DILLON CONSULTING

MINISTRY OF TRANSPORTATION, ONTARIO

Transportation Environmental Study Report (Final)

Highway 401 Fraser Road Underpass
Preliminary Design and Class Environmental Assessment
GWP 4248-15-00

May 2020 | 18-8202

Public Record

This Preliminary Design and Class Environmental Assessment is being carried out as a Group 'B' undertaking following the Ministry of Transportation, Ontario (MTO) *Class Environmental Assessment (EA) for Provincial Transportation Facilities* (2000), which has been documented in this Transportation Environmental Study Report (TESR).

In order to support the economy and continue to protect the safety of the public, MTO will be posting all TESRs online only for public review during this time. Normally we identify publicly accessible locations where hard copies are made available for public review, but given the current situation, we will not be directing the public to such locations.

A copy of this document is available for review at www.401bridgeimprovements.com **July 8, 2020 and August 10, 2020.**

Ce document hautement spécialisé n'est disponible qu'en anglais en vertu du *Règlement 411/97*, qui exempte l'application de la Loi sur les services en français. Pour des renseignments en français, veuillez communiquer avec Sydney Tasfi au 1-888-345-5668, poste 1005.

Comments

Interested persons are encouraged to review this document and provide comments by **August 10, 2020** to any of the project team members identified at the addresses noted below. Information collected will be used in accordance with the *Freedom of Information and Protection of Privacy Act* and the *Access to Information Act*. With the exception of personal information, all comments will become part of the public record.

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If you have any accessibility requirements to participate in this study, please contact one of the individuals identified above.

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Executive Summary

The Ministry of Transportation, Ontario (MTO) retained Dillon Consulting Limited (Dillon) to complete the Preliminary Design and Class Environmental Assessment (EA) for the replacement of the Highway 401 Fraser Road Underpass in the Township of South Glengarry, United Counties of Stormont, Dundas and Glengarry. The project is classified as a Group "B" project under MTO's *Class EA for Provincial Transportation Facilities* (2000).

Replacement of the underpass is required due to the existing condition of the structure, deficient vertical clearance over Highway 401 and future plans to widen Highway 401. As part of the structure replacement, a long list of alternatives was developed, with the following alignment alternatives advanced and evaluated:

- Alternative 1 – Maintain Existing Alignment: Construct the new structure on the existing alignment (Online replacement), with traffic detoured off-site
- Alternative 2 – Shift Fraser Road Alignment (East or West): Construct the new structure on a new alignment of the existing structure (Offline replacement), with traffic maintained on the existing alignment during construction.

A comparative evaluation was undertaken to evaluate the alignment alternatives based on a number of factors, including traffic operations, bridge engineering, impacts to the natural environment, property requirements and cost. Based on the evaluation, the preferred alternative is an online replacement with a local road detour to manage local traffic during construction. Considering the volume of Fraser Road traffic is relatively low, the benefits of the online replacement alternative outweigh the impacts to traffic operations from detouring traffic off-site. The preferred alternative involves the following works:

- Replace the existing underpass along the existing horizontal alignment with a two-span slab-on-steel box girder structure with integral abutments
- Approach embankment profile grade raise to accommodate new top of deck height
- Embankment widening, pavement reconstruction, drainage improvements, replacement of curb and gutter and guide rail as required for the new structure and vertical alignment improvements.

Full closures of Fraser Road (up to two construction seasons) and Highway 401 (estimated up to four nightly closures) are required. Advanced notice of the roadway closures will be provided to affected stakeholders, including Emergency Service Providers. During the closure of Fraser Road, signed detour routes will be in place to direct local traffic. During the Highway 401 nightly closures, highway traffic will be directed to use existing Emergency Detour Routes, with use of police presence at key locations along the detour route. Full closures of Highway 401 will be scheduled during off-peak times to minimize traffic impacts. Lane reductions are also required on Highway 401 throughout construction; these will be minimized to the extent feasible.

Public and stakeholder feedback was encouraged throughout the study. In addition, an online Public Information Centre (PIC) was held from October 9, 2019, to October 25, 2019, to present the preferred alternative, including existing conditions, potential impacts and proposed mitigation measures. No comments were received through the online PIC and no major issues or concerns were raised during the study.

Overall, impacts of the project are expected to be minimal and temporary in duration if the mitigation measures recommended are implemented. Species at Risk (SAR) have potential habitat or seasonal occurrence in the Study Area, which will be assessed in more detail as part of a future Detail Design assignment when the extent of impacts is confirmed. There may be an opportunity to avoid these sensitive habitats once grading impacts are confirmed. Vegetation removal will be completed outside the migratory bird nesting window and the wildlife sensitivity window for bats to mitigate potential impacts. During Detail Design, the areas of impact should be confirmed and mitigation measures refined as needed to protect off-site features.

During the future Detail Design phase, consultation should continue with potentially impacted stakeholders, including local Municipalities, Emergency Service Providers and Bell Canada. Additional field investigations are recommended to further assess potential impacts to SAR and SAR habitat and a Stage 2 Archaeological Assessment may be required to assess potential impacts to undisturbed areas with archaeological potential.

1.0 Overview of the Undertaking

The Ministry of Transportation, Ontario (MTO) retained Dillon Consulting Limited (Dillon) to complete the Preliminary Design and Class Environmental Assessment (EA) for the replacement of the Highway 401 Fraser Road Underpass in the Township of South Glengarry, United Counties of Stormont, Dundas and Glengarry. The project is classified as a Group "B" project under MTO's *Class EA for Provincial Transportation Facilities* (2000).

1.1 Summary Description of the Undertaking

The Fraser Road Underpass is located approximately 4.2 km west of the community of Lancaster in the Township of South Glengarry, United Counties of Stormont, Dundas and Glengarry (**Figure 1**). Through the study it was confirmed replacement of the underpass is required due to the existing condition of the structure, deficient vertical clearance over Highway 401 and future plans to widen Highway 401.

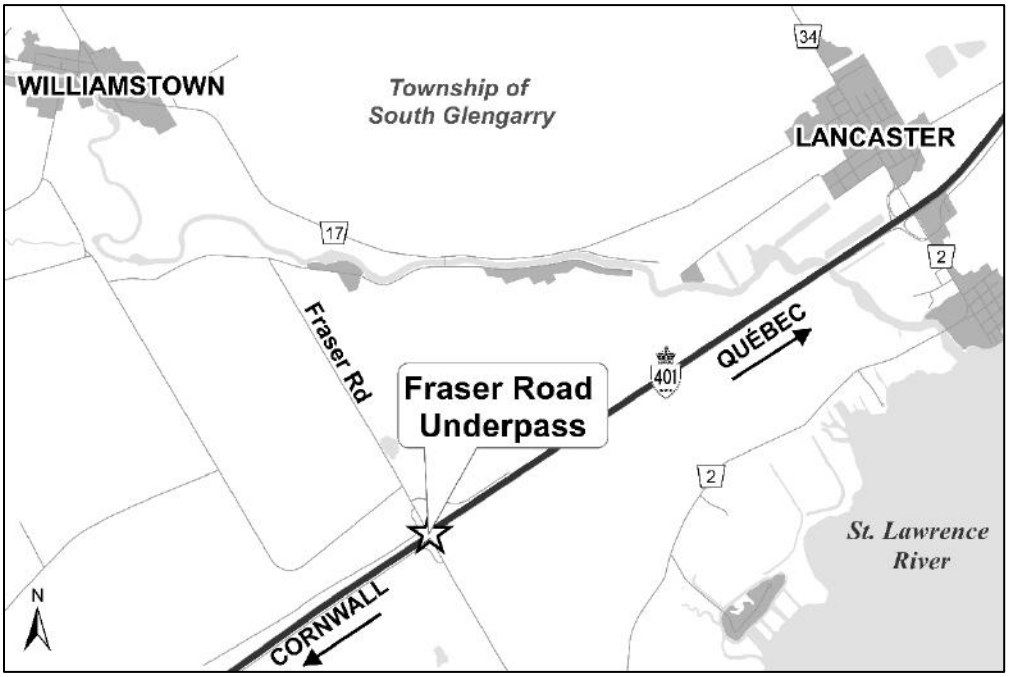

Figure 1: Study Area Location

The underpass was constructed in 1968 and is a 4-span prestressed concrete girder bridge with a total length of 89.62 m. The bridge carries two lanes of traffic over Highway 401. Records indicate the bridge was previously rehabilitated as follows:

- In 1975, the structure was waterproofed/paved and an expansion joint was installed
- In 1984, the asphalt and waterproofing system was replaced and new expansion joints were installed
- In 2009, the exterior girders were repaired after being struck by a vehicle.

The bridge is in fair condition overall but is approaching the end of its intended service life. It does not meet current design standards, including:

- Deficient vertical clearance above Highway 401 – previous damage has occurred to the structure and girders by high-load strikes from trucks
- Seismic (earthquake loading) design deficiencies
- Substandard bridge railing system, due to changes in the design requirements since construction.

In addition, the bridge approach embankments have settled over time due to a deep sensitive and compressible clay deposit. The bridge span configuration of the current structure also restricts future expansion of Highway 401 to six lanes.

1.2 Purpose of the Transportation Environmental Study Report

The purpose of the Preliminary Design and Class EA for the replacement of the Fraser Road Underpass is to develop the transportation plan to the design level of detail; including the generation and evaluation of Preliminary Design Alternatives, selection of the technically preferred Preliminary Design Alternative and development of preliminary environmental protection measures.

This Transportation Environmental Study Report (TESR) is prepared in accordance with the requirements of the MTO *Class EA for Provincial Transportation Facilities* (2000), which has been approved under the Ontario *EA Act*. The TESR documents the Preliminary Design elements of the transportation engineering requirements, consultation process, existing environmental constraints, alternatives to the undertaking, the technically preferred alternative, environmental protection measures and mitigation measures developed to address anticipated environmental impacts.

2.0 Environmental Assessment Process

The Class EA planning process in Ontario provides a streamlined process that allows individual projects or activities within a defined "group" to meet the requirements of the *EA Act*. Projects and activities within a group are generally ones that are recurring, carried out routinely and have predictable and mitigatable environmental effects. The word "environment" is broadly defined to include the cultural, natural, social and economic environments. When a project meets the requirements of the applicable Class EA document, the requirements of the *EA Act* are fulfilled. The requirements of the Class EA document must be met before the project can be implemented.

The MTO Class EA was approved under the *Ontario Environmental Assessment Act* (OEAA) in 2000. This planning process provides a streamlined approach that allows individual projects or activities within a defined "class" to meet the requirements of the OEAA, provided the Class EA is followed. The MTO Class EA document follows a principle-based approach and includes the following principles that must be addressed during the course of a study:

- Transportation Engineering Principles to confirm that the project meets current engineering design standards for the safe and efficient movement of people and goods across Ontario
- Environmental Protection Principles to protect or mitigate potential natural, socio-economic and cultural environmental impacts through the development of mitigation measures
- Consultation Principles to encourage meaningful engagement with stakeholders such as the public, agencies and Indigenous communities
- Evaluation Principles to provide an evaluation of alternatives that provides balance between engineering requirements and environmental protection that is open and transparent
- Documentation Principles providing an opportunity for stakeholders to review the design, potential impacts and proposed mitigation measures.

