternatives

5.2 Access Alternatives

Six access alternatives were developed by combining viable potential interchange locations and potential North Muskoka River crossing alternatives and adding the necessary road connections to make each alternative a stand-alone plan.

The six alternatives are described below and are illustrated on Exhibit 7, Exhibit 8, and Exhibit 9.

Alternative 1 includes retaining the existing interchange on Highway 11 at Cedar Lane/Muskoka Road 117, the closure of all at-grade highway access (i.e. intersections and entrances) to the highway and the addition of:

- A new interchange (Parclo AB configuration) located about 3 km north of Cedar Lane/ Muskoka Road 117
- East and West Service Roads, located adjacent to Highway 11, that connect Holiday Park Drive and High Falls Road to the new interchange
- A grade-separated crossing of Highway 11 that provides a connection from Alpine Ranch Road to Lone Pine Drive

The new interchange ramps are separated from the existing interchange ramps by approximately 3100 m. A Parclo AB interchange configuration was considered appropriate for this location because it achieves the required separation between interchanges, it resulted in the smallest footprint and it facilitates a direct connection between the ramp terminals and the service roads oriented to the south.

Alternative 2 includes retaining the existing interchange on Highway 11 at Cedar Lane/Muskoka Road 117, the closure of all at-grade highway access (i.e. intersections and entrances) to the highway and the addition of:

- A new interchange (diamond configuration) that would be located about 3 km north of Cedar Lane/ Muskoka Road 117
- An East Service Road, located adjacent to Highway 11, that would extend from Holiday Park Drive to Alpine Ranch Road and connect to the new interchange
- A West Service Road, located adjacent to Highway 11, that would extend from High Falls Road to the road allowance on the west side of Highway 11 (opposite Alpine Ranch Road) and connect to the new interchange

The new interchange ramps are separated from the existing interchange ramps by approximately 2700 m. A diamond interchange configuration was considered appropriate for this location because it achieves the required separation between interchanges, it results in the smallest footprint (i.e. least encroachment into the BRMC and MNR forest research plots) while still accommodating a connection to the new service roads, and it eliminates the need for a structure crossing at Alpine Ranch Road.

Alternative 3 includes the closure of all at-grade highway access (i.e. intersections and entrances) to the highway and the addition of:

- A split-diamond interchange that utilizes the existing ramps at Cedar Lane/Muskoka Road 117 that are oriented to the south, new interchange ramps at High Falls Road/Holiday Park Drive that are oriented to the north, and closure of the loops ramps that are oriented toward the north
- A one-way east side ramp connection, located adjacent to Highway 11, that connects the south portion of the interchange at Muskoka Road 117 to the north portion of the interchange at Holiday Park Drive
- A one-way west side ramp connection, located adjacent to Highway 11, that connects the north portion of the interchange at High Falls Road to the south portion of the interchange at Cedar Lane
- A grade-separated crossing of Highway 11 that provides a connection between Holiday Park Drive and High Falls Road
- An East Access Road, located adjacent to Highway 11, that connects Holiday Park Drive to the Bracebridge Resource Management Centre
- A grade-separated crossing of Highway 11 that provides a connection from Alpine Ranch Road to Lone Pine Drive

Alternative 4 includes retaining the existing interchange on Highway 11 at Cedar Lane/Muskoka Road 117, the closure of all at-grade highway access (i.e. intersections and entrances) to the highway and the addition of:

- A grade-separated crossing of Highway 11 that provides a connection between Holiday Park Drive and High Falls Road
- A West Service Road, that connects Cedar Lane at the ramp terminal intersection to High Falls Road

- An East Access Road, located adjacent to Highway 11, that connects Holiday Park Drive to the Bracebridge Resource Management Centre
- A grade-separated crossing of Highway 11 that provides a connection from Alpine Ranch Road to Lone Pine Drive

Alternative 5a includes retaining the existing interchange on Highway 11 at Cedar Lane/Muskoka Road 117, the closure of all at-grade highway access (i.e. intersections and entrances) to the highway and the addition of:

- A grade-separated crossing of Highway 11 that provides a connection between Holiday Park Drive and High Falls Road
- An East Service Road, that connects Muskoka Road 117 at the ramp terminal intersection to Holiday Park Drive
- An East Service Road, located adjacent to Highway 11, that connects Holiday Park Drive to the Bracebridge Resource Management Centre
- A grade-separated crossing of Highway 11 that provides a connection from Alpine Ranch Road to Lone Pine Drive

Alternative 5b includes retaining the existing interchange on Highway 11 at Cedar Lane/Muskoka Road 117, the closure of all at-grade highway access (i.e. intersections and entrances) to the highway and the addition of:

- A grade-separated crossing of Highway 11 that provides a connection between Holiday Park Drive and High Falls Road
- An East Service Road, that connects Muskoka Road 117 at the ramp terminal intersection to Holiday Park Drive and extends to the Bracebridge Resource Management Centre and Alpine Ranch Road

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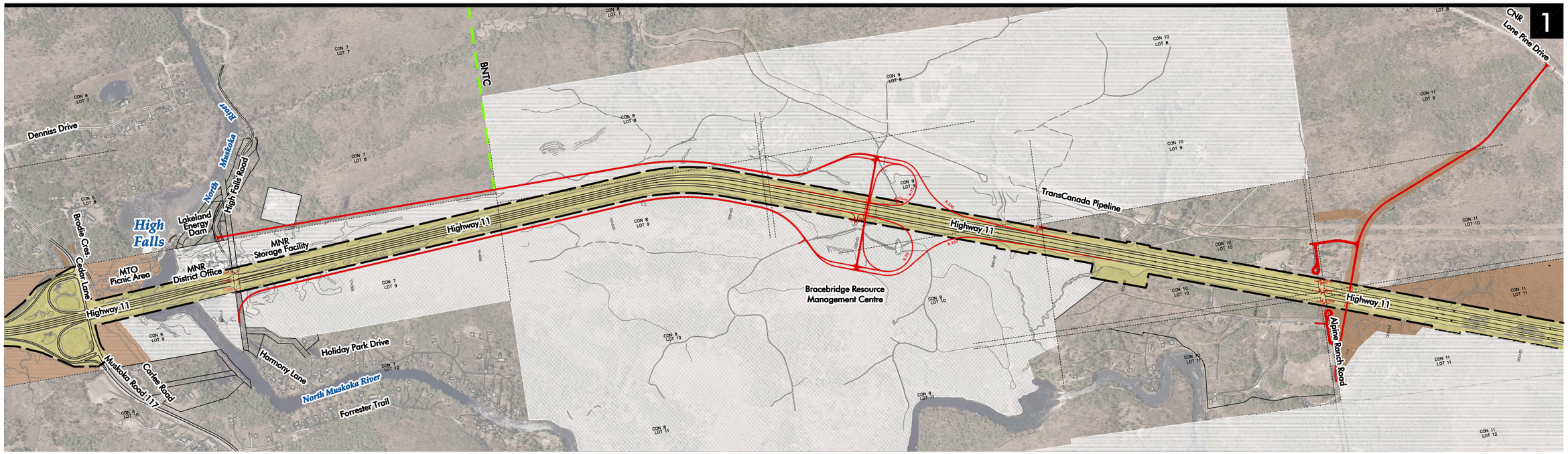
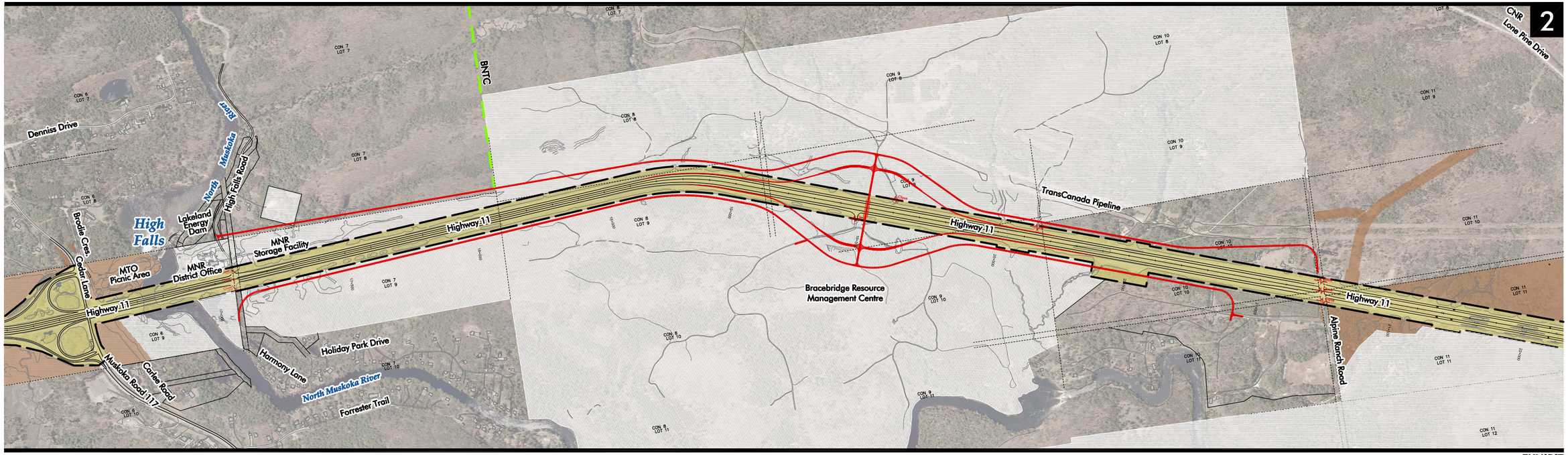




Ontario

Stantec

HIGHWAY 11 ACCESS REVIEW

at High Falls Road, Holiday Park Drive, and Alpine Ranch Road from Muskoka Road 117 / Cedar Lane northerly for 6.3 km

GWP 322-00-00

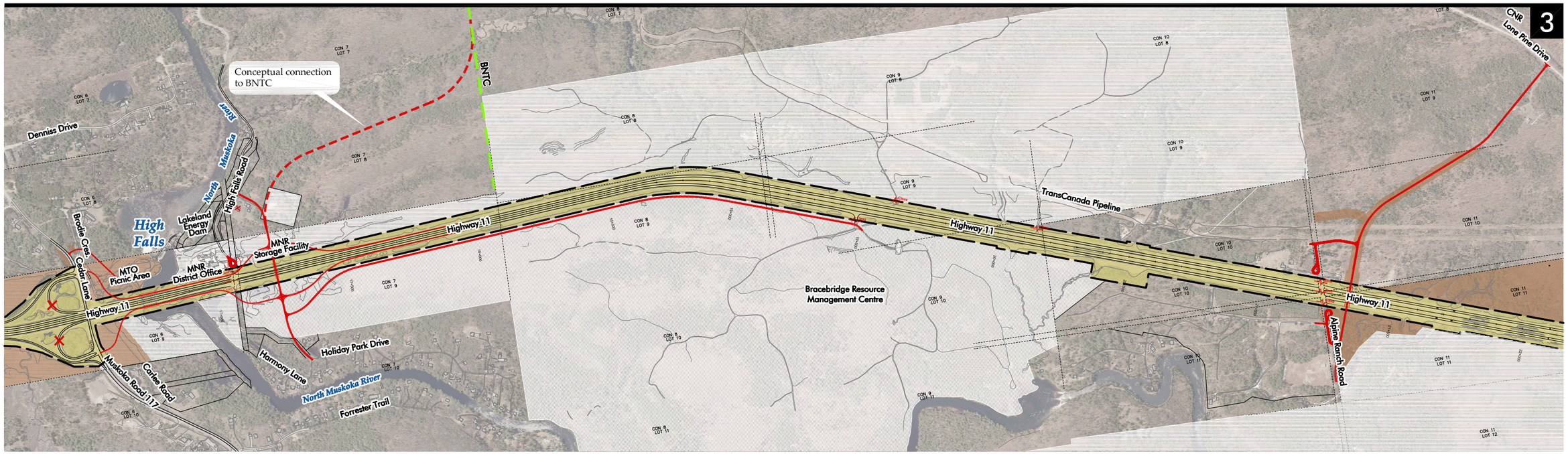
- Existing Limit of MTO Right-of-way
- Property Owned by MTO but Not Designated for Right-of-way
- Crown Land
- New Roadway
- Close — Entrance or Median Closure
- Property Acquisition
- Proposed Bracebridge North Transportation Corridor (BNTC)

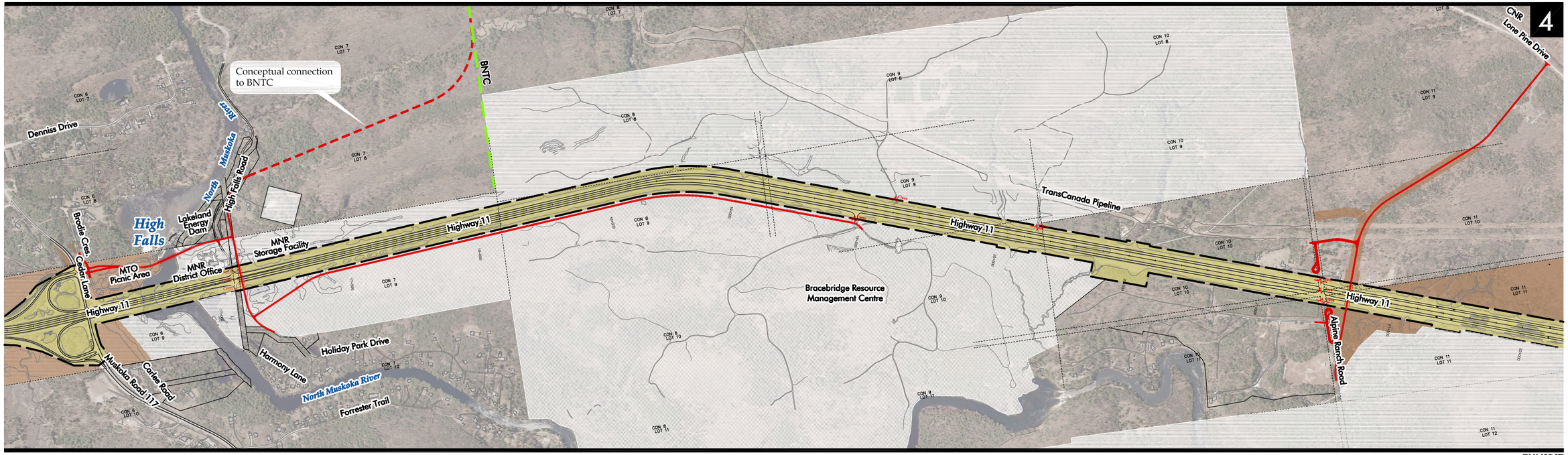
200m

1:15 000

EXHIBIT 7

Alternatives 1 & 2





Ontario

Stantec

HIGHWAY 11 ACCESS REVIEW

at High Falls Road, Holiday Park Drive, and Alpine Ranch Road from Muskoka Road 117 / Cedar Lane northerly for 6.3 km

GWP 322-00-00

- Existing Limit of MTO Right-of-way
- Property Owned by MTO but Not Designated for Right-of-way
- Crown Land
- New Roadway
- Close — Entrance or Median Closure
- Property Acquisition
- Proposed Bracebridge North Transportation Corridor (BNTC)

200m

1:15 000

EXHIBIT 8

Alternatives 3 & 4

5A

5B

Conceptual connection to BNTC

BNTC

Denniss Drive

Brodie Cres.

Cedar Lane

Muskoka Road 117

Carlee Road

High Falls

Lakeland Energy Dam

North Muskoka River

High Falls Road

MTO Picnic Area

MNR District Office

MNR Storage Facility

Highway 11

Harmony Lane

Holiday Park Drive

Forrester Trail

Bracebridge Resource Management Centre

TransCanada Pipeline

CNR

Lone Pine Drive

Alpine Ranch Road

HIGHWAY 11 ACCESS REVIEW

at High Falls Road, Holiday Park Drive, and Alpine Ranch Road from Muskoka Road 117 / Cedar Lane northerly for 6.3 km

GWP 322-00-00

Existing Limit of MTO Right-of-way

Property Owned by MTO but Not Designated for Right-of-way

Crown Land

New Roadway

Close Entrance or Median Closure

Property Acquisition

Proposed Bracebridge North Transportation Corridor (BNTC)

200m

1:15 000

EXHIBIT 9

Alternatives 5A & 5B

5.3 Evaluation of Access Alternatives

An evaluation process was developed to provide an objective approach to the analysis and evaluation of access alternatives that would form a justifiable tool for the selection of a Preferred Plan. The goal of the evaluation process was to select a cost-effective improvement plan that controls access in the Highway 11 corridor between High Falls Road/Holiday Park Drive and Alpine Ranch Road, and provides safe operations and reasonable local access to the surrounding area, while minimizing the impacts to the environment.

5.3.1 Evaluation Criteria

In accordance with the *Class EA for Provincial Transportation Facilities* (2000), Ministry of Transportation projects are required to consider a wide range of potential impacts to the natural, social, cultural and applied environments in the study area. Some environmental factors that are relevant to this study are potentially impacted to the same degree or in the same way with all of the scenarios. Impacts to these factors (if any) can be mitigated successfully using standard Ministry design and mitigation techniques during construction. Although these factors may be relevant to the study area, they do not affect one alternative more than the others and therefore were not explicitly considered in the evaluation that led to the selection of the Preferred Plan. Impacts that are common to all of the Access Alternatives are addressed through standard Ministry design and mitigation techniques, which are discussed in Section 7.10.

