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## 6. Consultation

### 6.1 Consultation Process

A Consultation Plan was developed at study commencement in recognition of the integral role the public and external agencies have played during previous studies recently completed by the Ministry of Transportation (Ministry) within and in proximity to the Highway 17 Study Area Corridor. The Consultation Plan built on the consultation efforts carried out previously by the Ministry and was designed to fulfill the following objectives:

- ensure the general public, municipal councils, stakeholders, First Nation communities, external agencies (both federal and provincial) and special interest groups have an opportunity to participate in the study and associated processes, as well as contribute to decisions at an appropriate time;
- ensure that factual information is provided to all affected/interested stakeholders as soon as reasonably possible; and
- make contact with external agencies to obtain legislative or regulatory approvals, or to collect pertinent technical information.

The consultation methods and tools employed for this Study are in keeping with the consultation requirements of the Ministry's Class Environmental Assessment for Provincial Transportation Facilities (2000) and Environmental Reference for Highway Design (2009 and 2013 editions) and were comprised of a number of elements to encourage wide spread coverage and knowledge sharing.

Key elements of the consultation program were:

- Public Notices;
- External communications with stakeholders, including departments, ministries, agencies, Aboriginal Groups, municipalities and members of the public;
- Public Information Centres;
- A study newsletter for each PIC; and
- Project Website to provide information and receive inquiries from the public.

### 6.2 Agency and First Nations Consultation

The Initial Study Mailing List was comprised primarily of regulatory agencies and First Nations who might have an interest in the study. Agencies and associated representatives were identified based on experience on other MTO projects in the study area, and updates were made and new contacts were added as they were identified.

The initial study mailing list included:

#### Regulatory Agencies

- Department of Indian and Northern Affairs Canada
- Department of Fisheries and Oceans
- Transport Canada
- FedNor
- Ministry of Aboriginal Affairs
- Ministry of Environment
- Ministry of Natural Resources
- Ministry of Tourism and Culture
- Ministry of Community and Social Services
- Ministry of Northern Development, Mines and Forestry
- Ministry of Municipal Affairs and Housing
- Ministry of Energy and Infrastructure
- Ministry of Community Safety and Correctional Services
- Ministry of Energy
- Ontario Provincial Police
- North Bay-Mattawa Conservation Authority

#### Municipalities

- Township of Bonfield
- Township of Bonfield Fire Department
- Township of Calvin
- Township of Calvin – Fire Department
- Township of Papineau-Cameron
- Municipality of East Ferris

#### First Nations

- Ministry of Aboriginal Affairs
- Indian and Northern Affairs Canada
- Anishinabek Nation / Union of Ontario Indians
- Métis Nation of Ontario
- Nipissing First Nation
- Dokis First Nation
- Algonquins of Ontario
- Antoine Algonquin First Nation
- Mattawa Algonquin First Nation
- North Bay Algonquin First Nation

#### Utilities

- Bell Canada
- Union Gas
- Hydro One Networks Inc.
- North Bay Distribution Ltd.
- Trans Canada Pipelines
- Persona Communications
- Canadian Pacific Rail
- Ottawa Valley Rail

#### Others

- Ontario Parks
- Samuel de Champlain Park
- Canadian Ecology Centre
- North Bay & District Chamber of Commerce
- Nipissing-Parry Sound Catholic District School Board
- Near North District School Board
- Conseil Scolaire Public du Nord Est de l'Ontario
- Conseil Scolaire Catholique Franco-Nord
- Ontario Trucking Association
- Nipissing-Parry Sound Student Transportation Services
- Discovery Routes Trails Organization
- Ontario Federation of Snowmobile Clubs
- North Bay Snowmobilers Club
- Bonfield Snowmobile Club
- Mattawa & Area Snowmobile Club
- North Bay and District Hospital
- North Bay and District Health Unit
- Mattawa Bonfield Economic Development Corporation
- Mattawa Voyageur Tourism Coalition
- Ontario Cycling Association
- Friends of Lavase Portages
- Friends of Laurier Woods
- Nipissing Naturalists
- Sheilds Point Road Association
- Business Owners

### 6.3 Study Notices

Study notices were released for:

- study commencement;
- study documentation (release of Study Design Report and Environmental Conditions and Constraints Report);
- three PICs; and
- study completion (included release of TESR for public review and comment).

All study notices involved combinations of public notices placed in two local newspapers and letters to stakeholders on the mailing list. The mailing list was used as the basis for direct notification to stakeholders at the points described above.

The mailing list for the Study was composed of a variety of stakeholders interested in the project and its progress. The list included individuals, interest/ recreational groups, agricultural groups, land owners residing within and outside the Analysis Area, and developed as the Study progressed with additions made as people requested them and as they attended consultation events to ensure they were notified of future opportunities to participate. Mailings sent to individuals on the project mailing list were also sent simultaneously to:

- Municipal clerks
- Municipal libraries
- Municipal planning and works departments
- Regulatory agencies
- Conservation authorities
- First Nations groups
- Municipal Councillors

Key mailings during the Study are noted in the following sections, with additional details including copies of the material provided in **Appendix H**. In accordance with the requirements of the OEAA, Ontario Government Notices (OGNs) were also printed in local newspapers to advertise PICs and other key milestones during the study (e.g. project initiation) as described below.

#### 6.3.1 Notice of Study Commencement

The Notice of Study Commencement was published in the North Bay Nugget on Friday April 27, 2012 and the Mattawa Recorder on Sunday April 29, 2012.

The Notice of Study Commencement was mailed directly to all agency and First Nation contacts on the study mailing list with a description of the study and the study objectives and a response form enclosed asking agencies receiving the mailing to indicate their interest in the study and provide any initial comments to the study team.

In response to the Notice of Study Commencement, the Project Team received seven responses from regulatory agencies. One request to be removed from the mailing list was received, from a representative

of the Department of Fisheries and Oceans Canada while the remaining six responses identified an interest in the study and local concerns, e.g. maintaining access to Highway 630 and key local roads in the area. Specifically, responses were received from:

➤ Municipality of Calvin	<ul style="list-style-type: none"> <li>• Access to Calvin Township at Hwy 630 and Boundary Road, both directions (east and west).</li> <li>• Turn arounds for emergency vehicles.</li> </ul>
➤ Mattawa Bonfield Economic Development Corporation	<ul style="list-style-type: none"> <li>• Concerned about all topics and areas that pertain to the project; especially route planning</li> </ul>
➤ North Bay Central Ambulance Communications	<ul style="list-style-type: none"> <li>• Ambulance and fire response in this area.</li> </ul>
➤ Ontario Provincial Police - North Bay	<ul style="list-style-type: none"> <li>• No specific concerns noted.</li> </ul>
➤ TransCanada Pipelines	<ul style="list-style-type: none"> <li>• No specific concerns noted.</li> </ul>
➤ Nipissing First Nation	<ul style="list-style-type: none"> <li>• La Vase Portage areas</li> </ul>

The Notice of Study Commencement was also circulated to approximately 1,100 households in the study area via a bulk mail drop processed through Canada Post. In response to the Notice publication and the mail drop, nine local stakeholders requested they be added to the study mailing list via the contact information provided or the study website and twenty local interest groups also contacted the study team and requested they be added to the study mailing list.

A copy of the published and circulated Notice, and a copy of the letter and response form mailed to agencies and First Nations representatives are included in **Appendix H**.

#### 6.3.2 Notice of Study Documentation

A Study Design Report (SDR) was prepared for the study in accordance with the requirements of the Class EA and provided an overview of the need and justification for the project, the planning alternatives being considered and the EA process commitments such as consultation and documentation. The SDR was prepared as a tool to guide the study activities as the study progressed. A Summary of Existing Environmental Conditions and Constraints Report was also prepared to document the environmental conditions and constraints within the study area based on secondary source information.

In accordance with the Class EA process, the SDR was placed on the public record for a 30-day public review period, commencing August 16, 2012. A Notice of Study Documentation was prepared and published in the North Bay Nugget and the Mattawa Recorder on August 16 and 19, 2012 (respectively). The Notice was also circulated to all stakeholders on the study mailing list including regulatory agencies, first nations and local stakeholders, including local interest groups. A covering letter explaining the study purpose and the documentation being released was also sent to agency and First Nations contacts.

Interested stakeholders were encouraged to review the SDR and Summary of Existing Environmental Conditions and Constraints Report and provide comments to the project team by September 14, 2012. The Notice of Study Documentation advised that upon completion of the review period, the reports would be finalized taking into consideration comments received and also provided the study website, local offices where the reports could be reviewed and contact information for anyone with questions or comments on the study in general or the study documents.

In response to the Notice of Study Documentation the Project Team received five responses, two from agencies, 2 from local utility service providers and one comment from a local stakeholder. A summary of the comments received is provided below.

➤ Municipality of Calvin	<ul style="list-style-type: none"> <li>Exhibit 2-3: Location of Calvin Union Public Cemetery needs to be reviewed.</li> </ul>
➤ Ministry of Natural Resources	<ul style="list-style-type: none"> <li>General information regarding study area features provided.</li> <li>Numerous comments on terminology and minor revisions suggested to ensure consistency with Provincial Policy Statement.</li> <li>Minor corrections noted (watercourse temperature, habitat areas, additional SAR).</li> <li>Additional information / sources requested for Summary of Existing Conditions Report statements regarding presence of Northern brook lamprey in the study area and the supply of habitat areas for Moose.</li> <li>Enquiring if noise impacts on wildlife will be evaluated.</li> </ul>
➤ Union Gas	<ul style="list-style-type: none"> <li>Provided mapping of Union Gas facilities in the study area.</li> </ul>
➤ Eastlink (Personal Communications)	<ul style="list-style-type: none"> <li>Confirmed no Eastlink facilities are within the study area.</li> </ul>
➤ Public / Resident	<ul style="list-style-type: none"> <li>Concerned about property impacts with highway widening.</li> </ul>

In response to the comments provided, particularly those from the Ministry of Natural Resources, the Project Team updated the SDR and the Summary of Existing Environmental Conditions and Constraints Reports and finalized them, posting them to the study website and advising stakeholders of the 'final' versions via a website update. Responses to the comments received were also sent to those who provided comments thanking them for their interest in the study and input on the documentation.

A copy of the published and circulated Notice and a copy of the letter mailed to agencies and First Nations representatives is included in **Appendix H**. A copy of comments received in response to the Notice and the Project Team's responses to those comments is also provided.

### 6.3.3 Notice of Public Information Centre(s)

Three Public Information Centres (PICs) were held for this project. A Notice of PIC was prepared for each PIC with the purpose of announcing the date, time and location of the PIC, summarize the materials that would be presented at the PIC and request input from interested and affected parties. The Notice also advised stakeholders that the materials being presented at each PIC would be available on the study website if they could not attend the event.

#### 6.3.3.1 Public Information Centre #1

The PIC #1 Notice was published in the North Bay Nugget on Thursday November 15, 2012 and the Mattawa Recorder on Sunday November 11, 2012.

Notice of PIC #1 was mailed directly to individuals on the study mailing list on November 8, 2012. The Notice of PIC #1 was also circulated to approximately 1,100 households in the study area via a bulk mail drop processed through Canada Post.

The PIC #1 Notice and a letter inviting regulatory agencies and First Nations representatives to review the materials and meet with members of the Project Team between 3:00 p.m. and 4:00 p.m. was distributed by direct mail on November 8, 2012. A copy of Notice of PIC #1 and the letter mailed to agencies and First Nations representatives is included in **Appendix H**.

#### 6.3.3.2 Public Information Centre #2

The PIC #2 Notice was published in the North Bay Nugget on Thursday June 13, 2013 and the Mattawa Recorder on Sunday June 9, 2013.

Notice of PIC #2 was mailed directly to individuals on the study mailing list on June 6, 2013. In addition, as was done for all previous notices, the Notice of PIC #2 was circulated on June 13, 2013 to approximately 1,100 households in the study area via a bulk mail drop processed through Canada Post.

The PIC #2 Notice and a letter inviting regulatory agencies and First Nations representatives to review the materials and meet with members of the Project Team between 3:00 p.m. and 4:00 p.m. was distributed by direct mail on November 8, 2012. A copy of Notice of PIC #2 and the letter mailed to agencies and First Nations representatives is included in **Appendix H**.

#### 6.3.3.3 Public Information Centre #3

The PIC #3 Notice was published in the North Bay Nugget on Thursday January 16, 2014 and the Mattawa Recorder on Sunday January 12, 2014.

As was undertaken with all prior notices, the Notice of PIC #3 was mailed directly to individuals on the study mailing list plus property owners within the footprint of the Preferred Plan on January 15, 2014 and it was circulated to approximately 1,100 households in the study area via a bulk mail drop processed through Canada Post.

The PIC #3 Notice and a letter inviting regulatory agencies and First Nations representatives to review the materials and meet with members of the Project Team between 3:00 p.m. and 4:00 p.m. was distributed by direct mail on January 13, 2014. A copy of Notice of PIC #3 and the letter mailed to agencies and First Nations representatives is included in **Appendix H**.

#### **6.3.4 Notice of Study Completion and Filing of the Transportation Environmental Study Report**

The Notice of Study Completion and Filing of the TESR was published in the North Bay Nugget on Thursday August 21, 2014 and the Mattawa Recorder on Sunday August 24, 2014.

As was undertaken with all prior notices, the Notice of Study Completion was mailed directly to individuals on the study mailing list, including property owners within the footprint of the Preferred Plan, on August 20, 2014 and it was circulated to approximately 1,400 households in the study area via a bulk mail drop processed through Canada Post.

This notice advised stakeholders of study completion, the location where a copy of the TESR could be reviewed, and described the mechanism for stakeholders to request a “bump-up” if they felt that their concerns had not been adequately addressed. A copy of Notice of Study Completion and Filing of TESR and the letter mailed to agencies and First Nations representatives is included in **Appendix H**.

### **6.4 Public Information Centres**

#### **6.4.1 Public Information Centre #1**

PIC #1 was held on Wednesday November 28, 2012 at the Calvin Municipal Hall between 4:00 p.m. and 8:00 p.m. External agencies and government representatives had the option to attend the information centre one hour in advance of the general public (i.e. between 3:00 pm and 4:00 pm).

The PIC was held as a ‘drop-in’ style, open house format and the venue was universally accessible as per the requirements of the Ontarians with Disabilities Act.

The purpose of PIC #1 was to provide the public with an opportunity to review and comment on the following:

- Transportation needs assessment;
- Selected transportation system alternatives;
- Selected highway corridor;
- Selected highway cross-section;
- Identified environmental conditions and constraints;
- Highway planning alternatives including:
  - Proposed areas of highway realignment and areas of highway widening;
  - Potential highway interchange locations; and
  - Potential service road locations.
- Proposed criteria for evaluation of highway planning alternatives.

The above information was presented on a series of 18 display boards, which were augmented by roll plans to show the highway planning alternatives superimposed upon aerial photographs of the study corridor. Stakeholders were provided with both a newsletter and a comment sheet, and the PIC information was posted to the study website ([www.hwy17corridorstudy.ca](http://www.hwy17corridorstudy.ca)) on Thursday November 29, 2012. A copy of the display boards and the study newsletter is included in **Appendix H**.

Nineteen people attended PIC #1, including three municipal council members, two municipal staff members and two representatives from the Ministry of Natural Resources (MNR).

Comment sheets were available for attendees to submit written comments at the PIC or to take away for submission at a later date. Comments were submitted by two attendees at the PIC event and both requested copies of some of the material on display. Copies of the requested materials were sent by mail following the PIC and included:

- Township of Bonfield requested a set of the “half-size” roll plans showing the highway planning alternatives. A copy of the requested information was provided for reference and public review.
- Township of Bonfield requested a copy of the reference documents identified in Section 8.5 of the study ‘Existing Environmental Conditions and Constraints Report’, since they would provide a good ongoing reference document for the Township. A copy of the requested information was provided for reference and public review.

No additional comments were submitted during the PIC #1 comment period, which ended on January 4, 2013. A summary of the comments received through discussions at the PIC and via the comment sheets is provided below.

#### **• Comments on Highway Planning Alternatives:**

- Comments on the highway planning alternatives presented ranged from “badly needed...I am scared to drive on that highway” to “leave it the way it is to preserve the northern Ontario essence of the area”, with the majority of PIC attendees indicating that they were supportive of the highway planning alternatives presented.
- With respect to highway widening alternatives, Municipality of Calvin staff indicated they prefer the north widening alternative because it has the least impact on their tax base because fewer properties would be displaced; while MNR staff indicated they prefer the south widening alternative because it avoids impacts to a meander belt of the Pautios Creek located just north of the existing highway, and appears to have lower overall potential natural environment impacts.
- Municipality of Calvin staff indicated they would like median turn-around provisions for emergency response vehicle use.
- No additional alignment or interchange alternatives were identified by stakeholders who attended the event or who reviewed the material presented at PIC #1.

#### **• Comments on Existing Conditions:**

- MNR Park staff indicated they would provide additional information regarding Blanding Turtles and a deer highway “super-crossing”, and pointed out that the park has a licensed sewage disposal facility just north of Highway 17 near Patois Creek.

- MNR Park staff indicated that secondary source information showing snowmobile trails through the park is incorrect, because motorized vehicles smaller than family cars are not permitted, and that the snowmobile trail along Highway 17 is “problematic” because of driving conditions.
- Municipality of Calvin staff provided information regarding artesian well conditions at two locations, potential need for access from Highway 17 to two lakes near Columbia Forest Products, the status of current bridge work on Highway 630 and requested lighting at the Highway 17/ 630 intersection.
- A member of the general public indicated that two properties south of Highway 11 near Sta. 22+000 are residential rather than commercial use.