MTO's Class EA outlines the process to be followed for specific groups of Provincial transportation projects. The Class EA groups different types of projects for the purposes of consultation, documentation and formal EA challenge (Part II Order). MTO's Class EA identifies the projects with significant environmental impacts, including traffic impacts associated with off-site detours, as a Group 'B' project. Group 'B' projects include major improvements to existing transportation facilities. This type of project is approved under the *EA Act*, as long as it is planned and designed according to the requirements of the Class EA.

A TESR is prepared at the end of Preliminary Design to document the Class EA Study and is made available for a 30-day public and agency review period. Any agency or member of the public with unresolved concerns relating to the project may request that the Minister of the Environment, Conservation and Parks "bump-up" the project to an Individual EA (make a Part II Order), during the review period for the TESR.

2.1 Project-Specific Study Process

The Preliminary Design study for the Fraser Road Underpass Replacement is being completed as a Group 'B' Project (major improvements to existing facilities) following MTO's *Class EA for Provincial Transportation Facilities* (2000).

A summary of the Group 'B' study process and opportunities for public input is presented in **Figure 2**. The Notice of Study Commencement was published and sent in August 2019. Alternative road alignments and structure types were identified and evaluated through a comparative evaluation. An online Public Information Centre (PIC) was held on the project website from October 9, 2019, to October 25, 2019, to provide an opportunity to review and comment on the proposed underpass replacement, including traffic impacts and evaluation of alternatives. After the online PIC, the preliminary design, impact assessment and mitigation strategy were completed as documented in this report. As a Group 'B' project, this TESR was prepared to document the Class EA Study and will be made available for a 30-day public and agency review period. Future project phases include Detail Design and Construction.

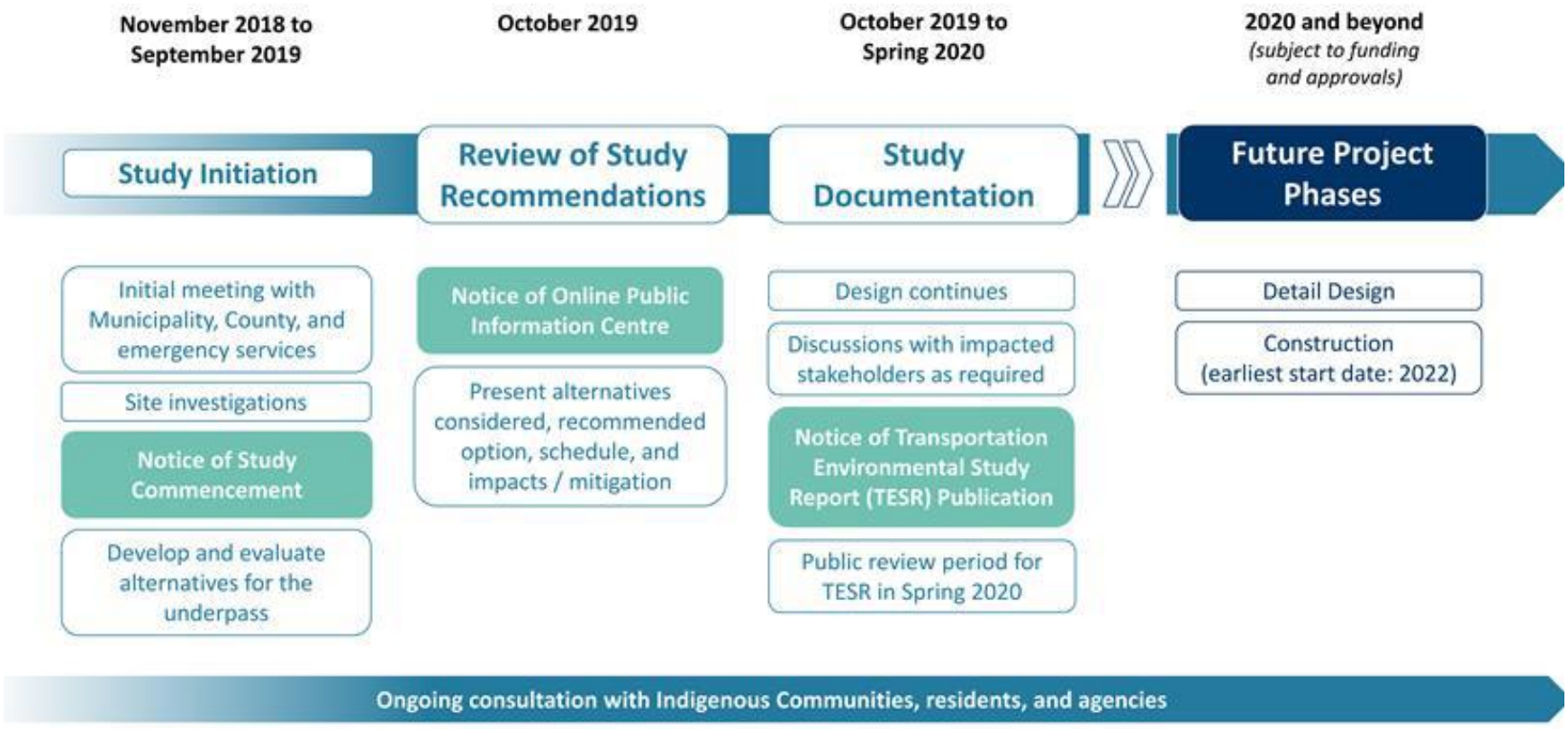

Figure 2: Study Process

2.2 Consultation Completed

This section summarizes the the agency, public and Indigenous consultation completed throughout the Preliminary Design phase. Input was considered by the project team and, where applicable, incorporated into the design.

Copies of consultation materials are summarized below and are included in **Appendix A**.

2.2.1 Project Contact List

The project contact list includes 81 contacts from the following groups:

- The local Member of Provincial Parliament (MPP)
- Provincial ministries
- The Township of South Glengarry
- United Counties of Stormont, Dundas and Glengarry
- Ontario Provincial Police
- Local emergency services (fire and emergency medical services)
- Raisin Region Conservation Authority (RRCA)
- Potentially interested Indigenous communities (identified by MTO)
- Local school boards
- Student transportation services
- Agriculture, trucking and snowmobile associations
- Other local agencies and businesses
- Local property owners.

The contact list was updated throughout the project based on feedback received, with additional parties who submitted comments or requested to be kept informed of the project added.

2.2.2 Project Website and Email Address

A project website and a project-specific email address were developed during the Preliminary Design phase. The website features an overview of the study, information on the Class EA process, a copy of the PIC materials, this TESR and copies of projects notices. Web materials were updated throughout the study. The website is www.401bridgeimprovements.com and the email address is FraserRoadUnderpass@dillon.ca.

2.2.3 Notice of Study Commencement

The Notice of Study Commencement was prepared to introduce the project, provide information on the Preliminary Design and Class EA process and provided project team contact details and the project website address. The Notice of Study Commencement was distributed as follows:

- A package containing a cover letter, the Notice and a comment form was sent to the local MPP and Indigenous communities by MTO on August 9, 2019, and August 12, 2019, respectively

- The Notice was sent to the project contact list during the week of August 12, 2019
- The Notice was posted to the project website on August 14, 2019
- The Notice was published in the Glengarry News (English) and the Cornwall Express (French) on August 14, 2019
- The Notice was distributed via Canada Post Admail to approximately 507 properties along Fraser Road and within the area of the proposed detour routes on August 23, 2019.

Five comments were received in response to the Notice of Study Commencement. **Table 1** summarizes the comments received and project team responses. Two comments were received from Indigenous communities; these are described in **Section 2.2.6**.

Table 1: Public and Agency Comments Received

Contact	Comments	Project Team Response
Agencies		
Mary Dillon, District Planner Ministry of Natural Resources and Forestry (MNRF) 10-1 Campus Drive Kemptville, Ontario, K0G 1J0 613-258-8470 Mary.dillon@ontario.ca	Advised where natural heritage and Species at Risk data can be found.	No response required.
Kimberly Livingstone, Heritage Planner (A) Ministry of Heritage, Sport, Tourism and Culture Industries 401 Bay Street, Suite 1700 Toronto, Ontario, M7A 0A7 kimberly.livingstone@ontario.ca	It is the proponent's responsibility to determine the project's potential impact on cultural heritage resources.	No response required.
Members of the Public (Contact Information Redacted for Privacy Purposes)		
Member of the Public	Consideration should be given to adding Highway 401 westbound and eastbound on-ramps at Fraser Road.	The purpose of this study is to consider options for replacing the Fraser Road Underpass. Adding additional ramps to access Highway 401 is not warranted.

2.2.4 Public Information Centre

An online PIC was held on the project website from October 9, 2019, to October 25, 2019. Information panels were posted to the website and participants were invited to review the materials and provide questions/comments using the comment form on the website.

The Notice of Online PIC was distributed as follows:

- A package containing a cover letter and the Notice was sent to the local MPP and Indigenous communities by MTO on October 2, 2019, and October 7, 2019, respectively

- The Notice was distributed via Canada Post Admail to the same area as the Notice of Study Commencement on October 4, 2019
- The Notice was sent to the project contact list during the week of October 7, 2019
- The Notice was posted to the project website on October 9, 2019
- The Notice was published in the October 9, 2019, editions of the Glengarry News (English) and the Cornwall Express (French)
- The Township of South Glengarry advertised the online PIC on their website on October 9, 2019.

To date, no comments have been received in response to the online PIC. Reports of website activity indicate the project webpage received 24 unique views between October 9, 2019, and October 24, 2019.

2.2.5 Municipal and Emergency Service Providers Meeting

The project team invited the local Municipalities and Emergency Service Providers to a meeting to discuss the project, traffic staging impacts (Highway 401 and Fraser Road closures and associated detours) and address any potential concerns. On June 7, 2019, key members of the project team met with the following municipal and Emergency Services representatives:

- General Manager of Infrastructure, Township of South Glengarry
- Fire Chief, Township of South Glengarry
- Director of Transportation and Planning Services, United Counties of Stormont, Dundas and Glengarry.

No specific concerns were noted. The Fire Chief confirmed that they will make arrangements to alter their emergency response routes during construction. The final contract package will include EMS and Stakeholder Notification requirements for the Contractor to advise of the construction schedule and planned closures.

On March 9, 2020, a follow up email was sent to the Chief and Deputy Chief of the Cornwall Stormont Dundas and Glengarry Paramedic Services and the Township of South Glengarry Fire Chief to identify the potential for impacts to emergency response access to Lapierre Road and Raisin River Road during construction. Approximately eight residences are located on Lapierre Road, with agricultural properties and an inactive campground owned by the St. Lawrence Parks Commission located on Raisin River Road. In the rare event that a train blocks the CN Rail crossing to the north while the bridge is closed, access to these roads will be eliminated. While there is a low potential of this occurring, this scenario would impact response times by Emergency Service Providers. The team has committed to additional consultation with the local Emergency Service Providers during the Detail Design phase to assist with the development of a suitable emergency response plan during construction in case an emergency occurs while access is blocked.