Evaluation criteria that address the key issues related to the decision-making process of selecting a suitable improvement plan for this project were identified. The evaluation factors and a description of what represents the “best” plan are summarized in Table 4. This information was presented to the public for review and comment at the first Public Information Centre (PIC). The criteria were refined following the PIC based on public and stakeholder input.

The evaluation criteria are independent variables, each of which may contribute a positive or negative influence on the overall suitability of an alternative. Although it was important to consider the suitability of an alternative in terms of each criterion, it was also useful to establish an overall composite score by determining the appropriate weighting (relative importance) among the criteria.

The judgements on the relative importance of the evaluation criteria was based on a comparison of each criterion to each other criterion to assess which criterion is more important and by how much. Determining the importance of each criterion is also based on engineering judgement, environmental significance, input received from external agencies, and input received from the public. The relative importance (i.e. weight factor) of each evaluation criterion including the rationale for the weight, as applied for this study, is also included in Table 4.

Table 4: Evaluation Criteria

Criteria	The Best Improvement Plan…	Weight Factor	Rationale for Weight
Highway Engineering	…will enhance safe operation of the highway and has the potential to have the largest reduction in the number of collisions …achieves the highest overall design standard consistent with the Geometric Standards for Ontario Highways …avoids impacts to the TransCanada Pipeline	20%	• The overall purpose of this project is to develop a plan for Highway 11 that controls access and provides improved safety and operational benefits for all users of the highway • Highway safety and operations are significant concerns for both the public and the Ministry
Social and Cultural Environments	…has the least impact on recreational facilities including trails and the Bracebridge Resource Management Centre …accommodates pedestrians and cyclists and supports the municipal Active Transportation Plan …preserves the picnic site and the High Falls area …has the least impact on cultural/heritage resources, areas of archaeological potential, or archaeological sites …has the least impact on noise sensitive receivers …preserves the existing land use and minimizes changes to the landscape …has the least impact on managed forests or forest research plots	20%	• Stakeholders have indicated that minimizing community and land use impacts is important • The public is concerned with noise and visual impact associated with new crossings of the North Muskoka River • There are potential impacts to existing archaeological sites and areas of cultural heritage significance. Preserving these areas is important • Local residents, the Town and MNR place a high value on recreational facilities in the area including the Bracebridge Resource Management Centre, TransCanada Trail, local snowmobile trails and the municipal Active Transportation Plan • The picnic site and High Falls are important tourist attractions. High Falls has been identified as a cultural heritage area • The Ministry of Natural Resources has indicated that it is very important to preserve the forest research plots that are located on both sides of Highway 11
Natural Environment	…has the least impact on ecological features including wetlands, watercourses and significant wildlife habitat (e.g., deer wintering areas) …has the least impact on fisheries resources including potential spawning areas	15%	• There are sensitive natural features in the study area that are important to preserve, including: • Forested Area • Deer Wintering Areas • North Muskoka River • Watercourses with aquatic habitat • Species-at-Risk habitat

Criteria	The Best Improvement Plan…	Weight Factor	Rationale for Weight
Access	…accommodates reasonable access to the local municipal road system and the Bracebridge Resource Management Centre (BRMC) with minimal out-of-way travel …provides convenient access to and from the highway for emergency service providers …does not significantly increase traffic on local roads	20%	• The Preferred Plan must provide adequate access throughout the study area because local residents and businesses rely on convenient access to Highway 11 on a daily basis • It is important that emergency service providers have convenient access to and from the highway to maintain their standards of service • It is recognized that some change to existing highway access is unavoidable for this type of project
Property	…has the least number of residents and businesses displaced or impacted, and has the least amount of private property required	15%	• It is desirable to minimize property requirements
Constructability	…has favourable geotechnical and foundation conditions …can be constructed with minimal impact on traffic flow and operations during construction	5%	• It is important to reduce disruption and delay to Highway 11 traffic and local traffic during construction
Cost	…has the lowest total cost including construction, utility relocation and property acquisition	5%	• A cost-effective plan that controls access, improves safety and provides reasonable access to the local area while minimizing environmental impacts is required

In accordance with the *Class EA for Provincial Transportation Facilities* (2000), Ministry of Transportation projects are required to consider a wide range of potential impacts to the natural, social, cultural and applied environments in the study area. Some environmental factors that are relevant to this study are potentially impacted to the same degree or in the same way with all of the alternatives. Impacts to these factors (if any) can be mitigated successfully using standard Ministry design and mitigation techniques during construction. Although these factors may be relevant to the study area, they do not affect one alternative more than the others and therefore were not explicitly considered in the evaluation

5.3.2 Evaluation of Access Alternatives

The evaluation of access alternatives was conducted in two stages. Initially, the advantages and disadvantages for each alternative were identified based on the evaluation factors. The purpose of this comparison was to identify any significant impacts or differences associated with each alternative. The second component of the evaluation includes the detailed evaluation as discussed in Section 5.3.3.

5.3.2.1 Advantages and Disadvantages

Alternative 1

The advantages and disadvantages of Alternative 1 are tabulated in Table 5.

Table 5: Alternative 1—Advantages and Disadvantages

Criteria	Advantages	Disadvantages
Highway Engineering	• Highway operations and safety on Highway 11 are improved because all the at-grade intersections and private/commercial entrances on the highway are closed • The proposed interchange location provides the desired separation from the existing interchange ramps at Cedar Lane/Muskoka Road 117 and sufficient distance between the interchanges for vehicles to enter and exit the highway without conflicts	• North-bound highway traffic must exit from the highway on a loop ramp which reduces the capacity and safety of the interchange
Social and Cultural Environments	• The interchange structure provides a grade-separated crossing of the highway for pedestrians/cyclists and a connection between High Falls Road and the Bracebridge Resource Management Centre that supports the municipal Active Transportation Plan • The existing access and the facilities at the picnic site and the falls would be preserved. High Falls has been identified as a tourist attraction and a cultural heritage area.	• The West Service Road crosses the TransCanada Trail and a local snowmobile club trail (Trail 36) at grade and encroaches on the Ministry of Natural Resources Red Oak Forest Research Plots • Approximately 500 m of existing trails within the Bracebridge Resource Management Centre would need to be realigned to accommodate the proposed interchange • The facilities (i.e., access, parking area, picnic shelter and signage) at the Bracebridge Resource Management Centre would need to be relocated to accommodate the proposed interchange
Natural Environment	• No apparent advantages	• A low-sensitivity watercourse must be realigned to accommodate the proposed interchange • A significant amount of vegetation (about 16 ha) within the Bracebridge Resource Management Centre must be removed to accommodate the proposed interchange. This is not consistent with the land use intent for the Bracebridge Resource Management Centre

Criteria	Advantages	Disadvantages
Access	• A West Service Road between High Falls Road and the new interchange provides local access to the Ministry of Natural Resources District Office and the adjacent lands • An East Service Road between Holiday Park Drive and the new interchange provides local access to the Bracebridge Resource Management Centre and the adjacent lands • A grade-separated crossing of the highway at Alpine Ranch Road and a new local road connection to Lone Pine Drive provides local access	• There would be some out-of-way travel between the highway and the Ministry of Natural Resources District Office, High Falls Road and Holiday Park Drive • There would be significant out-of-way travel for vehicles that now have highway access at Alpine Ranch Road
Property	• The interchange and service roads would be constructed predominantly on Crown Land	• Some minor residential property acquisition is required to accommodate the new road connection from Alpine Ranch Road to Lone Pine Drive
Constructability	• The interchange and service roads would be constructed predominantly on Crown Land	• The new road connection between Alpine Ranch Road and Lone Pine Road would cross over a TransCanada Pipeline facility. About 6 m of fill or a structure would need to be placed over the pipeline to achieve an acceptable grade on the road connection
Cost	• No apparent advantages	• The preliminary estimated cost for this alternative is higher than typical MTO projects of similar scope

Alternative 2

The advantages and disadvantages of Alternative 2 are tabulated in Table 6.

Table 6: Alternative 2—Advantages and Disadvantages

Criteria	Advantages	Disadvantages
Highway Engineering	• Highway operations and safety on Highway 11 are improved because all the at-grade intersections and private/commercial entrances on the highway are closed • The proposed interchange location provides the desired separation from the existing interchange ramps at Cedar Lane/Muskoka Road 117 and sufficient distance between the interchanges for vehicles to enter and exit the highway without conflicts	• No apparent disadvantages
Social and Cultural Environments	• The interchange structure provides a grade-separated crossing of the highway for pedestrians/cyclists and a connection between High Falls Road and the Bracebridge Resource Management Centre that supports the municipal Active Transportation Plan • The existing access and the facilities at the picnic site and the falls would be preserved. High Falls has been identified as a tourist attraction and a cultural heritage area.	• The West Service Road crosses the TransCanada Trail and a local snowmobile club trail (Trail 36) at grade and encroaches on the Ministry of Natural Resources Red Oak Forest Research Plots • Approximately 500 m of existing trails within the Bracebridge Resource Management Centre would need to be realigned to accommodate the proposed interchange • The facilities (i.e. access, parking area, picnic shelter and signage) at the Bracebridge Resource Management Centre would need to be relocated to accommodate the proposed interchange
Natural Environment	• No apparent advantages	• The East Service Road would cross over two high-sensitivity watercourses • A low-sensitivity watercourse must be realigned to accommodate the proposed interchange • A significant amount of vegetation (about 16 ha) within the Bracebridge Resource Management Centre must be removed to accommodate the proposed interchange. This is not consistent with the land use intent for the Bracebridge Resource Management Centre

Criteria	Advantages	Disadvantages
Access	• A continuous West Service Road between High Falls Road, the new interchange, and Alpine Ranch Road (west portion) provides local access to the Ministry of Natural Resources District Office, adjacent lands and Alpine Ranch Road • A continuous East Service Road between Holiday Park Drive, the new interchange, and Alpine Ranch Road (east portion) provides local access to the Bracebridge Resource Management Centre, adjacent lands and Alpine Ranch Road	• There would be some out-of-way travel between the highway and the Ministry of Natural Resources District Office, High Falls Road and Holiday Park Drive • There would be some out-of-way travel between the highway and Alpine Ranch Road
Property	• The interchange and service roads would be constructed predominantly on Crown Land	• Some minor property acquisition is required to accommodate the new service roads north of the interchange
Constructability	• The interchange, service road and road connections could be constructed with minimal impacts to traffic on Highway 11 and local roads	• No apparent disadvantages
Cost	• The preliminary estimated cost for this alternative is consistent with other Ministry projects of similar scope	• No apparent disadvantages

Alternative 3

The advantages and disadvantages of Alternative 3 are tabulated in Table 7.

Table 7: Alternative 3—Advantages and Disadvantages

Criteria	Advantages	Disadvantages
Highway Engineering	• Highway operations and safety on Highway 11 are improved because all the at-grade intersections and private/commercial entrances on the highway are closed • Access to and from the highway is consolidated at one interchange location, which minimizes traffic conflict locations on Highway 11 • The interchange ramps would be located in advance of the structure which is a configuration that has inherent safety features • The existing south-bound loop ramp exit at the Cedar Lane/Muskoka Road 117 interchange will be replaced with a direct ramp	• A split-diamond interchange configuration is not in common use and would require complex signage to avoid driver confusion
Social and Cultural Environments	• The interchange structure provides a grade-separated crossing of the highway for pedestrians/cyclists and a connection between High Falls Road and the Bracebridge Resource Management Centre that supports the municipal Active Transportation Plan • The existing facilities and trail system at the Bracebridge Resource Management Centre would be preserved	• The access to the picnic site and the falls would need to be relocated to accommodate the new interchange ramp connections • A portion of the TransCanada Trail must be realigned to accommodate the new access to the picnic area and to accommodate the new interchange ramp connections and access road to the site • Construction would occur within approximately 100 m of an area of high archaeological potential • The new interchange ramp connections would divide the picnic site. This area and the adjacent High Falls have been identified as a tourist attraction and cultural heritage area.
Natural Environment	• The removal of the existing west interchange loop ramp (i.e. south-bound exit ramp) at the Cedar Lane/Muskoka Road 117 interchange provides an opportunity to improve fisheries habitat in a high-sensitivity watercourse	• The new south-bound interchange ramp connection and the realigned access to the picnic area would cross over a high sensitivity watercourse • The new crossings of the North Muskoka River could affect aquatic habitat

Criteria	Advantages	Disadvantages
Access	• The split-diamond interchange at Cedar Lane/Muskoka Road 117 and High Falls Road/Holiday Park Drive together with the East Access Road from Holiday Park Drive to the Bracebridge Resource Management Centre provides convenient local access • A grade-separated crossing of the highway at Alpine Ranch Road and a new local road connection to Lone Pine Drive provides local access	• There would be some out-of-way travel between the highway and the Bracebridge Resource Management Centre • There would be significant out-of-way travel for vehicles that now have highway access at Alpine Ranch Road
Property	• The interchange and service road would be constructed predominantly on Crown Land	• Some minor residential property acquisition is required to accommodate the new road connection from Alpine Ranch Road to Lone Pine Drive • A residential property on High Falls Road must be acquired
Constructability	• No apparent advantages	• Constructing a new south-bound structure and widening the existing north-bound structure for the interchange ramps while minimizing impacts to traffic would involve complex traffic staging • The new road connection between Alpine Ranch Road and Lone Pine Road would cross over a TransCanada Pipeline facility. About 6 m of fill or a structure would need to be placed over the pipeline to achieve an acceptable grade on the road connection
Cost	• No apparent advantages	• The preliminary estimated cost for this alternative is higher than typical MTO projects of similar scope

Alternative 4

The advantages and disadvantages of Alternative 4 are tabulated in Table 8.

Table 8: Alternative 4—Advantages and Disadvantages

Criteria	Advantages	Disadvantages
Highway Engineering	• Highway operations and safety on Highway 11 are improved because all the at-grade intersections and private/commercial entrances on the highway are closed • Access to and from the highway is consolidated at one interchange location, which minimizes traffic conflict locations on Highway 11	
Social and Cultural Environments	• The new structure at High Falls Road/Holiday Park Drive provides a grade-separated crossing of the highway for pedestrians/cyclists and a connection between High Falls Road and the Bracebridge Resource Management Centre that supports the municipal Active Transportation Plan • The existing facilities and trail system at the Bracebridge Resource Management Centre are preserved • Access to the Ministry of Natural Resources storage area and Crown Land on the west side of the highway would be accommodated through a culvert. This crossing could also accommodate the TransCanada Trail	• About 200 m of the TransCanada Trail must be realigned to accommodate the West Service Road that connects the existing interchange to High Falls Road, the new North Muskoka River Bridge, and the High Falls Road/Holiday Park Drive structure • Construction would occur within approximately 100 metres of an area of high archaeological potential • The new structure over the North Muskoka River could impact the view of High Falls, a locally significant tourist attraction • The West Service Road that connects the existing interchange to High Falls Road would divide the picnic site and reduce access to the falls. This area and the adjacent High Falls have been identified as a tourist attraction and a cultural heritage area
Natural Environment	• No apparent advantages	• The West Service Road that connects the interchange to High Falls Road would have two new crossings over a high-sensitivity watercourse • The new crossings of the North Muskoka River could affect aquatic habitat

Criteria	Advantages	Disadvantages
Access	• A grade-separated crossing of the highway at High Falls Road/Holiday Park Drive together with a new West Service Road located on the west side of the highway between the existing interchange and High Falls Road provides a link to the existing interchange at Cedar Lane/Muskoka Road 117 • A grade-separated crossing of the highway at Alpine Ranch Road and a new local road connection to Lone Pine Drive provides local access • An East Access Road between Holiday Park Drive and the Bracebridge Resource Management Centre (BRMC) provides local access to the BRMC	• There would be some out-of-way travel between the highway and the Ministry of Natural Resources District Office, High Falls Road and Holiday Park Drive • There would be significant out-of-way travel for vehicles that now have highway access at Alpine Ranch Road
Property	• The interchange and service roads would be constructed predominantly on Crown Land	• Some minor residential property acquisition is required to accommodate the new road connection from Alpine Ranch Road to Lone Pine Drive
Constructability	• The plan could be constructed with minimal impacts to traffic on Highway 11 and local roads	• The proximity of the new structure at High Falls Road/Holiday Park Drive to the existing intersection may impact traffic operations at the High Falls Road and Holiday Park Drive intersection during construction • The new road connection between Alpine Ranch Road and Lone Pine Road would cross over a TransCanada Pipeline facility. About 6 m of fill or a structure would need to be placed over the pipeline to achieve an acceptable grade on the road connection
Cost	• The preliminary estimated cost for this alternative is consistent with other Ministry projects of similar scope	• No apparent disadvantages

Alternative 5a

The advantages and disadvantages of Alternative 5a are tabulated in Table 9.