● **Comments on Potential Impacts:**

- One property owner indicated that if the realignment alternative through his property is selected, he would have no trouble with it because the property is large enough to rebuild elsewhere.
- One business owner felt that realignment alternatives would result in a very significant loss of business because of loss of highway exposure.
- One business owner indicated that closure of the Pimisi Bay roadside park would eliminate an important launching location for Mattawa River canoe trips, and would have significant impact on the viability of their canoe rental business.

● **Comments on First Nations Consultation/Engagement:**

- One Council member asked if consultation with local First Nations was planned, and was pleased to be advised that this was an important component of the study plan.

Responses to the comments submitted at PIC #1 were sent by the Project Team in January 2013.

A copy of the PIC materials, including the display boards, comments submitted and the Project Team responses is provided in **Appendix H**.

#### 6.4.2 Public Information Centre #2

PIC #2 was held on Wednesday June 26, 2013 at the Calvin Municipal Hall between 4:00 p.m. and 8:00 p.m. External agencies and government representatives had the option to attend the information centre one hour in advance of the general public (i.e. between 3:00 pm and 4:00 pm).

As at PIC #1, PIC #2 was held as a ‘drop-in’ style, open house format and the venue was universally accessible as per the requirements of the Ontarians with Disabilities Act.

The purpose of PIC #2 was to provide the public with an opportunity to review and comment on the following:

- Evaluation of highway realignment and highway widening (including service roads) alternatives
- Recommended highway planning alternative
- Interchange configuration alternatives for Rutherglen Line, Highway 630 and Boundary Road

- Evaluation of interchange configuration alternatives and recommended configuration at each interchange
- Cul-de-sacs recommended at Trout Pond Road and McNutt Road
- Recommended closure of existing Highway 17 from east of Highway 630 to the Samuel de Champlain Park entrance

The above information was presented on a series of 16 display boards, which were augmented by roll plans to show the highway planning alternatives superimposed upon aerial photographs of the study corridor. Stakeholders were provided with both a newsletter and a comment sheet, and the PIC information was posted to the study website ([www.hwy17corridorstudy.ca](http://www.hwy17corridorstudy.ca)) on Thursday June 27, 2013. A copy of the display boards and the study newsletter is included in **Appendix H**.

Sixty-six people attended PIC #2, including municipal council members, four municipal staff members and a representative from the Ministry of Natural Resources (MNR).

Comment sheets were available for attendees to submit written comments at the PIC or to take away for submission at a later date. Comments were submitted by twenty-two individuals who attended the PIC or reviewed the materials on the study website. Requests for a copy of PIC materials were also made five attendees at the event. Requests for materials focused on mapping of specific areas along the recommended highway planning alternative. Responses to these requests were mailed and emailed following the PIC.

The comment period for PIC #2 ended on July 26, 2013. As noted above, a majority of the comments focused on the recommended highway alternative and the potential impacts to individual properties in the study area. As such, comments were specific in nature. A summary of the comments received through discussions at the PIC and via the comment sheets is provided below.

- Concerns regarding property severance and the mitigation for areas where property is land locked.
- Questions submitted regarding mitigation of land locked parcels, noise and potential to incorporate buffer areas to distance the highway from residents and livestock.
- A number of comments were submitted regarding different family’s historical presence in the area and the long term ties to the land that were being impacted.
- More information and accuracy was requested regarding detail design and construction of the highway, particularly from businesses (agricultural and aggregate) impacted by the recommended alternative given the need to develop business plans for the future.

One comment was submitted regarding the recommendation for a roundabout at Boundary Road where the commentator noted that most traffic would be attempting to travel south on Boundary Road and as such, large vehicles would be hindered by the introduction of a roundabout. A number of comments were also submitted regarding the recommended cul-de-sac on Trout Pond Road. Commentators noted this was a primary route for agricultural users in the area and provided access for aggregate extraction vehicles and residents to areas south of the recommended highway alternative.

Aside from requests to reconsider route alternatives in order to avoid potential impacts to a specific property, no additional alignment or interchange alternatives were identified by stakeholders who attended the event or who reviewed the material presented at PIC #2.

Responses to the comments submitted at PIC #2 were sent by the Project Team in October 2013.

A copy of the PIC materials, including the display boards, comments submitted and the Project Team responses is provided in **Appendix H**.

### 6.4.3 Public Information Centre #3

PIC #3 was held on Thursday January 29, 2014 at the Calvin Municipal Hall between 4:00 p.m. and 8:00 p.m. External agencies and government representatives had the option to attend the information centre one hour in advance of the general public (i.e. between 3:00 pm and 4:00 pm).

As at the previous PICs, PIC #3 was held as a 'drop-in' style, open house format and the venue was universally accessible as per the requirements of the Ontarians with Disabilities Act.

The purpose of PIC #3 was to provide the public with an opportunity to review and comment on the Preferred Plan and the preliminary mitigation measures and strategies developed to address potential impacts. PIC #3 also provided an opportunity for people to comment on refinements to the recommended highway planning alternative that the Project Team had made in consideration of the comments received at the previous PIC.

The material was presented on a series of 10 display boards, which were augmented by roll plans to show the recommended plan superimposed upon aerial photographs of the study corridor. Stakeholders were provided with both a newsletter and a comment sheet, and the PIC materials were posted to the study website ([www.hwy17corridorstudy.ca](http://www.hwy17corridorstudy.ca)) on Thursday January 29, 2014. A copy of the display boards and the study newsletter is included in **Appendix H**.

Thirty-nine people attended the PIC and comments were submitted by eight individuals who attended the PIC. Two additional comments were submitted after the PIC and prior to the advertised comment period deadline (February 28, 2014). Requests for a copy of PIC materials were also made by five attendees at the event focusing on mapping of specific properties and their proximity to the recommended plan. Responses to these material requests were mailed / emailed the week of February 3, 2014.

As noted above, the comment period for PIC #3 ended on February 28, 2014 and a majority of the comments focused on the recommended plan and the potential impacts to individual properties in the study area. A summary of the comments received through discussions at the PIC and via the comment sheets is provided below.

- Please consider a different alignment where there are less houses and no houses:
  - The highway could be moved to pass north of Algonquin Park where there are far fewer people living.
  - You could leave the highway near Deux River – Bush Creek area and connect Highway 11 near the Powassan area.

- My property is impacted and I will have no access based on this alignment:
  - Can you provide access to the back of my property.
  - Re-open road easement from Highway 630 to the west or else property will be landlocked.
- We have reviewed the proposed realignment plan from PIC 3 and are very disappointed and concerned.
  - The PIC 3 proposal shows total disruption to additional properties, previously seemingly not affected, and leaves us with a considerable loss of our lands and a country home now facing the underbelly of a four-lane bridge over a railway track.
  - We strongly suggest that you go back to the PIC 2 proposal, take out our homes, leave other properties alone and we will move on.

Responses to the comments submitted at PIC #3 were sent by the Project Team in April, 2014. In consideration of the request to revert back to the PIC #2 alignment west of Pautois Creek, the Preferred Plan presented at PIC #3 does result in reduced impacts to the overall environment. Therefore, the PIC #3 alignment was carried forward as part of the Preferred Plan.

A copy of the PIC materials, including the display boards, comments submitted and the Project Team responses is provided in **Appendix H**.

### 6.5 Study Website

As part of the study's initial work, AECOM developed a project specific web page ([www.hwy17corridorstudy.ca](http://www.hwy17corridorstudy.ca)) for the assignment in order to keep stakeholders informed of key milestone events throughout the project including study commencement, Public Information Centres (PICs), release of study documentation.

The purpose of the website was to house and disseminate project information in a prompt and efficient manner. The project website included the basic arrangement of key pages including:

- Home/ Welcome
- Study Overview
- EA Process
- Public Consultation
- Study Documentation
- FAQs
- Relevant links
- Comments/ Contact Us

Drop-down menus were used where applicable to provide direct access to materials.

The Home page of the website was generally used to present an overview of the study and its status while a special 'quick links' area was set up on all pages to inform visitors to the site about upcoming events including PICs planned by the Project Team. A link on the website also provided users with access to the websites for the adjacent Highway 17 studies being completed by others (G.W.P. 5105-09-00 and G.W.P. 5077-07-00).

The website was updated frequently throughout the Study. All relevant material generated by the Project Team was posted to the Study website for public access, review and comment. The material posted included the Study newsletters, PIC displays and summaries of the events and comments received. Also

posted on the website were the reports and associated mapping prepared by the Project Team throughout the Study.

Project updates were posted over the course of the study and the website will continue to be active until the Project receives Environmental Clearance in order to provide stakeholders with access to all material prepared and updates on the study progress and next steps in addition to contact information for anyone with questions regarding the Study and its recommendations.

## 6.6 Study Newsletters

A newsletter was generated for distribution at the three PICs.

The intent of the newsletters generated through the study was to encourage and facilitate public involvement by providing summary details about study activities, findings and recommendations at key milestones during the EA Study and next steps in the study process. Generally, the newsletters outlined the PIC display material and provided an opportunity to share larger amounts of information with stakeholders. The newsletters were available at the PICs and posted on the study website. Newsletters were prepared and available in both French and English.

A listing of the Study newsletters, their topics of information and when they were distributed is provided below. Copies of the newsletters can be found in **Appendix H**.

<u>Newsletter Issue #</u>	<u>Distribution Date</u>
Newsletter #1 – Overview of the Study, Needs Assessment, Transportation System Alternatives and Highway Corridor Selected, and Highway Planning Alternatives	November 2012
Newsletter #2 – Overview of the Study, Recommended Highway Planning Alternative and Next Steps	June 2013
Newsletter #3 – Overview of the Study, Recommended Plan and Next Steps	January 2014

Each newsletter included project contact information, for stakeholders who had any questions or comments, and provided the project website address and how stakeholders could get more information on the Study.

## 7. Preferred Plan

This section provides an overview of the Preferred Plan. The Preferred Plan for Highway 17 includes:

- Realignment of Highway 17 from Highway 531 to east of Rutherglen;
- Widening and realignment of Highway 17 from east of Rutherglen to west of Highway 630;
- Realignment of Highway 17 from west of Highway 630 to west of Pautois Creek;
- Widening of Highway 17 from west of Pautois Creek to the east study limit (just east of Boundary Road);
- Closure of existing Highway 17 from east of Highway 630 to west of Pautois Creek;
- Retention of existing Highway 17 as a service road at all other locations;
- Interchanges at Rutherglen Line, Highway 630 and Boundary Road with partial illumination provided at the ramp terminals;
- A grade separation at Trout Pond Road and Trunk Road; and
- A cul-de-sac at McNutt Road.

Subsequent to PIC #3 and the refinement to the Preferred Plan carried forward to preliminary design, the alignment of Highway 17 was further refined east of Boundary Road. The highway alignment in this area was shifted slightly to the south, by approximately 50 m. This refinement increases the area of land that can be retained by property owners in the area (subject to individual discussions during acquisition), and was made in response to stakeholder comments and input as part of the PIC #3 consultation process.

The preliminary design work for the Preferred Plan has been completed to a sufficient level of detail to confirm the feasibility of the proposed infrastructure, identify the property requirements and identify potential environmental impacts and mitigation measures. The new Highway 17 alignment has been designed to RFD 120 standards (i.e. rural freeway divided, with a design speed of 120 km/h).

The Preferred Plan is shown in **Exhibits 7.2** and **7.3** and is presented in greater detail in the Preliminary Design Plates in **Appendix A**.

### 7.1 Horizontal Alignment

The new Highway 17 alignment is situated to the south of the existing Highway 17 alignment throughout the entire study limit. The horizontal alignment of the highway is curvilinear in nature, consisting of numerous horizontal curves connected by tangent sections. Radii for the horizontal curves range from R-1400 m to R-7000 m. All horizontal alignment elements for the new Highway 17 mainline alignment meet or exceed the requirements set out in the Geometric Design Standards for Ontario Highways (GDSOH) for the applicable design speed of 120 km/h.

In Northeastern Region, the desirable minimum radius for the new Highway 17 alignment is R-1700 m, however a minimum radius of R-1000 m is permitted in constrained areas.

Given the limited separation between existing Highway 17 and the existing railway corridor to the south in the vicinity of Pimisi Bay, the Preferred Plan includes R-1400 m radii through this area to avoid impacts to

Pimisi Bay. With the reduce radii of R-1400 m, wider shoulders and/ or clear zones along the inside of the curve will need to be considered to provide adequate sight distance for drivers.

### 7.2 Vertical Alignment

The profile of the new Highway 17 alignment varies throughout its length. In some locations it is below the existing ground level while in other locations it is at or above the existing ground level.

All of the vertical alignment elements for the new Highway 17 alignment meet or exceed the requirements set out in the GDSOH for the applicable design speed of 120 km/h. The minimum grade for the new Highway 17 mainline is 0.3%, which meets the requirements of the GDSOH for a freeway with an urban drainage system. The maximum grade is 3.0%, which meets the GDSOH requirements for freeways. A number of crest and sag vertical curves are located along the length of the highway. All vertical curves meet or exceed the minimum curve requirements set forth in the GDSOH for the applicable design speed.

### 7.3 Cross Section

The cross section for both the widened and realigned sections of Highway 17 will consist of:

- a freeway with two lanes in each direction;
- a 30m median to enhance highway safety and minimize the risk of crossover collisions; and
- a typical 110 m right-of-way, with a wider right-of-way required in some locations due to large cuts or fills and at interchange locations.

A through lane width of 3.75 m will be provided. Outside shoulders will be 3.0 m wide and fully paved. Median shoulders will be 1.5 m wide and fully paved. Where a roadside barrier is required adjacent to the left shoulder, a fully paved shoulder width of 2.5 m will be provided.

The typical cross section is presented in **Exhibit 7.1**.

**Exhibit 7.1: Typical Cross-Section of New Highway 17**

(Not to Scale)