Council support is to be sought during the Detail Design phase for the closure of Fraser Road, speed reduction to 60 km/h and general support from both levels of government.

2.2.6 Indigenous Communities

The following Indigenous communities were identified by MTO and included in the contact list. Project Notices were issued by MTO:

- Métis Nation of Ontario
- Algonquins of Pikwàkanagàn
- Algonquins of Ontario
- Mohawk Council of Akwesasne (MCA)
- Alderville First Nation
- Curve Lake First Nation
- Hiawatha First Nation
- Mississaugas of Scugog Island First Nation
- Mohawks of the Bay of Quinte
- Shabot Obaadjiwan
- Williams Treaty First Nation.

Mississaugas of Scugog Island First Nation indicated they have no comments but would like to be kept informed about the project. Alderville First Nation indicated they would not be commenting on the project because the location is not within their treaty area. Alderville First Nation was subsequently removed from the project contact list.

On September 17, 2019, members of the project team met on-site with a representative from the MCA to discuss the project. MCA requested vegetation species harvestable by MCA be planted to revegetate the area disturbed by construction and inquired about Barn Swallow observations. The project team indicated harvesting of vegetation by MCA would likely not be possible due to safety reasons with the Highway 401 ROW, confirmed no Barn Swallows or evidence of nesting were observed and noted standard mitigation measures would be implemented for migratory birds. There were no outstanding concerns.

2.2.7 Additional Consultation

Targeted consultation via telephone with local stakeholders was undertaken in August 2019 and September 2019, to understand potential impacts to cycling, snowmobile trails, agricultural operations and the Cornwall Regional Airport.

The Township of South Glengarry confirmed Fraser Road is not currently a local cycling route. Fraser Road is also not part of the provincial cycling network. The Upper Canada Snowmobile association confirmed Fraser Road is not a snowmobile trail, nor are there any snowmobile trails in the area. The Ontario Federation of Agriculture confirmed local farmers and agricultural associations have not raised concerns regarding the project. Cornwall Regional Airport confirmed they have no restrictions or concerns about the project due to the distance between the underpass and the airport.

Agricultural land ownership on the north and south sides of Highway 401 surrounding the Study Area was reviewed to identify agricultural operations that would be directly impacted by full closure of the Fraser Road Underpass. It was determined one party in the area owns agricultural property on both sides of Highway 401. The landowner was contacted via telephone in February 2020, to discuss the project. No concerns were raised about the proposed closure of Fraser Road, nor the associated detour route.

3.0 Transportation Needs Assessment

3.1 Problem and Opportunity

The Fraser Road Underpass is in fair condition and requires rehabilitation or replacement. Replacing the structure also provides the opportunity to address the following design elements that do not meet current design standards:

- Deficient vertical clearance above Highway 401 – previous damage has occurred to the structure and girders by high-load strikes from trucks
- Seismic (earthquake loading) design deficiencies
- Substandard bridge railing system, due to changes in the design requirements since construction.

In addition, the bridge approach embankments have settled over time due to a deep sensitive and compressible clay deposit. The bridge span configuration of the current structure also restricts future expansion of Highway 401 to six lanes.

There is an opportunity to address both the existing condition of the bridge and the above noted deficiencies by replacing the structure.

3.2 Alternatives to the Undertaking

'Alternatives to' the undertaking are defined as different ways to solve the identified problems or address the opportunities. Three 'Alternatives to' were reviewed and evaluated:

- Do Nothing
- Rehabilitate the Fraser Road Underpass
- Replace the Fraser Road Underpass.

The Do Nothing alternative involves neither rehabilitating nor replacing the bridge. This option was screened out from further consideration as it does not address the project needs and the underpass is reaching the end of its service life.

Rehabilitating the structure would involve repairing the existing underpass to extend the service life of the bridge. This alternative was screened out from further consideration as it does not fully address the project needs, has a deficient vertical clearance from Highway 401 and would not accommodate future widening of Highway 401.

Replacing the structure was carried forward for further evaluation because it is the only alternative that fully addresses the project needs and deficiencies. A number of alternatives for the bridge replacement were developed, as described in **Section 4.2**. Three alternative horizontal road alignments were considered, with different impacts on staging and maintaining access across Fraser Road during construction. Five alternative structure types were considered.

4.0 Preliminary Design

4.1 Description of Study Area Constraints

This section provides an overview of the existing conditions and potential constraints to the proposed improvements in the Study Area. Existing conditions related to Highway and Structure condition are fully detailed in the Preliminary Design Report. Relevant details have been included in this TESR to inform the evaluation of alternatives and identification of impacts. The Fraser Road Underpass is shown in **Photo 1**. The Study Area is shown in **Figure 3**.

4.1.1 Highway and Traffic Engineering

Highway 401 has an Average Annual Daily Traffic (AADT) and Summer Average Daily Traffic (SADT) count of 19,100 vehicles and 23,300 vehicles, respectively, at Fraser Road (2016 count). Fraser Road had a total daily traffic volume at the structure of 148 vehicles (October 3, 2018 count).

Photo 1: Fraser Road Underpass

There are three roads that intersect Fraser Road within the study area. These roads include and are described as follows:

- Airport Road: A two lane gravel roadway located approximately 185 m south of existing structure
- Lapierre Road: A two lane gravel roadway with a dead end, with eight residential dwellings, located approximately 170 m north of the existing structure
- Raisin River Road: A private two lane gravel roadway used for accessing park lands, located approximately 240 m north of the existing structure.

There is an existing rail crossing owned by CN Rail approximately 300 m north of the existing underpass.

4.1.2 Utilities

The known utilities within the Study Area include an underground Bell Canada fibre optic line and aerial hydroelectric lines. The Bell Canada National fibre optic line is located along the south side of Highway 401 beneath the existing underpass approach embankment. The aerial hydroelectric lines are located near Airport Road at the south limit of the Study Area and near the Canadian National Rail tracks near the north limit.

4.1.3 Drainage and Hydrology

The Fraser Road Underpass and surrounding lands are located within the Upper St. Lawrence – Raisin watershed, which is managed by the RRCA. Within the Study Area, Fraser Road is a high point, with overland flow draining to the east and the west of the road. Flows to both sides of Fraser Road are conveyed through drainage systems that flow south to the St. Lawrence River. In general, soils in the study area have poor drainage and high moisture content.

Ontario

MINISTRY OF TRANSPORTATION, ONTARIO

HIGHWAY 401 AT FRASER ROAD
UNDERPASS REPLACEMENT
GWP 4248-15-00, SITE 31-230

STUDY AREA

FIGURE 3

STUDY AREA

RAILWAY

ROADS

0 50 100 Meters

N W E S

MAP DRAWING INFORMATION:

DATA PROVIDED BY: ESRI, MNRF, MTO

MAP PROJECTION: NAD 1983 MTM 8

SCALE 1:3,000

DILLON CONSULTING

PROJECT: 188202

DATE: 2020-03-16

MAP CREATED BY: 44PH
MAP CHECKED BY: 30CE

4.1.4 Cultural Resources

4.1.4.1 Built Heritage

The Ministry of Heritage, Sport, Tourism and Culture Industries (MHSTCI) has prepared a Checklist that outlines the Criteria for Evaluating Potential for Built Heritage Resources and Cultural Heritage Landscapes. This checklist was completed by Dillon staff to identify whether or not the Study Area has potential to contain built heritage resources or cultural heritage landscapes (**Appendix B**). Information received from consultation with the Township of South Glengarry, MHSTCI and the Ontario Heritage Trust, indicates there is low potential for built heritage or cultural heritage landscape in the Study Area.

While the Fraser Road Underpass is greater than 40 years old (constructed in 1968), it is a highly common structure type and therefore has low heritage potential. There are no other structures being removed or altered as part of this study.

4.1.4.2 Archaeology

A Stage 1 Archaeological Assessment was completed by Archaeological Services Inc. (ASI) in November 2018. The report was entered into the Ontario Public Register of Archaeological Reports in October 2019. The property inspection determined portions of the Study Area exhibit archaeological potential (**Figure 4**). Areas of archaeological potential are near and beyond the existing toe of slopes of the Fraser Road approach embankments and have potential for impact.

4.1.5 Natural Environment

The following sections summarize the existing natural environment conditions and constraints to the proposed improvements.

4.1.5.1 Source Water Protection

The Study Area is located in the Raisin Region Source Protection Area. The *Raisin-South Nation Source Protection Region Source Protection Plan* (2016) outlines policies to protect drinking water sources in the area. According to the Plan, the Study Area is not located within a vulnerable area for drinking water sources.

4.1.5.2 Fish and Fish Habitat

The Ministry of Natural Resources and Forestry (MNRF) identified an unnamed warmwater stream/drain within the southern portion of the study area, approximately 450 m south of the southern abutment of the Fraser Road Underpass. The watercourse was not assessed as part of this study as there are no proposed improvements to the associated culvert and impacts to the watercourse are not anticipated.

4.1.5.3 Terrestrial Ecosystem

Field verification of terrestrial natural resources was completed for the Study Area and is documented in the Terrestrial Ecosystem Impact Assessment Report (March 2020) (**Appendix C**). The terrestrial investigations included the following:

- Ecological Land Classification (ELC) of vegetation communities and a concurrent vegetation survey
- Migratory bird nest search
- Bat habitat surveys
- Observation of incidental wildlife and wildlife habitat encountered in the field
- Observation of sensitive/rare species, Species at Risk (SAR) and/or associated habitat encountered in the field.

Dillon terrestrial biologists completed field investigations on October 3, 2018, and June 27, 2019, when weather conditions and timing were deemed suitable based on the survey protocols being implemented. The Study Area contains a mix of agricultural fields, swamps, meadows, thickets and deciduous forests (**Figure 5**). The following sections summarize our findings.

Ecological Corridors and Linkages

Wildlife movement between natural areas in proximity to the Study Area is likely; however, movements are restricted by Highway 401 and Fraser Road. Wetland features within and on adjacent lands to the east of the Study Area are ecologically connected to natural features in the greater landscape area, including Charlottenburgh Marsh and Cooper Marsh Conservation Area, which are located approximately 1.5 km to the east. These natural features form part of a broader natural heritage system with ecological corridors that connect the St. Lawrence River and Ottawa River Valleys.

Vegetation Survey

A total of 45 botanical species were identified within the Study Area. None of the vegetation communities documented in the Study Area are considered rare in Ontario. No SAR or Species of Conservation Concern (SCC) botanical species were observed.

Wildlife and Wildlife Habitat

There is candidate Significant Wildlife Habitat (SWH) associated with the forests and swamps within the Study Area, as shown on **Figure 6**. Field investigations to evaluate the significance of candidate SWH have not been completed and as such, it will be assumed that these habitats are significant.