Table 9: Alternative 5a—Advantages and Disadvantages

Criteria	Advantages	Disadvantages
Highway Engineering	• Highway operations and safety on Highway 11 are improved because all the at-grade intersections and private/commercial entrances on the highway are closed • Access to and from the highway is consolidated at one interchange location, which minimizes traffic conflict locations on Highway 11	• No apparent disadvantages
Social and Cultural Environments	• The new structure at High Falls Road/Holiday Park Drive provides a grade-separated crossing of the highway for pedestrians/cyclists and a connection between High Falls Road and the Bracebridge Resource Management Centre that supports the municipal Active Transportation Plan • The existing access and the facilities at the picnic site and the falls would be preserved. High Falls has been identified as a tourist attraction and a cultural heritage area. • The existing facilities and trail system at the Bracebridge Resource Management Centre are preserved • Access to the Ministry of Natural Resources storage area and Crown Land on the west side of the highway would be accommodated through a culvert. This crossing could also accommodate the TransCanada Trail • The TransCanada Trail is preserved in its existing location	• About 30 m of the TransCanada Trail must be realigned to accommodate the High Falls Road/Holiday Park Drive structure. This crossing could be accommodated in a new culvert to avoid realigning the trail • The proposed structure for the East Service Road that connects the existing interchange to Holiday Park Drive and crosses the North Muskoka River may be visible from adjacent properties
Natural Environment	• The plan is consistent with the land use intent for the Bracebridge Resource Management Centre and preserves vegetation	• The new crossing of the North Muskoka River could affect aquatic habitat

Criteria	Advantages	Disadvantages
Access	• A grade-separated crossing of the highway at High Falls Road/Holiday Park Drive together with a new East Service Road located on the east side of the highway between the existing interchange and Holiday Park Drive provides a link to and from the existing interchange at Cedar Lane/Muskoka Road 117 • A grade-separated crossing of the highway at Alpine Ranch Road and a new local road connection to Lone Pine Drive provides local access • An East Access Road between Holiday Park Drive and the Bracebridge Resource Management Centre (BRMC) provides convenient local access to the BRMC	• There would be some out-of-way travel between the highway and the Ministry of Natural Resources District Office, High Falls Road and Holiday Park Drive • There would be significant out-of-way travel for vehicles that now have highway access at Alpine Ranch Road
Property	• The interchange and service roads would be constructed predominantly on Crown Land	• Some minor residential property acquisition is required to accommodate the new road connection from Alpine Ranch Road to Lone Pine Drive
Constructability	• No apparent advantages	• The proximity of the new structure at High Falls Road/Holiday Park Drive may impact traffic operations at the High Falls Road and Holiday Park Drive intersection during construction • The new road connection between Alpine Ranch Road and Lone Pine Road would cross over a TransCanada Pipeline facility. About 6 m of fill or a structure would need to be placed over the pipeline to achieve an acceptable grade on the road connection.
Cost	• The preliminary estimated cost for this alternative is consistent with other Ministry projects of similar scope	• No apparent disadvantages

Alternative 5b

The advantages and disadvantages of Alternative 5b are tabulated in Table 10.

Table 10: Alternative 5b—Advantages and Disadvantages

Criteria	Advantages	Disadvantages
Highway Engineering	• Highway operations and safety on Highway 11 are improved because all the at-grade intersections and private/commercial entrances on the highway are closed • Access to and from the highway is consolidated at one interchange location, which minimizes traffic conflict locations on Highway 11	• No apparent disadvantages
Social and Cultural Environments	• The new structure at High Falls Road/Holiday Park Drive provides a grade-separated crossing of the highway for pedestrians/cyclists and a connection between High Falls Road and the Bracebridge Resource Management Centre that supports the municipal Active Transportation Plan • The existing access and the facilities at the picnic site and the falls would be preserved. High Falls has been identified as a tourist attraction and a cultural heritage area. • The existing facilities and trail system at the Bracebridge Resource Management Centre are preserved • Access to the Ministry of Natural Resources storage area and Crown Land on the west side of the highway would be accommodated through a culvert. This crossing could also accommodate the TransCanada Trail • The TransCanada Trail system is preserved in its existing location	• The proposed structure for the East Service Road that connects the existing interchange to Holiday Park Drive and crosses the North Muskoka River may be visible from adjacent properties
Natural Environment	• The plan is consistent with the land use intent for the Bracebridge Resource Management Centre and preserves vegetation	• The new crossing of the North Muskoka River could affect aquatic habitat • The East Service Road would have two new crossings over high-sensitivity watercourses

Criteria	Advantages	Disadvantages
Access	• A grade-separated crossing of the highway at High Falls Road/Holiday Park Drive together with a new East Service Road located on the east side of the highway between the existing interchange and Holiday Park Drive provides a link to and from the existing interchange at Cedar Lane/Muskoka Road 117 • A continuous East Service Road between Holiday Park Drive and Alpine Ranch Road provides convenient local access to the Bracebridge Resource Management Centre and Alpine Ranch Road	• There would be some out-of-way travel between the highway and the Ministry of Natural Resources District Office, High Falls Road and Holiday Park Drive • There would be some out-of-way travel for vehicles that now have highway access at Alpine Ranch Road
Property	• The interchange and service roads would be constructed predominantly on Crown Land	• One residential property and one commercial property at Alpine Ranch Road (west portion) would be required
Constructability	• No apparent advantages	• The proximity of the new structure at High Falls Road/Holiday Park Drive to the existing intersection may impact traffic operations at the High Falls Road and Holiday Park Drive intersection during construction
Cost	• The preliminary estimated cost for this alternative is consistent with other Ministry projects of similar scope	

5.3.3 Detailed Evaluation of Access Alternatives

The access alternatives were evaluated using a comparative analysis based on the evaluation criteria and using the advantages and disadvantages identified in the previous section. The alternatives were given a score based on how well each alternative was judged to satisfy the evaluation criteria. The individual scores were multiplied by the criterion weight factor (relative importance) to produce a weighted score for each evaluation criterion and each alternative. The sum of the weighted scores provided a total score for each alternative. The results of the evaluation process were used to rank the alternatives with the highest weighted score representing the highest ranked alternative. This process resulted in identifying the "best" improvement plan. It also identified the advantages (high scores) and disadvantages (low scores) of each alternative.

A summary of the results of the evaluation process is provided in Table 11.

Table 11: Evaluation of Access Scenarios

Alternatives	Highway Engineering	Social and Cultural Environment	Natural Environment	Access	Property	Constructability	Cost	Score	RANK
Relative Criteria Weight	20%	20%	15%	20%	15%	5%	5%	100%	
Alternative 1	8.6	6.2	1.9	6.0	5.9	9.0	1.0	5.83	6
Alternative 2	8.8	6.4	0.1	8.6	5.0	8.9	2.2	6.07	5
Alternative 3	10.0	6.8	4.3	8.3	7.9	7.9	0.0	7.24	3
Alternative 4	9.6	6.0	3.9	7.7	8.8	9.2	3.0	7.18	4
Alternative 5a	9.6	8.4	6.2	6.8	8.4	8.8	3.5	7.77	2
Alternative 5b	9.6	8.1	6.2	10.0	7.7	9.3	4.6	8.33	1

As illustrated in the preceding table, Alternative 5b was the highest ranked access alternative. This alternative scored favourably for all the evaluation criteria.

5.4 Confirmation of the Preferred Plan

It is important to note that the Preferred Plan was not identified solely on the merits of mathematical calculations. The matrices and application of weightings to data or numeric values were used as a tool to identify the alternative with the greatest advantages and least disadvantages. When the matrices were completed, it was confirmed that the Preferred Plan that was identified through the data gathering, analysis and evaluation process was the "best" plan, with the largest number of advantages and that the decision-making process that led to its selection was rational and took into consideration information received, including public and agency input.

Alternative 5b was the highest ranked Access Alternative and was confirmed as the Preferred Plan because:

- Highway safety and operations are improved with a cost-effective plan that eliminates all at-grade highway access
- Access to and from the highway is consolidated at one interchange location, which minimizes the number of traffic conflict locations on Highway 11
- Traffic volumes on the East Service Road located between the existing interchange ramp terminal at Muskoka Road 117 and Holiday Park Drive will be relatively low, and will not significantly impact the surrounding area

- Reasonable access is provided to the Ministry of Natural Resources District Office, Bracebridge Resource Management Centre and Alpine Ranch Road (east portion)
- The East Service Road between Muskoka Road 117 and Holiday Park Drive provides a continuous municipal road connection and convenient local access to and from the Cedar Lane/Muskoka Road interchange
- The grade-separated crossing of the highway at High Falls/Holiday Park Drive provides a safe pedestrian/cyclist crossing of the highway, which enhances access to the Bracebridge Resource Management Centre
- The existing picnic area and access to High Falls are preserved
- The new crossing of the North Muskoka River is located on Crown Land and very little private property is required
- The existing vegetation and recreational trails within the Bracebridge Resource Management Centre are preserved

The Preferred Plan was displayed at Public Information Centre 2.

5.5 Additional Access Alternatives Considered

Based on comments received from the District Municipality of Muskoka and the Town of Bracebridge following Public Information Centre 2, additional access alternatives were considered that located a grade-separated crossing north of High Falls Road/Holiday Park Drive (at the location of the 1992 Recommended Plan crossing). The development of the additional access alternatives was due to the District and Town's concern that the proposed Bracebridge North Transportation Corridor (BNTC) was not included in the evaluation.

The BNTC is included in the Town of Bracebridge's *Official Plan*. However, the location of the BNTC is currently conceptual, and the exact alignment of the new roadway would have to be determined through a *Municipal Class Environmental Assessment* study, which has yet to be initiated by the District or Town.

As a result, the three additional alternatives were developed, and a conceptual connection to the proposed BNTC was included in each alternative (original and new).

The following three additional alternatives were considered:

- Alternative 6a—Flyover north of High Falls Road/Holiday Park Drive; an east side service road from Muskoka Road 117 to Holiday Park Drive; an east side service road from Holiday Park Drive to Alpine Ranch Road; a west side service road from High Falls Road to the crossing road (flyover); and the closure of Alpine Ranch Road at Highway 11
- Alternative 6b—Partial diamond interchange (ramps oriented to/from the north) north of High Falls Road/ Holiday Park Drive; an east side service road from Muskoka Road 117 to Holiday Park Drive; an east side service road from Holiday Park Drive to Alpine Ranch Road; a west side service road from High Falls Road to the interchange crossing road; and the closure of Alpine Ranch Road at Highway 11

- Alternative 6c—Diamond interchange north of High Falls Road/ Holiday Park Drive; an east side service road from Muskoka Road 117 to Holiday Park Drive; an east side service road from Holiday Park Drive to Alpine Ranch Road; a west side service road from High Falls Road to the interchange crossing road; closure of Alpine Ranch Road at Highway 11; and the closure of the interchange ramps at Muskoka Road 117/Cedar Lane

An evaluation of the alternatives was carried out and discussed with the Town and the District as discussed in Sections 6.4.3 and 6.4.4 and illustrated in correspondence meeting notes provided in Appendix B.

Although the new alternatives provided some benefits for the potential BNTC, the revised evaluation concluded that Alternative 5b still remains preferred based on the evaluation factors, which includes the projected BNTC traffic volumes. Furthermore, there are concerns that the updated evaluation results for the additional alternatives rely on accommodating the BNTC, which still requires an Environmental Assessment study to confirm its location.

The outcome of the additional evaluation was that Alternative 5b remains the highest ranked access alternative, even with the inclusion of the potential BNTC and its associated connections.

To address this issue, the ministry agrees to participate in the Municipal EA study to identify a range of alternative connections to Highway 11 that are acceptable to the ministry. The ministry also agrees to prepare a TESR Addendum if necessary to accommodate a northward shift of the crossing road, if the BNTC route is confirmed to be in the vicinity of the location identified in the Town of Bracebridge *Official Plan*, and if the projected BNTC traffic volumes favour this shift.

6.0 Consultation Process

This section describes the consultation program that was carried out for this study.

The public consultation process provided the opportunity for the project team and representatives from the Ministry of Transportation to discuss the study process with the public, property owners, external agencies, and stakeholders.

The process aims to notify all interested parties of the project and to provide an opportunity for input to the study and decision-making processes. This was accomplished by presenting the findings of each stage of work to the public, and through ongoing discussions with the various government agencies and ministries, non-government interest groups and property owners.

The public was formally contacted several times throughout the study process. Input was sought at two Public Information Centres (PICs). To make sure that all interested members of the public were contacted, an extensive notification process was used. It consisted of:

- Newspaper notices in *Muskoka Today* and the *Bracebridge Examiner*
- Canada Post Unaddressed Ad Mailings to properties within the study area (approximately 630 residences/businesses) to advise of the Study Commencement
- Direct mailings to external agencies, stakeholders, and property owners in the study area as well as members of the public who indicated an interest in the study

Newspaper notices and notification materials are contained in Appendix A.

6.1 Notice of Study Commencement

The commencement of the Study was announced in *Muskoka Today* on Wednesday, July 29, 2009, and in the *Bracebridge Examiner* on Thursday, August 6, 2009. The *Notice of Study Commencement* described the project including potential improvements, the Class EA process, requested public involvement, and listed contact names for additional information.

Initial project notification also included:

- A Canada Post Unaddressed Ad Mailing (beginning Monday, July 27, 2009) to approximately 630 residences and businesses in the study area
- Individual study notification letters (sent on Friday, July 24, 2009) to federal, provincial and municipal agencies and interest groups expected to have an interest in the study

Notification materials, including the newspaper notices, are contained in Appendix A.

Correspondence received from external agencies as a result of the *Notice of Study Commencement* is contained in Appendix B.

6.2 Public Information Centre 1—November 18, 2009

A Public Information Centre (PIC) was held on Wednesday, November 18, 2009, at the Bracebridge Royal Canadian Legion Hall. Forty-one members of the public and external agency representatives attended the PIC.

The purpose of the PIC was to:

- Display and seek input on potential Highway 11 Access Alternatives and North Muskoka River Crossing Options
- Seek input on the environmental conditions in the study area (i.e. natural, social, economic and cultural)
- Seek input on the evaluation criteria and process to be used to identify a Preferred Plan
- Answer questions about the study

The PIC was advertised in the *Bracebridge Examiner* on Wednesday, November 4, 2009, and in *Muskoka Today* on Thursday, November 12, 2009.

In addition, notification letters were mailed to external agencies and stakeholders, and flyers were sent to the general public and property owners on Friday, October 30, 2009.

Copies of the newspaper notice and notification letters are included in Appendix A.

The following information was displayed at the PIC:

- Welcome
- Study Area
- The Process
- Existing Environment
- 1992 Recommended Plan
- North Muskoka River Crossing Options
- Preliminary Alternatives

The text panels and displays were available for review and the project team was available to answer questions and discuss the study. A copy of the materials available at the PIC is contained in Appendix C.

6.2.1 Comments Received

Forty-two comment sheets and emails were received following the PIC. Responses were provided to those who requested them. A summary of comments received from the public at PIC 1 and responses provided is contained in Table 12.

Table 12: PIC 1 Public Comments/Input Received and Response Provided or Action Taken

Comment	Response Provided or Action Taken
Which Evaluation Criteria are Important?	
• Maintain the natural environment and the socio-cultural environment • The tourism-based economy of Muskoka should be considered • Minimize impact to property values • Minimize impacts to the natural environment and the Bracebridge Resource Management Centre (BRMC) • Visual impact for land owners and tourists • Lighting • Noise • Cost • Privacy for properties adjacent to the highway should be considered	• Comment noted and will be considered during the confirmation of evaluation criteria and evaluation of project alternatives
Access / Traffic Operations	
• The Plan should maintain access/non-motorized access to the BRMC and High Falls • Pedestrian/cyclist traffic and connectivity should be considered, especially along High Falls Road • Active Transportation (AT) modes should be provided and incorporated into the Preferred Plan • Preferred Alternative should meet Active Transportation needs	• The Ministry of Transportation is committed to sustainable transportation and active transportation as outlined in the MTO Statement of Environmental Values (2008) • Grade-separated highway crossings (i.e. interchanges and/or flyovers) will be designed to accommodate pedestrian and cyclist movement across the highway • Commitment to correspond with the Muskoka Active Transportation Committee and the Muskoka Trails Council
• Concerned with potential increased traffic on: – High Falls Road – Other local roads • Prefer an alternative that provides easy access to High Falls Road • Access to Highway 11 in both directions is important	• Comment noted and will be considered during the confirmation of evaluation criteria and evaluation of project alternatives
• Concerned with speed limits on High Falls Road and other local roads	• Posted speed limits on local roads are a municipal responsibility and should be discussed with the relevant municipality (i.e. the Town of Bracebridge for Cedar Lane and the District of Muskoka regarding High Falls Road)
• Out-of-way travel to Bracebridge should be minimized	• The evaluation process includes consideration for out-of-way travel
• Crown Land located to the north of the Ministry of Natural Resources building should remain accessible	• Access to the existing trail on the west side of Highway 11, from the MNR storage area, westerly, will be maintained

Comment	Response Provided or Action Taken
• Concerned about the loss of direct access to Highway 11 in the study area and northerly to Stephenson Road 1	• The Ministry's ultimate goal is to upgrade Highway 11 to a fully Controlled Access Highway with access restricted to interchange locations only • The Ministry carried out the Highway 11: Preliminary Design Study for the Ultimate Freeway Design between 1990 and 1992, which identified a Recommended Plan to eliminate the remaining at-grade intersections by either closing roads or building interchanges or flyovers • Environmental Clearance has been obtained for a plan that includes the closure of the Highway 11/Stephenson Road 1 intersection and an interchange at South Mary Lake Road • Construction of the interchange at South Mary Lake Road is not currently scheduled
Safety	
• Concerned with potential impacts to emergency response times	• The evaluation process will consider comments received as a result of consultation with emergency service providers (i.e. ambulance, fire, police) • Project team sent copies of plans and a questionnaire to Emergency Service Providers to gain a better understanding of emergency response times in the study area
• Concerned with existing traffic volume, speed limits and the potential for increased truck traffic on High Falls Road and Cedar Lane	• Recent turning movement counts at the Highway 11 intersections in the study area indicate that approximately 4% of vehicles traveling on High Falls Road are trucks • Recommended contacting the District of Muskoka to discuss concerns regarding truck traffic on High Falls Road
Environmental Concerns	
• An additional crossing of the Muskoka River would impact the natural environment • Concerned with impacts to sensitive natural environmental features including watercourses, wildlife habitat, and deer wintering areas • Concerned about potential loss of the treed buffer along Highway 11 that provides deer habitat	• Factor-specific environmental work is being carried out in Archaeology, Built Heritage and Cultural Landscape, Fisheries and Aquatic Resources, Terrestrial Resources, Land Use, and Noise • Environmental impacts and proposed mitigation measures will be documented in a *Transportation Environmental Study Report*, which will be made available for a 30-day Public Review Period