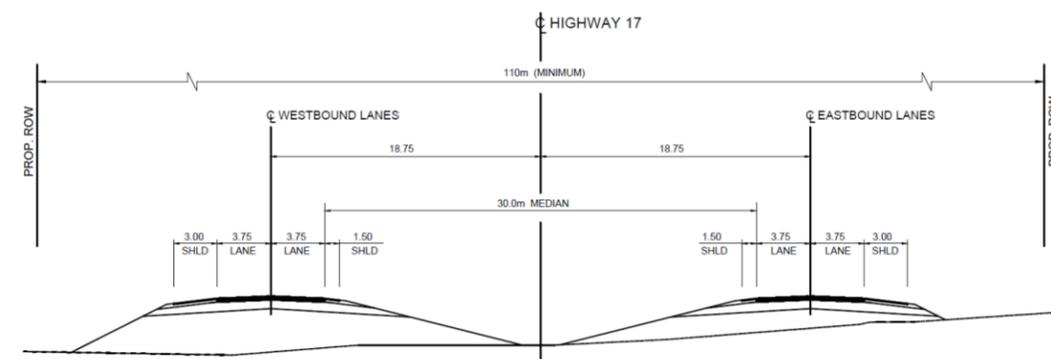
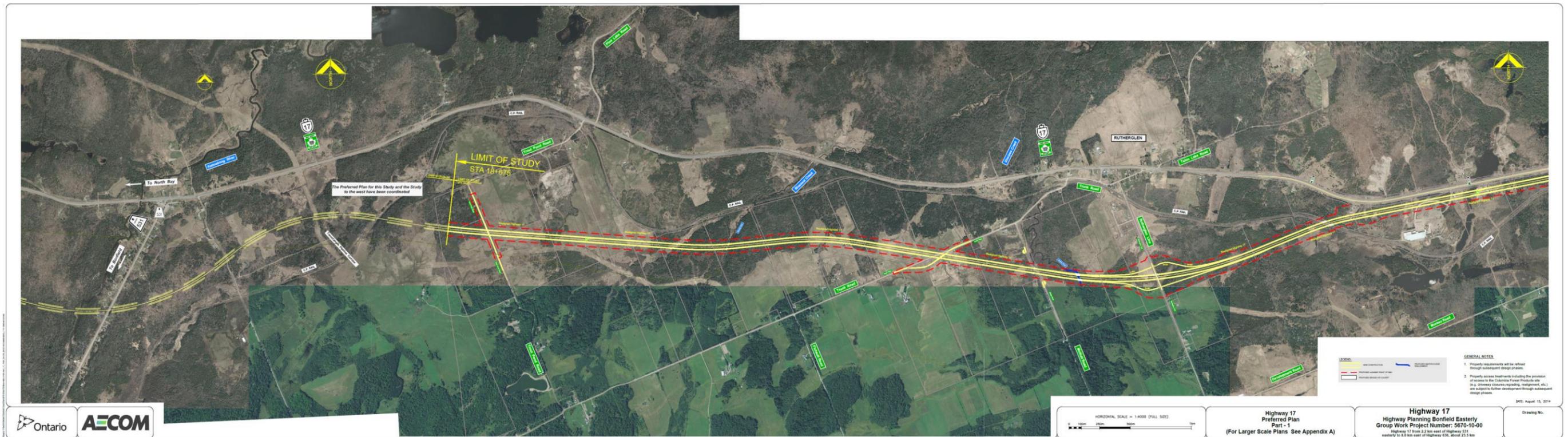
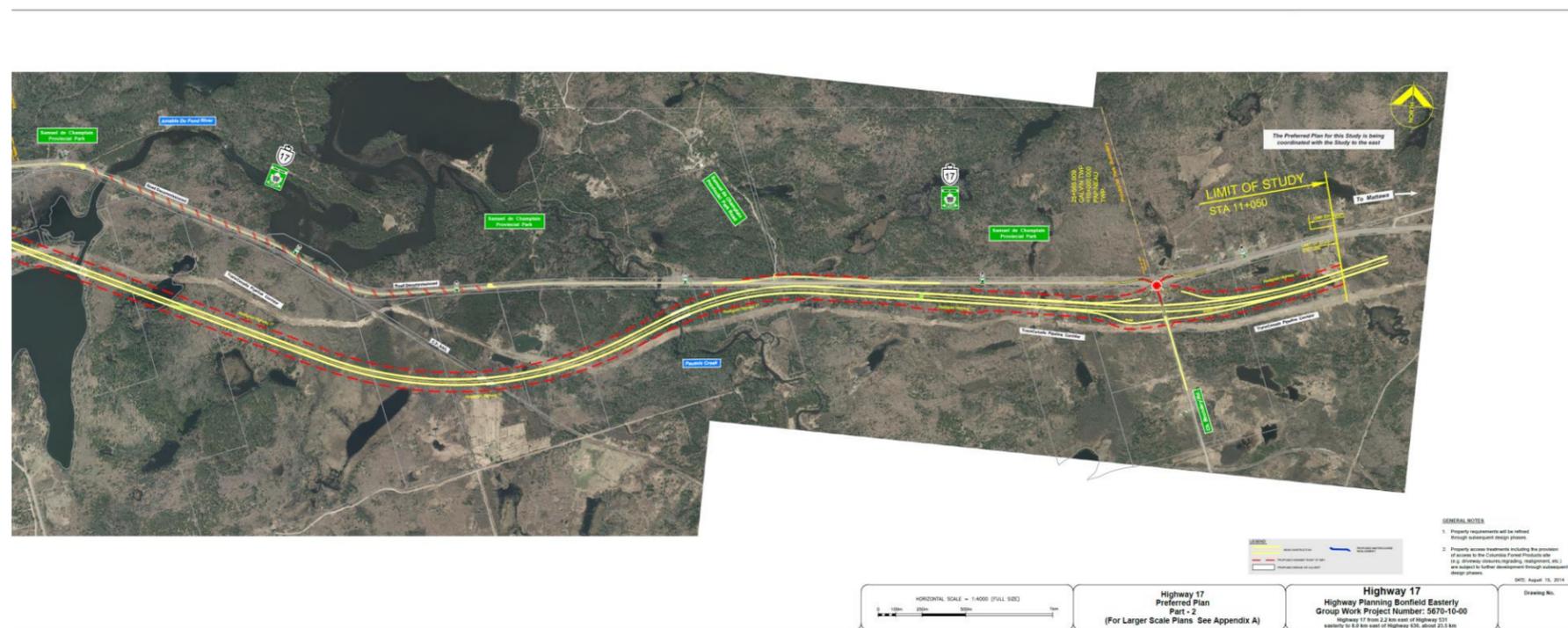
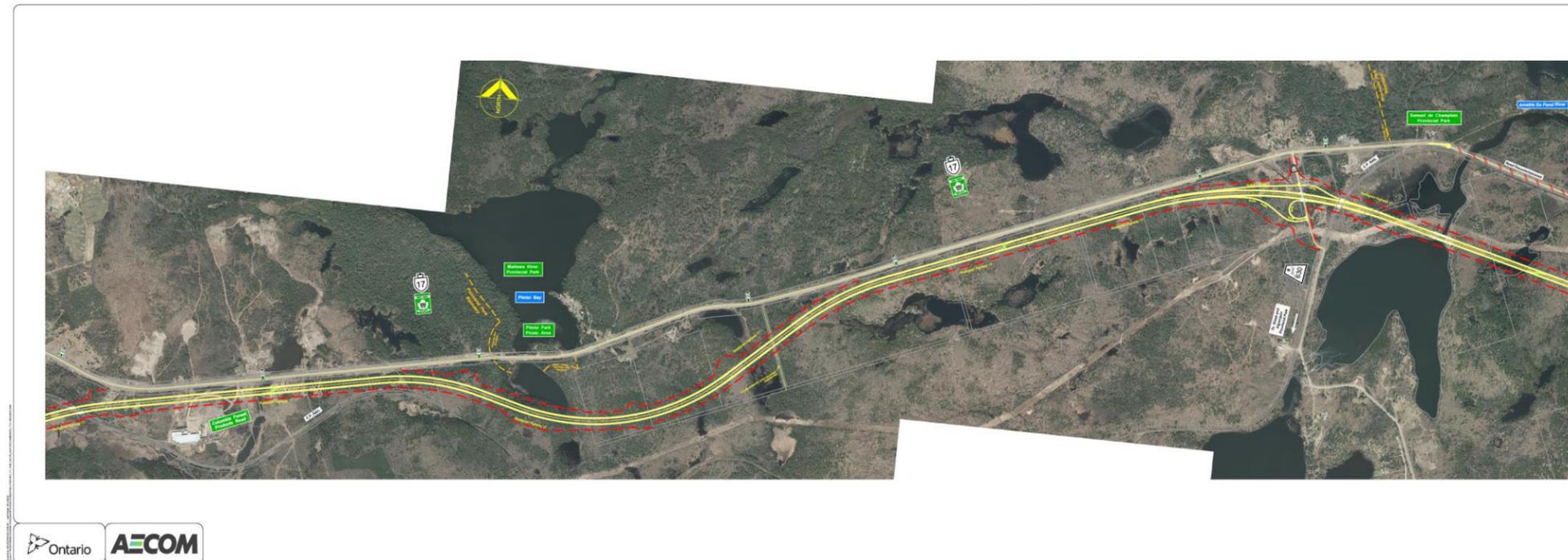


Exhibit 7.2: Preferred Plan – East of Highway 531 to East of Rutherglen



**Exhibit 7.3: Preferred Plan – East of Rutherglen to East of Boundary Road**



## 7.4 Crossing Roads

The recommended treatment for crossing roads in the study area is detailed below. In general, the Preferred Plan crosses 6 open and operating roads within the study area including:

- Trout Pond Road
- Rutherglen Line
- Trunk Road
- Highway 630
- McNutt Road
- Boundary Road

The Preferred Plan also crosses unopened road allowances in the study area, including 3 such allowances located just east of Pimisi Bay which provide a north-south connection to an unopened road allowance for east-west travel east of Pimisi Bay. One of the north-south road allowances will be kept open via a grade separation as described in **Section 7.4.2**.

### 7.4.1 Interchanges

Interchanges are proposed at Rutherglen Line, Highway 630 and Boundary Road. The configuration of each interchange, presented in **Exhibits 7.4, 7.5 and 7.6**, is as follows:

- A diamond configuration at Rutherglen Line;
- A diamond configuration on the north side and a Parclo A2 configuration on the south side at Highway 630; and
- A diamond – roundabout configuration at Boundary Road.

### 7.4.2 Grade Separations

Grade separations are proposed at Trout Pond Road and Trunk Road. At both locations, it is proposed that the local road will pass over future Highway 17.

The Preferred Plan includes a grade separation within Calvin Township, on one of the unopened road allowances east of Pimisi Bay which would provide north-south movement over the future highway. Based on the existing road network in the area, there is limited access in this area beyond existing Highway 17. Implementation of the Preferred Plan would result in access to the area being limited to interchange locations which results in a significant area of land south of the highway alignment being isolated from any local road access in the Township. The implementation of this additional crossing, consisting of approach fills and bridge components, will be undertaken providing that:

- The bridge will be maintained by the MTO (as is standard procedure) and MTO will be responsible for all construction repair and maintenance of all bridge components within the highway right-of-way.
- The Township will be responsible for routine maintenance such as snow plowing.

The bridge and approach fills within the highway right-of-way will be constructed by MTO only after the Township has completed design for the new municipal roadway which will serve the lands south of the Preferred Plan and when funding is in place for its construction. The bridge components will be built at the time of construction of the Preferred Plan if the new municipal road is already in place.

Additional discussion and refinement of the design will be undertaken during future phases of work. The ultimate location of the new municipal road connection will be jointly determined by MTO and Calvin Township and will be of scope and cost equivalent to the location identified and shown on the preliminary design plates at approximately Sta. 25+400. Any alternative locations proposed for this local road must comply with MTO design standards and avoid any changes to the vertical or horizontal alignment of the Preferred Plan or existing Highway 17 which will be retained as a future north service road. Any structure proposed that is substantially larger than that shown on the plates developed as part of the Class EA will be subject to cost sharing discussions.

### 7.4.3 Cul-de-sacs

Based on the surrounding road network and projected traffic volumes on McNutt Road, a cul-de-sac is proposed at this location with Highway 17 crossing the road at existing ground level and cul-de-sacs provided on both sides of the highway, dead-ending McNutt Road.

### 7.4.4 Service Roads and Other Local Access

As part of the Preferred Plan, it is proposed that existing Highway 17 will be maintained as a service in all locations except from east of Highway 630 to west of Pautois Creek.

In addition to access to Highway 17 being provided at interchange locations, 'emergency turnarounds' have been incorporated in the design of the Preferred Plan to provide improved access for emergency vehicles. While not service roads, these turnarounds will reduce out of way travel between interchange access points. Preliminary locations for these 'turn arounds' is shown on the design plates in **Appendix A**. These locations and the design details associated with accommodating emergency vehicles will require additional development during detail design in accordance with ministry standards and policies at the time of construction.

Additional local access opportunities have been identified for local landowners and businesses in the study area. These accesses are discussed in greater detail in **Section 8.2.2** and are necessary to maintain access to businesses operating in the study area (e.g. Columbia Forest Products) and other areas and properties which would be landlocked or experience significant out of way travel with the Preferred Plan limiting access to interchange locations.