The Fraser Road Underpass and the vegetation within the Study Area were searched for migratory bird nests during the field investigations in 2018 and 2019. Two Eastern Phoebe (*Sayornis phoebe*) nests (both inactive) were observed on the underside of the south side of the Fraser Road Underpass.

Ontario

MINISTRY OF TRANSPORTATION, ONTARIO

HIGHWAY 401 AT FRASER ROAD
UNDERPASS REPLACEMENT
GWP 4248-15-00, SITE 31-230

STAGE 1 ARCHAEOLOGICAL ASSESSMENT RESULTS

FIGURE 4

- STUDY AREA*
- IMPACTED AREA
- DISTURBED - NO POTENTIAL*
- LOW AND WET - NO POTENTIAL*
- PEDESTRIAN SURVEY REQUIRED*
- TEST PIT SURVEY REQUIRED*

0 50 100 Meters

N W E S

MAP DRAWING INFORMATION:

DATA PROVIDED BY: ESRI, MNRF, MTO
* DATA IS FROM ASI (2019)

MAP PROJECTION: NAD 1983 MTM 8

SCALE 1:3,000

DILLON CONSULTING

PROJECT: 188202

DATE: 2020-03-16

MAP CREATED BY: 44PH
MAP CHECKED BY: 10GJH

Ontario

MINISTRY OF TRANSPORTATION, ONTARIO

HIGHWAY 401 AT FRASER ROAD
UNDERPASS REPLACEMENT
GWP 4248-15-00, SITE 31-230

SITE INVESTIGATION RESULTS

FIGURE 5

STUDY AREA

IMPACTED AREA

WATERCOURSE (MNRF, 2019)

ECOLOGICAL LAND CLASSIFICATION

1. CGL: GREENLANDS
2. CVI_1: TRANSPORTATION
3. CVR: RESIDENTIAL
4. FOCM6: NATURALIZED CONIFEROUS PLANTATION
5. FOD: DECIDUOUS FOREST
6. FODM3: DRY - FRESH POPLAR - WHITE BIRCH DECIDUOUS FOREST
7. MEF: FORB MEADOW
8. MEM: MIXED MEADOW
9. OAGM1: ANNUAL ROW CROPS
10. OAGM2: PERENNIAL COVER CROPS
11. SWD: DECIDUOUS SWAMP
12. TH: THICKET
13. THD: DECIDUOUS THICKET

0 50 100 Meters

N W E S

MAP DRAWING INFORMATION:

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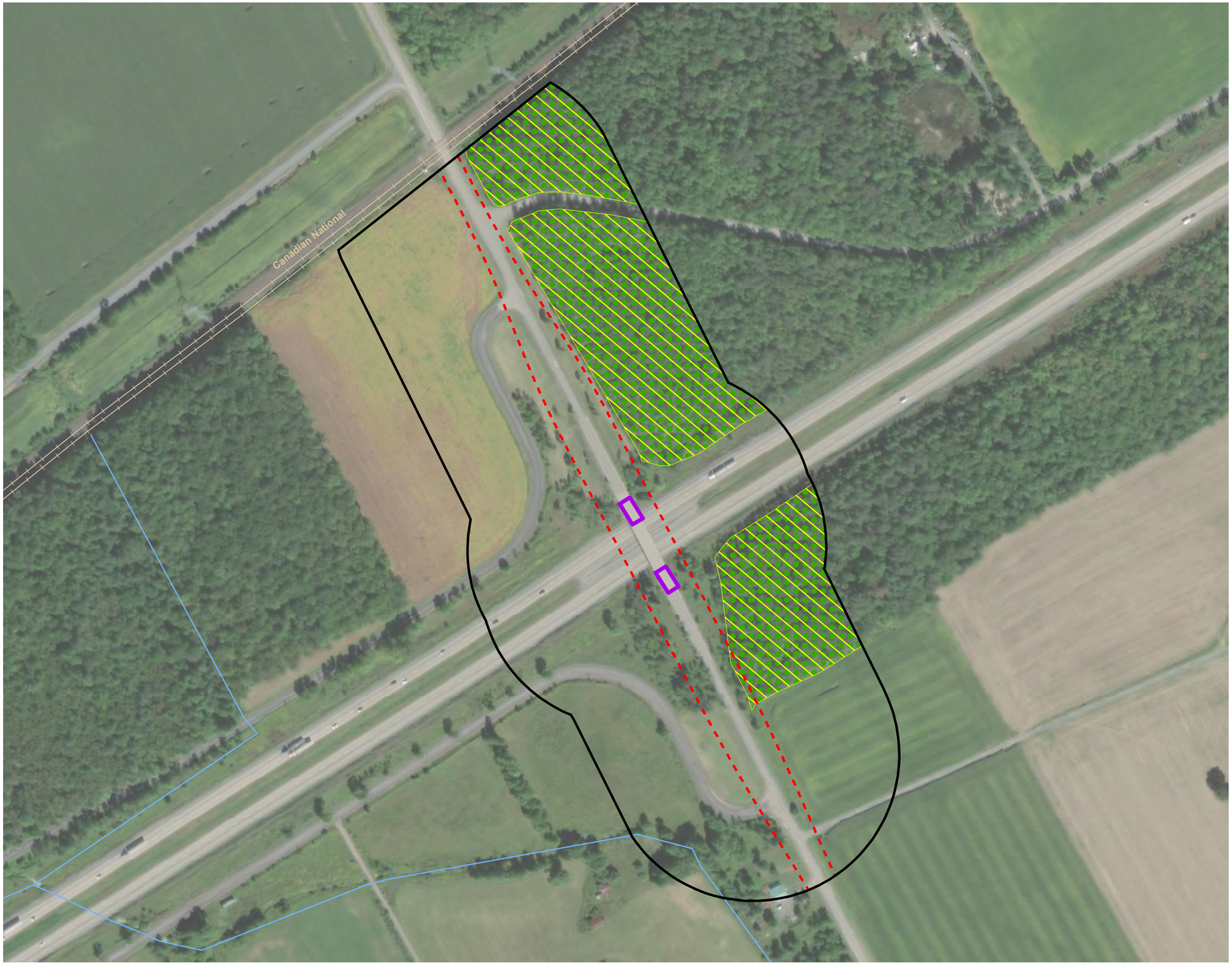
MAP CREATED BY: 44PH
MAP CHECKED BY: 30CE



Ontario

MINISTRY OF TRANSPORTATION, ONTARIO

HIGHWAY 401 AT FRASER ROAD
UNDERPASS REPLACEMENT
GWP 4248-15-00, SITE 31-230

SIGNIFICANT NATURAL FEATURES

FIGURE 6

- STUDY AREA
- IMPACTED AREA
- WATERCOURSE (MNRF, 2019)
- CANDIDATE SAR BAT HABITAT AND CANDIDATE SIGNIFICANT WILDLIFE HABITAT FOR BAT MATERNITY COLONIES
- CANDIDATE SIGNIFICANT WILDLIFE HABITAT FOR AMPHIBIAN BREEDING HABITAT
- CANDIDATE SAR BAT HABITAT

0 50 100 Meters

N W E S

MAP DRAWING INFORMATION:

DATA PROVIDED BY: ESRI, MNRF, MTO

MAP PROJECTION: NAD 1983 MTM 8

SCALE 1:3,000

DILLON CONSULTING

PROJECT: 188202

DATE: 2020-03-16

MAP CREATED BY: 44PH
MAP CHECKED BY: 30CE

Bat habitat surveys were conducted within the Study Area to determine the presence/absence and location of suitable bat roosting trees as well as structures that could support and/or had evidence of bat roosting. A number of potentially suitable bat habitat trees were observed within the Study Area, specifically the woodland areas on the east side of Fraser Road. Visual inspection of the bridge and abutments was also completed during field investigations. Bat guano was observed on the underside of the north and south abutments in association with cracks and crevices suitable for bat roosting habitat.

During the field investigations, incidental wildlife observations were noted in the Study Area. In total, six species of bird and two herptile species were observed during the field investigations. All species observed are considered common in Ontario; no SAR or SCC were observed within the Study Area.

Species at Risk

Based on historical records and suitability of habitat, 21 SAR were identified as having potential habitat within the Study Area (**Table 2**). Of the 21 SAR identified, only Barn Swallow and SAR bats have the potential to be impacted by the project, based on the Preliminary Design. Potential habitat for SAR bats includes the underpass structure and trees within the forest communities on the east side of Fraser Road. The underpass may also serve as suitable nesting habitat for Barn Swallows in future breeding bird seasons. No SAR or evidence of nesting was observed during terrestrial field investigations. Potential impacts to SAR that may be present in suitable habitats within the Study Area should be confirmed during Detail Design.

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Table 2: Species at Risk and Species of Conservation Concern

Species		SARA[1]	ESA[2]	S-Rank[3]	Information Source[4]	Observed during field studies	Habitat Requirements[5,6,7,8]	Potential Habitat in the Study Area	Rationale for Potential to Occur	Will Species and/or Habitat be Impacted by the Project
Scientific Name	Common Name									
VASCULAR PLANTS										
Aplectrum hyemale	Puttyroot	---	---	S2	MNRF, NHIC	No	Moist, shaded forests with enriched humus.	No	Small forests were found to occur within the Study Area; however they lack suitable canopy coverage to support this species.	No. Suitable habitat is not found within the Study Area.
Cypripedium arietinum	Ram's-head Lady's-slipper	---	---	S3	MNRF	No	Occurs in a variety of habitats including, cold sphagnum, Tamarack, Cedar swamps, bogs, coniferous forest and wooded rocky slopes.	No	Swamps with Tamarack or Cedar and coniferous forest were not found to occur within the Study Area.	No. Suitable habitat is not found within the Study Area.
Juglans cinerea	Butternut	END	END	S3?	MNRF	No	Typically found in deciduous forests along open streams and/or riparian areas, fence lines or in open fields. This species is intolerant of shade.	No	Suitable habitat exists within the deciduous forests along a watercourse within the Study Area, however, Butternut was not observed during field investigations.	No. Species was not observed during field investigations.
Panax quinquefolius	American Ginseng	END	END	S2	MNRF	No	In Ontario, American Ginseng typically grows in rich, moist, but well-drained and relatively mature, deciduous woods dominated by Sugar Maple (*Acer saccharum*), White Ash (*Fraxinus americana*) and American Basswood (*Tilia americana*). It usually grows in deep, nutrient rich soil over limestone or marble bedrock.	No	Mature forests dominated by Sugar Maple, White Ash and American Basswood do not occur within the Study Area.	No. Suitable habitat is not found within the Study Area.
Persicaria arifolia	Halberd-leaved Smartweed	---	---	S3	MNRF, NHIC	No	Grows in anthropogenic (man-made or disturbed habitats), marshes, shores of rivers or lakes, swamps and wetland margins.	No	Swamps may provide suitable habitat. However, this species was not observed during field investigations.	No. Suitable habitat is not found within the Study Area.