Comment	Response Provided or Action Taken
• Construction noise could affect local wildlife • Concerned that construction could affect the natural environment, fisheries resources, and the North Muskoka River	• The environmental factor-specific studies will include an assessment of potential temporary impacts to wildlife and property owners during construction • Fisheries investigations and mitigation measures are being carried out in accordance with the *MTO/DFO/MNR Fisheries Protocol* (2006). • Where required, the study may include the development of mitigation measures to minimize construction impacts, such as construction timing windows for work in fish bearing watercourses • Potential mitigation measures will be developed once a Preferred Plan has been identified and will be documented in a final *Transportation Environmental Study Report* (TESR)
• There are turtle nests, including habitat for Species-at-Risk turtles on both sides of the north Muskoka River—this is key habitat for them • Blue Herons also frequent the area	• Information forwarded to natural science specialists • MNR has been contacted to confirm whether there are Species-at-Risk turtle nests in the areas that were identified • The MNR, Town of Bracebridge, District of Muskoka, Department of Fisheries and Oceans, and the Muskoka Heritage Foundation, have been involved at key stages during the study process and have provided input regarding existing environmental conditions and a preliminary assessment of the project alternatives
• There should be noise barriers to address noise pollution from the highway	• This study includes a Noise Impact Study in accordance with the *Class EA for Provincial Transportation Facilities (2000)* and the *MTO Noise Guide* (2006 • Results of the Noise Study will be available at the next Public Information Centre
Preliminary Alternatives	
• Prefer Alternatives 1, 2, and 4 since they minimize noise on Carlee Road	• Preference noted and will be considered during the evaluation of project alternatives • This study includes a Noise Impact Study in accordance with the *Class EA for Provincial Transportation Facilities* (2000) and the *MTO Noise Guide* (2006) • Results of the Noise Study will be available at the next Public Information Centre

Comment	Response Provided or Action Taken
Alternative 1	
• Prefer Alternative 1 – This alternative may reduce east-west traffic on High Falls Road – Does not require an additional structure over the North Muskoka River – Traffic volumes at the Muskoka Road 117/Cedar Lane interchange will not increase – A service road could have minimal environmental impact if built close to the highway – Minimal impacts to personal property – Lower noise impacts – Uses the existing highway corridor – Will have minimal impacts on watercourse and land owners	• Preference noted
• Do not prefer Alternative 1 – This alternative may have the highest impact to the natural environment and recreational resources (e.g. the BRMC) – Will result in increased traffic traveling through downtown Bracebridge	• Comment noted • Natural science studies carried out for all alternatives in accordance with the requirements of the ERHD • Traffic study reviewed to identify potential changes to traffic patterns
Alternative 2	
• Prefer Alternative 2 – This alternative may reduce traffic on High Falls Road – Does not require an additional structure over the North Muskoka River – Provides the least out-of-way travel to Highway 11 – This is the most convenient and safest alternative – Minimal impacts to personal property – A service road could have minimal environmental impact if built close to the highway – Lower noise impacts – Already uses the existing highway corridor – Required overpass would have minimal impacts on watercourses and land owners	• Preference noted
• Do not prefer Alternative 2 – This alternative has high environmental impacts – May have the greatest impact to recreational resources such as the BRMC – Will result in increased traffic traveling through downtown Bracebridge	• Comments noted • Natural science studies carried out for all alternatives in accordance with the requirements of the ERHD • Traffic study reviewed to identify potential changes to traffic patterns

Comment	Response Provided or Action Taken
Alternative 3	
• Prefer Alternative 3 – Provides the best access to High Falls Road and Muskoka Road 117 – Minimizes impacts to the North Muskoka River – Minimizes noise, visual and environmental impacts if the existing bridge envelope is used – This alternative satisfies the evaluation criteria	• Preference noted
• Concerned about increased distances for those travelling to the south end of Bracebridge	• Travel between the south of Bracebridge and High Falls Road is facilitated in Alternatives 3, 4, and 5 by providing a new crossing over the North Muskoka River to connect the existing Highway 11/Cedar Lane/Muskoka Road 117 interchange to High Falls Road and Holiday Park Drive
• Concerned about winter snow removal on Highway 11 due to the proximity of the municipal road connections across the North Muskoka River	• Snow removal issues are not expected to be a concern • The municipal road would likely be separated from the highway by a barrier, 3 m highway shoulder, and 1 m shoulder on the municipal road
Alternative 4	
• Prefer Alternative 4 – Provides reasonable access without providing an alternative route to Bracebridge for trucks via High Falls Road – This alternative would have less impact on homes in the area	• Preference noted
• Do not prefer Alternative 4 – An additional North Muskoka River crossing would impact a developed area (i.e. MNR facility, generating station, existing snowmobile bridge and trail, personal properties, access to the Falls) – This alternative would have significant social and environmental impacts on High Falls Park	• Comments noted • Natural science studies carried out for all alternatives in accordance with the requirements of the ERHD • Evaluation considered property impacts as well as potential impacts to the community (i.e. noise, visual impacts)
• Alternative 4 should be combined with Alternative 5a or 5b to provide access from Alpine Ranch Road to Holiday Park Drive, cross the North Muskoka River on the west side of Highway 11 and minimize impacts to private property	• Preference noted

Comment	Response Provided or Action Taken
Alternative 5a	
• Prefer Alternative 5a – This alternative appears to require the least amount of construction and therefore the easiest to implement – Provides reasonable access without providing an alternative route to Bracebridge for trucks via High Falls Road – Satisfies evaluation criteria – Should be combined with Alternative 5b to provide access to the highway in both directions – Minimizes impact to the BRMC – Minimizes impact to the natural environment	• Preference noted
• Do not prefer Alternative 5a – Will result in an increase in traffic volumes and noise near Carlee Road – The proposed entrance to the BRMC has very steep slopes which may limit recreational opportunities – Numerous residential properties and environmentally sensitive areas will be impacted by the North Muskoka River crossing – Increased environmental impacts and pollution – This alternative will impact local businesses	• Comments noted • Concerns regarding proposed entrance to the BRMC included in the evaluation of alternatives • Natural science studies carried out for all alternatives in accordance with the requirements of the ERHD • Evaluation considered property impacts as well as potential impacts to the community (i.e. noise, visual impacts)
Alternative 5b	
• Prefer Alternative 5b – Provides reasonable access without providing an alternative route to Bracebridge for trucks via High Falls Road – Minimizes traffic volumes on High Falls Road – This alternative considers the recreational and tourism resources in the area – Minimizes impact to the BRMC and allows the existing parking and trailhead to remain intact – Minimizes impact to the natural environment – This alternative works since travel from Alpine Ranch Road is primarily southbound – Provides new Active Transportation (AT) access to the TransCanada Trail, High Falls Road, and to the BRMC – This alternative does not impact the Falls – Provides residents on Alpine Road access to the highway	• Preference noted

Comment	Response Provided or Action Taken
• Do not prefer Alternative 5b – Will result in an increase in traffic volumes and noise near Carlee Road – Numerous residential properties and environmentally sensitive areas will be impacted by another North Muskoka River crossing – Increased environmental impacts and pollution – This alternative will impact local businesses	• Comments noted • Concerns regarding proposed entrance to the BRMC included in the evaluation of alternatives • Natural science studies carried out for all alternatives in accordance with the requirements of the ERHD • Evaluation considered property impacts as well as potential impacts to the community (i.e. noise, visual impacts)
• Concerned about the potential visual and noise impacts from the North Muskoka River crossing included in Alternatives 5a and 5b	• Visual and noise impacts will be considered during the evaluation of project alternatives • A preliminary review of the topography between the existing residential properties and the bridge crossing location included in Alternatives 5a and 5b indicates that it is unlikely that the structure will be visible or increase highway traffic noise for Noise Sensitive Receivers (NSRs) to above highway noise thresholds at existing residential properties
Additional Alternatives	
• Alternative 3 should be modified to provide an interchange at High Falls Road and municipal road connections between High Falls Road and Muskoka Road 117 to eliminate the need for an additional North Muskoka River crossing	• The previous Recommended Plan included an interchange located slightly north of High Falls Road/Holiday Park Drive. This Plan was screened out from further consideration because the interchange is too close to the existing interchange at Muskoka Road 117/Cedar Lane, based on current highway design standards. Closely spaced interchanges are undesirable because they can compromise highway safety • Your recommendation to modify Alternative 3 to minimize the need for additional structures over the North Muskoka River has been noted. However, this alternative cannot be modified to provide a third lane that merges onto Highway 11 between Muskoka Road 117 and Holiday Park Drive since the ramps would not meet the desired spacing requirements based on current highway design standards
• Alternative 3 (i.e. one way access roads and existing North Muskoka River crossing) should be combined with Alternative 5b (i.e. service road access to the Bracebridge Resource Management Centre (BRMC)) to minimize environmental impacts while maintaining connectivity to the BRMC	• Preference noted
• Alternative 5a should be combined with Alternative 5b to provide access to the highway in both directions	• Request noted

Comment	Response Provided or Action Taken
• The 1992 Recommended Plan can be moved further north of Muskoka Road 117 to provide more space between the interchanges • Alternatives 1 and 2 should be modified, combined with the 1992 Recommended Plan and include a service road to Holiday Park Drive	• The previous Recommended Plan was screened out from further consideration because the interchange is too close to the existing interchange at Muskoka Road 117/Cedar Lane, based on current highway standards • Alternatives 1 and 2 were developed approximately 3 km north of the existing Highway 11/Cedar Lane/Muskoka Road 117 interchange to provide the minimum desired interchange spacing. An interchange closer than these alternatives would not meet the desired interchange spacing standard.
Consultation	
• Do not think the public consultation process has been sufficient • The notification was not received by all residents in the area • Meetings should be scheduled to accommodate and involve seasonal residents owning property within the study area to ensure they have an equal voice in the process	• The Study includes two Public Information Centres (PICs) • The first PIC provided the public with an opportunity to review the Alternatives, connections to adjacent roads, changes to municipal roads and current access to Highway 11, and the preliminary evaluation criteria that will be used to analyze and evaluate each option • The second PIC will provide an opportunity to review detailed information on the Preferred Plan for access • Comments received at and following the PICs are considered as part of the requirements of the Class EA study process • Notification of the PIC was published in local newspapers and sent to all property owners in the study area based on the mailing addresses available on the municipal assessment rolls • Seasonal property owners who were not able to attend the PIC were invited to view the project alternatives on the File Transfer Protocol (ftp) site or request a copy of the plans be mailed to their home address • Plans were also available for review at Stantec offices located in Hamilton and Toronto

6.3 Public Information Centre 2—March 30, 2010

A second Public Information Centre (PIC) was held on Tuesday, March 30, 2010, at the Bracebridge Royal Canadian Legion Hall in Bracebridge, Ontario. Forty-three members of the public and external agency representatives signed the visitor register.

The purpose of the second PIC was to:

- Display the evaluation of Alternatives
- Display and seek input on the Preferred Plan
- Answer questions about the study

The PIC was advertised in the *Bracebridge Examiner* on Wednesday, March 17, 2010, and in *Muskoka Today* on Thursday, March 18, 2010.

Notification letters and flyers advising external agencies, stakeholders, property owners, and the general public of the date and time for the PIC were mailed on Friday, March 12, 2010. Property owners directly impacted by the Preferred Plan were also sent separate notification letters and flyers on Friday, March 12, 2010.

Copies of the newspaper notice and notification letters are included in Appendix A.

The following information was displayed at the PIC:

- Welcome
- The Process
- Study Area
- Existing Conditions
- Evaluation
- Evaluation of Alternatives
- Evaluation Summary
- Preferred Plan
- Mitigation/Commitment To Future Work

Members of the project team were available to answer questions and discuss the study. Copies of the materials available at the PIC are provided in Appendix C.

6.3.1 Comments Received

Thirty comment sheets, letters, and emails were received at or following the PIC. Responses were provided to those who requested them.

A summary of comments received from the public and responses provided is provided in Table 13.

Table 13: PIC 2 Public Comments Received and Response Provided

Comment	Response Provided or Action Taken
Support Preferred Plan	
• The Muskoka River crossing on the east side of Highway 11 has fewer impacts on High Falls and trails • The Preferred Plan was well thought-out and presented logically • The Preferred Plan is simple and direct • The Preferred Plan will make Highway 11 in the Study Area safer • The grade-separated crossing of Highway 11 will enable safer access to both sides of the highway • Access to the Bracebridge Resource Management Centre (BRMC), MNR trails, the Trans Canada Trail and the generation facility is maintained • Safe pedestrian and cyclist access across Highway 11 is maintained • The Preferred Plan has good access from Highway 11 to Holiday Park Drive	• Support noted • The Preferred Plan was selected because it achieves the study purpose of removing the existing at-grade intersections on Highway 11; minimizes property impacts, environmental impacts and construction cost; and maintains reasonable access to the existing local road network.
Do not Support Preferred Plan	
• Concerned about safety due to high speeds and truck traffic • Truck traffic on High Falls Road will increase	• Access to High Falls Road, Holiday Park Drive, the Bracebridge Resource Management Centre (BRMC), and Alpine Ranch Road is currently provided at Highway 11; and recent turning movement counts at the Highway 11 intersections in the study area indicate that truck traffic accounts for approximately 4% of vehicles traveling on High Falls Road. The Preferred Plan will utilize the existing interchange at Muskoka Road 117/Cedar Lane and a new parallel service road on the east side of Highway 11 to maintain access to these local roads. The traffic characteristics of the service road will be similar to the traffic characteristics of the existing local roads.
• Access from Highway 11 is not sufficient • The Preferred Plan may reroute traffic onto High Falls Road and away from the Town of Bracebridge and local businesses	
• Cost of Preferred Plan is too high in comparison to improving the municipal road network or the 1992 Recommended Plan	• The cost of the current Preferred Plan is approximately 75% of the cost of the 1992 Recommended Plan, which results in significant cost savings.
• Prefer the Muskoka River crossing shown in Alternative 3 • The Muskoka River crossing should be built from High Falls Road instead of Holiday Park Drive/Harmony Lane	• Alternative 3 included a crossing of the Muskoka River west of Highway 11. There are several constraints on the west side of Highway 11 that led to this alternative scoring lower than Alternative 5b in the evaluation process, including the MTO picnic area, the TransCanada Trail, a coldwater tributary to the Muskoka River that provides valued fish habitat, utilities, and an area of high archaeological potential. The area west of Highway 11 is also valued as a tourist attraction and a cultural heritage area.

Comment	Response Provided or Action Taken
General Comments	
• How does the Preferred Plan accommodate Active Transportation?	• The project team is aware of the desire for Active Transportation initiatives within the study area, and has included this criterion in the evaluation of alternatives and the development of the Preferred Plan. • The new crossing road over the highway provides safe pedestrian/cyclist connection between High Falls Road, the Trans Canada Trail, and the Bracebridge Resource Management Centre (BRMC) trails. The large box culvert under High Falls Road maintains the existing Trans Canada Trail connection and provides a safer crossing of High Falls Road.
• The new Muskoka River crossing will have visual impacts	• Visual impacts were considered during the evaluation of project alternatives and selection of the Preferred Plan. The Aesthetic Guidelines for Bridges (2004) provides a system that includes three levels of aesthetic classifications. It is expected that the Muskoka River Bridge is expected to be classified as Level 2 – Medium Aesthetic value, which will require approval from the Ministry Bridge Aesthetics Evaluation Group and professional advice regarding bridge aesthetics during the detail design stage. • Aesthetic features could include consideration of texturing, colouring, or aesthetic design of the barrier walls or bridge girders and will be in accordance with the MTO's Aesthetic Guidelines for Bridges (2004).
• Traffic noise will increase as a result of the Preferred Plan	• The potential for noise impacts as a result of the new Muskoka River crossing was considered during the evaluation of project alternatives. This study has included a Noise Study that was carried out in accordance with the MTO Noise Guide (2006), which was developed in consultation with the Ministry of the Environment. Results from the Noise Study indicate that highway traffic noise for Noise Sensitive Receivers (NSRs) are within highway noise thresholds in accordance with MTO noise guidelines, and noise mitigation is not warranted in accordance with the requirements of the Noise Guide.
• A grade-separated crossing of Highway 11 should be located north of High Falls Road and Holiday Park Drive and incorporated into the Town of Bracebridge's plans for a northern bypass • The Preferred Plan is not consistent with the Town of Bracebridge and District of Muskoka Official Plans for a new Bracebridge North Transportation Corridor	• The Town of Bracebridge Official Plan identifies a future Bracebridge Northern Transportation Corridor (BNTC) that connects to Highway 11 north of High Falls Road. A separate environmental assessment study would need to be completed by the Town or District to confirm the need for the corridor and to identify the future route. The MTO, Town and District have recently met to discuss strategies for providing a suitable connection between the BNTC and Highway 11 if and when needed. Please contact the District of Muskoka or the Town of Bracebridge if you with to be contacted when the environmental assessment study for the BNTC is initiated.