Exhibit 7.4: Rutherglen Line Interchange Configuration

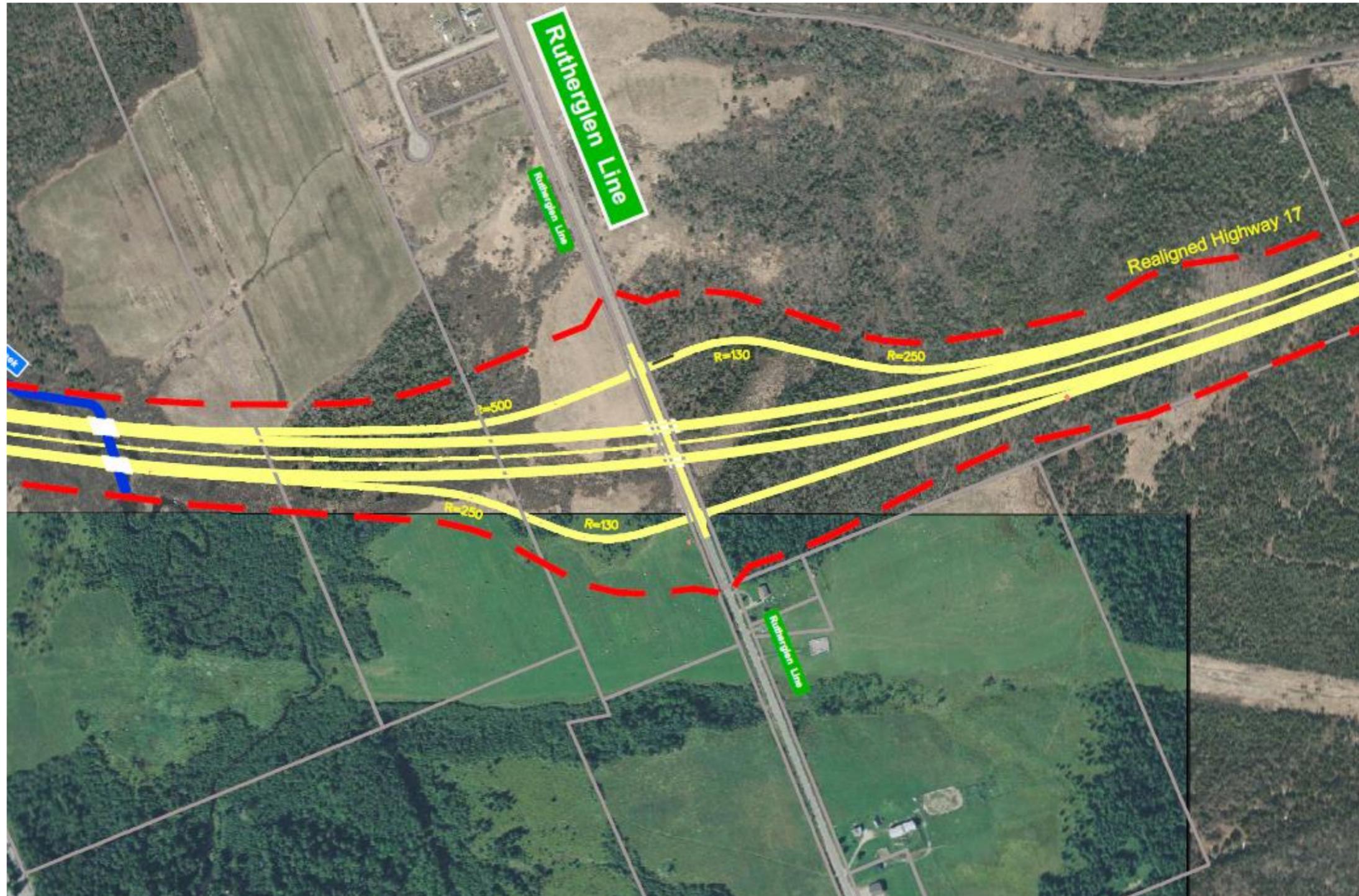


Exhibit 7.5: Highway 630 Interchange Configuration

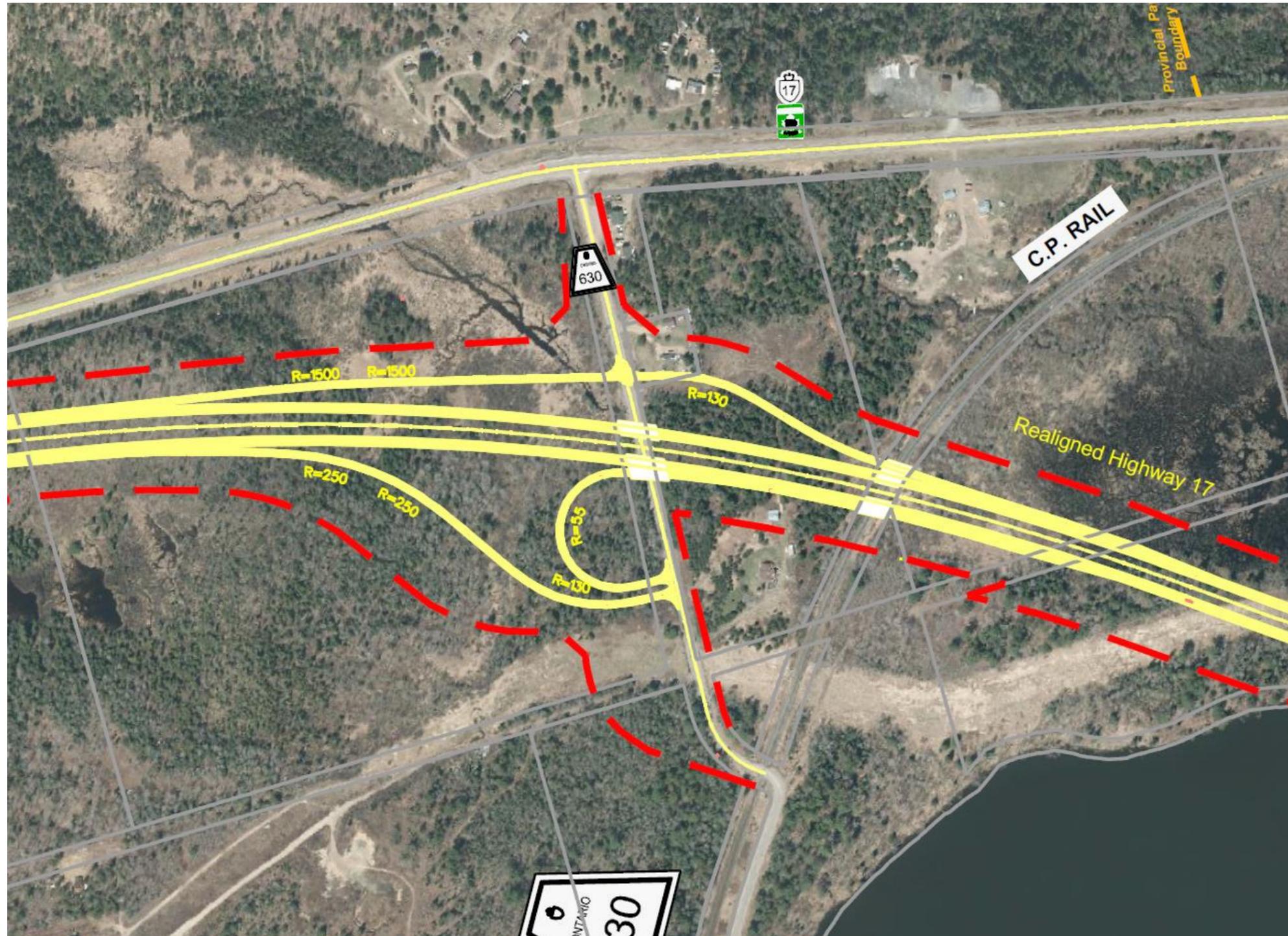
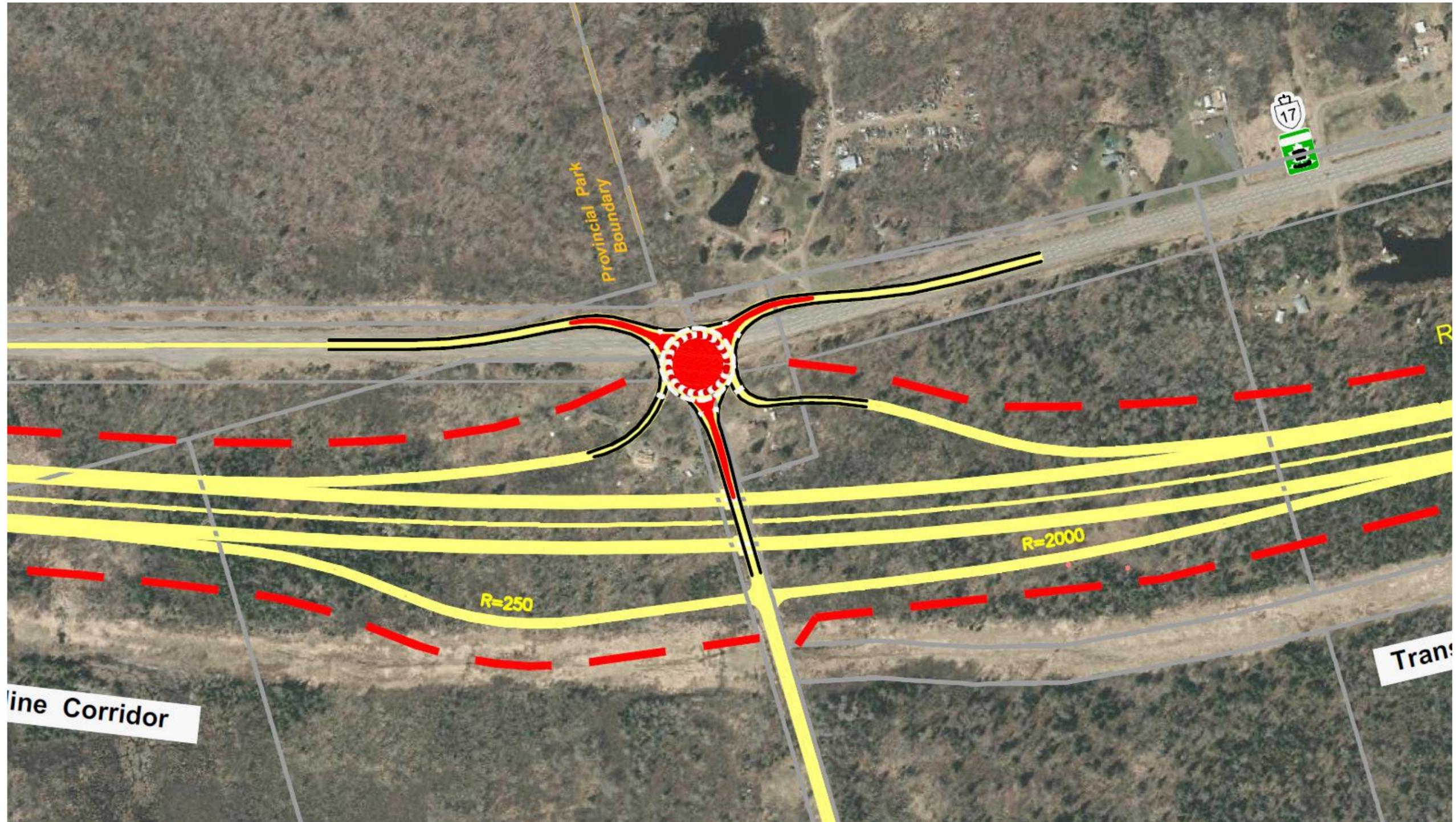


Exhibit 7.6: Boundary Road Interchange Configurations



## 7.5 Structures

Bridges will be provided at all interchange, grade separations and railway crossings. In addition, bridges or box culverts will be provided to span major watercourse crossings.

A total of 23 major structures are included as part of the preliminary design of the Preferred Plan.

**Exhibit 7.7** below identifies the structure locations and associated crossing type (e.g. local road, watercourse) and a preliminary structure type, size and configuration for each structure. In addition to these 23 major structures, a number of smaller crossings (e.g. culverts) and local access roads are included as part of the Preferred Plan. Additional review and design of these features and confirmation of the recommendations detailed below will be required during detail design.

**Exhibit 7.7: Major Structures for the Preferred Plan**

No.	Structure Name	Structure Options (preferred option to be confirmed)
1	Trout Pond Road Underpass	• 2 span (30m, 30m) CPCI girder bridge
2	Blueseal Creek Tributary Culvert	• Box culvert – Span 6m; Rise 2m
3	Blueseal Creek Culvert	• Box culvert – Span 6m; Rise 3.6m
4	Trunk Road Underpass	• 2 span (37.5m, 37.5m) CPCI girder bridge
5	Sharpes Creek Tributary Culvert	• Box culvert – Span 5m; Rise 4m
6/7	Sharpes Creek Bridge	• Twin 3 span (20m-30m-20m) girder bridges over realigned creek
8/9	Rutherglen Line Overpass	• Twin single span (17m) girder bridges
10/11	CPR Overhead	• Twin single span (28m) girder bridges
12/13	Hwy 630 Overpass	• Twin single span (18m) girder bridges
14/15	CPR Overhead	• Twin single span (15.5m) girder bridges
16	Amable du Fond River Bridge (WBL)	• 3 span (30m-40m-30m) girder bridge
17	Amable du Fond River Bridge (EBL)	• 3 span (45m-65m-45m) structural steel plate girder bridge
18/19	CPR Overhead	• Twin single span (32.5m) girder bridges
20/21	Pautois Creek Bridge	• Twin 3 span (20m-30m-20m) girder bridges
22/23	Boundary Road Overpass	• Twin single span (18m) girder bridges

## 7.6 Illumination

Continuous illumination is not warranted for the new Highway 17 alignment. It is anticipated that partial illumination will be warranted at the interchange ramp terminals.

Illumination requirements will be reviewed in detail during the future Detail Design phase, taking into consideration traffic projections, existing land use and current illumination policies.

## 7.7 Drainage and Stormwater Management

Highway drainage for the new Highway 17 alignment will be managed via roadside ditches and transverse culverts. Structural culverts or bridges will be constructed to span existing watercourses which cross the new Highway 17 alignment. Culverts will also be required at smaller crossings.

A stormwater management plan will be developed during the future Detail Design phase. Stormwater management will be provided using enhanced grassed swales as a means of achieving appropriate levels of quantity and quality control.

## 8. Potential Environmental Effects, Mitigation Measures and Commitments to Further Work

Areas of environmental sensitivity or concern associated with the Preferred Plan as well as initial recommendations regarding mitigation of potential impacts or commitments for further work are described in the following subsections.

### 8.1 Natural Environment

Field investigations to review the natural environment and potential effects associated with the Preferred Plan were undertaken in May, June and September of 2013 by aquatic and terrestrial ecologist. Surveys completed by ecologists included:

- Fish Habitat Assessments;
- Amphibian Call Surveys;
- Breeding Bird Surveys;
- Blanding's Turtle Surveys; and
- Ecological Land Classification and Vegetation Inventories.

Given the study is a long term planning study, a round of surveys was completed for natural features. Based on the prevailing nature of the study area and the existing data regarding natural features, it is noted that conditions in the area have remained relatively consistent since initial records were generated. Conditions are not anticipated to change in the area, particularly with regard to areas of natural significance and especially considering these features are primarily located in protected areas including provincial parks, deer wintering areas and watercourses.

The area of investigation for this study includes lands and watercourses within the right-of-way for the Preferred Plan and areas within 120 m on both sides of the alignment.

#### 8.1.1 Groundwater

The Preferred Plan displaces four water wells and 16 are within 150m of the Preferred Plan. A residential well water survey per MTO Guidelines will be undertaken to confirm water well impacts and to establish baseline conditions for wells in close proximity to the preferred plan prior to construction. Displaced wells will be decommissioned in accordance with current regulations.

Construction activities for the highway could result in the need for dewatering during construction. As per the requirements of the Ontario Water Resources Act, the diversion of surface water or the extraction of groundwater in excess of 50,000 litres per day requires a Permit to Take Water from the Ministry of the Environment. A Permit to Take Water will likely be required for some components of the work. Permit to Take Water requirements will be confirmed during the future detail design stage.

Further, in accordance with the Ontario Water Resources Act, groundwater users whose supplies are interrupted during construction activities shall be provided with an alternate source of potable water.

#### 8.1.2 Drainage and Surface Water

The Preferred Plan includes the construction of new watercourse crossings consisting of bridges or box culverts for the major watercourse crossings and culverts for smaller crossings. In addition, the existing bridge at Amable du Fond River will likely be removed.

The majority of the drainage within the study area drains in a northerly direction whereas almost a quarter of the future crossings drain in a southerly direction. All drainage in the study area ultimately discharges to the Mattawa River and then eastward to the Ottawa River. This area has a peak elevation of 430 m (a.s.l.) with the lowest elevation of 168.8 m (a.s.l.) with an average overland slope of approximately 0.5%.

A hydrologic analysis to determine contributing peak flows to watercourse crossings of the Preferred Plan for Highway 17 was carried out to confirm crossings safely convey design, check, and regional flood flows based on the design criteria. The peak flows calculated in the hydrological assessment were used based on functional road classification, watercourse type, and bridge or culvert span.

The focus of the hydrologic assessment was the 6 major bridge crossings proposed at Bluseal Creek (2), Sharpes Creek (2), Amable du Fond River (1), and Pautois Creek (1) and also included an analysis of the non-structural crossings. The 6 larger crossings were evaluated using HEC-RAS models while the remaining smaller crossings were evaluated based on inlet and outlet control calculations.

A preliminary estimate of required hydraulic opening was determined based on applicable MTO HDDS criteria and the minimum span of the mean bankfull width however, further analysis using more detailed information and data will be required during the future Detail Design phase to refine the bridge and culvert designs.

The preliminary hydraulic assessment results of the proposed bridges are summarized in **Exhibit 8.1**. The bridge opening dimensions are larger than the minimum size required to meet hydraulic criteria because the mean bankfull widths from the fish habitat assessment of the proposed watercourse crossings were used as the minimum span for all bridges except for those inaccessible at the time of the assessment, (Stations 15+329 and 18+596).

**Exhibit 8.1: HEC-RAS Hydraulic Assessment Results – Proposed Bridges**

ID	Station	Watercourse	Bridge/ Culvert Dimensions	Design Storm Return Period	Design Flow Clearance (m)	Design Flow Freeboard (m)	Regional Freeboard (m)
3	15+329	Blueseal Creek Tributary	6000 x 2300 mm	25-year	1.1	11.4	10.6
4	15+786	Blueseal Creek	6000 x 2450 mm	25-year	1.1	12.3	10.3
8	18+286	Sharpes Creek Tributary	5000 x 3700 mm	25-year	2.1	2.1	1.1
9	18+596	Sharpes Creek	23200 x 4300 mm	50-year	1.1	4.2	3.2
38	29+807	Amable du Fond River	26000 x 4000 mm	50-year	1.5	6.7	3.7
42	33+449	Pautois Creek	22000 x 4000 mm	50-year	2.8	15.9	11.0
MTO HDDS CRITERIA:					>= 1 m	>= 1 m	>= 0 m

All of the recommended watercourse crossings proposed for the Preferred Plan adhere to MTO's minimum culvert sizing requirements as detailed in MTO's Highway Drainage Design Standards and the Gravity Pipe Guidelines (MTO).

During Detail Design, potential grading conflicts will also be addressed. These conflicts were identified at several watercourse crossing locations, including stations 13+690 and 22+826 of the Preferred Plan where limited cover and freeboard was identified and where culverts are currently proposed. Raising the road profile, channel lowering and/ or regrading, and/ or the installation of multiple barrels may be required at these crossings to achieve sufficient cover and freeboard, to meet the requirements. Additional analysis will also be required to evaluate the ability of the proposed culverts and bridges to meet the navigability requirements under the *Navigable Waters Protection Act*.

### 8.1.3 Fish and Fish Habitat

A fisheries habitat assessment was conducted in accordance with standard MTO procedures, as documented in the Fisheries Report provided in **Appendix B**.

The Preferred Plan crosses 21 watercourses/ waterbodies in the study area in total and requires the realignment of Sharpes Creek west of Rutherglen. Due to access restrictions, 7 crossings could not be assessed for fish habitat. Future surveys should be completed at these locations when access can be obtained and fish community sampling at all sites should also be completed as part of detailed design in order to support site specific evaluation of potential risk to fish habitat and to determine permitting

requirements. The locations and specific processes and standards under which the fisheries investigations were completed are documented in **Appendix B**.

The design of all watercourse crossings has been undertaken on a preliminary basis in consideration of a number of design objectives intended to protect the environment. Structural recommendations detailed previously in Section 7.4 for the watercourses listed in **Exhibit 8.2** were developed considering the following objectives:

- For both bridge and culvert crossings:
  - Locate the structure so as to minimize the need for upstream/ downstream channel realignments.
  - Provide an opening in the median area located between opposing directions of traffic.
- For bridge structures specifically:
  - Avoid placement of piers within the watercourse.
  - Where possible, avoid placement of abutments within the 2-year storm event watercourse channel (where watercourse characteristics and total bridge span permit).
  - Provide sufficient span and vertical clearance for passage of large mammals.
- For culvert crossings:
  - Provide culvert openings which match the average of the upstream / downstream natural channel during the 2-year/ "bank full" storm event with respect to channel flow velocity, channel depth and channel width.
  - Embed culverts where possible to 0.3m lower than existing stream bed in order to allow placement of appropriately sized riverbed material to match natural watercourse upstream / downstream invert.
  - Create refuge pools at culvert inlets and outlets and where possible, locate culverts on a meandering low flow section of the watercourse.
  - Incorporate wing walls, retaining walls, and other structural measures to minimize overall length and intrusion of highway embankments onto watercourse banks.

**Exhibit 8.2: Major Watercourse Crossings (Assessed)**

Blueseal Creek (A1)	Un-named Tributary of Amable du Fond River (A8)
Un-named Tributary of Sharpes Creek (A2)	Crooked Chute Lake (A9)
Un-named Tributary of Sharpes Creek (A3)	Un-named Swamp / Bog (A10)
Mattawa River / Pimisi Bay Tributary (A4)	Un-named Tributary (A11)
Pimisi Bay Tributary (A5)	Pautois Creek (A12)
Un-named Waterbody (A6)	Un-named Tributary (A13)
Un-named Tributary (A7)	Un-named Tributary of Pautois Creek (A14)

Generally, the potential impacts to fish and fish habitat are associated with disturbance of the watercourses which occurs during construction and residual impacts. Impacts are considered temporary (occurring during construction) and permanent (residual impacts following completion of a project) and can include:

*Potential temporary impacts*

- Loss of direct and indirect fish habitat during construction works (coffer dams etc.);
- Disruption and/or augmentation to flow as a result of dewatering during construction;
- Riparian vegetation removal during construction;
- Alteration in water quality due to erosion and sedimentation during construction;
- Alteration of watercourse banks; and
- Temporary displacement of resident fish – relocated out of the work area when “working in the dry”.

*Potential permanent impacts*

- Loss of direct and indirect habitat caused by construction of permanent structures and by modifications to the existing watercourse channel;
- Altered stream flow due to channel and structure design;
- Removal of vegetation and change in canopy cover as a result of overhead structures;
- Soil compaction due to heavy equipment use on site; and
- Change in canopy cover – potentially increased or decreased depending on location of permanent structure.

Mitigation of potential impacts to fish and fish habitat generally include best management practices and measures defined through MNR, MTO and MOE standards and guidelines. Typical measures, such as those detailed in the MTO Environmental Guide for Fish and Fish Habitat include, but are not limited to:

- Prohibiting construction over and in areas close to watercourses except during the appropriate timing windows (as determined by MNR)
- Avoidance of construction works in locations classified as sensitive spawning areas
- Restriction of construction related activities such as storage of materials, refuelling, etc, adjacent to watercourses
- Design of bridges and culverts that provide wildlife and fish passage
- Preparation of an Erosion and Sediment Control plan to retain sediment on-site and prevent its entry into the watercourses
  - Ensuring these control measures are in place prior to the commencement of any construction activities and that remain in place until all disturbed areas are fully stabilized
- Preparation of a re-vegetation planting plan that will help re-stabilize disturbed area and exposed soils

Other measures that are defined as enhancements or compensation for potential impacts to fish and fish habitat include:

- Habitat improvements by diversifying instream fish habitat cover and substrates using bio-engineering enhancements (ie. lunkers, root wads, tree cover)
- Salvaging and replacing spawning substrates disturbed during construction works
- Designing refuge pools for fish at inlet and outlets of culverts
- Designing any re-aligned stream channel segments using morphological enhancements (ie. boulder placement, wing deflectors, channel constrictors, banks boulders)

Site specific mitigation, enhancement and compensation measures will need to be further developed during Detail Design however it is important to note that application of enhancements and compensation measures are intended to occur at the site of impact or in the immediate vicinity of the work. Where this is not possible, an alternative location must be identified, in consultation with DFO, MNR and the local conservation authority.