Species		SARA[1]	ESA[2]	S-Rank[3]	Information Source[4]	Observed during field studies	Habitat Requirements[5,6,7,8]	Potential Habitat in the Study Area	Rationale for Potential to Occur	Will Species and/or Habitat be Impacted by the Project
Scientific Name	Common Name									
BIRDS										
Ammodramus henslowii	Henslow's Sparrow	END	END	SHB	MNRF	No	Large, fallow, grassy area with ground mat of dead vegetation, dense herbaceous vegetation, ground litter and some song perches; neglected weedy fields; wet meadows; cultivated uplands; a moderate amount of moisture needed; requires a minimum tract of grassland of 40 ha, but usually in areas >100 ha.	No	Grasslands do not occur within the Study Area.	No. Suitable habitat is not found within the Study Area.
Ammodramus savannarum	Grasshopper Sparrow	---	SC	S4B	OBBA	No	Well-drained grassland or prairie with low cover of grasses, taller weeds on sandy soil; hayfields or weedy fallow fields; uplands with ground vegetation of various densities; perches for singing; requires tracts of grassland > 10 ha.	No	Hayfields are present within and adjacent to the Study Area, however they are not of sufficient size to support this species.	No. Suitable habitat is not found within the Study Area.
Ardea alba	Great Egret	---	---	S2B	MNRF	No	Open swamp woods or willow thickets, offshore islands, mudflats for feeding; nests in standing trees in open water, thickets, sometimes low vegetation on islands or in rookeries of other herons and egrets.	No	Swamps within the Study Area were not found to contain open habitat suitable for this species.	No. Suitable habitat is not found within the Study Area.
Caprimulgus vociferus	Eastern Whip-poor-will	THR	THR	S4B	MNRF	No	Typically found in areas with a mix of open and forested area, such as savannahs, open woodlands or openings in more mature, deciduous, coniferous and mixed forests.	No	The deciduous forests within the Study Area do not provide suitable open woodland areas for this species.	No. Suitable habitat is not found within the Study Area.
Cardellina canadensis	Canada Warbler	THR	SC	S4B	MNRF, OBBA	No	Found in deciduous, coniferous and mixed forests with a well-developed shrub layer and structurally complex forest floor. Most commonly found in moist, mixed forests.	No	Suitable forests with a well-developed shrub layer were not found within the Study Area.	No. Suitable habitat is not found within the Study Area.
Chaetura pelagica	Chimney Swift	THR	THR	S4B	MNRF	No	Typically found in and around urban settlements where they nest and roost in chimney and other manmade structures.	No	Manmade structures suitable for nesting were not observed within the Study Area.	No. Suitable habitat is not found within the Study Area.
Chlidonias niger	Black Tern	---	SC	S3B	MNRF, OBBA	No	Wetlands, coastal or inland marshes; large cattail marshes, marshy edges of rivers, lakes or ponds, wet open fens, wet meadows; returns to same area to nest each year in loose colonies; must have	No	Wetlands of sufficient sizes were not found within the Study Area.	No. Suitable habitat is not found within the Study Area.

Species		SARA[1]	ESA[2]	S-Rank[3]	Information Source[4]	Observed during field studies	Habitat Requirements[5,6,7,8]	Potential Habitat in the Study Area	Rationale for Potential to Occur	Will Species and/or Habitat be Impacted by the Project
Scientific Name	Common Name									
							shallow (0.5 to 1 m deep) water and areas of open water near nests; requires marshes >20 ha in size; feeds over adjacent grasslands for insects; also feeds on fish, crayfish and frogs.			
Chordeiles minor	Common Nighthawk	THR	SC	S4B	MNRF	No	Open ground; clearings in dense forests; ploughed fields; gravel beaches or barren areas with rocky soils; open woodlands; flat gravel roofs.	No	Dense forests with clearings or barren areas were not found to occur within the Study Area.	No. Suitable habitat is not found within the Study Area.
Coccothraustes vespertinus	Evening Grosbeak	---	SC	S4B	MNRF	No	Generally found in open, mature mixed-wood forests dominated by fir species, White Spruce and/or Trembling Aspen. Its abundance is strongly linked to the cycle of its primary prey, the Spruce Budworm. Outside the breeding season, the species depends mostly on seed crops from tree species in the boreal forest such as firs and spruces. It is also attracted to ornamental trees that have seeds or fruit and may visit bird feeders.	No	Mature mixed forests were not found to occur within or adjacent to the Study Area.	No. Suitable habitat is not found within the Study Area.
Contopus cooperi	Olive-sided Flycatcher	THR	SC	S4B	MNRF	No	Semi-open, conifer forest, prefers spruce; near pond, lake or river; treed wetlands for nesting; burns with dead trees for perching	No	Coniferous forests were not found to occur within the Study Area.	No. Suitable habitat is not found within the Study Area
Contopus virens	Eastern Wood-pewee	---	SC	S4B	MNRF, OBBA	No	Lives in the mid-canopy layer of forest clearings and edges of deciduous and mixed forests. It is most abundant in intermediate-age mature forest stands with little understory vegetation.	Yes	Deciduous forests within the Study Area may provide suitable habitat for this species.	Potential for impacts to the species if present in the area. Minimal potential for impact if mitigation measures are implemented.
Coturnicops noveboracensis	Yellow Rail	SC	SC	S4B	MNRF	No	Large, freshwater or brackish grass and sedge marshes with dense vegetation including bulrushes, horsetails, grasses; loss of wintering habitat and southern wetlands is limiting to this species.	No	Large marshes were not found to occur within the Study Area.	No. Suitable habitat is not found within the Study Area

Species		SARA[1]	ESA[2]	S-Rank[3]	Information Source[4]	Observed during field studies	Habitat Requirements[5,6,7,8]	Potential Habitat in the Study Area	Rationale for Potential to Occur	Will Species and/or Habitat be Impacted by the Project
Scientific Name	Common Name									
Dolichonyx oryzivorus	Bobolink	THR	THR	S4B	MNRF, OBBA	No	Found in large, open expansive grasslands with dense ground cover; hayfields, meadows or fallow fields; marshes; generally requires tracts of grassland >50 ha.	No	Meadows and hayfields exist within the Study Area. However, based on the regular maintenance observed the fields, these are not considered suitable habitat.	No. Suitable habitat is not found within the Study Area.
Euphagus carolinus	Rusty Blackbird	SC	SC	S4B	MNRF	No	Breeds in habitats that are dominated by coniferous forest with wetlands nearby including bogs, marshes and beaver ponds. During the winter, it is found in wet woodlands, swamps and pond edges and often forages in agricultural lands.	No	Coniferous forests were not found to occur within the Study Area.	No. Suitable habitat is not found within the Study Area.
Haliaeetus leucocephalus	Bald Eagle	---	SC	S2N,S4B	MNRF	No	Require large continuous area of deciduous or mixed woods around large lakes, rivers; require area of 255 ha for nesting, shelter, feeding, roosting; prefer open woods with 30 to 50% canopy cover; nest in tall trees 50 to 200 km from shore; require tall, dead, partially dead trees within 400 m of nest for perching; sensitive to toxic chemicals.	No	Large continuous deciduous or mixed forests were not found to occur within the Study Area. Tall dead or dying trees ideal for Bald Eagle nesting were not observed.	No. Suitable habitat is not found within the Study Area
Hirundo rustica	Barn Swallow	THR	THR	S4B	MNRF, OBBA	No	Barn swallow often live in close association with humans, building their cup-shaped mud nests almost exclusively on human-made structures such as open barns, under bridges and in culverts. The species is attracted to open structures that include ledges where they can build their nests, which are often re-used from year to year. They prefer unpainted, rough-cut wood, since the mud does not adhere as well to smooth surfaces.	Yes	The underside of the Fraser Road underpass may be utilized by this species for nesting; however, no Barn Swallow nests or individuals were observed during field investigations.	There is the potential for this species to utilize the Fraser Road underpass for nesting. No nesting of this species was observed during field investigations in 2018 or 2019. However, there is potential for this species to nest in this structure in subsequent breeding seasons. Should construction commencement be deferred several years, a survey could be conducted to confirm presence/absence of bird nests prior to the start of construction activities.
Hylocichla mustelina	Wood Thrush	END	SC	S4B	MNRF, OBBA	No	Carolinian and Great Lakes-St. Lawrence forest zones; undisturbed moist mature deciduous or mixed forest with deciduous sapling growth; near pond or swamp; hardwood forest edges; must have some trees higher than 12m	No	Undisturbed moist mature mixed or deciduous forests were not observed to occur within the Study Area.	No. Suitable habitat is not found within the Study Area

Species		SARA[1]	ESA[2]	S-Rank[3]	Information Source[4]	Observed during field studies	Habitat Requirements[5,6,7,8]	Potential Habitat in the Study Area	Rationale for Potential to Occur	Will Species and/or Habitat be Impacted by the Project
Scientific Name	Common Name									
Ixobrychus exilis	Least Bittern	THR	THR	S4B	MNRF, OBBA	No	This species is found in a variety of wetland habitats prefers cattail marshes with a mix of open pools and channels.	No	Large cattail marshes were not found to occur within the Study Area.	No. Suitable habitat is not found within the Study Area.
Nycticorax nycticorax	Black-crowned Night-heron	---	---	S3B,S3N	MNRF	No	Deciduous woodland swamps, cattail marshes, islands wooded river and lake banks, coastal wetlands.	No	Deciduous woodland swamps were found to exist within the Study Area. However, there is not enough aquatic habitat in close proximity to the Study Area to support this species.	No. Suitable habitat is not found within the Study Area.
Pelecanus erythrorhynchos	American White Pelican	---	THR	S2B	MNRF	No	Nest in groups on remote islands that are barren or sparsely treed located in lakes, reservoirs, or on large rivers.	No	The Study Area does not contain remote islands or lakes reservoirs or rivers.	No. Suitable habitat is not found within the Study Area.
Rallus elegans	King Rail	END	END	S2B	MNRF	No	Found in densely vegetated freshwater marshes with open shallow water that merges with shrubby areas. They are sometimes found in smaller isolated marshes but most seem to prefer larger, coastal wetlands.	No	Mashes were not found to occur within the Study Area.	No. Suitable habitat is not found within the Study Area.
Riparia riparia	Bank Swallow	THR	THR	S4B	MNRF, OBBA	No	Nest in burrows in natural and human-made settings where there are vertical faces in silt and sand deposits. Many nests are on banks of rivers and lakes, but they are also found in active sand and gravel pits or former ones where the banks remain suitable. The birds breed in colonies ranging from several to a few thousand pairs.	No	Vertical faces in silt and sand deposits and/or banks of rivers or lakes were not found to occur within the Study Area.	No. Suitable habitat is not found within the Study Area.
Sturnella magna	Eastern Meadowlark	THR	THR	S4B	MNRF, OBBA	No	Found in open, grassy meadows, farmland, pastures, hayfields or grasslands with elevated singing perches; cultivated land and weedy areas with trees; old orchards with adjacent, open grassy areas generally >10 ha in size.	No	Meadows and hayfields exist within the Study Area. However, based on the regular maintenance observed the fields, these are not considered suitable habitat.	No. Suitable habitat is not found within the Study Area.