Comment	Response Provided or Action Taken
• Prefer the 1992 Recommended Plan	• The 1992 Recommended Plan for the High Falls Road interchange was reviewed during the initial phase of this Study. However, the previous Recommended Plan was removed from further consideration because the interchange is too close to the existing interchange at Muskoka Road 117/Cedar Lane, based on current highway standards. Interchanges that are spaced less than three kilometres apart are undesirable from a traffic safety and operations perspective because accelerating vehicles from the entrance ramp of one interchange are mixing with decelerating vehicles destined for the exit ramp of the other interchange within a limited space.
• The additional Muskoka River crossing could increase impacts to the river • Concerned about impacts to the Muskoka River as a result of snow removal on the new bridge • Concerned that environmental investigations undertaken during the Study were not thorough enough • Concerned about impacts to natural habitat along the Muskoka River, wildlife and watercourses in the Study Area • Local wildlife wintering areas will be affected by the Preferred Plan • Animal-vehicle collisions may increase due to high populations of moose and deer in the Study Area	• The results of the terrestrial and aquatic studies that were carried out as part of this study, and further discussions with the Ministry of Natural Resources, indicate that there are no significant environmental concerns with the Muskoka River crossing location, and that the work can proceed following the standard MTO process. The aquatic and terrestrial background studies, field investigations, and development of mitigation measures, have been carried out in accordance with the requirements of the Class Environmental Assessment for Provincial Transportation Facilities (2000), the MTO/DFO/MNR Fisheries Protocol, and the Environmental Reference for Highway Design (2006), which outline requirements for the scope of work, assessment of impacts, and mitigation measures for MTO transportation studies of this scale. Details of impacts and mitigation measures will be identified in the final Transportation Environmental Study Report. • The study includes a preliminary drainage study to review the conditions and overall function of the existing drainage system, and to make recommendations to ensure proper drainage is maintained in accordance with MTO drainage standards.
• Concerned about the potential tax implications associated with the cost of maintaining the new roads • MTO should be responsible for maintaining the new roads	• Comment noted
• Concerned about the safety of the intersection located at Muskoka Road 117 and the entrance to the new Muskoka River crossing	• The intersection of Muskoka Road 117 and the proposed East Service Road has been designed to meet the current geometric design standards, including providing sufficient stopping sight distance for vehicles travelling on MR 117; and providing sufficient sight distance for vehicles turning onto Muskoka Road 117 from the East Service Road. The intersection will be further reviewed during detail design to identify additional strategies to enhance sight distance (e.g. cutting nearby slopes).

Comment	Response Provided or Action Taken
• Concerns of Harmony Lane residents were not considered during the selection of the Preferred Plan • The Preferred Plan will impact property values of Holiday Park Drive/Harmony Lane residents	• Public consultation and participation are important components of the Class EA study process. However, the comments received are not intended to constitute a vote or preference for a specific alternative. The purpose of the comments is to identify the issues associated with the alternatives, which are then considered during the evaluation of alternatives and the identification of mitigation strategies. Comments received at and following the PICs are considered as part of the requirements of the Class EA study process.
• Right-in right-out ramps would decrease cost and still improve safety and operations on Highway 11	• We agree that simple right-in, right-out ramps at the existing intersections would decrease the cost. However, the overall improvement strategy for the Highway 11 corridor from Gravenhurst to North Bay includes replacing the at-grade intersections with a system of interchanges and service roads. This approach is consistent with the improvement strategies for other four-lane highways in Ontario, such as Highway 69 and Highway 17.

6.4 External Agency Liaison

This Planning and Preliminary Design Study has been co-ordinated with a full range of government agencies and ministries. The co-ordination occurred with all three levels of government (i.e. Federal, Provincial and Municipal).

The following Ministries, agencies and stakeholders were contacted during the study:

Aboriginal Groups:

- Métis Nation of Ontario
- Mississaugas of Scugog First Nation
- Beausoleil First Nation
- Alderville First Nation
- Curve Lake First Nation
- Anishinabek Nation / Union of Ontario Indians
- Chippewas of Rama First Nation
- Moose Deer Point First Nation
- Wahta Mohawk First Nation
- Chippewas of Georgina Island First Nation
- Hiawatha First Nation

Federal:

- Department of Fisheries and Oceans
- Indian and Northern Affairs Canada – Specific Claim, Comprehensive Claim and Environmental Assessment Branches
- Transport Canada
- Office of the Federal Interlocutor for Métis and non-status Indians

Provincial:

- Ministry of Aboriginal Affairs
- Ministry of the Environment
- Ministry of Northern Development and Mines
- Ontario Provincial Police – Bracebridge
- Ministry of Municipal Affairs & Housing
- MPP – Parry Sound-Muskoka District
- Ministry of Natural Resources
- Ministry of Culture
- Ministry of Tourism

Municipal:

- District Municipality of Muskoka
- Bracebridge Fire Department
- Muskoka Ambulance Communication Service
- Town of Bracebridge
- Medavie EMS Ontario

Stakeholders:

- Bracebridge Chamber of Commerce
- First Student Canada
- Muskoka Snowmobile Region
- Muskoka Sno-Bombers
- Muskoka Tourism
- Muskoka Trails Council
- Westwind Forest Stewardship Inc.
- Hydro One
- Lakeland Holding Ltd. / Bracebridge Generation
- Trillium Lakes District School Board
- Ontario Trails Council
- Muskoka Heritage Foundation
- Medavie EMS Ontario
- Muskoka Watershed Council
- Union Gas
- Bell Canada
- TransCanada Pipelines

A summary of input received and responses provided to external agencies and municipalities is provided in Appendix B.

6.4.1 External Agency Meeting 1

An external agency meeting was held prior to the first Public Information Centre on Wednesday, November 18, 2009, from 3:00 PM to 4:00 PM at the Bracebridge Royal Canadian Legion Hall. An invitation to attend the meeting was sent to external agencies on the project mailing list on Friday, October 30, 2009.

External agencies and stakeholders that were represented at the PIC included the Ministry of Natural Resources, Town of Bracebridge, District Municipality of Muskoka, Muskoka Trails Council, Muskoka Active Transportation Committee, and Lakeland Energy.

6.4.2 External Agency Meeting 2

An external agency meeting was held prior to the second Public Information Centre on Tuesday, March 30, 2010, from 3:00 PM to 4:00 PM at the Bracebridge Royal Canadian Legion Hall. An invitation to attend the meeting was sent to external agencies on the project mailing list on Friday, March 12, 2010.

External agencies and stakeholders that were represented at the PIC included the Ministry of Natural Resources, Town of Bracebridge, District of Muskoka, Muskoka Trails Council, and the Ministry of Transportation's Huntsville office.

6.4.3 District Municipality of Muskoka

Members of the Project Team and MTO met with representatives from the District Municipality of Muskoka on several occasions during the study to provide study updates, exchange information regarding existing conditions in the District, and to discuss any concerns with the study including emergency access and future road maintenance requirements. An initial meeting with District staff was held on July 7, 2009 to provide an overview of the project.

The project team appeared as a delegation to the District Municipality of Muskoka Engineering and Public Works Committee on two occasions. The first presentation was held on Wednesday, November 18, 2009, and included an overview of the preliminary design study, project purpose and background, access alternatives and evaluation criteria. At the meeting, Muskoka staff advised that the location of an interchange north of High Falls Road could affect the location of the *Bracebridge North Transportation Corridor* (BNTC) identified in the Town of Bracebridge *Official Plan.* Staff recommended that Council postpone the Municipal Environmental Assessment for the BNTC until the interchange location for this study is determined.

An meeting with District staff was held on January 14, 2010 to review the alternatives presented at the first PIC and to discuss the preliminary evaluation of alternatives.

The second presentation to the Muskoka Engineering and Public Works Committee was held on Wednesday, April 14, 2010, following PIC 2. The presentation included a summary of the results of the first Public Information Centre and an overview of the evaluation criteria and the Preferred Plan. Muskoka staff identified concerns related to the compatibility of the current Preferred Plan with the future BNTC, and the potential for increased traffic volumes on High Falls Road. A Councillor requested that Active Transportation (AT) routes be considered during the study.

On May 6, 2010, the project team met with Muskoka and Bracebridge staff to discuss the Preferred Plan in relation to the future BNTC. At the conclusion of the meeting the project team agreed to review and modify the evaluation to include access to the BNTC; and to consider additional alternatives that would improve access between the future BNTC and Highway 11. The additional alternatives that were considered are discussed in Section 5.5.

The project team met again with Muskoka and Bracebridge staff on July 29, 2010 to discuss the results of the revised evaluation, and to advise that the ministry intends to proceed with the Preferred Plan as presented at PIC 2. Muskoka indicated that they could accept the Preferred Plan provided that the ministry agrees to reconsider the location of the crossing road when Muskoka and Bracebridge undertake the Municipal Environmental Assessment for the BNTC.

On August 18, 2010 the District of Muskoka Engineering and Public Works Committee passed a Resolution indicating that Muskoka prefers the Recommended Plan from the original 1992 study; that Muskoka does not support the Preferred Plan (Alternative 5b); that Muskoka prefers Alternatives 6c, 6b and 6a; and that if Alternative 5b is ultimately chosen by the ministry, Muskoka will require a commitment from the ministry to produce a TESR Addendum to address a northward shift of the crossing road to better align with the future BNTC once its location has been confirmed. This Resolution was adopted by Council on September 7, 2010.

The ministry agrees that a northward shift of the crossing road may be preferred if and when the BNTC route is confirmed, and if the estimated traffic volumes on the BNTC are significant. However, the ministry also has concerns that Muskoka's preference is based entirely on accommodating the BNTC at the location identified in the Town of Bracebridge *Official Plan*, which still requires a *Municipal Class Environmental Assessment* (EA) study to confirm the route.

To address this issue, the ministry agrees to participate in the Municipal EA study to identify a range of alternative connections to Highway 11 that are acceptable to the ministry. The ministry also agrees to prepare a TESR Addendum if necessary to accommodate a northward shift of the crossing road, if the BNTC route is confirmed to be in the vicinity of the location identified in the Town of Bracebridge *Official Plan*, and if the projected BNTC traffic volumes favour this shift.

Correspondence with the District of Muskoka, including the Council Resolution, is provided in Appendix B.

6.4.4 Town of Bracebridge

Members of the Project Team and MTO met with representatives from the Town of Bracebridge on several occasions during the study to provide study updates, exchange information regarding existing conditions in the district, and to discuss any concerns with the study including emergency access and future road maintenance requirements. An initial meeting with Town staff was held on July 7, 2009 to provide an overview of the project.

The project team appeared as a delegation to the Town of Bracebridge Council on two occasions. The first presentation was held on Wednesday, November 4, 2009, and included an overview of the preliminary design study, project purpose and background and access alternatives. At the meeting, Councillors provided comments regarding pedestrian access to the Bracebridge Resource Management Centre (BRMC) and the Trans Canada Trail, and potential impacts of new service roads. Council requested that the need for additional crossings of the North Muskoka River be minimized.

A meeting with Town staff was held on January 14, 2010 to review the alternatives presented at the first PIC and to discuss the preliminary evaluation of alternatives.

The project team presented to Council on a second occasion on Wednesday, March 31, 2010, following PIC 2. The presentation included a summary of the results of the first Public Information Centre and an overview of the evaluation criteria and the Preferred Plan. Councillors identified interest in accommodating Active Transportation routes and requested that the aesthetics of the Muskoka River bridge be considered.

The project team met with Bracebridge staff on two occasions following PIC 2, in conjunction with Muskoka staff. In addition to concerns related to access to the future BNTC (as discussed in Section 6.4.3), Bracebridge also indicated that they are not willing to assume and maintain the East Service Road since there are minimal development opportunities along the road.

On September 7, 2010 the Town of Bracebridge General Committee passed a Resolution indicating that Bracebridge prefers the Recommended Plan from the original 1992 study; that Bracebridge prefers Alternative 6c with southerly interchange ramps at the MR117 interchange, followed by Alternatives 6b and 6a; that Bracebridge prefers access to Alpine Ranch Road from Lone Pine Drive with single driveway access the Bracebridge Resource Management Center; that Bracebridge does not support the Preferred Plan (Alternative 5b); and that if Alternative 5b is ultimately chosen by the ministry, Bracebridge will require a commitment from the ministry to produce a TESR Addendum to address a northward shift of the crossing road to better align with the future BNTC once its location has been confirmed.

The ministry agrees that a northward shift of the crossing road may be preferred if and when the BNTC route is confirmed, and if the estimated traffic volumes on the BNTC are significant. However, the ministry also has concerns that Bracebridge's preference is based primarily on accommodating the BNTC at the location identified in the Town of Bracebridge *Official Plan*, which still requires a Municipal Environmental Assessment (EA) study to confirm the route.

To address this issue, the ministry agrees to participate in the Municipal EA study to identify a range of alternative connections to Highway 11 that are acceptable to the ministry. The ministry also agrees to prepare a TESR Addendum if necessary to accommodate a northward shift of the crossing road, if the BNTC route is confirmed to be in the vicinity of the location identified in the Town of Bracebridge *Official Plan*, and if the projected BNTC traffic volumes favour this shift.

Correspondence with the Town of Bracebridge, including the Council Resolution, is provided in Appendix B.

6.4.5 Ministry of Natural Resources

The project team met with the Ministry of Natural Resources (MNR) on several occasions during the study to discuss the project and exchange information about the study area. At the meetings, MNR provided background information about the study area and indicated concerns with potential impacts to the MNR's Bracebridge office and storage facilities, natural heritage and fisheries resources, recreational trails, forest research areas, and the Bracebridge Resource Management Centre (BRMC).

Meeting notes from the meetings with the MNR are provided in Appendix B.

6.4.6 Aboriginal Contact

The consultation program included written communications with the Chippewas of Rama First Nation, Mississaugas of Scugog First Nation, Moose Deer Point First Nation, Beausoleil First Nation, Wahta Mohawk First Nation, Alderville First Nation, Chippewas of Georgina Island First Nation, Curve Lake First Nation, Hiawatha First Nation , the Métis Nation of Ontario and the Anishinabek Nation/Union of Ontario Indians.

During the study, the Alderville First Nation provided correspondence that indicated that the study is expected to have minimal potential impact to First Nations' rights.

No significant concerns were received from Aboriginal groups during the study. Copies of correspondence to aboriginal and First Nation groups is included in Appendix B.

7.0 Recommended Plan

This section of the report documents the Recommended Plan for improvements to the Highway 11 corridor between the existing interchange at Cedar Lane/Muskoka Road 117 and Alpine Ranch Road.

The Recommended Plan includes a grade-separated crossing of the highway in the vicinity of High Falls Road/Holiday Park Drive, realignments and extensions of existing roads and a service road to provide local access to and from the existing interchange at Cedar Lane/Muskoka Road 117.

The Recommended Plan is illustrated on Exhibit 10 a, b, c.

7.1 Highway 11

In general, the existing Highway 11 lane alignment, profile, and median will remain unchanged.

Emergency service providers did not indicate the need for an emergency turnaround during the study. However, given the distance between the interchange at Muskoka Road 117/Cedar Lane and the proposed interchange at South Mary Lake Road to the north (approximately 12.3 km), the potential for a median turnaround should be considered during Detail Design.

7.2 New Service Roads, and Realignments and Extensions of Existing Roads

New service roads and realignments and extensions of existing municipal roads will be provided in selected locations to facilitate local access where existing at-grade intersections with the highway and existing highway entrances are closed. In addition, these roads will provide local road connections to the existing interchange at Cedar Lane/ Muskoka Road 117.

7.2.1 High Falls Road

High Falls Road will be realigned to cross over Highway 11 just north of the existing at-grade intersection and connect to the new East Service Road. The cross-section of High Falls Road has been designed with 4.5 metre wide lanes to accommodate cyclist movement across the highway. High Falls Road is currently a District of Muskoka road, and the realigned High Falls Road will be transferred to the District.

An access culvert (5 m x 5 m) is provided under High Falls Road to maintain access to the Ministry of Natural Resources storage facility on the north side of High Falls Road. The access culvert will also maintain access to the trail system along the west side of Highway 11 (i.e. Trans Canada Trail and snowmobile trail).

7.2.2 Holiday Park Drive

Holiday Park Drive will be realigned from the cross intersection of High Falls Road and the East Service Road easterly to connect to the existing section of Holiday Park Drive. This road provides local access and will be transferred to the Town of Bracebridge.

7.2.3 East Service Road

A new service road, located adjacent to Highway 11, will be provided from the existing Cedar Lane/ Muskoka Road 117 northerly to Alpine Ranch Road.

The section from Muskoka Road 117 to High Falls Road provides a connection between the two District roads, and will be transferred to the District of Muskoka. This section of the East Service Road will be designed with 4.5 metre wide lanes to accommodate cyclist movement across the highway.

The section from High Falls Road northerly to Alpine Ranch Road will provide access to the Bracebridge Resource Management Centre and Alpine Ranch Road, and will be transferred to the Town of Bracebridge.

A turnaround will be provided at the end of the East Service Road to facilitate snowplow operation.

7.3 Entrances

As part of making Highway 11 a fully-Controlled Access Highway, and restricting access to the highway to interchange locations only, all driveways and entrances that now have direct access to the highway will be closed.

7.4 Fencing

Fencing will be provided adjacent to the highway right-of-way and at other strategic locations to discourage large animal (i.e. deer) crossing of the highway.

7.4.1 Drainage and Stormwater Management

A Stormwater Management (SWM) strategy has been designed in accordance with the requirements of the *MTO Drainage Management Manual* (1997), the Ministry of the Environment *Stormwater Management Planning and Design Manual* (2003) and the *MTO Highway Drainage Design Standards* (HDSS) (2008).