Given the watercourses crossed and the conditions detailed in background data and field assessment, there is high potential for ‘harm’ to the fish and fish habitat in the study area. As such, authorization under the federal *Fisheries Act* for the project will be required, likely at a number of sites. Discussions regarding the detail design and development a compensation plan to address impacts will need to be undertaken during future phases of work for the project and in consultation with DFO, MNR and the local conservation authority.

#### 8.1.4 Fish Species at Risk and Provincially Rare Fish Species

Through correspondence with the local MNR and the online database tools on the MNR website 3 fish Species At Risk (SAR) were identified as present in the study area: Lake Sturgeon, Shortjaw Cisco, and Northern Brook Lamprey. Field investigations identified potential habitat and spawning locations for the species at risk known to be in the area. Based on the field assessment and background data review completed, at least 1 watercourse in the study area has high potential for aquatic SAR and 2 of the SAR identified by MNR have suitable habitat present within the right-of-way or 120 m of the Preferred Plan; Lake Sturgeon and Northern Brook Lamprey.

Lake Sturgeon are listed as Threatened and are protected under the provincial *Endangered Species Act* (MNR) and as critical habitat under the federal *Species at Risk Act* (DFO). Northern Brook Lamprey is currently listed as a Species of Concern and so is not afforded protection under *Endangered Species Act* but should be considered as it may be upgraded in status in the future.

Further consultation with DFO, MNR and the conservation authority will be required during Detail Design to discuss impacts, design measures, construction constraints, mitigation, compensation and enhancement measures, and if necessary, permit applications and Fisheries Act authorizations.

#### 8.1.5 Terrestrial and Wetland Habitat

An assessment of the terrestrial environment was conducted in accordance with standard MTO procedures, as documented in the Terrestrial Report provided in **Appendix C**.

The locations and specific processes and standards under which the terrestrial investigations were completed are detailed in the Terrestrial Report. Generally, the right-of-way of the Preferred Plan and areas within 120m of it were assessed. In addition, significant or sensitive features outside of the field investigation area, but that could potentially be impacted by the project, were identified during review of the background data and site investigations were completed in these areas (**Appendix C**). Additional surveys will be required and should be undertaken during future Detail Design phases of work. Future surveys should be completed at the locations detailed in the Terrestrial Report and, where possible and necessary,

at additional locations within the right of way for the Preferred Plan where access could not be obtained as part of this study.

The Ecological Land Classification (ELC) System for southern Ontario is a set of tools and techniques that has been developed for the consistent description, identification, classification and mapping of ecological land units in southern Ontario. Each vegetation community was assessed and defined into ELC units as per the MNR guidelines. Where areas were inaccessible, communities were visually assessed from the existing highway right of way and using aerial photography interpretation. Vegetation communities within the subject area are described through the completion of a multilayer (canopy, sub-canopy, ground cover) vegetation inventory.

A total of twenty-three (23) vegetation polygons were identified and mapped within the area of investigation, which included the footprint for the Preferred Plan and the adjacent lands within 120m of the recommended plan. Vegetation communities assessed as part of this study all fall within the following ELC Community Series:

- Cultural Meadow (CUM)
- Cultural Plantation (CUP)
- Deciduous Forest (FOD)
- Mixed Forest (FOM)
- Coniferous Forest (FOC)
- Deciduous Swamp (SWD)
- Mixed Swamp (SWM),
- Coniferous Swamp (SWC)
- Thicket Swamp (SWT)
- Treed Bog (BOT)
- Open Bog (BOO)
- Shallow Marsh (MAS)
- Mineral Meadow Marsh (MAM)
- Floating-leaved Shallow Aquatic (SAF).

Wetlands are defined in the Ontario Wetland Evaluation System (OWES) as “Lands that are seasonally or permanently flooded by shallow water as well as lands where the water table is close to the surface; in either case the presence of abundance water has caused the formation of hydric soils and has favoured the dominance of either hydrophytic or water tolerant plants” (MNR, 2013a).

Wetlands provide specialized habitat for a variety of species that require the unique combination offered by the transitional habitat present between lowland and upland habitat. Wetlands also perform several other important functions such as flood attenuation, water quality improvement and groundwater recharge.

According to the OWES, contiguous wetlands less than 2.0 ha in size are generally not evaluated, however in situations where wetlands less than 2.0 ha in size possess a special feature or perform a special function they can be evaluated provided the rationale for their evaluation is provided. Data from MNR indicates only one wetland has been evaluated within the study area and that it was not identified as a Provincially Significant Wetland (PSW) based on the initial assessment. However, MNR also noted that the wetland was to be re-evaluated in the near future and that habitat for SAR is believed to be within the area which would result in the area, the Blueseal Creek Wetland, being designated a PSW.

A total of 9 wetland communities were identified within the study area. These communities cover approximately 200 ha of the study area and include Deciduous Swamp (SWD), Mixed Swamp (SWM), Coniferous Swamp (SWC), Thicket Swamp (SWT), Treed Bog (BOT), Open Bog (BOO), Shallow Marsh

(MAS), Mineral Marsh and Floating-leaved Aquatic (SAF) communities. A map of these communities is provided in **Appendix C**.

Wildlife habitat is any area where plants, animals and other organisms live and find adequate amounts of food, water, shelter and space needed to sustain their populations.

The MNR has divided significant wildlife habitat (SWH) into four broad categories to make its identification and evaluation more comprehensive. These include seasonal concentration areas, rare vegetation communities or specialized habitat for wildlife, habitat of species of conservation concern, (not including habitat of endangered and threatened species) and animal movement corridors.

Detailed information obtained from background resources, field investigations and the evaluation of the forest and wetland communities were used to identify and evaluate any potentially SWH that may be present within the study area. Five different types of SWH were identified within the study area including:

- Wetlands
- Winter Deer Yards
- Colonial Bird Nesting Sites
- Raptor Winter Feeding and Roosting Areas
- Habitat for Sensitive Species (e.g. Grey Wolf, Lynx, Henslow’s Sparrow)

Other types of significant wildlife habitat that were not confirmed during the site investigations but could potentially be present within the study area may include, but are not limited to, Waterfowl Nesting, Reptile Hibernacula, Amphibian Woodland Breeding Ponds, Seeps and Springs, Habitats of Species of Conservation Concern and Animal Movement Corridors.

A summary of the potential impacts to terrestrial and wetland habitat as a result of the Preferred Plan is provided in **Exhibit 8.3**. The impacts detailed are preliminary in nature and typical mitigation measures are also listed which, in tandem with industry best management practices and future recommendations made through the detail design process, will mitigate impacts to areas of vegetation.

**Exhibit 8.3: Terrestrial Impacts & Environmental Mitigation and Protection Measures**

Criteria Potentially Impacted	Impacts Associated with the Preferred Plan	Environmental Mitigation and Protection Measures
Vegetation	<ul style="list-style-type: none"> <li>• Loss of approximately 295 ha of vegetation</li> </ul>	<ul style="list-style-type: none"> <li>• Protect significant trees and areas of vegetation to the extent possible; and</li> <li>• Limit areas in which construction work and associated contractor staging areas are permitted to occur.</li> </ul>
Wetlands	<ul style="list-style-type: none"> <li>• Loss of 18 ha of evaluated wetland and 34 ha of unevaluated wetland</li> </ul>	<ul style="list-style-type: none"> <li>• Protect wetlands to the extent possible;</li> <li>• Limit areas in which construction work and associated contractor staging areas are permitted to occur; and</li> <li>• Targeted enhancement and/or restoration of wetlands.</li> </ul>
Significant Wildlife Habitat	<ul style="list-style-type: none"> <li>• Loss of Significant Wildlife Habitat due vegetation removal / construction</li> </ul>	<ul style="list-style-type: none"> <li>• Protect retained wildlife habitat areas from construction access and damage; and</li> <li>• Design bridges and culverts to provide for wildlife passage, where appropriate and investigate additional opportunities to provide wildlife crossings during detail design.</li> </ul>

During future detail design studies and prior to construction, MTO will be required to complete:

- Higher level project specifics with respect to location and assessment of environmental impacts;
- Detail design level mitigation;
- Follow-up including compliance level monitoring; and
- Assessment of residual effects.

Also in recognition that this is a long term planning study and timing for completion of future phases of work, (e.g. detailed design and construction), are undetermined at this time, additional surveys should be undertaken during future detail design phases of work at the locations detailed in the Terrestrial Report and, where possible and necessary, at additional locations within the right of way for the Preferred Plan where access could not be obtained as part of this study.

### 8.1.6 Wildlife and Avian

In order to determine what amphibian species are present within the study area, one round of amphibian surveys was completed in accordance with the Marsh Monitoring Protocol (MMP) which is used through North America as it provides a standardized field method for audio-surveying breeding frogs and toads.

Potentially suitable amphibian breeding habitat was identified through aerial photography interpretation prior to surveying. Based on access limitations to private lands, in some locations survey stations were located within the existing right of ways for Highway 17 and local roads in the study area where these areas were in close proximity to the recommended plan. In total, 27 amphibian call stations were surveyed as detailed in the Terrestrial Report (**Appendix B** to this TESR). A total of 4 amphibian species were heard during these surveys including; American toad (*Anaxyrus americanus*), Northern Leopard Frog (*Rana pipiens*), Gray treefrog (*Hyla versicolori*) and Spring Peeper (*Pseudacris crucifer*).

Breeding Bird Surveys are important components of environment studies as they can assist in the evaluation of the health and sustainability of the ecosystems they inhabit. Due to Ontario's size and habitat diversity there are various bird monitoring protocols that utilize different methods to target different species, in different habitats. For the purposes of this study breeding bird surveys were completed using the point count protocol from the Canadian Wildlife Service (CWS) Forest Bird Monitoring Program as there are several components of this protocol that ensure that the data obtained from these surveys is representative and unbiased.

In total 32 stations were established for breeding bird surveying. Each station consisted of two 5-minute count periods during which the time, species, breeding evidence and individual bird movement were recorded within a 100 m radius of the survey station. Species locations were mapped and data was recorded using forest bird monitoring protocol standardized field forms. Species heard outside of the 100 m radius or that were not associated with the habitat within the 100 m radius were recorded separately.

A total of 64 species of birds were identified at the breeding bird stations, during the 2013 breeding bird survey. The majority of these species are known to be common throughout southwestern Ontario.

Significant observations made during the breeding bird surveys included the observation of two SAR, species that are designated under the Partners in Flight Ontario BCR Landbird Conservation Plan and

species that are considered to be Area Sensitive. The two SAR that were observed during the breeding bird surveys were Bobolink and Eastern Meadowlark which are discussed in greater detail in **Section 8.1.6**.

A total of 24 area sensitive species were also identified during the breeding bird surveys. Area sensitive species require large tracts of interior forest habitat that are 100 meters from any edge habitat. While this type of habitat can be present in forest tracts that are 30 ha in size, larger forest tracts are still preferable as they are more likely to provide suitable habitat for these species.

Potentially suitable habitat in the study area was identified for a total of 16 species including:

- 2 Endangered species
- 7 Threatened species
- 5 Special Concern species
- 2 species classed as Threatened by COSEWIC

Other wildlife encountered during site visits, aside from species observed through the targeted surveys and included White Tailed Deer, Beaver, Moose, Coyote / Eastern Wolf and Black Bear (as documented in the Terrestrial Report in **Appendix C**).

Future surveys should be completed at the locations identified in the Terrestrial Report in order to verify the findings and conclusions of the study team and, where possible and necessary, at additional locations within the right of way for the Preferred Plan where access could not be obtained as part of this study. As the habitat at the site is suitable for a variety of songbirds, waterfowl and raptors, consideration into the timing of all future work associated with the project, including engineering field work and construction, should be deliberated in order to ensure that the project remains in compliance with the *Migratory Birds Convention Act*.

In developing the preliminary design for the Preferred Plan, the study team identified a number of design considerations reflecting the terrestrial environment and the prevalence and variety of wildlife in the study area.

In developing structural recommendations, the study team identified the major watercourses where mammals were most likely to cross the recommended right-of-way to access areas north and south of the alignment. These watercourses included the:

- Bluseal Creek tributary
- Bluseal Creek
- Sharpes/ Sparkes Creek tributary
- Sharpes/ Sparkes Creek
- Amable du Fond River at its outlet from Crooked Chute lake
- Pautois Creek

At each of these major watercourse crossings, the preliminary design of the Preferred Plan provides for wildlife passage on each side of the watercourse by providing a 2.5 m 'bench' on both sides of the watercourse (which is above the 2-year storm event); a minimum opening height of 5 m and an openness ratio of at least 0.75 (0.9 where possible) to accommodate large mammals.

Provision of additional crossings to accommodate movement of mammals and reptiles will be considered during detail design at locations where animals are known to move frequently (corridors which connect areas of habitat) and where the profile of the highway compared to adjacent land is sufficient that a structure could be implemented without necessitating a change to the preliminary profile developed as part of this study. Additional crossings should be considered and sized according to the species anticipated to use the structure and where large mammals are expected to be the prime users of a crossing, design considerations should reflect those noted above which were considered in the development of watercourse crossings. Other crossings should be developed considering the species and design consideration including landscaping, daylight, effective length of the crossing etc. In order to ensure wildlife crossings are effective to the degree possible, additional crossings should only be considered in areas where lands on both side of the highway are protected by regulatory agencies.

Additional wildlife considerations developed through the study include the provision of right-of-way fencing (a standard measure on MTO freeways) to encourage animals to use the crossings and to prevent them from crossing at any other locations. Design considerations include a minimum height of 2.8 m for this fencing, with mesh sizing graduated as the fence height increases in order to protect amphibians (using cloth fence at the bottom) and mammals of various sizes. Additionally, consideration should be given to provision of 'exits' for wildlife with measures such as jump outs and one way gates provided at intervals for any animals that may inadvertently enter the highway right-of-way.

#### 8.1.7 Species at Risk and Provincially Rare Species

Based on the information that has been collected through background resources it has been determined that 24 SAR may potentially occur within the general area of the proposed ROW for the recommended highway plan. Following the terrestrial characterization of the study area through background review and field investigations, a habitat assessment was completed for these species to determine if suitable habitat is present in the study area. **Exhibit 8.4** presents a list of 16 species which could potentially occur within the right-of-way of the recommended plan. Appendix D of the Terrestrial Report presents a Species Assessment and Preferred Habitat table for the larger study area.

As noted previously, of the 16 SAR identified in **Exhibit 8.4**, two (2) species, Bobolink and Eastern Meadowlark were observed during field investigations. Bobolink can be found inhabiting large hayfields or cultural meadow with tall grasses. Bobolinks often build their small nests on the ground in dense grasses. Eastern Meadowlark is also typically associated with hayfields or cultural meadows but can also be located in areas with more shrubs or woody vegetation which it can use as a perch to sing from. Within the study area Bobolink and Eastern Meadowlark can both be directly associated with agricultural lands.

Although no other wildlife SAR were observed this should not be considered conclusive evidence that they are not present at the site. In order to determine the presence or absence of these species additional investigations and field survey may be required during detail design.

#### Exhibit 8.4: Potential SAR which may be present within the 120m Area of Investigation

Species	ESA Status	SARA Status	COSEWIC Status
Little Brown Myotis (Bat) ( <i>Myotis lucifugus</i> )	END	-	END
Northern Myotis (Bat) ( <i>Myotis septentrionalis</i> )	END	-	END
Barn Swallow ( <i>Hirundo rustica</i> )	THR	-	THR
Blanding's Turtle ( <i>Emydoidea blandingii</i> )	THR	THR	THR
Bobolink ( <i>Dolichonyx oryzivorus</i> )	THR	-	THR
Chimney Swift ( <i>Chaetura pelagica</i> )	THR	THR	THR
Eastern Meadowlark ( <i>Sturnella magna</i> )	THR	-	THR
Eastern Whip-poor-will ( <i>Caprimulgus vociferous</i> )	THR	THR	THR
Flooded Jellyskin ( <i>Leptogium rivulare</i> )	THR	THR	THR
Canada Warbler ( <i>Wilsonia canadensis</i> )	SC	THR	THR
Common Nighthawk ( <i>Chordeiles minor</i> )	SC	THR	THR
Milksnake ( <i>Lampropeltis triangulum</i> )	SC	SC	SC
Monarch ( <i>Danaus plexippus</i> )	SC	-	SC
Snapping turtle ( <i>Chelydra serpentina</i> )	SC	SC	SC
Wood Thrush ( <i>Hylocichla mustelina</i> )	-	-	THR
Eastern Wood-Pewee ( <i>Contopus virens</i> )	-	-	SC

Additional surveys should be undertaken during future detail design phases of work to verify the findings and conclusions of the study team. As the habitat requirements of individual Threatened or Endangered species are extremely varied, the assessment of what constitutes the significant portions of the habitat must be made on a species-by-species and case-by-case basis. As the habitat within the study area may be suitable for a number of SAR, additional studies targeted at these species should be undertaken during detail design to confirm the presence or absence of these species and evaluate the significance of the habitat for them to complete the various aspects of their life cycles.

#### 8.1.8 Designated Areas

A number of designated areas exist within the study area. In addition to the wetland and forested areas noted above, the study area contains Deer Wintering Areas and 3 provincial parks; Samuel de Champlain, Mattawa River and Amable du Fond. The study area also contains a number of parcels of land not associated with a park but that are provincial lands.

Approximately 12 ha of provincial park are displaced as a result of the Preferred Plan. These areas are generally within the more detailed environmental features discussed above (forested areas, wetlands etc) and the mitigation measures detailed in the above subsections will be applied to address impacts to the park land.