Species		SARA[1]	ESA[2]	S-Rank[3]	Information Source[4]	Observed during field studies	Habitat Requirements[5,6,7,8]	Potential Habitat in the Study Area	Rationale for Potential to Occur	Will Species and/or Habitat be Impacted by the Project
Scientific Name	Common Name									
MAMMALS										
Myotis leibii	Eastern Small-footed Myotis	---	END	S2S3	MNRF, MWH	No	Roosts in caves, mine shafts, crevices or buildings that are in or near woodland; hibernates in cold dry caves or mines; maternity colonies in caves or buildings; hunts in forests.	Yes	The deciduous swamps within the Study Area may provide suitable roosting habitat for this species. In addition, usage of cracks and crevices by bats beneath the underpass was confirmed by the evidence of bat guano.	The underpass structure will be affected by the proposed works and minor tree removal is proposed in the ROW; however, none of these trees were identified as snag or cavity bat habitat trees. Prior to removal of the underpass, the SAR bat species should be registered with a Notice of Activity (NOA) under the *Ontario Regulation 242/08* Section 23.18 "threats to health and safety, not imminent". A mitigation plan will be prepared with respect to the activity and in accordance with the *Ontario Regulation 242/08* Section 23.18.
Myotis lucifugus	Little Brown Myotis	END	END	S4	MNRF, MWH	No	Found in caves, quarries, tunnels, hollow trees or buildings for roosting; winters in humid caves; maternity sites in dark warm areas such as attics an barns; feed primarily in wetlands, forest edges.	Yes	The deciduous swamps within the Study Area may provide suitable roosting habitat for this species. In addition, usage of cracks and crevices by bats beneath the underpass was confirmed by the evidence of bat guano.	The underpass structure will be affected by the proposed works and minor tree removal is proposed in the ROW; however, none of these trees were identified as snag or cavity bat habitat trees. Prior to removal of the underpass, the SAR bat species should be registered with a NOA under the *Ontario Regulation 242/08* Section 23.18 "threats to health and safety, not imminent". A mitigation plan will be prepared with respect to the activity and in accordance with the *Ontario Regulation 242/08* Section 23.18.
Myotis septentrionalis	Northern Myotis	END	END	S3	MNRF, MWH	No	Hibernates during winter in mines or caves; during summer males roost alone and females form maternity colonies of up to 60 adults; roosts in houses, manmade structures but prefers hollow trees or under loose bark; hunts within forests, below canopy.	Yes	The deciduous swamps within the Study Area may provide suitable roosting habitat for this species. In addition, usage of cracks and crevices by bats beneath the underpass was confirmed by the evidence of bat guano.	The underpass structure will be affected by the proposed works and minor tree removal is proposed in the ROW; however, none of these trees were identified as snag or cavity bat habitat trees. Prior to removal of the underpass, the SAR bat species should be registered with a NOA under the *Ontario Regulation 242/08* Section 23.18 "threats to health and safety, not imminent". A mitigation plan will be prepared with respect to the activity and in accordance with the *Ontario Regulation 242/08* Section 23.18.

Species		SARA[1]	ESA[2]	S-Rank[3]	Information Source[4]	Observed during field studies	Habitat Requirements[5,6,7,8]	Potential Habitat in the Study Area	Rationale for Potential to Occur	Will Species and/or Habitat be Impacted by the Project
Scientific Name	Common Name									
Perimyotis subflavus	Tri-colored Bat	END	END	S3?	MNRF, MWH	No	Found in open woods near water; roosts in trees, cliff crevices, buildings or caves; hibernates in damp, draft-free, warm caves, mines or rock crevices.	Yes	The deciduous swamps within the Study Area may provide suitable roosting habitat for this species. In addition, usage of cracks and crevices by bats beneath the underpass was confirmed by the evidence of bat guano.	The underpass structure will be affected by the proposed works and minor tree removal is proposed in the ROW; however, none of these trees were identified as snag or cavity bat habitat trees. Prior to removal of the underpass, the SAR bat species should be registered with a NOA under the *Ontario Regulation 242/08* Section 23.18 "threats to health and safety, not imminent". A mitigation plan will be prepared with respect to the activity and in accordance with the *Ontario Regulation 242/08* Section 23.18.
Urocyon cinereoargenteus	Gray Fox	THR	THR	S1	MNRF, MWH	No	Hardwood forests with a mix of fields and woods; swamps; wooded, brushy or rocky habitats; woodland farmland edge; old fields with thickets; dens in hollow log or tree; individual has numerous winter dens throughout its range which is > 40 ha.	No	In Ontario, Gray Fox has a distinct range of occurrence known to be mainly concentrated to the southernmost portion of the province. Where rare to occasional sightings of the species have arisen outside this concentrated range, they occur outside of the greater region of the Study Area.	No. Suitable habitat is not found within the Study Area.
HERPTILES										
Chelydra serpentina	Snapping Turtle	SC	SC	S3	MNRF, OHA	No	Highly aquatic. Occurs in almost any freshwater habitat, typically found in slow-moving water with mud or sand bottom and abundant vegetation. May inhabit small wetlands, ponds and ditches. Hibernates in the mud or silt on the bottom of lakes and rivers.	No	The Study Area contains wetlands, however, shallow water was not observed. Due to the highly aquatic nature of this species, suitable habitat for this species does not occur within the Study Area.	No. Suitable habitat is not found within the Study Area.
Emydoidea blandingii	Blanding's Turtle	THR	THR	S3	MNRF, OHA	No	Found in shallow water marshes, bogs, ponds or swamps, or coves in larger lakes with soft muddy bottoms and aquatic vegetation; basks on logs, stumps, or banks; surrounding natural habitat is important in summer as they frequently move from aquatic habitat to terrestrial habitats; hibernates in bogs; not readily observed.	No	Shallow water wetlands were not found to occur within the Study Area. There was no suitable overwintering or basking habitat observed for Blanding's Turtle in the Study Area. This species was considered as potentially traveling through the wetland or habitat units within the Study Area as it has been known to cover large distances from aquatic habitat to terrestrial nesting habitat.	No. The proposed works will not impact the wetlands within the Study area.

Species		SARA[1]	ESA[2]	S-Rank[3]	Information Source[4]	Observed during field studies	Habitat Requirements[5,6,7,8]	Potential Habitat in the Study Area	Rationale for Potential to Occur	Will Species and/or Habitat be Impacted by the Project
Scientific Name	Common Name									
Graptemys geographica	Northern Map Turtle	SC	SC	S3	MNRF	No	Inhabits rivers and lakeshores where it basks on emergent rocks and fallen trees throughout the spring and summer. In winter, the turtles hibernate on the bottom of deep, slow-moving sections of river. They require high-quality water that supports the female's mollusc prey. Their habitat must contain suitable basking sites, such as rocks and deadheads, with an unobstructed view from which a turtle can drop immediately into the water if startled	No	No rivers or lakeshores ideal for this species to bask or hibernate occur. Due to the highly aquatic nature of this species, suitable habitat for this species does not occur within the Study Area.	No. Suitable habitat is not found within the Study Area.
Pseudacris triseriata	Western chorus frog (Great Lakes-St. Lawrence Population)	THR	---	S3	MNRF	No	Found in roadside ditches or temporary ponds in fields; swamps or wet meadows; woodland or open country with cover and moisture; small ponds and temporary pools.	Yes	Suitable swamp habitat and roadside ditches were observed within the Study Area.	Potential for impacts to the species if present in the area. Minimal potential for impact if mitigation measures are implemented.
Sternotherus odoratus	Eastern Musk Turtle	SC	SC	S3	MNRF, OHA	No	Highly aquatic, except when laying eggs; shallow slow moving water of lakes, streams, marshes and ponds; hibernate in underwater mud, in banks or in muskrat lodges; eggs are laid in debris or under stumps or fallen logs at waters edge; often share nest sites; sometimes congregate at hibernation sites; not readily observed.	No	The Study Area does not contain slow moving lakes, streams, marshes or ponds, or hibernation (overwintering) sites that would provide suitable habitat for this species.	No. Suitable habitat is not found within the Study Area.
Thamnophis sauritus	Eastern Ribbonsnake (Great Lake population)	SC	SC	S3	MNRF	No	Usually found close to water, especially in marshes where it hunts for frogs and small fish. This species will congregate in underground burrows or rock crevices to hibernate.	No	Marshes do not exist within the Study Area.	No. Suitable habitat is not found within the Study Area.
FISH										
Acipenser fulvescens pop. 3	Lake Sturgeon (Great Lakes - Upper St. Lawrence River population)	---	END	S2	MNRF	No	Larger rivers and lakes, with soft bottoms of mud, sand or gravel. They are usually found at depths of five to 20 metres. They spawn in relatively shallow, fast-flowing water (usually below waterfalls, rapids, or dams) with gravel and boulders at the bottom. However, they will spawn in deeper water where habitat is available. They also are known to spawn on open shoals in large rivers with strong currents.	No	The Study Area does not contain large rivers or lakes.	No. Suitable habitat is not found within the Study Area.

Species		SARA[1]	ESA[2]	S-Rank[3]	Information Source[4]	Observed during field studies	Habitat Requirements[5,6,7,8]	Potential Habitat in the Study Area	Rationale for Potential to Occur	Will Species and/or Habitat be Impacted by the Project
Scientific Name	Common Name									
Anguilla rostrata	American Eel	---	END	S1?	MNRF	No	Over the course of its life, the American Eel can be found in both salt and fresh water. Has adapted to an extremely broad diversity of habitats.	No	The Study Area contains a small agricultural drainage ditch that is not an ideal wetted depth for this species.	No. Suitable habitat is not found within the Study Area.
Exoglossum maxillingua	Cutlip Minnow	---	THR	S1S2	NHIC, MNRF	No	Prefers warmer rivers and creeks with clear, slow-moving water and a rocky or gravel bottom. The males dig nests in the gravel where the females lay their eggs. Nests are often found under banks, logs, or around large rocks. The adult feeds on the river bottom and eats aquatic insects.	No	The Study Area does not contain rivers or creeks large enough with rocky or gravel bottom for this species.	No. Suitable habitat is not found within the Study Area.
BUTTERFLIES										
Danaus plexippus	Monarch	SC	SC	S2N,S4B	MNRF, OBA	Yes	Caterpillars feed on milkweed plants and are confined to meadows and open areas where milkweed grows. Adult butterflies prefer diverse habitats where they feed on nectar from wildflowers.	Yes	Meadows with rare occurrence of Milkweed plants were observed within the Study Area. Based on the small size of the meadows and limited amount of Milkweed plants present, meadows in the Study Area likely provide poor habitat for this species.	Potential for impacts to the species if present in the area. Minimal potential for impact if mitigation measures are implemented.
Pieris virginiensis	West Virginia White	---	SC	S3	MNRF	No	Lives in moist, deciduous woodlots. This butterfly requires a supply of toothwort, a small, spring-blooming plant that is a member of the mustard family, since it is the only food source for larvae.	No	Moist deciduous woodlots within toothwort were not observed within the Study Area.	No. Suitable habitat is not found within the Study Area.