Since peak flows from the highway will be similar under existing and future conditions, flows from the existing hydrologic model were used to design the proposed drainage system.

Under existing conditions, the majority of runoff within the study area is directed to watercourses which eventually flow into the North Muskoka River via ditches, storm sewers, and culverts. Runoff from the proposed East Service Road will to be directed along ditches to a number of main culverts. These ditches will be designed according to the *Ministry of the Environment Stormwater Management Guidelines* (2003) to provide water quality benefits. Depending on the final grading, some rip rap may be required to protect the banks and velocities should be confirmed at Detail Design.

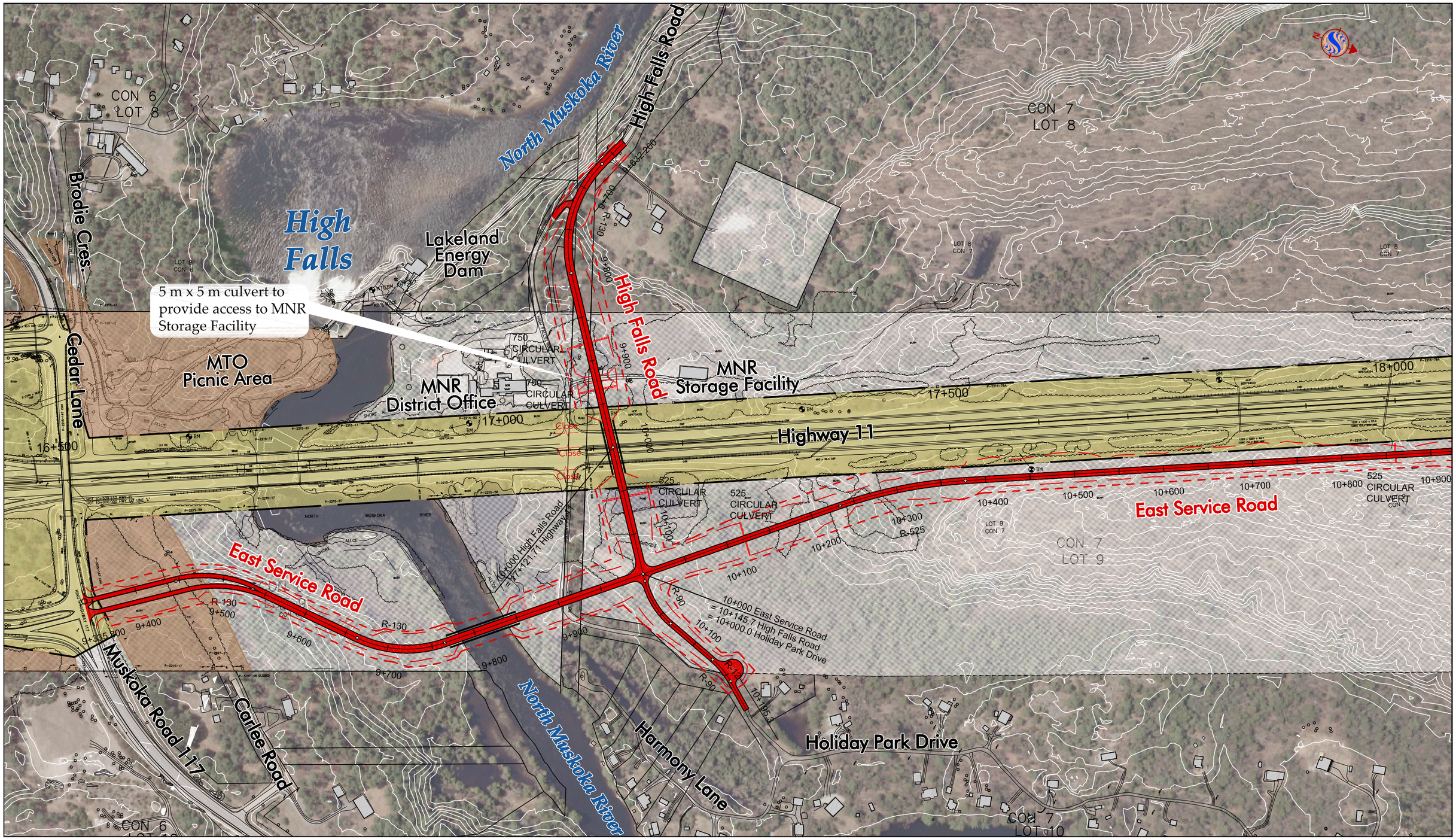
Several significant culverts are required outside of the Highway 11 right-of-way where the East Service Road and other realigned sideroads cross existing watercourses. Culvert locations have been identified in the Recommended Plan provided in Exhibit 10 a, b, c.

The final location and size for the required culverts will be confirmed during Detail Design.

7.5 Structures

The following three new structures are required for the Recommended Plan:

- The High Falls Road Underpass to connect High Falls Road to Holiday Park Drive over Highway 11.
- The North Muskoka River Bridge to connect Muskoka Road 117 to the East Service Road and Holiday Park Drive / Harmony Lane
- A Ministry of Natural Resources (MNR) Access Road Culvert under the High Falls Road Underpass, west of Highway 11, to provide access to the MNR Storage Area, Trans Canada Trail, and existing Snowmobile Trail



Ontario

Stantec

HIGHWAY 11 ACCESS REVIEW

at High Falls Road, Holiday Park Drive, and Alpine Ranch Road from Muskoka Road 117 / Cedar Lane northerly for 6.3 km

GWP 322-00-00

LEGEND

- New Roadway
- Grading Limit
- Limit of Property Acquisition
- Property Required
- Existing Limit of MTO Right-of-way
- Property Owned by MTO but Not Designated for Right-of-way
- Crown Land
- New Culvert

SCALE

0 80m

1:4000

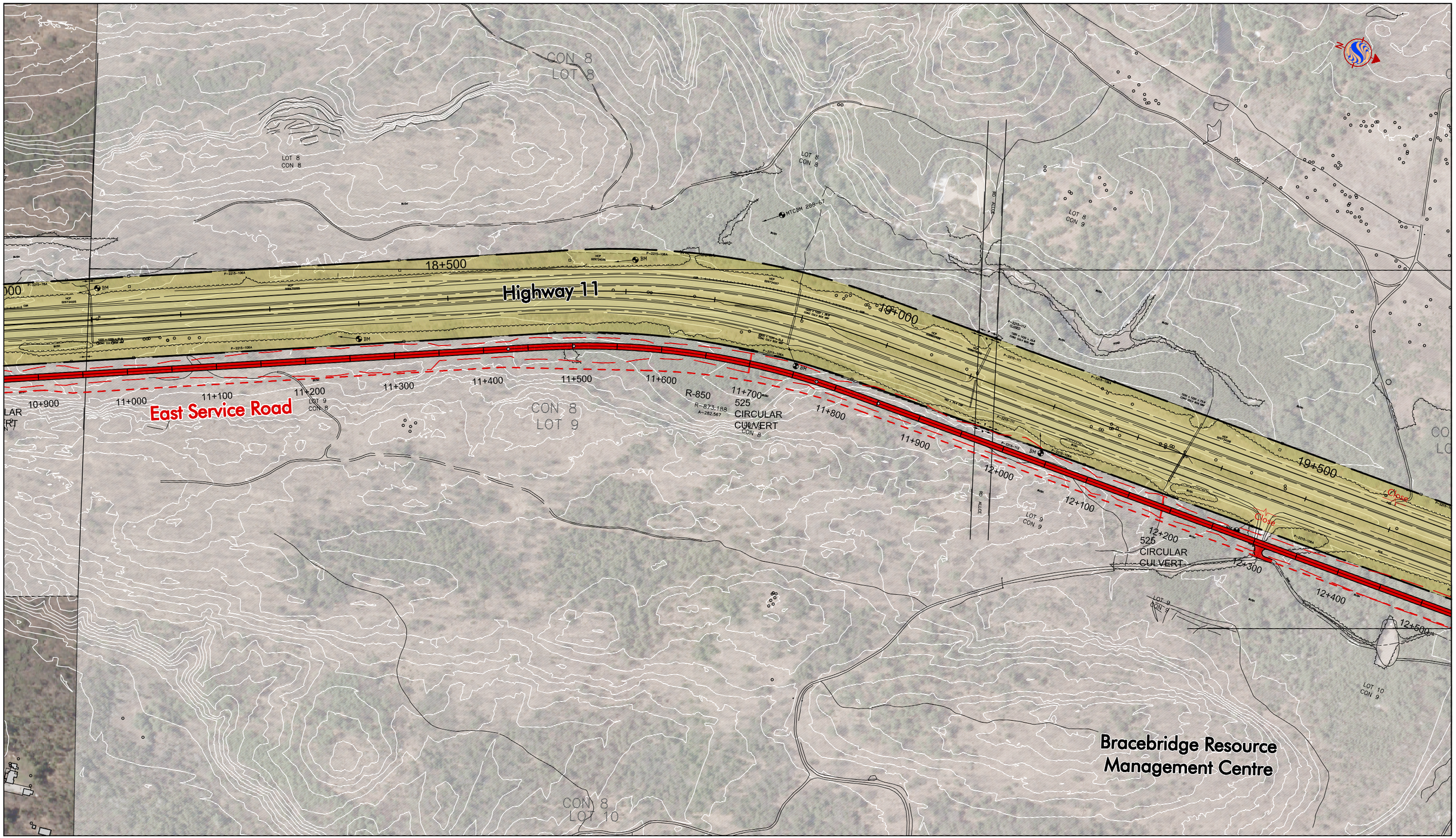
SHEET 10a

Recommended Plan

HIGHWAY 11

STA 16+500 TO STA 18+150

Macaulay Township



Ontario

Stantec

Highway 11 Access Review

at High Falls Road, Holiday Park Drive, and Alpine Ranch Road from Muskoka Road 117 / Cedar Lane northerly for 6.3 km

GWP 322-00-00

LEGEND

- New Roadway
- Grading Limit
- Limit of Property Acquisition
- Property Required
- Existing Limit of MTO Right-of-way
- Property Owned by MTO but Not Designated for Right-of-way
- Crown Land
- New Culvert

SCALE

0 80m

1:4000

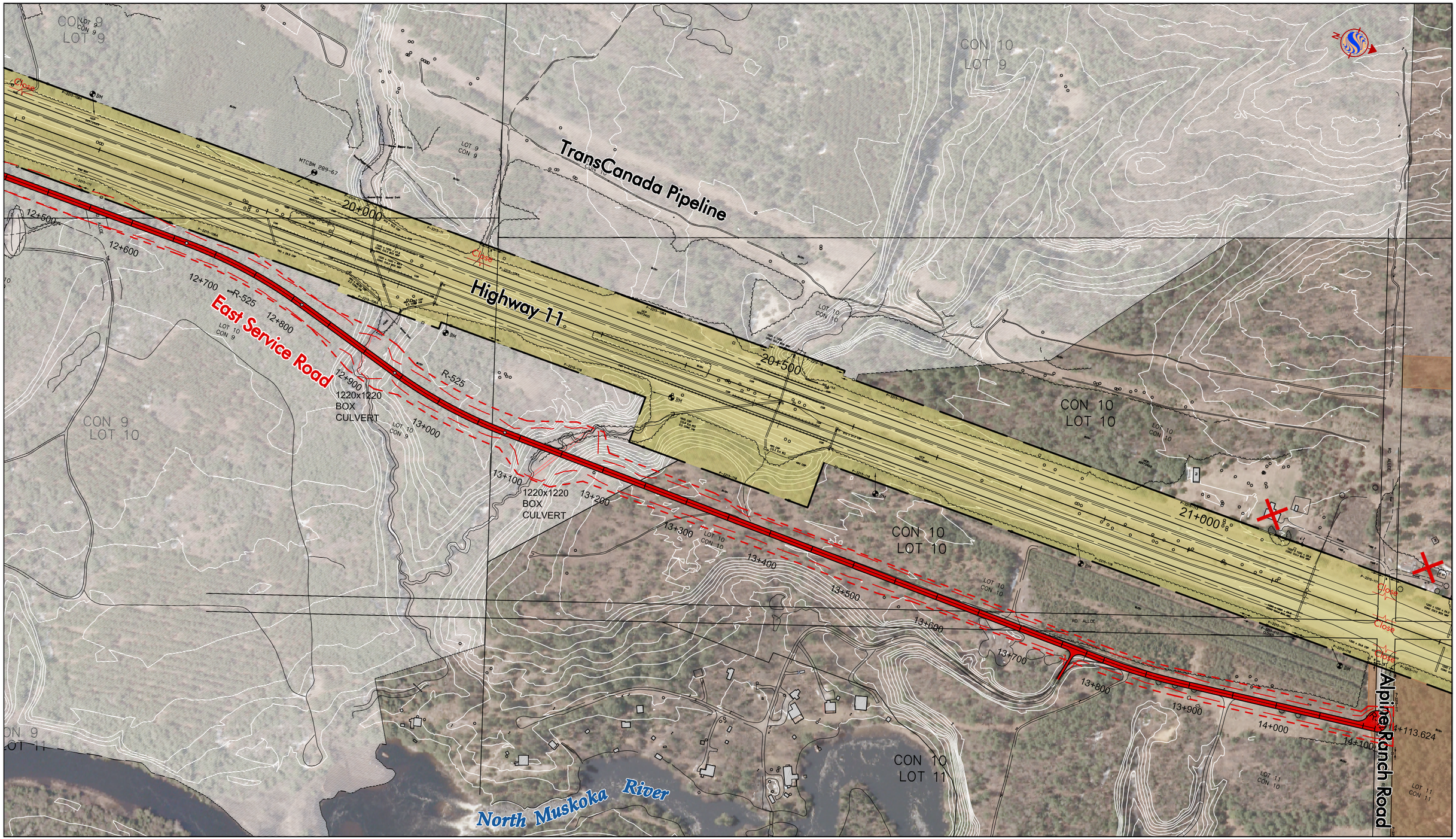
SHEET 10b

Recommended Plan

HIGHWAY 11

STA 18+150 TO STA 19+650

Macaulay Township



Ontario

Stantec

Highway 11 Access Review

at High Falls Road, Holiday Park Drive, and Alpine Ranch Road from Muskoka Road 117 / Cedar Lane northerly for 6.3 km

GWP 322-00-00

LEGEND

- New Roadway
- Grading Limit
- Limit of Property Acquisition
- Property Required
- Existing Limit of MTO Right-of-way
- Property Owned by MTO but Not Designated for Right-of-way
- Crown Land
- New Culvert

SCALE

0 80m

1:4000

Recommended Plan

HIGHWAY 11

STA 19+650 TO STA 21+250

Macaulay Township

SHEET 10c

7.7 Utilities

Minor utility relocations will be required to accommodate the Recommended Plan. Final utility relocations will be determined during Detail Design.

The Recommended Plan does not impact the TransCanada Pipeline.

7.8 Property

Two property acquisitions are required to accommodate the Recommended Plan. Both properties are located on the west side of Highway 11 at the intersection with Alpine Ranch Road.

The purchase of these two properties will proceed initially on a willing-seller/willing buyer basis. However, the Ministry may choose to purchase the properties sooner if the existing shared entrance begins to compromise the safety and operation of the highway. The Ministry will continue to monitor the safety and operation of the highway in the vicinity of the entrance and will determine appropriate action on an individual basis.

An additional five properties will have direct property impacts where portions of the property are required. The property requirements are illustrated on the Recommended Plan exhibit.

7.9 Construction Staging and Traffic Management

Construction staging will be required for the construction of the Recommended Plan. Some out of way travel may be required during construction to access the municipal road network.

Details of the construction staging and traffic management will be confirmed during Detail Design.

7.10 Environmental Impacts and Mitigation

This section of the report describes the expected environmental impacts associated with the Recommended Plan, and appropriate mitigation at a Preliminary Design level of detail, in accordance with the *Class EA for Provincial Transportation Facilities* (2000) and the *Environmental Reference for Highway Design* (2006).

7.10.1 Natural Environment

The Recommended Plan was selected, in part, because it minimizes impacts to the significant natural features, including areas of potential Species-at-Risk habitat, High Falls, and the Bracebridge Resource Management Centre, and does not impact the larger watershed or ecosystem. The following sections provide an overview of the potential impacts and proposed mitigation measures for the Recommended Plan.

7.10.1.1 Topography

The Recommended Plan does not impact the topography in the general study area beyond the future highway right-of-way. The study area will still exhibit the representative range of landscape characteristics. The Recommended Plan maintains the existing highway profile.

7.10.1.2 Geology and Groundwater

Well locations will be confirmed during Detail Design. Private wells in the vicinity of the construction area will be identified and included in a well monitoring program that will include the collection of baseline data and monitoring during construction. Details of the well water monitoring program and the locations of wells to be included in the program will be identified during Detail Design.

Potential impacts on surficial soils and groundwater include:

- Increased soil erosion
- Groundwater contamination from disturbance of contaminated soils, leaks and accidental spills
- Changes in groundwater levels in aquifers and yields of wells due to dewatering, changed flow patterns that may disrupt groundwater supplies for drinking water, irrigation, or commercial uses
- Damage to groundwater wells from blasting or vibration

During construction there is some potential for spills of operational fluids from vehicles, equipment and other sources. Spills can result in the contamination of soils and contribute to surface and groundwater degradation. The potential for a spill is greatly reduced by managing these materials according to regulations and implementing appropriate mitigation.