MNR and Parks Ontario who are responsible for management of the park land and other Crown lands in the area have been involved throughout the study. In response to comments submitted through the PIC #2 consultation process, the study team refined the Preferred Plan in the vicinity of the entrance to the Samuel de Champlain Park. The recommended highway planning alternative in this area, as presented at PIC #2 included a realignment of Highway 17 to the south and closure/ decommissioning of the existing Highway from east of Highway 630 to the Samuel de Champlain Park entrance. In response to MNR input and comments from other local stakeholders, the Preferred Plan for which preliminary design was developed included maintaining existing Highway 17 from approximately 1 km west of Pautois Creek to Boundary Road. This refinement was carried forward as it maintains emergency egress from the park and maintains access to the two residential properties west of Pautois Creek.

## 8.2 Socio-Economic Environment

### 8.2.1 Property Impacts

The Preferred Plan requires property acquisition along its length from approximately 80 private properties within the Townships of Bonfield, Calvin and Papineau-Cameron. Approximately 34 properties in Bonfield, 40 in Calvin and 6 in Papineau Cameron are impacted directly by the Preferred Plan not including public lands (e.g. areas of Provincial Park, municipal road right of ways or the rail/ pipe line corridors).

Property impacts vary from complete acquisition of a property to partial acquisition of a property, impacts to access and displacement of buildings, septic systems and water wells. Direct property impacts may include the severance of some lands and potential for some lands to be landlocked. Land uses and building types in the study area are detailed below based on review of background data (municipal records), field review and discussions with property owners.

A total of 33 buildings are impacted by the future designation; 10 residential buildings, 7 agricultural structures, 8 secondary structures (sheds, outhouses) 4 camping structures and 3 commercial/ industrial buildings are displaced.

Mitigation/ compensation measures for property impacts are addressed on an individual property/ land owner basis in accordance with Ministry policy and directives. Mitigation and compensation measures for those properties with direct impacts will include, but are not limited to:

- property acquisition in accordance with Ministry policy and directives;
- maintenance or relocation of access; and
- maintenance or relocation of well and/ or septic systems.

Where appropriate, opportunities to maintain or provide alternate access to a landlocked parcel will be explored during the future detail design stage. For example, the span and vertical clearance of the bridge crossing the Amable du Fond River has been established so that small trucks could access lands north and south of the Preferred Plan, along the banks of the river.

Discussions and negotiation with impacted property owners, where property is required to implement the Preferred Plan will be required during detail design. Further, the disposition of park land will be subject to the MNR Class EA Provincial Parks and Conservation Reserves (Class EA PPCR) process.

### 8.2.2 Commercial/ Business

In addition to direct impacts to commercial/ industrial properties, a number of businesses operate within the study area (as detailed in Section 4). A majority of these are "destination locations" such as campgrounds or cottages and others which depend on drive-by customers such as gas stations and restaurants. Given that tourism is a key element in the economic profile of the area, alterations to the existing highway can be anticipated to have some residual effects on the current operations of businesses in the area.

A preliminary analysis of potential impacts to the businesses in the area was undertaken by members of the Study Team when generating alternative solutions. Initial impacts for all businesses in the area were determined to be potentially:

- Direct property impacts depending on the alignment of the recommended solution;
- Access impacts depending on the recommendations for maintaining existing Highway 17 as a service road and recommendations for local road closures; and
- Impacts associated with diversion of primary consumers (drive by traffic).

Of the approximately 80 private properties impacted by the preferred plan, two are operating as a commercial or industrial use:

- Columbia Forest Products
- Algonquin North Wilderness Outfitter's

Compensation for impacts to both of these businesses will be addressed through the acquisition process as will compensation for impacts associated with loss of land including access and building impacts, and disruption of other infrastructure such as wells and septic systems.

#### Columbia Forest Products

The current entrance to the Columbia Forest Products facility is located east of Rutherglen at approximately Sta. 21+500. The Preferred Plan crosses this access road and a replacement entrance will be defined during detail design. Considerations associated with replacing this access include:

- The access to Columbia Forest Products will pass under the Preferred Plan for the highway and connect to existing Highway 17 (which will be maintained as a service road for the area).
- No access to future realigned Highway 17 (the Preferred Plan) will be provided.
- The structure type, dimensions and design of the replacement access road will accommodate full-size tractor trailers and provide appropriate integrations of the design and operational needs of the site, in accordance with MTO design standards.
- Potential locations for the access road include adjacent to the railway right-of-way and at the eastern limit of the Columbia Forest Products property.

If, at the time the Preferred Plan is constructed, the Columbia Forest Products operation is permanently closed, or if MTO acquires the complete property, an access road to replace the existing entrance will not be provided.

Algonquin North Wilderness Outfitter's

As a result of the Preferred Plan, and specifically the interchange at Highway 630 and future Highway 17, Algonquin North Wilderness Outfitters will be the situation that their property will be bordered on three sides by highway right-of-way; (existing Highway 17 on the north side, realigned Highway 17 on the south side and Highway 630 on west side. During detail design, visibility and intersection configurations will be reviewed in accordance with Ministry design and operational standards.

**8.2.2.1 Study Area Business Surveys**

In order to understand indirect impacts to these business and the others identified in Section 4.3, the study team undertook a survey of businesses in the study area once a Preferred Plan had been identified. The survey was designed to garner information about each business' operations, delivery routes and clientele as well as to assist the study team in understanding the concerns of the business community and developing mitigation measures to address those concerns.

A summary of the survey and the responses provided by businesses within the study area is provided below. In regards to the input and concerns raised by the business community, MTO has an existing signing policy that considers emphasizing the existing businesses and communities and their location in relation to the preferred plan. These policies will be available for usage/ implementation during detail design and in consultation with the study area municipality's and local business owners.

As detailed in Section 4, eleven businesses were identified in the study area during the existing conditions phase of the study. Of these eleven, ten were contacted to participate in the survey with representatives of Columbia Forest Products excluded given the direct impacts on their operations. It should be noted however that consultation with Columbia Forest Products did occur at each PIC event and through separate discussions and meetings as detailed previously.

The ten businesses identified for interview therefore were:

- Pigeon's Nest Park
- Country Cabins and Campground
- Talon Lake Campground and Marina
- Buckeye Camp
- Van Doeler's ranch
- L'Auberge des Pionniers Resor
- Twilight Camp
- Algonquin North Wilderness Outfitter
- Gagne's Red and White Ltd
- La Tea Da Restaurant

Each business was contacted by telephone in late November, 2013 and invited to review the website materials explaining the study and the Preferred Plan before the surveys themselves were conducted. Of the ten businesses contacted, nine agreed to participate and one (Buckeye Camp) indicated that their grounds were no longer rented and they were not therefore a business but operating as a family 'cottage'. During discussions with the owners of Twilight Camp, an additional business was identified (Maxwell

Pottery) in the study area. The results below are therefore summaries of the information provided by seven business owners representing nine different businesses in the study area.

A summary of the businesses who participated and the services provided by each is detailed below. All businesses are owned in full or part by the survey participants.

Algonquin North Wilderness Outfitters**	Portage trips, fishing, hiking, Canoeing, Kayaks and boats, camping, trapping, shuttle services, total outfitting gear and food.
Country Cabins	Campground, cabins fishing trips and boat rentals
Gagne's Red and White*	Gas station, post office, general store, LCBO, Home Hardware, Country style coffee and propane sales.
La Tea Da Restaurant**	Café, art gallery, musical performances, filming location for singers/ songwriters, cooking shows and residential and commercial rental units.
L'Auberge des Pionniers Resort	Cabins, fishing, boating, canoe/kayaks, hiking trails, skiing, snowshoeing, snowmobiling, catering and arts and crafts.
Maxwell Pottery	Ceramic goods - manufacturing and show room.
Talon Lake Campground and Marina	Campground, cottages, boat rentals, canoe rental, water taxi, fishing, general store, marina and boat repairs.
Twilight Camp	Campground, cottages and trailer campground
Van Doeler's Ranch	Horse riding, cabins, campground, horse riding trails, kids camps, riding lessons, overnight pack trips and horse competition facilities.

\*Operating for more than 20 years  
 \*\*Operating for 12 years

The survey was comprised of 16 questions and an 'additional comments' area where participants were invited to provide any feedback related to their business, their concerns or regarding the project generally. The first portion of the survey (6 questions) established the existing operations of the business asking respondents if they owned the business, how long the business had been operating, the services it provided, its location in regard to the existing highway and establishing the key clientele (drive by traffic versus repeat customers) for each.

The second portion of the survey (6 questions) focused on the respondents concerns regarding the Preferred Plan and the potential impacts to their business. In order to initiate these discussions, the study team referred to the preliminary impacts they had identified during earlier phases of work and provided an example or two. In order to identify potential impacts on which to base discussions, the study team

assessed the potential effects of the project on each business. Respondents were then asked if they agreed or disagreed with this assessment and to give some justification for their response. Impacts were generally captured under three criteria – access and egress impacts, bypass impacts and new business opportunities. In general, businesses agreed with the impacts that had been determined in advance of the survey and no additional concerns or opportunities were identified by participants. Specifically, the impacts identified, as appropriate, for each business were:

- Access/ egress impacts
  - Access will continue to be from existing Highway 17/ municipal roadway
  - Access will be less direct
  - Access will be less direct however impacts will be minimal given the business is reliant on clientele for which the business is a ‘destination’
- Bypass impacts
  - Diversion of traffic could result in reduced business given reduced exposure and drive by traffic
  - Impact of traffic being diverted will be minimal given the business is reliant on clientele for which the business is a ‘destination’

The last portion of the survey, (4 questions) focused on the concerns of the business owners both during construction and once operational and asked for input on the Preferred Plan and potential mitigation measures during both phases. Common suggestions for mitigation included:

- Maintain location visibility;
- Relocate business so it is still visible;
- Reconsider the project in current form and go south of the built up area along Highway 17;
- Relocate the railway track crossing at Park Street and Rutherglen Line;
- Four way stop at Park Street and Rutherglen Line;
- Financial compensation;
- Make sure that the old Highway 17 is kept open and maintained; and
- Make sure signage and directions are clear.

A copy of the technical memorandum summarizing the business survey responses is included as part of the consultation records in **Appendix H**. Overall, the survey of businesses indicated that very few of those surveyed were concerned that implementation of the Preferred Plan would result in adverse effects. This is largely due to the fact that most of the businesses are considered “destination” locations that do not rely on passing traffic.

For obvious reasons, the most concerned respondents were associated with Gagne’s Red and White, La Tea Da Restaurant, Maxwell Pottery and Algonquin North Outfitters, all of which are dependent in part on drive by traffic. These businesses all felt that the loss of highway exposure associated with passing traffic could impact their business operations as they are dependent on the location of the highway and traffic using it.

As noted above, impacts to properties (including businesses) as a result of the right-of-way required for the Preferred Plan will be addressed through the acquisition process. Mitigation of indirect impacts to local

area businesses will be refined during future phases of work in consultation with the study area municipality’s and local business owners.

#### Rutherglen Area Business Signing and Visibility Strategy

As noted earlier in this report, opportunities to improve Highway 17 through the Rutherglen area were reviewed on a preliminary basis at the study outset and it was determined that based on the physical constraints within the Rutherglen area, a widened highway through this area would result in significant community impacts and highway planning alternatives in this area were not considered reasonable.

Based on the realignment of Highway 17 in this area, a number of businesses within the Rutherglen area have expressed concerns regarding loss of business due to loss of highway exposure/ passing traffic. A discussion during future phases of work will be held to explore opportunities to provide signing for the businesses in this area to identify the Rutherglen Hamlet and access via Rutherglen Line. The signing of the Rutherglen area and other requests for signage will be developed further during detail design and in consultation with local businesses and municipal staff according to MTO design standards for highway signage and access.

### **8.2.3 Community/ Recreational/ Tourist Facilities**

The Preferred Plan crosses two trail crossings. Both trail crossings are identified as snow mobile trails. One trail is crossed in the area of Pimisi Bay and the other is located just west of Highway 630. The Pimisi Bay crossing will be maintained with ample room for snow mobiles to pass under the realigned highway in this area given the structure associated with the crossing of Pimisi Bay itself and the provisions noted above regarding clearance and provisions incorporated for wildlife passage. The crossing located just west of Highway 630 is located in close proximity to Crooked Chute Lake and the interchange proposed as part of the Preferred Plan. The need to ‘re-sign’ this crossing of Highway 17 in the future will be explored during detail design. Based on the Preferred Plan, there is potential to redirect users of this trail to cross Highway 17 just east of the current location and in association with either the interchange structure or the access proposed for property owners south of the Preferred Plan and surrounding the lake where, as noted above, a crossing of Highway 17 is proposed and will be of sufficient size so as to accommodate pickup trucks.

### **8.2.4 Property Waste and Contamination**

Thirteen properties identified as potentially contaminated in the Contaminant Overview Study are potentially impacted by the Preferred Plan and an additional property was noted as potentially contaminated (due to a rail accident and substance leak) by a PIC attendant/ resident in the area. Additional work during future phases of work for the project should be undertaken to confirm potential contamination and next steps for these property’s and indeed, for all properties impacted by the right-of-way of the Preferred Plan where property acquisition is required.

Specifically, access to all properties should be obtained and site screenings completed to determine the level of contaminant investigations necessary for each property. Site screenings should occur to identify features such as surface debris piles (wood, scrap metal, household materials etc.); septic systems;

heating oil tanks; vehicle parts, storage or maintenance; landfilling or waste disposal; livestock operations (e.g., manure spreading, holding tanks); gas stations; equipment or machinery maintenance and storage; and pesticide or chemical storage.

### 8.2.5 Noise

An assessment of the noise impacts associated with Preferred Plan was completed in accordance with the requirements stipulated in MTO's Environmental Guide for Noise (the Guide) published in 2006. Under the Guide, a "noise impact" is defined as the difference between the "No Project" and the "With Project" noise levels during the subject year of assessment, in this case the Horizon year (2035) plus 10 years post construction.

Noise assessment, as stipulated by the Guide, requires that the most exposed side of a dwelling unit be assessed as part of an initial screening. If the initial screening indicates that further investigation regarding the need and feasibility of noise mitigation is required, the point of assessment for determining the noise levels and mitigation requirements is the Outdoor Living Area (OLA). The OLA can be situated on any side of a noise sensitive area which accommodates outdoor living activities, and is generally taken to be the backyard. For the assessment of impacts associated with the Preferred Plan, the location of the OLA was established as 3 metres from the façade of a dwelling at a height of 1.2 metres above ground level.

Further information regarding the criteria for noise assessment, mitigation investigation and general levels of sound perception is provided in **Appendix D** (Noise Report). Generally, if a project results in an increase of noise 5 dB or greater, or if a project creates an ambient noise level 65 dB or greater, investigation of mitigation is required. Investigations require control measures to be implemented within the highway right-of-way and to achieve a minimum reduction (attenuation) in noise levels of 5 dBA or greater to be technically and administratively feasible. If these criteria are met, control measures are reviewed to confirm they are economically feasible.

As noted, the assessment of the Preferred Plan was based on the predicted overall noise level and the noise impact, which is defined as the noise level difference between:

- No Project – no changes to the existing road configuration.
- With Project – a four lane divided controlled access freeway along a widened/ realigned alignment, replacing the existing Highway 17.

The first stage of assessment, the screening involves comparing the No Project scenario with the With Project scenario. This is based on traffic volumes and includes considerations regarding the design of the road (e.g. divided highway, with/ without median) resulting in the production of noise contours which reflect different levels of noise increase anticipated from the Preferred Plan.

Ontario Road Noise Analysis Method for Environment and Transportation (ORNAMENT) is the approved prediction methodology in the Guide and is a receptor based prediction methodology, using text inputs and outputs to create a separate model for each receptor. To generate noise contours, a graphical noise prediction software (CADNA/A), implementing a different prediction methodology (ISO 9613-2), was therefore calibrated to approximate ORNAMENT results (the variation between this method and ORNAMENT results is +/- 1 dB).

Given the rural nature of the study area, various Ministry of Environment (MOE) noise guidelines advocate consideration of the area as a Class 3 rural area. As a Class 3 area, where no dominant noise source exists, MOE guidelines suggest that the ambient level for noise be set at 45 dBA. The No Project ambient noise level was therefore established as 45 dBA and any areas where an increase of 5dB above the 45 dBA was identified through the screening process was carried forward as Noise Sensitive Areas (NSAs) and a detailed assessment of noise impacts and potential mitigation measures was completed.

NSAs identified through the screening process consisted of several single residences and a group of three residences in one area. In total, 18 NSAs were identified within the Study Area as detailed in **Exhibit 8.5** below (and shown on mapping in Appendix C of the Noise Report). The mapping also identifies the predicted future "No Project" and "With Project" noise levels, the resulting change in noise levels due to the Preferred Plan and the perceived the noise impact and the requirement for noise mitigation investigation. Calculation inputs are provided in the Noise Report.

To summarize, **Exhibit 8.5** reflects that the noise level limit of 65 dBA is exceeded at one of the assessed locations (R11) and that the noise impact exceeds the 5 dB criterion at the majority of the assessed areas (R02 through R05, R07 through R11 and R14 through R18).

At 14 of the NSAs, noise mitigation investigation was therefore required considering the requirements of the Guide in that noise mitigation must provide an average of at least 5 dB of attenuation over the first row of receptors and MTO's position (based on experience) that noise mitigation (barriers) with heights greater than 5m are considered impractical from cost and constructability perspectives.