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4.1.6 Land Uses and Socio-Economic Environment

The land use immediately surrounding the Fraser Road Underpass is primarily agricultural. The nearest residence is approximately 250 m south of the underpass. The communities of Lancaster and Williamstown are approximately 4.2 km east and 4.3 km north of the structure, respectively. Traffic on Fraser Road is predominately local traffic. Standard construction noise and air quality mitigation measures will be developed as part of the Detail Design phase.

4.1.6.1 Consistency with Provincial Policy Statement

The *Provincial Policy Statement* (PPS) (Ministry of Municipal Affairs and Housing, 2020) provides policy direction on land use planning that is of provincial interest, including transportation corridors and natural heritage. It provides for the long term protection of the diversity, connectivity and function of natural features.

Under the transportation and infrastructure corridors Policy 1.6.8.6 of the PPS, it states *"when planning for corridors and rights-of-way for significant transportation, electricity transmission and infrastructure facilities, consideration will be given to the significant resources in Section 2: Wise Use and Management of Resources."* Section 2 of the PPS identifies the protection of natural heritage (Section 2.1) and water (Section 2.2) features.

Consideration was given to the natural heritage and water features identified in Section 2 of the PPS and mitigation measures have been identified to address impacts to those features.

4.2 Generation and Evaluation of Preliminary Design Alternatives

4.2.1 Evaluation of Alignment Alternatives

As part of the structure replacement, the following alignment alternatives were developed and evaluated:

- Alternative 1 – Maintain Existing Alignment: Construct the new structure on the existing alignment (Online replacement), with traffic (on Fraser Road) detoured off-site
- Alternative 2 – Shift Fraser Road Alignment (East or West): Construct the new structure on a new alignment of the existing structure (Offline replacement), with traffic (on Fraser Road) remaining on the existing alignment during construction.

Smaller alignment shifts were also initially considered as this would have a reduced footprint impact. These alternatives were screened out from further consideration because embankment construction would still extend beyond the existing property limits and there are additional costs associated with structure removal, staging costs (temporary signals and additional protection systems) and increased construction duration.

The alignment alternatives were evaluated using the criteria described in **Table 3**. Both engineering and environmental criteria are included, with the goal of finding a balance that provides safe and efficient transportation infrastructure with minimal environmental impacts.

Table 3: Evaluation Criteria and Desired Outcomes

Criteria	What Represents the Best Solution
Engineering	• Improves the operation and safety of Fraser Road • Provides a safe highway and work area during construction by minimizing temporary roadside hazards and maximizing separation between workers and traffic • Reduces impacts to traffic during construction • Reuse of existing road infrastructure and minimizes approach works • Least construction complexity and duration • Least impacts to existing utilities and can avoid utility relocation • Provides best long-term performance and durability • Meets current design standards • Least total project cost, including construction costs, utility relocations and property • Least number of properties impacted and has the least amount of property required
Natural Environment	• Least impact to species and habitat • Least impact to surface and ground water resources
Socio-Economic Environment	• Least impact on commercial, residential and agricultural land uses • Least traffic impacts
Cultural Heritage & Archaeological Resources	• Protect lands and structures with cultural or archaeological importance

Table 4 summarizes the evaluation of alternatives, with larger circles representing more favourable options (less impacts) with smaller circles less desirable options (greater impacts). The offline east and offline west alternatives are equal for all criteria except SAR, for which offline east is the least preferred alternative (both online and offline west are more preferred). A summary of the comparative evaluation and the preferred alignment alternative is presented at the bottom of the table.

Table 4: Evaluation of Alternatives

FACTOR	ALTERNATIVE 1 ONLINE Preferred		ALTERNATIVE 2 OFFLINE (EAST/WEST)	
ENGINEERING				
Road Safety	• Maintains existing tangent alignment. • All required work meets design standards (70km/hr design speed).		• Introduces horizontal curve at both approaches which is not desired. • Horizontal curve at north approach shorter than desired radius given CN crossing (but still within design standards). • All required works meet current design standard (70km/hr design speed).	
Traffic Staging	• Fraser Road: Full closure required for duration of construction (up to 2 construction seasons) with local road detour. • Highway 401: Rolling closures, short duration overnight closures, single lane closures with removal on weekends.		• Fraser Road: Traffic maintained in both directions except for short duration (i.e., up to 4 weeks) closure to complete Fraser Road connections. • Highway 401: Rolling closures, short duration overnight closures, single lane closures with removal on weekends.	
Re-use of Existing Road Infrastructure	• Significant reuse of approach embankments / infrastructure. • Provides option for re-use of existing bridge substructure components.		• Does not reuse any significant portion of existing infrastructure.	
Impacts on Utilities	• Utility impacts not anticipated.		• Protection measures or relocation of Bell Canada National FOTS line required to accommodate new embankment construction and anticipated settlement. • Relocation of hydro pole required for Offline East alternative at south approach.	
Impacts on Intersections, Entrances and Side Roads	• Minor reconstruction at Fraser Road intersections with Lapierre Road, Raisin River Road and Airport Road to match adjusted vertical profile on Fraser Road.		• Significant reconstruction at Fraser Road intersections with Lapierre Road, Raisin River Road and Airport Road to match change in vertical and horizontal alignment on Fraser Road.	
Construction Complexity and Duration	• Shorter construction duration of 2 construction seasons or less. • Reuse of existing embankments results in less complex design and construction and reduced risk for future approach settlement. • Lightweight fill or soil improvement required to accommodate grade raise. • Potential for conflict with existing foundation elements.		• Longest duration construction. High potential for more than 2 construction seasons. • Increased complexity of embankment design and construction to accommodate poor soil conditions. Realignment not recommended from geotechnical perspective. • Extensive pre-loading, use of lightweight fill and/or ground improvements to accommodate new profiles. • Partial reuse of existing embankments results in potential for differential settlements and long term performance risks.	
Property Requirements	• All work can be completed within MTO and Fraser Road right-of-ways (ROWs). • No temporary limited interest (TLI) or permanent property requirements.		• Permanent property required both Offline East and West. More required for Offline West option.	
High-Level Anticipated Cost Comparison	• Lower costs due to ability to re-use existing approach embankments. • Minor increased structure costs due to potential conflict with existing structure foundation elements.		• Higher overall costs due to extensive embankment construction and protection/relocation of existing utilities. • Higher costs to address ground improvements required as a result of poor soils • Higher cost due to management of Fraser Road traffic on-site during construction and overall longer duration construction.	

FACTOR	ALTERNATIVE 1 ONLINE	Preferred	ALTERNATIVE 2 OFFLINE (EAST/WEST)	
NATURAL ENVIRONMENT				
Impacts on Vegetation and Wildlife	• Permanent edge removal of isolated vegetation communities providing limited habitat to local, common species • Potential for minor loss of woodland edge (from large, contiguous forest to the east). May be able to avoid impacts once grading plans are developed in Detail Design.		• Increased loss isolated vegetation communities providing limited habitat to local, common species • Increased loss of woodland edge (from large, contiguous forest to the east). Greater impacts for Offline East option.	West East
Impacts on Species at Risk	• Temporary disturbance to potential Barn Swallow nesting habitat. • Removal of potential SAR bat habitat associated with underpass structure.		• Temporary disturbance to potential Barn Swallow nesting habitat. • Removal of potential SAR bat habitat associated with underpass structure. • Offline East option results in removal of potential SAR bat habitat in forests east of Fraser Road.	West East
SOCIO-ECONOMIC ENVIRONMENT				
Impacts on Local Residents	• Long term closure of Fraser Road at the underpass with local residents required to use 14 km local road detour. • Highway 401 overnight detour traffic onto local roadway network (estimated 2 to 3 closures) • Potential increase in Emergency Service response times in the event that Fraser Road is blocked by a train while the bridge is out.		• Minor impacts for users of Fraser Road with two lanes of traffic maintained for the majority of construction. Short duration closure of Fraser Road required for approach tie-ins (up to 4 weeks). • Highway 401 overnight detour traffic onto local roadway network (estimated 2 to 3 closures) • Minor impacts to Emergency Service response times.	
Impacts on Agricultural Uses	• Equipment that typically crosses at Fraser Road will need to follow 14km detour.		• Minor impacts with short duration detours only.	
Noise Impacts	• Less construction noise impact due to shorter construction duration.		• Greater construction noise impact due to longer duration construction	
CULTURAL HERITAGE & ARCHAEOLOGICAL RESOURCES				
Impacts on Lands with Archaeological Potential	• Minor impact beyond footprint of existing embankments. May require Stage 2 Archaeological Assessment (to be determined during Detail Design).		• Larger impacted area requiring a Stage 2 Archaeological Assessment.	
SUMMARY				
Summary	Alternative 1 is preferred due to better road safety, re-use of infrastructure, less impacts on utilities, intersections, entrances and side roads and reduced construction complexity, duration, property acquisition and cost. Online replacement results in less impact to wildlife, vegetation, potential species at risk and lands with archaeological potential. While Alternative 1 is less desirable in terms of traffic staging and associated impacts on local residents and agricultural uses, given the volume of Fraser Road traffic is relatively low, the benefits of the online replacement alternative, as detailed above, outweigh the impacts to traffic management during construction.			

LEGEND

Most Preferred → Least Preferred

4.2.2 Evaluation of Structure Alternatives

All structure replacement alternatives were developed assuming online replacement. The replacement structure will accommodate a single lane in each direction on Fraser Road. A grade raise will be required for all structure replacement alternatives, as the higher profile will provide the minimum required vertical clearance on Highway 401 (5.0 m) plus additional structure depth to accommodate the increased spans. For the purposes of establishing foundation locations and span arrangements, an allowance for future widening of Highway 401 was included, which consists of one additional outside lane in each direction.

A total of five structure replacement alternatives were carried forward and developed as follows:

- Alternative 1A: Two Span (34m spans) Integral Abutment Slab on Steel Box Girders (1200 m deep)
- Alternative 1B: Two Span (44.8m spans) Integral Abutment Slab on Steel Box Girders (1600 mm deep)
- Alternative 2A: Two Span (34m spans) Integral Abutment Slab on NU 1400 Girders
- Alternative 2B: Two Span (44.8m spans) Integral Abutment Slab on NU 1800 Girders
- Alternative 3: Two Span (44.8m spans) Semi-Integral Abutment Slab on Steel Box Girder (1600 mm deep) founded on salvaged abutments.

The alternatives were evaluated based on criteria that included initial construction and future rehabilitation costs, constructability, aesthetics and design flexibility. The short span alternatives (1A and 2A) are financially preferred over the long span alternatives (1B, 2B and 3), eliminate risk of pile conflicts at abutments and are aesthetically preferred. Additionally, there is an opportunity to further refine and reduce construction costs associated with the shorter span alternatives during Detail Design.

There is negligible cost differential between the short-span steel vs. prestressed concrete girder alternatives. However, there is greater potential to optimize the substructure design with a steel structure.