Stormwater Management

A stormwater management overview was carried out as part of the Drainage Study. The overview indicates that stormwater management (SWM) facilities are not warranted and water quantity control is not required for the Recommended Plan. Water quality control will be provided through the use of grass swales and highway embankments with a minimum grade of less than 4% and sideslopes that are at least 2.5:1 to maximize sediment removal before the water enters the watershed.

Mitigation Measures

Depending on the proposed grading determined during Detail Design, some rip rap may be required to protect the embankments. Highway embankments and roadside ditches should be planted with dense vegetation to prevent erosion and trap sediments. Rock check dams can be used along steep grades to reduce velocities and erosion.

The measures to mitigate the above noted impacts include:

- Minimize impacts at approaches to sensitive watercourse crossings, including installation of sediment control fencing, slope restoration and stabilization during construction. Temporary erosion control measures will be maintained until vegetation is re-established to a sufficient degree to provide adequate protection to disturbed work areas
- Inspect slope areas regularly during construction to identify erosion problems and seepage areas and plan for appropriate temporary stabilization and drainage measures
- Direct runoff and overland flow away from working areas and areas of exposed soils
- Store all oils, lubricants and other chemicals in suitable containers and handle them in accordance with applicable regulations

- Do not permit refuelling within 100 m of a watercourse
- Clean up all spills immediately and dispose of contaminated materials in an approved manner. Appropriate sections of the Ministry of the Environment will be informed of reportable spills
- Appropriate blasting techniques will be employed near residential water wells

Wells and septic systems that are no longer required (at locations were residences or businesses are acquired) will be properly abandoned/decommissioned.

Permits to Take Water (PTTW) will be obtained from the Ministry of the Environment, if required, in advance of construction.

7.10.1.3 Fisheries and Aquatic Resources

Fisheries impacts and potential mitigation are described below. All fisheries impacts will be mitigated in accordance with the *MTO/DFO/MNR Fisheries Protocol* (2006). Details of potential fisheries impacts are provided in Table 14.

Table 14 provides an overview of fisheries impacts resulting from the Recommended Plan, including the new East Service Road connecting Holiday Park Drive to Alpine Ranch Road, new crossing of the North Muskoka River, new culverts, and required culvert extensions, replacements or rehabilitations.

In total, the Recommended Plan requires work at five watercourses (two low sensitivity watercourses (Sites 4 and 14) and three high sensitivity watercourses (Sites 6, 10, and 11)). A summary of the proposed construction activities at these locations is provided in Table 14.

The preliminary impact assessment indicates that *Fisheries Act Authorizations* (FAA) will likely be required for the new crossing of the North Muskoka River, and for the new culverts required to accommodate the East Service Road at the unnamed watercourses (Sites # 6, 8, 10, and 11). Details of potential compensation measures for the work at these locations are discussed in the *Aquatic Ecosystems Report* and summarized in Table 14.

There is currently no culvert identified under the service road for Site #14 given the absence of a defined stream channel at this location. Based on the existing conditions at Sites #4 and #14, a FAA can be avoided if proper mitigation and design measures are incorporated to protect fish habitat located downstream. Fish passage does not need to be considered at these locations during culvert design.

The final design of the culverts will be confirmed during Detail Design.

Where possible, culvert design should be modified to include open bottom culverts to minimize impacts to fisheries resources.

Table 14: Summary of Fish and Fish Habitat Sensitivity and Proposed Construction Activities

Location	Sensitivity (MNR)	Existing Culvert (where applicable)	Proposed Works	Scale of Negative Effect	DFO Approval?	Proposed Mitigation / Compensation Measures
Unnamed Watercourse (Site #4)	Low (Indirect habitat)	Concrete box (1220 mm × 1220 mm)	New 20 m culvert for East Service Road at Sta. 11+700	Low	No	Standard construction timing and erosion and sediment control measures
Unnamed Watercourse (Sites #6 and #8)	High	Concrete box (1220 mm × 1220 mm)	New 45 m culvert for East Service road at Sta. 12+905	High Channel realignment required resulting in loss of fish habitat through channel enclosures and shortening	Yes	Minimize culvert length Apply natural channel design for channel realignment Open bottom culverts Low flow channel Remove beaver dam downstream of Highway 11 Focus flow to one main channel Restore creek to main creek channel downstream of culvert
Unnamed Watercourse (Sites #10 and #11)	High	CSP 1830 mm	New 100 m culvert for East Service Road at Sta. 13+130	High Channel realignment required resulting in loss of fish habitat through channel enclosures and shortening	Yes	Minimize culvert length Apply natural channel design for channel realignment Open bottom culverts Low flow channel Remove debris jams downstream and upstream of Highway 11 Redesign existing culvert outfall area to improve fish passage Riparian plantings between existing culvert and proposed culvert Create instream cover upstream of

Location	Sensitivity (MNR)	Existing Culvert (where applicable)	Proposed Works	Scale of Negative Effect	DFO Approval?	Proposed Mitigation / Compensation Measures
						Highway 11 culvert
Unnamed Watercourse (Site #14)	Low (Indirect habitat)	Concrete box (1220 mm × 1220 mm)	New 18 m culvert for East Service Road at Sta. 12+190	Low	No	Standard construction timing and erosion and sediment control measures
North Muskoka River (Site #MR5)	Low	n/a	3-span Bridge Centreline culvert	High Bridge includes 2 in-water piers In-water temporary work pads to construct piers Temporary coffer dams to isolate work area during construction	Yes	Consult fluvial geomorphologist to review design of piers and embankments

Sediment and Erosion Control

Potential impacts to fish habitat can be realized as direct habitat loss (i.e. the addition of piers, or culvert extensions into fisheries waters) or indirect impacts to habitat. During construction, problems can arise with management of continuous flows and the onset of inclement weather that could raise flow levels and potentially flood the work site. Sediment introductions from adjacent graded areas can also cause potential impacts to fish habitat. Suspended sediments increase stream turbidity, which can impair vision and subsequent feeding by fish that are sight-hunters, abrade gill membranes leading to physical stress, and impact prey organisms. Heavier sediments can deposit on the stream bottom and clog coarser substrates that may be used for spawning, incubation of juvenile fish, or food production. These potential indirect effects to fish habitat can be mitigated through the use of standard sediment and erosion control measures.

A greater risk of slope instability and increased erosion exists during construction in the areas adjacent to watercourses and waterbodies and areas of high fill, including the culverts required for the two Unnamed Watercourses located at Sites #6, #8, #10, and #11.

Various mitigation techniques will be employed during construction to reduce the risk of impacts to natural environment features. The following mitigation measures for sedimentation, erosion, and dust control should be implemented to prevent sediment and dust from entering sensitive natural features and watercourses:

- The limits of construction adjacent to all natural features to be retained will be flagged and fenced prior to construction, and monitored during construction (along with sediment and erosion control measures) to make sure the limits are maintained with respect to vehicular traffic and soil or equipment stockpiling
- No equipment will be permitted to enter any natural areas beyond the silt fencing (site boundaries) during construction
- All materials requiring stockpiling (fill, topsoil, etc.) will be stabilized and kept a safe distance from any sensitive natural features
- Straw bale and/or rock flow checks will be installed in ditches to trap sediments for off-site disposal
- All exposed soil areas will be stabilized and re-vegetated, through the placement of seed and mulching or seed and an erosion control blanket, promptly upon completion of construction activities
- In addition to any specified requirements, additional silt fence should be available on site, prior to grading operations, to provide a contingency supply in the event of an emergency
- All sediment and erosion controls will be monitored regularly and properly maintained, as required. Controls are to be removed only after the soils of the construction area have been stabilized and adequately protected until cover is re-established
- Any disturbed natural areas will be restored to pre-construction conditions
- The banks of watercourses disturbed during ditch construction will be restabilized to pre-construction configuration and condition (or better) using native species, where possible

General Mitigation Measures

The following mitigation measures will be carried forward for consideration during Detail Design:

- If de-watering is required in areas where fish habitat is present, DFO's *Freshwater Intake End-of-Pipe Fish Screen Guideline* will apply
- Any displaced fish will be captured and released outside of the work area
- Refuelling of equipment will be carried out a minimum of 100 m away from any aquatic resources to avoid potential impacts, in the event that an accidental spill occurs
- Materials and equipment used for site preparation and project completion shall be operated and stored in a manner that prevents any deleterious substance from entering the water
- In-water work areas will be isolated so that clean flow is maintained downstream/around the work area

Construction Timing Restrictions

Works adjacent to aquatic resources that support fish habitat, or have the potential to support fish habitat, are restricted to certain periods to avoid construction-related impacts to fish species during their most sensitive/vulnerable life cycles (e.g., during reproduction and early development stages of offspring). Construction activities are generally not permitted close to, or within, watercourses during these periods.

In-water construction work associated with the Highway 11 Study Area must fall between the following timing windows:

- Coldwater streams (Sites # 6,8,10,11) July 1 to September 30
- Coolwater streams (Muskoka River) July 1 to March 31
- Warmwater streams (Sites # 4, 14) July 1 to March 31

Approvals

Details of fisheries mitigation and compensation, including DFO approval under the *Fisheries Act*, will be confirmed during Detail Design.

7.10.1.4 Terrestrial Ecosystems

Vegetation removal associated with the Recommended Plan is generally limited to areas adjacent to the existing highway to minimize encroachment in the contiguous forested areas both east and west of the highway. However, vegetation removal is required for the construction of the East Service Road, North Muskoka River bridge, and municipal road network connections. Since the study area is strongly linked to large areas of contiguous natural cover, partially afforded protection by the Bracebridge Crown Land Use Policy, it is not expected that the removal of the proposed vegetation will have a significant impact on terrestrial habitat in the regional context. Environmental impacts from the proposed works will depend upon the final project design at which time encroachment into terrestrial habitat can be quantified.

Vegetation and Wetlands

The Recommended Plan will impact vegetation mainly classified as coniferous and mixed forest, including some areas of cultural plantation and meadow east of Highway 11. One small wetland is also affected by the Preferred Plan. In the regional context, the removal of small areas of vegetation adjacent to the existing highways will not have a significant impact on terrestrial habitat.

During construction adjacent to vegetated areas, heavy equipment could damage peripheral vegetation from contact, excavation and/or soil compaction. The following construction practices should be applied for work adjacent to the wetland and vegetated areas:

- Vegetation impacts will be limited to where removal is required by installing barriers for tree protection at the dripline of retained vegetation, where possible
- Areas to be cleared of existing vegetation should be clearly marked to prevent any unnecessary clearing
- Identify wetlands that provide sensitive species habitat and are not impacted by construction as an Environmentally Sensitive Area on construction drawings and the contractor will not be permitted to enter or store materials in these areas
- During Detail Design, it is recommended that fill placement into wetlands and vegetated areas should be avoided where possible, and edge plantings that are tolerant of edge effects should be implemented, where possible, along the newly created edges of woodlands/wetlands

Wildlife Habitat and Open Space Linkages

Highway 11 is a barrier to wildlife movement in two valley features located to the north end of the Study Area. Construction of the East Service Road will result in a loss of valley habitat within the proposed footprint of the service road and in the area between the service road and Highway 11 in both valleys.

The majority of wildlife-related impacts from the Recommended Plan will be caused by the direct removal of terrestrial habitat, as outlined above and increased ambient noise.

Depending on the level and duration/frequency of the activity, an increase in ambient noise can have detrimental effects on wildlife through agitation and flushing responses. Frequent disturbance can cause increased energy consumption, decreased feeding time, physiological stress and decreased reproduction success due to increased predation on young while adults are flushed. Land uses associated with vehicular traffic and the daily presence of site machinery (during construction) poses an impact in this regard. However, given the existing traffic on Highway 11, it is likely that resident wildlife have either adapted to periodic daily noise or have already relocated to areas beyond their individual noise impact threshold.

Significant Wildlife Habitat

In September 2008, a new *Endangered Species Act* came into effect. The new Act provides broader protection for the habitat for species at risk (classified as endangered) and their habitats. During Detail Design, a detailed survey for the habitat for the Species-at-Risk (SAR) listed in Section 4.1.4.3 should be carried out to confirm that the Recommended Plan does not directly impact the habitat of SAR.

Habitat for snapping turtle, Blanding's turtle, eastern milksnake, and eastern hog-nosed snake is found within the Study Area. The following locations have been identified as potential Species-at-Risk (SAR) habitat:

- Cultural woodland or cultural meadow communities could provide habitat for the Eastern Hog-nosed Snake. The East Service Road requires construction within a cultural meadow community. However, larger and more suitable habitats for this species are present in the study area west of Highway 11.
- Open Aquatic and potential nesting habitat for Snapping Turtle and Blanding's Turtle habitat in the vicinity of the North Muskoka River.

No reptile nests were identified in the areas required for the Recommended Plan. Communication with the Ministry of Natural Resources Species-at-Risk biologist did not identify any specific areas of potential SAR habitat.

Proposed mitigation measures to minimize impacts to the identified sensitive reptile species include:

- Provide identification guides to construction crews to help identify any incidental sightings of reptiles
- Report reptile sightings to the Contract Administrator and MNR
- Habitat for Species-at-Risk should be confirmed and mapped during Detail Design
- Speed restrictions on trucks in the construction area
- A survey of an area for species at risk before blasting and the use of blasting mats during construction
- Identification of a no-touch setback zone if reptile nests are encountered during construction
- Facilitating safe movement of species at risk through the construction zone, if required
- Under no circumstances is a reptile to be harassed, harmed, or killed
- Access to areas identified as potential Blanding's turtle habitat should be scheduled to occur between October 15 through May 30, if possible, since this is a general hibernation period for most turtles.

With respect to occurrences of Blanding's turtle and eastern hog-nosed snake and their habitats, MNR should be consulted to determine appropriate mitigation measures and permitting requirements under the ESA.

Migratory Birds and Avian Species

Potential habitat for a number of significant avian species may be present in the study area, most of which utilize forested habitats, including the northern long-eared bat, pepper-and-salt skipper and species listed in Section 4.1.4.3 of this report. Given the amount of forest cover in the study area, no significant impacts to these species are anticipated.

A small area of potential Canada Warbler habitat in the southern portion of the study area (SWD2-1) should be investigated during detail design to confirm if it provides significant habitat for this species.

If tree clearing or construction is required between May 1 and July 31, culverts, bridges and impacted trees should be checked for the active nests of bird species that are protected under the *Migratory Birds Convention Act* (1994) or other legislation a maximum of three days prior to construction or tree clearing. Measures to protect Migratory Birds will be confirmed during Detail Design.

7.10.1.5 Potential Contamination

Preliminary Site Screenings will be carried out for all property to be acquired for the Recommended Plan.

Findings of the Preliminary Site Screenings and the Environmental Site Assessment will determine if remediation is required for any properties. Special measures would be included in the final contract if there is a need to remove soil from a contaminated property.

7.10.1.6 Management of Excess Materials

The potential impact to soil or groundwater from the use of de-icing activities along provincial highways represents a potential environmental concern with respect to soil and groundwater quality. Typically a portion of road salts applied on roadways for de-icing purposes will remain within the soil, and the salt content can exceed the allowable limit for inert fill. Updated EPA standards (2004) placed new limits on salt-related contaminants in soil and ground water and the definition of "inert fill" now excludes soils with modest salt contamination. Typically, these soils do not pose a risk to human health, to wildlife or to the natural environment.

A strategy for management of excess fill that will be generated during construction activities will be confirmed during Detail Design in accordance with OPSS 180. This standard deals with the responsible management, stock piling and disposal of excess materials (including earth, rock, pavement, concrete, etc.) during construction on Ministry projects.

7.10.2 Social/Economic Environment

During the study, the Town of Bracebridge, District Municipality of Muskoka, and local residents indicated that social issues, including safety, access, visual impacts, noise, traffic volumes on municipal roads, property impacts, out-of-way travel and land use, were important to the community. This section of the report describes impacts and potential mitigation measures for the social and economic environments.

7.10.2.1 Land Use

Land use designations in the study area are not expected to change as a result of the Recommended Plan.

Development along the Highway 11 corridor is limited by MTO's corridor control to avoid additional private access points directly onto the highway for traffic safety reasons. Where required, new developments in proximity to the highway will require permits from the Ministry.

There is a potential future recreational resort development located on Alpine Ranch Road, east of Highway 11. However, the property is currently identified by the District Municipality of Muskoka as recreational/residential property. This designation would have to be amended in the District's *Official Plan* for the proposed development to proceed. Access to this property would be via the East Service Road.

A landscaping business is located on the west side of Highway 11 with access from Alpine Ranch Road. Access to this road will be closed as part of the Recommended Plan.

7.10.2.2 Residential

Two property acquisitions are required to accommodate the Recommended Plan. Both properties are located on the west side of Highway 11 at the intersection with Alpine Ranch Road. An additional five properties will have direct property impacts where portions of the property are required.

Some residents may be indirectly impacted by the Recommended Plan, as the Recommended Plan includes a new crossing of the North Muskoka River and a loss of direct access to Highway 11.

All at-grade intersections will be closed and access to Highway 11 will be provided from the existing Cedar Lane/Muskoka Road 117 interchange.

The East Service Road provides access from Muskoka Road 117, northerly to Holiday Park Drive, the BRMC and Alpine Ranch Road. The crossing road provides access from Holiday Park Drive to High Falls Road and the Ministry of Natural Resources property. Some out-of-way travel will be required for residents or businesses travelling from the municipal road network to access the highway.