**Exhibit 8.5: Noise Sensitive Area (NSA) Assessment Results**

Location	Projected Future Overall Traffic Noise $L_{eq,24hr}$ (dBA)		Projected Future Noise Impact		Mitigation Investigation Requirement	
	No Project	With Project	Change (dB)	Perception	$\geq 65$ dBA	$\geq 5$ dB impact
R01	45.0	48.1	3.1	Low	No	No
R02	45.0	50.9	5.9	Medium	No	Yes
R03	45.0	52.0	7	Medium	No	Yes
R04	45.0	58.6	13.6	High	No	Yes
R05	45.0	50.9	5.9	Medium	No	Yes
R06	50.3	52.5	2.2	Minor	No	No
R07	45.0	50.3	5.3	Medium	No	Yes
R08	45.0	58.3	13.3	High	No	Yes
R09	45.0	51.1	6.1	Medium	No	Yes
R10	45.0	55.7	10.7	High	No	Yes
R11	59.1	66.7	7.6	Medium	Yes	Yes
R12	64.3	57.3	-	-	No	No
R13	56.7	53.3	-	-	No	No
R14	48.1	61.0	12.9	High	No	Yes
R15	45.0	50.4	5.4	Medium	No	Yes
R16	48.7	56.5	7.8	Medium	No	Yes
R17	49.6	57.6	8.0	Medium	No	Yes
R18	56.4	61.9	5.5	Medium	No	Yes

The feasibility of providing noise barriers with respect to economic appropriateness was then assessed to identify areas where barrier implementation is warranted according to Ministry standards and guidelines.

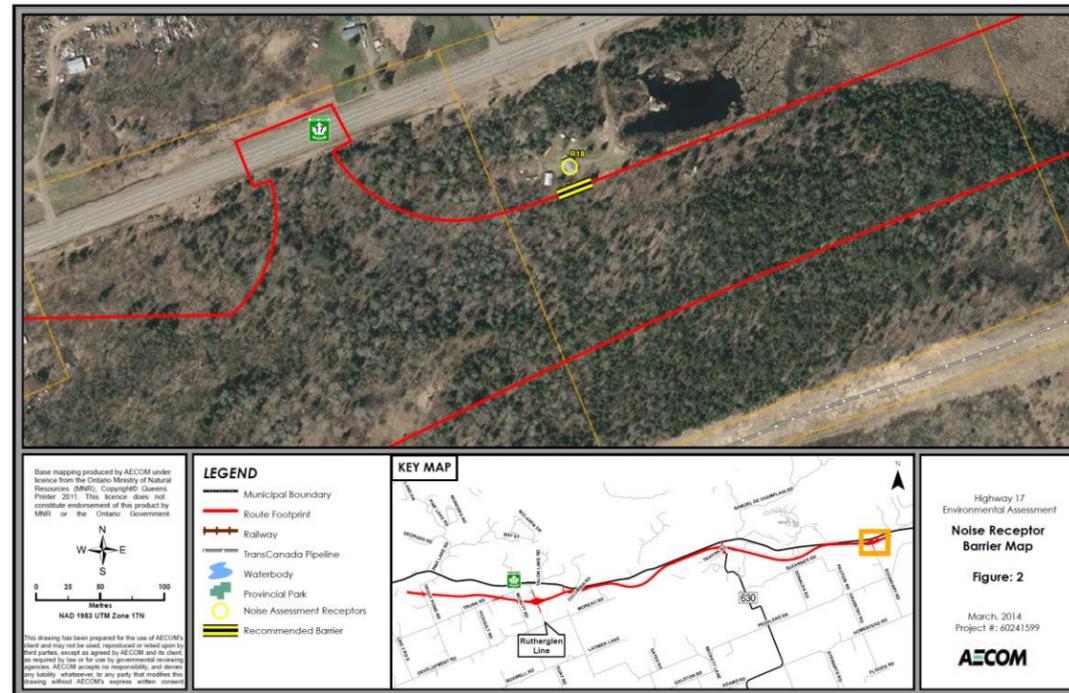
**Exhibit 8.6** below summarizes the results of the assessment and feasibility considerations and generally indicates that although noise caused by the Preferred Plan is greater than a 5 dB increase, mitigation is not feasible for R02, R04, R05 or R10 as the barriers do not meet technical requirements (in that they do not reduce noise levels by 5dB or greater) and they are not feasible economically as the household cost per receptor exceeds the generally established cost limit of \$100,000 per household. **Exhibit 8.6** also identifies R18 as the single location where a noise barrier of 5m height would meet the noise reduction requirements (reducing noise by 5 dB or more) and where it is considered economically feasible to implement the barrier as the cost of the barrier is less than generally established limit of \$100,000. This location is shown on **Exhibit 8.7**.

**Exhibit 8.6: Assessment of Noise Mitigation Feasibility**

Assessment Locations	Receptors with 5 dB Reduction	Barrier Height (m)	Barrier Length (m)	Barrier Cost (\$)	Approx. Cost/Receptor(\$)	Considered Economically Feasible
R02	1	5	669	1,672,500	1,672,500	No
R04	1	5	253	632,500	632,500	No
R05	3	5	2544	6,360,000	2,120,000	No
R10	1	5	59	147,500	147,500	No
R18	1	5	28	70,000	70,000	Yes

An assessment of the noise reduction predicted results for the 14 NSAs where detailed investigation was warranted identified 5 NSAs (R02, R04, R05, R10 and R18) where a noise barrier of 5 m in height would meet the minimum requirements and result in a noise reduction of 5dB.

**Exhibit 8.7: Location (R18) Where Noise Mitigation Warranted and Feasible**



The Guide requires that the noise study documentation address the following for construction noise:

- Analysis of construction noise impacts and requirements for special provisions
- Identification of Noise Sensitive Areas
- Identification of municipal noise control By-laws
- Need to obtain noise By-law exemptions
- An explanation of any hardships to MTO caused by municipal noise control By-laws
- Construction noise complaint process

The severity of construction noise impact at Noise Sensitive Areas is dependent on various factors such as time and location of operation, size and concurrent use of equipment, and staging of construction. As equipment information is only available from the contractor awarded the construction contract, general recommendations relating to the management of construction noise are provided as follows:

- Adhere to applicable local By-laws. Where adherence to the local By-laws is not possible and mitigation is not feasible, an exemption should be obtained from the municipality before construction.
- Avoid construction activity during the night time, where not required, to reduce the potential impact of construction noise.
- Construction equipment noise emissions should comply with MOE guidelines NPC-115 and NPC-118.

- Contract documents provided to the contractor should contain general noise control measures to mitigate the noise impact at noise sensitive areas including two standard clauses regarding equipment noise:
  - Unnecessary noise caused by faulty or non-operating components must be addressed by regularly maintaining all equipment.
  - Duration of construction equipment idling is to be restricted to the minimum time necessary to complete the specified task.
- A noise complaint process may be set in place.
- Provide a public notice to all affected residents within a 500 metre radius of the project limits when overnight construction activities are to occur. The notice is to be delivered at least 3 weeks prior to the overnight construction activities and shall include the following information:
  - General information regarding the anticipated construction activities
  - The address (if available) or general area where the activity will take place
  - The start and end date, and time of the activity
  - The sources of the noise
  - Methods of noise reduction
  - A contact name/business or organization's name, address and phone number, email and fax.
- Provide notification to the local councilors within the Project Area.

Noise sensitive areas for the construction phase of this project will be the same as the noise sensitive areas included in the assessment of traffic noise impacts in the above sections.

Noise mitigation recommendations at this stage of the project are preliminary in nature and should be reviewed further during the detailed design phase of this project and in consideration of the outcome of the property acquisition process. The necessity for noise mitigation for receptor R18 is therefore recommended for further exploration and examination during detail design once the horizontal and vertical alignment of the new highway has been developed in greater detail and the property acquisition process for this receptor is complete.

### 8.2.6 Air Quality

The purpose of the Air Quality Assessment is to determine the potential air quality impacts of the recommended plan, utilizing the Ministry of Transportation Environmental Guide for Assessing and Mitigating the Air Quality Impacts and Greenhouse Gas Emissions of Provincial Transportation Projects (MTO Guide). The analysis also provided recommendations on mitigation measures that can be implemented to reduce the potential for air quality effects from construction.

The objective of the air quality assessment is to provide a comparison of the air quality impacts resulting from the Preferred Plan to an established future baseline and evaluate how the proposed project may potentially affect air quality in the Study Area. The pollutants of concern related to transportation air quality are nitrogen oxides (NO<sub>x</sub>), carbon monoxide (CO), and particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>).

Regional air quality impacts were assessed based on ambient air quality from local air quality monitoring stations and compared to established standards or guidelines. Three scenarios were investigated.

- Current (2013)
- Future No-Build (2035)
- Future Build (2035)

The Base Case for assessment of the Preferred Plan was defined using ambient air concentrations for the pollutants of interest extracted from Ontario Ministry of Environment and the Federal National Air Pollution Surveillance (NAPS) program and the air quality impact on a local level due to the realignment and widening of Highway 17 was assessed by considering impacts from vehicle emissions for the above mentioned scenarios.

Using the traffic information provided for existing conditions and future predicted volumes and highway design, representative emission rates for the contaminants of concern were predicted using MOBILE 6.2C, a mobile vehicle emissions software package developed by the United States Environmental Protection Agency (US EPA). The contaminant emission rates were compared with emissions from nearby industrial facilities.

Additional information regarding the assessment process and applicable guidelines and data sources is provided in **Appendix E**, the Air Quality Report. The main findings of the air quality assessment are summarized below.

Base line (existing) ambient air quality and the contaminants of concern levels within the Study Area are detailed in **Exhibit 8.8** below and are generally below their corresponding established provincial and federal air quality standards or guidelines (**Exhibit 8.9**).

**Exhibit 8.8: Ambient Air Quality Concentrations**

Contaminant	Station Name	NAPS ID	90th Percentile of Hourly Concentrations (ppb)					Concentration (µg/m3)
			2008	2009	2010	Average	Maximum	Average
<b>NOx</b>	North Bay	62001	26.0	28.0	23.0	25.7	28.0	52.8
<b>NO2</b>	North Bay	62001	18.0	20.0	17.0	18.3	20.0	9.80
<b>PM10</b>	North Bay	62001	18.5	16.7	16.7	17.3	18.5	17.3
<b>PM2.5</b>	North Bay	62001	10.0	9.00	9.00	9.33	10.0	9.33
<b>CO</b>	Ottawa Downtown	60104	0.42	0.39	0.40	0.40	0.42	505
<b>90th Percentile of Daily Concentration in µg/m3</b>								
<b>Benzene</b>	Egbert	64401	0.46	0.52	0.51	0.50	0.52	
<b>1,3-Butadiene</b>	Egbert	64401	0.01	0.01	0.01	0.01	0.01	
<b>Formaldehyde</b>	Egbert	64401	1.96	1.02	1.27	1.42	1.96	
<b>Acetaldehyde</b>	Egbert	64401	4.93	2.53	5.24	4.30	5.24	
<b>Acrolein</b>	Windsor	65101	0.07	0.07	0.07	0.07	0.07	

*NO<sub>2</sub> - Nitrogen Dioxide*

**Exhibit 8.9: Summary of Applicable Guidelines and Standards**

Contaminant	Source	Averaging Time (hr)	Value (µg/m <sup>3</sup> )
NO <sub>2</sub>	AAQC	1	400
	AAQC	24	200
CO	AAQC	1	36,200
	AAQC	8	15,700
PM <sub>10</sub>	MOE Interim Reference Level	24	50
PM <sub>2.5</sub>	Canada Wide Standard (CCME)	24	30
Acetaldehyde	AAQC	24	500
Acrolein	AAQC	24	0.4
Benzene	AAQC	24	2.3
	AAQC	Annual	0.45
1,3-Butadiene	AAQC	24	10
	AAQC	Annual	2
Formaldehyde	AAQC	24	65

The traffic data provided for all scenarios indicates that volumes are anticipated to increase by 42 % by the time of project completion (2035).

As detailed in **Exhibit 8.10**, the majority of contaminant emissions are slightly higher for the Future Build Scenario than for the Future No Build scenario with no change in particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>) emissions. The exceptions are for VOCs, Acrolein and Greenhouse Gasses which are slightly lower in the Future Build Scenario. While total emissions are slightly higher in the Future Build scenario, impacts are anticipated to be less on the individual sensitive receptors because the improvements to the highway will see conditions operate in a more free flow manner.

The Future Build scenario has higher emissions than the current (baseline) for PM<sub>10</sub>, PM<sub>2.5</sub>, carbon monoxide (CO), carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), and nitrous oxide (N<sub>2</sub>O) (as shown in **Exhibit 8.10**), an increase in emissions that is proportional to an increase in traffic volume.

Also as shown in **Exhibit 8.10**, the Future Build scenario has lower emissions than the current (baseline) for Nitrogen Oxides (NO<sub>x</sub>), VOC's, Benzene, 1,3 butadiene, formaldehyde, and acetaldehyde. The decrease in emissions is expected due to improvements in vehicle flow and advancements in fuels and emissions control technology. There was no change in acrolein emissions.

**Exhibit 8.10: Vehicle Emission Rates**

Contaminant	Current (2013) Vehicle Emissions (tonnes/year)	Future No-Build (2031) Vehicle Emissions (tonnes/year)	Future Build (2031) Vehicle Emissions (tonnes/year)	Future Build (2031) Vs Future No Build (2031) Percent Change (%)
PM <sub>10</sub>	25.77	36.08	36.08	0.00%
PM <sub>2.5</sub>	4.19	5.63	5.63	0.00%
NO <sub>x</sub>	32.23	10.95	11.64	6.32%
CO	352.67	371.90	387.20	4.11%
VOC	17.12	11.96	11.70	-2.18%
Benzene	0.51	0.35	0.35	0.39%
1,3 butadiene	0.06	0.04	0.04	13.31%
Formaldehyde	0.16	0.13	0.13	3.55%
Acetaldehyde	0.08	0.05	0.06	13.36%
Acrolein	0.01	0.01	0.01	-2.33%
CO <sub>2</sub>	18063.03	26100.14	26089.46	-0.04%
Methane (CH <sub>4</sub> )	1.12	1.61	1.61	-0.04%
Nitrous Oxide (N <sub>2</sub> O)	1.42	1.86	1.61	-13.24%

Notes:

- (1) Values for PM<sub>10</sub> were calculated using MOE approved ratios (PM<sub>2.5</sub>/PM<sub>10</sub>=0.54) Lall et al. (2004)
- (2) Values for Methane (CH<sub>4</sub>) and Nitrous Oxide (N<sub>2</sub>O) were calculated using emission factor ratios provided in Table 6 of the Ministry of Transportation "Environmental Guide for Assessing and Mitigating the Air Quality Impacts and Greenhouse Gas (GHG) Emissions of Provincial Transportation Projects".

For the majority of the contaminants of concern, the Industrial facilities within the vicinity of the Study Area have more impact to the local air quality than the increased vehicular emissions from the expansion of Highway 17, as shown in **Exhibit 8.11**.

**Exhibit 8.11: Emissions from Nearby Industrial Sources (Tonnes/ Year)**

Contaminant	Air Emissions in Tonnes (total of 5 facilities)					Future-2031 Build Vehicle Emissions (tonnes/year)
	2008	2009	2010	Average	Maximum	
PM <sub>10</sub>	22.87	17.30	22.00	20.72	22.87	36.08
PM <sub>2.5</sub>	19.87	13.74	19.52	17.71	19.87	5.63
Nitrogen Oxides (NO <sub>x</sub> )	152.00	78.60	58.90	96.50	152.00	11.64
Carbon Monoxide (CO)	71.00	31.00	32.00	44.77	71.00	387.2
VOC	115.10	102.00	113.20	110.10	115.10	11.70
Formaldehyde	17.00	14.00	15.00	15.33	17.00	0.13

A summary of the contaminant emissions' contributed by the Preferred Plan for Highway 17 in comparison to the provincial and national mobile standards is shown below in **Exhibit 8.12**. The emissions predicted as a result of the Preferred Plan in comparison to these standards is considered negligible.

**Exhibit 8.12: Summary of Regional Criteria Contaminants (Tonnes/ Year)**

Contaminant	Sectors	Future-Build Scenario (2031)	Ontario (2010)	% Project Contribution	Canada (2010)	% Project Contribution
PM	Mobile Sources	2.07	17,028	0.01%	68,834	0.003%
PM <sub>10</sub>	Mobile Sources	36.08	16,939	0.21%	68,292	0.053%
PM <sub>2.5</sub>	Mobile Sources	5.63	14,888	0.038%	61,062	0.009%
NO <sub>x</sub>	Mobile Sources	11.64	271,665	0.004%	1,138,423	0.001%
VOC	Mobile Sources	11.70	145,766	0.01%	491,491	0.002%
CO	Mobile Sources	387.20	2,038,268	0.02%	6,514,674	0.006%

Further, this study identified construction related air emissions such as particulate matter from material handling operations, soil excavation and combustion emissions from construction equipment. An investigation of zoning and average wind data indicates that construction activities would predominantly affect rural areas north and south of Highway 17.

The air quality impacts of construction related activities can be effectively mitigated through the following mitigation measures:

- ensuring the use of heavy equipment in good condition of maintenance and compliant with applicable federal regulations for off-road diesel engines;
- operational procedures including those measures to be specified in the Dust Control Plan; and
- ensuring that the areas most impacted in particulate levels are vegetated to reduce the cumulative particulate impacts.

It should be noted that, with MTO agreement, this study did not consider local air quality impacts at representative receptors within the Study Area. This was deemed unwarranted because the Preferred Plan is situated in a rural area with a limited number of sensitive receptors and particularly given that the air quality impacts are considered negligible with all contaminant emissions and contaminants of concern below applicable guidelines and standards.

### 8.2.7 Agriculture

As noted previously, the Preferred Plan requires property acquisition along its length with approximately 80 private properties within the study area and property impacts vary from complete displacement of a property to partial displacement of lands, impacts to access and displacement of buildings, septic systems and water wells. Land uses and building types in the study area are based on review of background data (municipal records), field review and discussions with property owners.

As noted, a total of 33 buildings are impacted by the right-of-way and approximately 61 ha of Canada Land Inventory (CLI) Class 1, 2 and 3 soils is displaced by the Preferred Plan.

Mitigation/ compensation measures for property impacts, including those to lands in use agricultural operations are addressed on an individual property/ land owner basis in accordance with Ministry policy and directives. Mitigation and compensation measures for those properties with direct impacts will include, but are not limited to:

- property acquisition in accordance with Ministry policy and directives;
- maintenance or relocation of access; and
- maintenance or relocation of well and/ or septic systems.

Discussions and negotiation with impacted property owners, where property is required to implement the Preferred Plan will be required during detail design.

## 8.3 Cultural Environment

### 8.3.1 Built Heritage and Cultural Landscapes

Existing conditions and the locations of built heritage features and cultural landscapes was previously documented in Section 4. The Preferred Plan does not impact on any of the heritage features identified as present within the study area and no mitigation measures are therefore deemed necessary.

Should the Preferred Plan be refined during detail design and result in impacts to any properties, structures or areas within the study area beyond those detailed in this TESR, a review of the potential impacts to cultural features will be completed to confirm impacts to heritage features are avoided and mitigated, if necessary.

### 8.3.2 Archaeology

Based on the information collected during the Stage 1 background study and roadside field reconnaissance (Section 4) a generalized map of areas of archaeological potential was created for the entire study area to identify areas of archaeological potential. These areas were established based on distances to identified cultural, historical and landscape features and where further inspection via fieldwork was recommended.

Stage 2 archaeological assessment consists of field verification of archaeological potential and generally consists of test pit surveys, ploughing and inspection of property. Based on the Stage 1 assessment completed as part of study initiation, a majority of the Preferred Plan was determined to have archaeological potential and recommended for Stage 2 assessment.

The Preferred Plan includes approximately 295 ha of land in total, of which approximately 212.5 ha (72%) was identified as in close enough proximity to features signaling archaeological potential with Stage 2 assessment recommended.

Requests for permission to enter where Stage 2 assessment was recommended were issued to land owners in the study area in the summer of 2013. Permission was granted for surveyors to access approximately half of the right-of-way where Stage 2 was recommended, roughly 100 ha and meaning approximately 113 ha still require Stage 2 survey.

Fieldwork completed as part of this study included test pit survey at 10m intervals of 39.8 ha grassed and treed areas and 5m interval test pitting of 24.7 ha. The remaining lands (approximately 35 ha) were deemed to be of low archaeological potential upon inspection of field conditions. These areas included 15.7 ha established as low-lying and wet, 7.5 ha found to be steeply sloped, 0.9 ha of exposed bedrock, and 11.4 ha that were previously disturbed or developed all of which were photo-documented and then excluded from survey.

In sum, the 2013 field inspection and survey addressed 100 hectares of the corridor land that was defined in initial mapping as being in proximity to a feature of archaeological potential. The fieldwork resulted in the discovery of two artifact locations, both of which were found in woodlots which require further archaeological assessment during detail design.

Detailed field inspection and/ or Stage 2 field survey is recommended for the remaining areas of the Preferred Plan where permission to enter could not be obtained and which are within the requisite distances to features signaling archaeological potential (as detailed in the Stage 2 Archaeological Assessment, **Appendix G**). All lands that consist of formerly cleared agricultural field or pasture will require ploughing and pedestrian survey (5 or 10 m interval) when their width is 10 m or greater. Future survey must be undertaken after the ground has significantly weathered under rain and when surface visibility is 80% or greater. For unploughable treed and grassed areas, survey should consist of a standard

test pit survey at a five or ten m interval; survey distances should follow the standards defined in the *Standards and Guidelines for Consultant Archaeologists* (MTC, 2011).

All lands deemed to have low archaeological potential following the field inspection can be eliminated from Stage 2 survey. During detail design, all lands identified as having archaeological potential where no Stage 2 has been completed as part of this study should be subject to Stage 2 survey. Should refinements to the Preferred Plan be required during detail design, any lands not identified as part of this Class EA work will require Stage 1 assessment (background study) and Stage 2 assessment where deemed necessary.

### 8.4 Construction Staging/ Implementation Plan

Detailed construction staging plans will be developed during detail design. Given the majority of the Preferred Plan is to be constructed on areas of realignment to the existing highway, minimal impacts to traffic during construction are anticipated with existing Highway 17 maintained and operational during construction. Short-term closures and detours of local traffic may be required during construction of bridges and interchanges in the area.

A portion of existing Highway 17 will be decommissioned as part of the Preferred Plan from east of Highway 630 to west of Pautois Creek in the area of Samuel du Champlain Provincial Park. MTO has reviewed the proposed decommissioning of this portion of existing Highway 17 with MNR and based on concerns related to natural features in the area and avoidance of impacts resulting from road removal, agreed to removal of the existing roadway according to the following principles:

- The existing pavement and granular base will be removed and the highway embankment will be graded within the current right-of-way in order to blend the roadway with the adjacent lands.
- The existing bridges and culverts will also be removed and their approach fills within the right-of-way will be graded so as to blend the area with adjacent lands.
  - At some locations, e.g. the Amable du Fond River crossing, it may be preferable to retain portions of the bridge abutments so as to protect existing watercourse attributes and areas of fish habitat. Project specific works at these locations will need to be reviewed in greater detail during future phases of work and should include consultation with MNR.
- Areas of regarding and right-of-way naturalization will be re-vegetated with appropriate plant species and strategically placed tree pockets where feasible. Development of the re-vegetation plan and identification of areas for tree planting will be completed during detail design and in consultation with MNR.

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

This is a longer-term planning and preliminary design study. As such, the summary of impacts and commitments to future work detailed below is presented on an overview basis, and mitigation is conceptual and in line with industry best management practices. During future detail design studies prior to construction, the following (as stipulated in the 2013 Environmental Reference for Highway Design) will be required:

- Higher level project specifics with respect to location and assessment of environmental impacts;
- Detail design level mitigation;
- Follow-up including compliance level monitoring; and
- Assessment of residual effects.

A summary of the impacts associated with the Preferred Plan and initial mitigation and environmental protection measures and commitments to future work is provided in **Exhibit 8.13**.

## 8.6 Next Steps

If, after consulting with the Ministry's consultants and staff, a person has serious unresolved concerns, they have the right to request that the Minister of the Environment (MOE) "bump-up" (i.e. make a Part II Order for) this project. A Part II Order may lead to the preparation of an individual environmental assessment. A copy of the "bump-up" request should also be forwarded to MTO at the address below.

Minister of Environment  
11<sup>th</sup> Floor, Fergus Block  
77 Wellesley Street West  
Toronto, ON M7A 2T5

Mr. Dheera Kantiya, M.Eng., P.Eng.  
Senior Project Engineer  
Ministry of Transportation, Northeastern Region  
447 McKeown Avenue, 4<sup>th</sup> Floor  
North Bay, Ontario P1B 9S9

Ms. Brenda Jamieson, P. Eng.  
Consultant Project Manager  
AECOM  
300 Water Street  
Whitby, ON L1N 9J2

If there are no outstanding concerns upon completion of the 30-day public review period of the TESR, the project receives environmental clearance. The project may proceed for right-of-way designation and property acquisition.

The next steps in the Class Environmental Assessment process for Provincial Transportation Facilities are as follows:

- Detail Design, including the preparation of contract drawings and tender documents;
- Preparation of appropriate Class EA documentation such as a Design and Construction Report(s);
- Filing of the Class EA documentation for a 30-day public review period if appropriate;
- Construction; and
- Monitoring for environmental provisions and commitments.

**Exhibit 8.13: Impact Assessment and Environmental Mitigation and Protection Measures**

Factor/ Criteria Potentially Impacted	Impacts Associated with the Preferred Plan	Environmental Mitigation and Protection Measures	Commitments to Future Work
<b>Natural Environment</b>			
<b>Fish and fish habitat</b>	<ul style="list-style-type: none"> <li>- 21 crossings (14 evaluated sites, 7 sites un-evaluated due to access) with all 14 evaluated sites having potential to be direct and/or indirect fish habitat, 1 of which was identified as having high potential for aquatic Species At Risk (SAR)</li> </ul>	<ul style="list-style-type: none"> <li>- Design bridges and culverts to minimize impacts to watercourses and their banks and retain as much riparian vegetation as possible.</li> <li>- Provide natural channel form and substrates, and adequate fish passage.</li> <li>- Plant riparian vegetation upstream and downstream of watercourse crossings.</li> <li>- Develop erosion and sediment control and other measures to prevent entry of deleterious materials to watercourses.</li> </ul>	<ul style="list-style-type: none"> <li>- Undertake further fish assessments during the future detail design phase in accordance with the DFO/ MTO/ MNR Fisheries Protocol.</li> <li>- Submit appropriate risk forms to DFO per the Fisheries Protocol.</li> </ul>
<b>Vegetation, designated areas, wetlands and areas of wildlife habitat</b>	<ul style="list-style-type: none"> <li>- Approximately 295 ha of vegetation is displaced, including 18 ha of PSW, 34 ha of unevaluated wetland, 110 ha of deer wintering area and 185 ha of forest with 1 vegetative SAR present</li> </ul>	<ul style="list-style-type: none"> <li>- Protect significant trees and areas of vegetation to the extent possible.</li> <li>- Limit areas in which construction work and associated contractor staging areas are permitted to occur and disturb retained vegetation.</li> <li>- Schedule/constrain construction activities such as tree clearing/felling, structure removal/repair that may impact bird nesting to occur outside period during which disturbance is prohibited.</li> <li>- Design bridges and culverts to provide for wildlife passage, where appropriate and investigate additional opportunities to provide wildlife crossings during detail design.</li> <li>- Protect retained wildlife habitat areas from construction access and damage.</li> <li>- A permit under the Endangered Species Act will be obtained from the MNR prior to construction if required.</li> </ul>	<ul style="list-style-type: none"> <li>- Further identify and develop opportunities for vegetation and wetland protection during the future detail design phase.</li> <li>- Further identify and develop wildlife and wildlife habitat protection during the future detail design phase to support the development of specific mitigation measures.</li> <li>- Update SAR information and field investigations and obtain required permits if required.</li> </ul>
<b>Surface Water</b>	<ul style="list-style-type: none"> <li>- Potential impacts to water quality associated with highway runoff</li> </ul>	<ul style="list-style-type: none"> <li>- Develop a stormwater management plan in accordance with the standard MOE and MTO stormwater management criteria.</li> <li>- Implement erosion and sediment control measures to protect watercourses.</li> <li>- Obtain a Permit to Take Water if a diversion of surface water in excess of 50,000 litres per day is required.</li> </ul>	<ul style="list-style-type: none"> <li>- Develop a stormwater management plan and specific erosion and sediment control measures during the future detail design stage.</li> <li>- Obtain Permits to Take Water if required.</li> </ul>
<b>Groundwater/ Water Wells</b>	<ul style="list-style-type: none"> <li>- 4 water wells displaced and 16 within 150m of preferred plan</li> </ul>	<ul style="list-style-type: none"> <li>- Address well replacement as part of property negotiation, and monitor nearby wells for water quantity and quality prior to and during construction.</li> <li>- Respond to well complaints during construction.</li> <li>- Obtain a Permit to Take Water if the extraction of groundwater in excess of 50,000 litres per day is required.</li> </ul>	<ul style="list-style-type: none"> <li>- Undertake residential well water survey per MTO Guidelines to establish baseline conditions for wells in close proximity to the preferred plan to establish baseline conditions prior to construction.</li> <li>- Obtain Permits to Take Water if required.</li> </ul>

**Exhibit 8.13: Impact Assessment and Environmental Mitigation and Protection Measures**

Factor/ Criteria Potentially Impacted	Impacts Associated with the Preferred Plan	Environmental Mitigation and Protection Measures	Commitments to Future Work
<b>Socio-Economic/ Land Use</b>			
<b>Property Impacts, including residential, commercial, agricultural, recreational / tourist facilities, provincial parks</b>	<ul style="list-style-type: none"> <li>– 80 properties impacted</li> <li>– 33 buildings impacted, including 10 residential homes, 3 commercial/ industrial buildings, 7 agricultural structures, 8 secondary structures and 4 camping structures</li> <li>– Approximately 61 ha of Canada Land Inventory (CLI) Class 1, 2 and 3 soils displaced</li> <li>– Approximately 12 ha of provincial park land displaced</li> <li>– 4 trails crossed (canoe, snowmobile, pedestrian)</li> </ul>	<ul style="list-style-type: none"> <li>– Conduct discussions with impacted property owners, and acquire property, with negotiations carried out as the project proceeds into the detailed design phase.</li> <li>– Protect for access to and across the highway in accordance with MTO standards and EA commitments, including crossing road treatments as detailed on the Preliminary Design drawings.</li> <li>– For business areas impacted by changes to highway access, discuss (in consultation with municipality and local businesses) potential highway signing in accordance with Ministry policies.</li> </ul>	<ul style="list-style-type: none"> <li>– Upon approval of the Class EA, designate the preferred plan as a Future Controlled Access Highway.</li> <li>– Consult with affected landowners and business owners during the future detail design stage.</li> <li>– Undertake property acquisition prior to construction.</li> <li>– Comply with the MNR Class EA Provincial Parks and Conservation Reserves (Class EA PPCR) process to amend the park boundary to enable disposition of a portion of the park for the highway corridor.</li> </ul>
<b>Contaminated properties/ waste management</b>	<ul style="list-style-type: none"> <li>– Potentially contaminated land required</li> <li>– Surplus and waste materials generated from highway construction</li> </ul>	<ul style="list-style-type: none"> <li>– Complete Phase I and, if required Phase II Environmental Site Assessment (ESA) during detail design for all property required where potential for contamination has been identified</li> <li>– Manage surplus and waste materials according to applicable standards and statutory requirements</li> </ul>	<ul style="list-style-type: none"> <li>– Identify opportunities to minimize excess material generation through salvage and re-use during the future detail design stage.</li> <li>– Undertake Phase I and Phase II ESAs where required.</li> </ul>
<b>Noise</b>	<ul style="list-style-type: none"> <li>– Predicted increase in noise levels of greater than 5dBA at several noise receptor locations</li> <li>– Noise from construction equipment and vehicles during construction</li> </ul>	<ul style="list-style-type: none"> <li>– Noise mitigation was reviewed and is not economically feasible due to the isolated nature of the residences, except for one location.</li> <li>– Provide noise mitigation for receptor R18 subject to further exploration and examination during detail design once the horizontal and vertical alignment of the new highway has been developed in greater detail and the property acquisition process for this receptor is complete.</li> <li>– Require contractor to maintain equipment in an operating condition that prevents unnecessary noise and restrict idling of equipment to the minimum necessary to perform the specified work.</li> <li>– Adhere to applicable local By-laws. Where adherence to the local By-laws is not possible and mitigation is not feasible, an exemption should be obtained from the municipality before construction.</li> </ul>	<ul style="list-style-type: none"> <li>– Review noise mitigation recommendations during the future detail design stage and in consideration of the outcome of the property acquisition process.</li> <li>– Obtain noise by-law exemption from the municipality prior to construction if required.</li> </ul>

**Exhibit 8.13: Impact Assessment and Environmental Mitigation and Protection Measures**

Factor/ Criteria Potentially Impacted	Impacts Associated with the Preferred Plan	Environmental Mitigation and Protection Measures	Commitments to Future Work
<b>Air Quality</b>	<ul style="list-style-type: none"> <li>- Construction air quality issues</li> </ul>	<ul style="list-style-type: none"> <li>- Ensure the use of heavy equipment in good condition of maintenance and compliant with applicable federal regulations for off-road diesel engines.</li> <li>- Implement a Dust Control Plan.</li> </ul>	<ul style="list-style-type: none"> <li>- Develop an emission management plan based on established best practices for construction during the detail design stage.</li> </ul>
<b>Cultural Environment</b>			
<b>Archaeology</b>	<ul style="list-style-type: none"> <li>- Approximately 160 ha of land with archaeological potential affected</li> </ul>	<ul style="list-style-type: none"> <li>- Undertake Stage 2 and, if required Stage 3 archaeological assessment as identified during previous Stage 1 and 2 archaeology work; and as required to obtain Ministry of Tourism Culture and Sport clearance.</li> </ul>	<ul style="list-style-type: none"> <li>- Undertake Stage 2 and if required Stage 3 archaeological assessments prior to construction to assess lands required for the Preferred Plan where access was not available during Preliminary Design phase.</li> <li>- Should deeply buried archaeological remains be found during construction, the Ministry of Tourism Culture and Sport must be contacted.</li> <li>- In the event that human remains are encountered during construction, the proponent should immediately contact both the Ministry of Tourism Culture and Sport and the Registrar of Cemeteries.</li> </ul>