Residents and businesses that currently have access to Highway 11 may experience increased travel times in order to access Highway 11. However, the Preferred Plan provides convenient access from High Falls Road and Holiday Park Drive to the Highway 11 Cedar Lane/Muskoka Road 117 interchange. Residents on Alpine Ranch Road will be able to access Highway 11 via the East Service Road and the interchange at Cedar Lane/Muskoka Road 117.

Residents in the study area may experience temporary delay or disruption during construction. Reasonable access to sideroads and private entrances will be provided during construction. Property negotiations with the property owners will be carried out in accordance with standard MTO property purchasing processes.

Visual Impacts

During the study, residents on Holiday Park Drive, Harmony Lane, and along the North Muskoka River east of the proposed crossing have indicated that they are concerned about the visual impact of the proposed structure.

Visual impacts were considered during the evaluation of project alternatives and selection of the Preferred Plan. The *Aesthetic Guidelines for Bridges* (2004) provides a system that includes three levels of aesthetic classifications. It is expected that the Muskoka River Bridge will be classified as Level 2 – Medium Aesthetic value, which will require approval from the Ministry Bridge Aesthetics Evaluation Group and professional advice regarding bridge aesthetics during the detail design stage. Aesthetic features could include consideration of texturing, colouring, or aesthetic design of the barrier walls or bridge girders and will be in accordance with the MTO's *Aesthetic Guidelines for Bridges* (2004).

Traffic Volumes on Municipal Roads

Access to High Falls Road, Holiday Park Drive, the Bracebridge Resource Management Centre (BRMC), and Alpine Ranch Road is currently provided at Highway 11; and recent turning movement counts at the

Highway 11 intersections in the study area indicate that truck traffic accounts for approximately 4% of vehicles traveling on High Falls Road. The Recommended Plan will utilize the existing interchange at Muskoka Road 117/Cedar Lane and a new parallel service road on the east side of Highway 11 to maintain access to these local roads. The traffic characteristics of the service road will be similar to the traffic characteristics of the existing local roads.

The East Service Road will be designed and constructed to municipal road standards by the MTO. Following the completion of construction, the ministry will request the District of Muskoka and the Town of Bracebridge to assume and maintain the East Service Road.

7.10.2.3 Emergency Services

The Recommended Plan maintains existing emergency response routes by providing a new structure over the North Muskoka River and the East Service Road that connects Municipal Road 117 to Alpine Ranch Road.

During the study, the Bracebridge Fire Department identified a preference for the Recommended Plan since it minimizes out-of-way travel to Holiday Park Drive, Alpine Ranch Road, and the east part of High Falls Road.

The potential for a median turnaround between the Cedar Lane/Municipal Road 117 interchange and Stephenson Road 1 will be considered during Detail Design.

7.10.2.4 Recreation

The Ministry of Transportation is committed to sustainable transportation and Active Transportation as outlined in the MTO *Statement of Environmental Values* (2008). The existing environment display available at the first PIC identified the locations of the Trans Canada Trail, the local snowmobile trail west of Highway 11, and extensive recreational trails in the BRMC on the east side of Highway 11.

The evaluation criteria that were used to select the Preferred Plan included consideration for impacts to the recreational trail network, connectivity across the highway and opportunities for Active Transportation.

The new crossing road over the highway provides safe pedestrian/cyclist connection between High Falls Road, the Trans Canada Trail, and the BRMC trails. The large box culvert (5 m x 5 m) under High Falls Road maintains the existing Trans Canada Trail connection and provides a safer crossing of High Falls Road.

The entrance to the BRMC will remain at its present location. Access to the entrance will be provided via the interchange at Cedar Lane/Muskoka Road 117 and the East Service Road. There are no impacts to trails within the BRMC.

Navigable Waters

Approval under the *Navigable Waters Protection Act* (NWPA) for the Recommended Plan will be obtained during Detail Design, if required. The NWPA requires that navigation access be maintained during construction. Any signage or lighting required for canoeists or boaters on the watercourse during construction will be confirmed during Detail Design.

7.10.2.5 Noise

A *Noise Impact Study* was carried out for the Recommended Plan. The *Noise Impact Study Report* is on file with the Ministry of Transportation.

The *Noise Impact Study* analysed existing noise conditions and compared them to future noise levels expected from the proposed improvements under a future 'do-nothing' and the future 'Recommended Plan' scenarios. In accordance with the MTO *Environmental Guide for Noise* (2006), residences that are exposed to sound level increases of 5 dBA or higher in the future and/or to future sound levels of 65 dBA or higher warrant investigation to establish their eligibility for noise controls at their Outdoor Living Areas (OLA's).

Twelve (12) Noise Sensitive Receptor Locations were selected to represent the Noise Sensitive Areas (NSAs) within the study area.

The environmental noise impact assessment in this study is based on the excesses of the future with the undertaking (Year 2036) above the existing ambient (Year 2006) sound levels, as well as on the absolute future with the undertaking sound levels as compared to MTO sound level Cap of 65 dBA.

The study indicates that future noise levels at the OLAs are predicted to be in the range of 53 dBA to 62 dBA. Noise increases as the result of the proposed improvements are predicted to be in the range of 2.0 dBA to 3.0 dBA, which is considered to be imperceptible to the human ear. Noise mitigation is not warranted.

The contractor will be required to adhere to standard noise restrictions during construction (i.e. proper maintenance of equipment, no unnecessary idling).

7.10.2.6 Air Quality

Construction dust impacts will be controlled during construction. The contractor will be required to adhere to standard restrictions (i.e., proper maintenance of equipment, no unnecessary idling) during construction. Standard dust suppressants (i.e., water, calcium chloride) will be used to minimize dust.

7.10.2.7 Traffic Interruptions and Delay during Construction

A traffic management and staging plan will be finalized during Detail Design and included in the contract package. Access to private and commercial property will be maintained during construction.

7.10.3 Cultural Environment

7.10.3.1 Archaeology

A *Stage 1 and Stage 2 Archaeological Assessment* was carried out for the Recommended Plan. This study is on file with the Ministry of Transportation and has been sent to the Ministry of Culture for review and concurrence.

No archaeological or heritage materials were identified during the investigations. However, one property was not assessed during the Stage 2 Archaeological Assessment where Permission to Enter (PTE) the property was not obtained.

It is recommended that a Stage 2 Archaeological Assessment be carried out on property that was not assessed to obtain Archaeological Clearance in advance of construction.

Should human remains be identified during any construction or future maintenance operations, all work in the vicinity of the discovery will be suspended immediately. Notification will be made to the Ontario Provincial Police, or local police, who will conduct a site investigation and contact the district coroner. Notification will also be made to the Registrar of Cemeteries, Ministry of Consumer and Commercial Relations (416-326-8404).

Should other cultural heritage values (archaeological or historical materials or features) be identified during operations, all activity in the vicinity of the recovery will be suspended and the Ministry of Culture archaeologist contacted.

7.10.3.2 Built Heritage and Cultural Landscape

The Recommended Plan was selected, in part, since it minimizes impacts to the area of potential High Cultural Value associated with the North Muskoka River and High Falls area.

There are no buildings of significant historical, architectural, or cultural importance impacted by the Recommended Plan.

7.11 Future Consultation

Future consultation will be required during Detail Design to deal with all outstanding issues, including permits/approvals from external agencies, detailed environmental investigations regarding impacts and mitigation and engineering investigations to confirm the final design.

Future consultation is expected to include notification of the start of Detail Design to the public and external agencies and a Public Information Centre near the completion of Detail Design to display plans, and to answer questions about the design.

Future consultation with external agencies is described in Table 15.

Table 15: Future Consultation with External Agencies

External Agency	Subject of Consultation
Canadian Environmental Assessment Agency	• CEAA Screening
Transport Canada	• NWPA approval
Department of Fisheries and Oceans	• Submit 'No HADD' or 'HADD' forms in accordance with MTO/DFO/MNR Fisheries Protocol (2006) • Develop compensation plan for HADD work, if required • Consult with regarding fisheries impacts, and final culvert and bridge recommendations • Include timing restrictions and other fisheries mitigation in contract package

External Agency	Subject of Consultation
Ministry of Natural Resources	• Confirm that habitat for Species-at-Risk is not negatively impacted by the Recommended Plan • Fisheries impacts and final culvert recommendations • Consult with regarding potential Species-at-Risk habitat • Access to MNR Storage Area
Ministry of Culture	• Include appropriate wording in contract to deal with archaeological resources during construction • Confirm Ministry of Culture Clearance
Emergency service agencies (i.e. OPP, Fire, ambulance, etc.)	• Notify them of Detail Design (i.e. staging etc.) and construction phases to minimize impacts to emergency response times during and after construction • Confirm location for median turnaround (if required)
District Municipality of Muskoka Town of Bracebridge	• Consultation and meetings during Detail Design and construction phases, for information purposes • Confirm posted speed and surface treatment for future municipal roads • MTO to participate in potential Environmental Assessment study for the Bracebridge North Transportation Corridor
All other agencies/groups involved in planning and preliminary design study (i.e. school boards, etc.)	• Notify of start of Detail Design and construction phases, for information purposes
Utility companies	• Notify of start of Detail Design to confirm that potential conflict areas are property identified and dealt with

Other issues to be dealt with, through consultation during Detail Design include:

- Property acquisitions and entrance closures through negotiations with individual property and business owners
- Confirm impacts and mitigation for new bridge and culverts with MNR/DFO
- Confirm aesthetic features for North Muskoka River Bridge

7.12 Summary of Environmental Effects, Proposed Mitigation and Commitments to Future Work

A summary of environmental effects, proposed mitigation and commitments to future work, as identified at the end of this study, is provided in Table 16. It includes future consultation with the public, municipality and ministries/agencies, as well as a summary of environmental effects and proposed mitigation. The table forms a comprehensive 'checklist' of outstanding issues identified at the end of planning and preliminary design and will serve as a starting point for Detail Design.

Table 16: Summary of Environmental Effects, Proposed Mitigation and Commitments to Future Work

ID #	Issue/Concerns and Potential Effects	Source	ID #	Mitigation or Commitment to Future Work
Agencies				
1	CEAA Approval	CEAA Transport Canada DFO MTO	1.1 1.2	• Carry out CEAA Screening documentation for Federal triggers (*Fisheries Act*) if required • Obtain all federal approvals
Natural Environment				
2	Ground/Surface Water • Potential for increased pollutant to enter receiving watercourses • Increased downstream run-off from recommended improvements • Potential impacts to water quality/ quantity	MTO Public	2.1 2.2 2.3 2.4 2.5 2.6 2.7	• Review opportunities for design features such as grassed swales and maximize grassed areas for water quality treatment • Drainage design to be confirmed during Detail Design to provide appropriate drainage capacity • Determine location of existing wells that may be impacted during construction • Identify well water monitoring program, if required • Obtain Permit To Take Water, if required, in advance of construction • Minimize impacts at approaches to sensitive watercourse crossings • Direct runoff and overland flow away from working areas and areas of exposed soils

ID #	Issue/Concerns and Potential Effects	Source	ID #	Mitigation or Commitment to Future Work
3	<u>Fisheries and Aquatic</u> • Potential for impacts to fisheries habitat • Submit HADD/No HADD form in accordance with MTO/DFO/ OMNR Fisheries Protocol and DFO approval as required under the Fisheries Act	MTO MNR/DFO Municipality General Public	3.1 3.2 3.3 3.4 3.5 3.6 3.7 3.8 3.9 3.10	• Obtain all fisheries approvals and authorizations as determined by DFO, in accordance with the *Fisheries Act* • Maintain fish habitat through structures with fisheries resources, preferably by providing natural substrate and channel form through culverts • Involve MNR/DFO in future study phases • Contract package to include appropriate timing restrictions and mitigation design elements (i.e. open bottom culverts, clear span bridges to be used where possible, etc.) • Include Special Provisions for work near watercourses in contract • Preparation of erosion and sediment control plan to avoid or mitigate impacts to downstream resources • Contract package to include techniques for erosion prevention and sedimentation control such as temporary rock flow checks, snow fence barriers and use of erosion control blankets or rip-rap on steep slopes • Confirm watercourse realignments and natural channel design • Confirm presence/absence of fish habitat directly north of proposed North Muskoka River bridge location at proposed culvert at north end of bridge • Apply natural channel design principles in the design of channel realignments and channel creation (Sites #6, #8, #10 and #11)
4	<u>Erosion and Sedimentation</u> • Potential for sediment laden runoff to impact downstream resources during construction • Erosion of steep banks prior to stabilization • Potential fisheries impacts at fisheries habitat	MTO MNR/DFO Public	4.1 4.2	• Preparation of erosion and sediment control plan to avoid or mitigate impacts to downstream resources • Contract package to include techniques for erosion prevention and sedimentation control such as temporary rock flow checks, snow fence barriers and use of erosion control blankets or rip-rap on steep slopes

ID #	Issue/Concerns and Potential Effects	Source	ID #	Mitigation or Commitment to Future Work
5	Vegetation and Wetlands • Loss of vegetation due to construction • Potential impacts to adjacent vegetation	MTO Public	5.1 5.2 5.3 5.4 5.5	• Areas impacted by grading will be top soiled, seeded and covered with erosion control blanket or mulch • Sensitive areas are to be labelled as Environmentally Sensitive Areas (ESAs) in contract • Initiate Landscape Plan during Detail Design • Minimize fill in wetland areas • Implement edge plantings of edge tolerant species
6	Wildlife • Impacts to SAR or SAR habitat • Wildlife movement • Potential for impacts to breeding birds in study area	MTO	6.1 6.2 6.3 6.4 6.5	• Identify mitigation measures to prevent impacts to SAR, including habitat surveys • Check existing structures and trees for bird nests • Check culverts for presence of nesting migratory or protected birds to identify presence of any nests prior to construction • Tree removal will not be carried out between May 1 and July 31 to avoid nesting and fledging activities associated with migratory birds • If construction timing requires tree removal between May 1 and July 31, an avian specialist should be consulted
7	Potential contamination • Potential for soil contamination on properties being acquired	MTO MOE	7.1 7.2	• Contamination overview undertaken within the project limits • Carry out Site Screenings, where required
8	Management of Excess Material • Potential impacts to sensitive areas	MTO	8.1 8.2	• Excess material reused, where feasible, for slope flattening etc. • Contractor to dispose of material in accordance with standard MTO specifications

ID #	Issue/Concerns and Potential Effects	Source	ID #	Mitigation or Commitment to Future Work
Social and Economic Environment				
9	Land Use • Dust accumulation on private property • Disruption to residents • Modifications to the local road network	Residents Town District MTO	9.1 9.2 9.3 9.4 9.5 9.6	• Provide dust control/suppression • Maintain access to private entrances and side roads during construction • Maintain liaison/coordinate construction with responding agencies (including school boards) • Negotiate individual agreements for temporary encroachment with property owners and restore properties to existing condition after construction • Secure permissions to enter to undertake work on private property • Extend and adjust profiles of connecting entrances (to side roads)
10	Property • Buy-outs, partial property requirements, change to access, indirect impacts, etc.	MTO Property Owners	10.1 10.2 10.3 10.4	• Contact general public through newspaper notices and directly affected property owners through correspondence at start of Detail Design • Hold PIC during Detail Design to display and seek input on detailed plan and property impacts • Address property issues through negotiations with individual property owners and standard MTO procedures • Confirm property requirements
11	Recreation/Active Transportation • TransCanada Trail • BRMC	MTO Town/District Muskoka AT Committee MNR	11.1	• Confirm culvert dimensions for Trans Canada / MNR Storage Area access
12	Emergency Access • Temporary or permanent change to access	MTO Fire Department OPP Public	12.1	• Notify OPP, Fire department and ambulance service of start of Detail Design, construction staging, start of construction, etc. to minimize delay in emergency response times during and after construction

ID #	Issue/Concerns and Potential Effects	Source	ID #	Mitigation or Commitment to Future Work
13	Highway and Construction Noise • Increased noise from highway • Potential noise increase during construction	MTO Public	13.1 13.2	• Include standard construction noise mitigation in contract package • Obtain exemption from local noise bylaws, if required
14	Utilities • Potential impacts to existing utilities	MTO Utility Companies	14.1	• Contact affected utilities at start of future study phases to confirm details of relocations required
15	Traffic Interruptions/ Delay • Potential for temporary delay during construction	MTO OPP Municipality	15.1 15.2	• Develop traffic management plan using standard measures (i.e. signage, flag people, reduced speeds, etc.) • Develop construction staging and detour plan
Cultural Environment				
16	Archaeology • Potential impacts to archaeological resources	MTO MCUL	16.1 16.2 16.3	• Contract package to include special wording to deal with archaeological resources discovered during construction • Obtain Ministry of Culture Clearance in advance of construction • Carry out Stage 2 investigations where permission to enter was not available during Preliminary Design

The future work described in Table 16 should be carried out subject to updating property ownership information and environmental requirements.

7.13 Monitoring

The preliminary design phase of the project has been completed. Specific mitigation measures identified in this report will require confirmation during Detail Design and monitoring during construction.

Monitoring will be conducted by on-site construction supervisory staff to make sure that environmental protection measures, as outlined in this report and in the contract package, are implemented. This includes making sure that the implementation of mitigating measures and key design features is consistent with commitments made to external agencies prior to construction.

In the event that protective measures do not address concerns identified or if major problems develop, the appropriate agency will be contacted to provide additional input.

In the event that the impacts of construction are different than anticipated, or that the method of construction is such that there are greater than anticipated impacts, the Contractor's method of operation will be modified to reduce those impacts.

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Appendix A: Notification Materials

Appendix B: Correspondence

Appendix C:Public Information Centre Materials