It is recommended that that Alternative 1A, a two-span (34 m; 34 m) slab-on-steel box girder structure with integral abutments, be implemented at this site due to lower costs, greater design flexibility and aesthetics.

4.3 The Recommended Plan

As outlined in **Section 4.2**, the preferred alternative is to replace the underpass along the same alignment as the existing structure. The new structure is to be a two-span slab-on-steel box girder structure with integral abutments.

5.0 Detailed Description of the Recommended Plan

5.1 Major Features of the Recommended Plan

The preferred alternative involves the following works:

- Replace the existing underpass along the existing horizontal alignment with a two-span slab-on-steel box girder structure with integral abutments
- Approach embankment profile grade raise to accommodate new structure
- Embankment widening, pavement reconstruction, drainage improvements, replacement of curb and gutter and guide rail as required for the new structure and vertical alignment improvements.

5.1.1 Construction Staging and Traffic Management Plan

Full closure of Highway 401 is required for demolition and some construction operations for the new structure. The proposed detour runs between Summerstown Road (County Road 27) and Lancaster (County Road 2/34) via County Road 2 (**Figure 7**). It is recommended that up to four 12-hour detours be implemented overnight on a weekend (i.e., either Friday night or Saturday night) when traffic volumes are lowest, to facilitate the underpass removal. Police presence will be provided at key locations along the detour route. The actual traffic management plan is to be determined during the Detail Design phase of the project, in consultation with potentially impacted stakeholders.

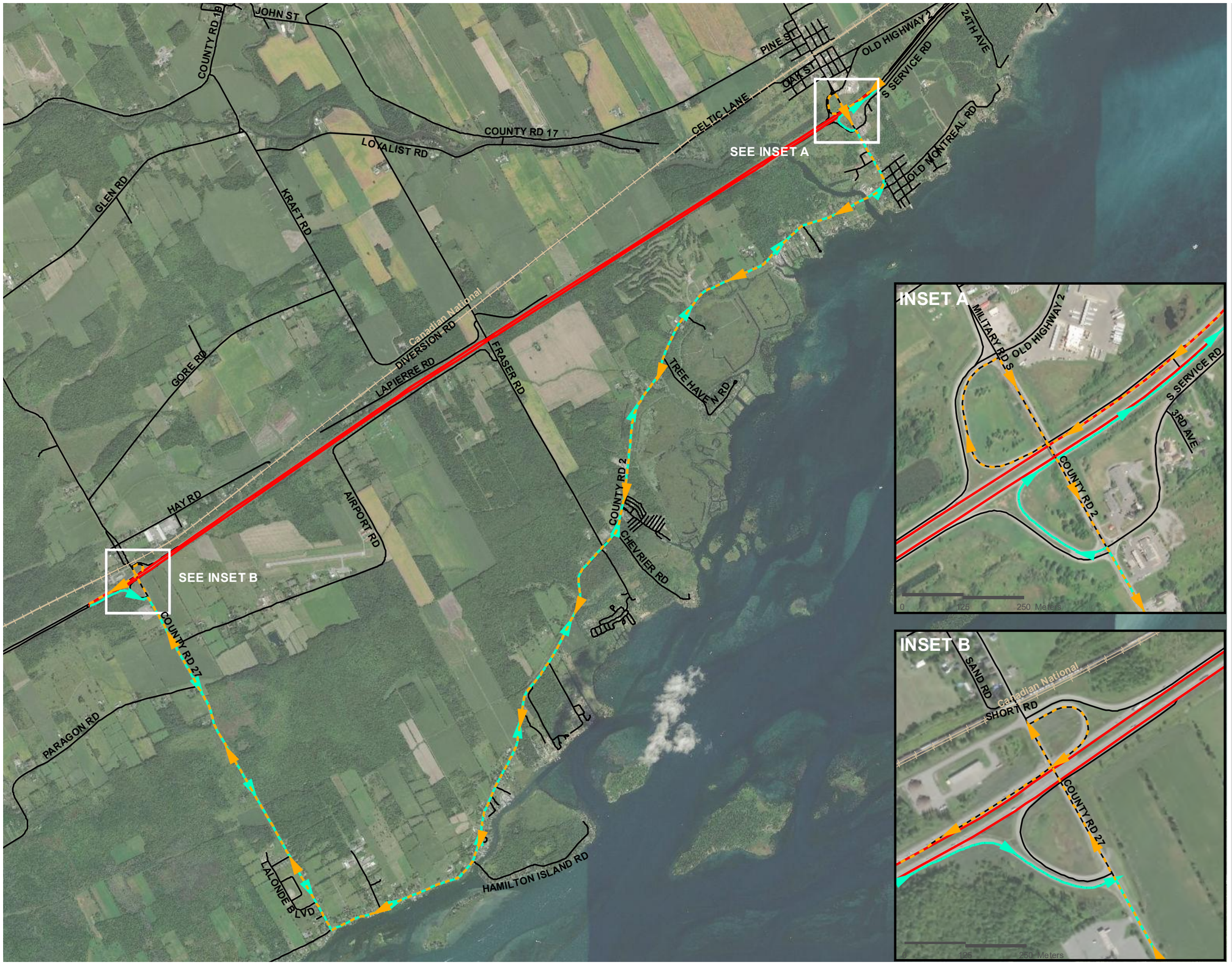
Replacing the Fraser Road Underpass on its existing alignment requires the full closure of Fraser Road at the bridge site for up to two construction seasons. The proposed Fraser Road detour route utilizes Airport Road, County Road 27, Gore Road, Kraft Road and Diversion Road (**Figure 8**). The low volume of traffic being detoured (approximately 150 vehicles per day) is anticipated to have a negligible effect on traffic operations along the detour route.

5.2 Environmental Issues and Commitments

The following sections highlight environmental impacts, mitigation measures, additional design studies and anticipated permits, approvals and exemptions which may be required prior to construction start. As required by the MTO Class EA, all permits, approvals and exemptions required for the project must be obtained prior to Environmental Clearance – Construction Start being issued.

5.2.1 Environmental Impacts and Mitigation

As part of the Class EA process, an impact assessment of the proposed improvements was completed and preliminary mitigation measures developed to avoid/mitigate adverse impacts. The extent of anticipated impacts and proposed mitigation measures should be reviewed during the Detail Design phase and refined as required.



Ontario

MINISTRY OF TRANSPORTATION, ONTARIO

HIGHWAY 401 AT FRASER ROAD
UNDERPASS REPLACEMENT
GWP 4248-15-00, SITE 31-230

HIGHWAY 401 TRAFFIC STAGING

FIGURE 7

- EASTBOUND HWY 401 EDR
- WESTBOUND HWY 401 EDR
- NORMAL HIGHWAY 401 E/W ROUTE
- RAILWAY
- ROADS

0 250 500 Meters

N W E S

MAP DRAWING INFORMATION:

DATA PROVIDED BY: ESRI, MNRF, MTO

MAP PROJECTION: NAD 1983 MTM 8

SCALE 1:39,000

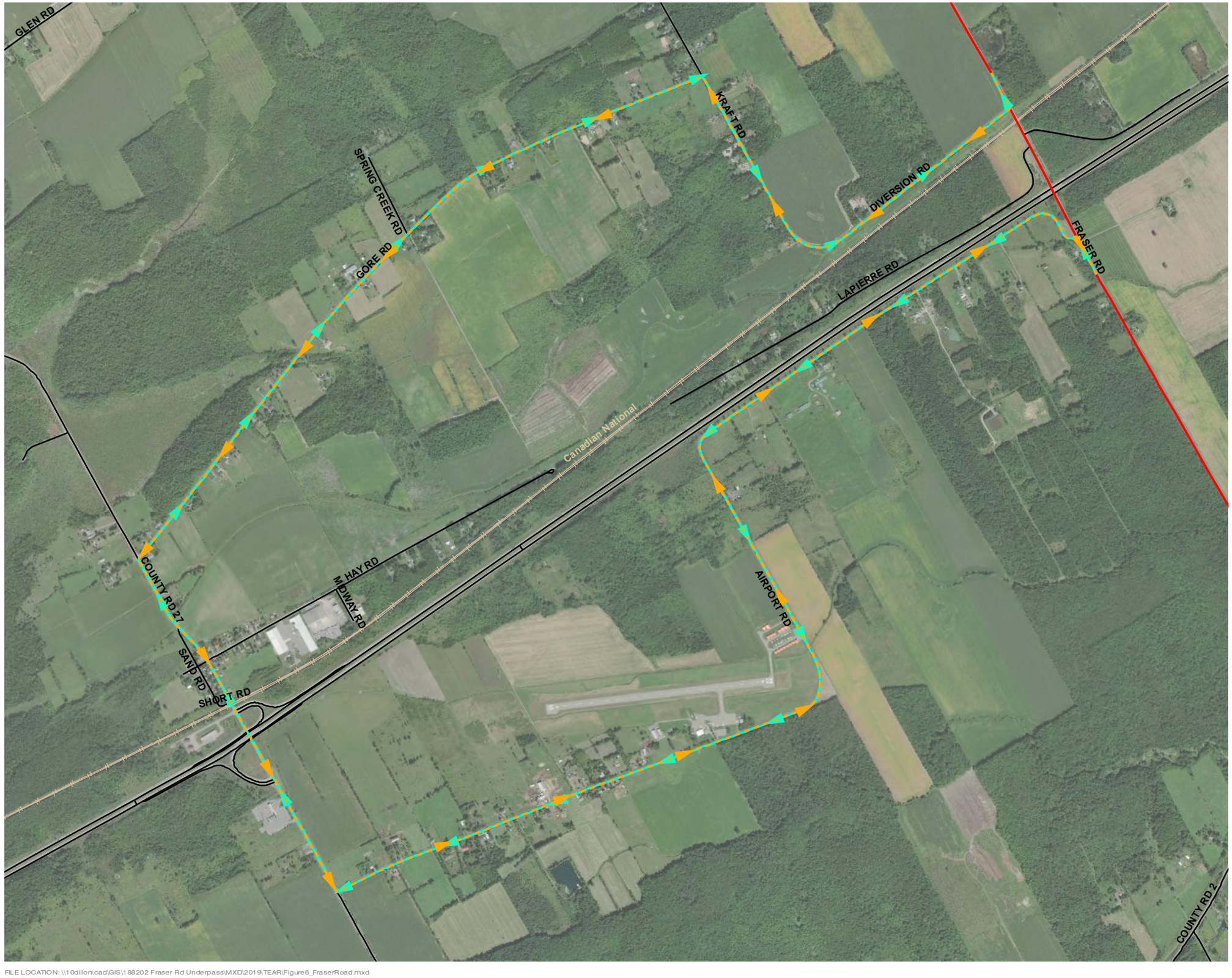
DILLON CONSULTING

PROJECT: 188202

DATE: 2019-12-02

MAP CREATED BY: 20LJK
MAP CHECKED BY: 10GH

FILE LOCATION: \\10dillon\cad\GIS\188202 Fraser Rd Underpass\MXD\2019\TEAR\Figure5_Hwy401.mxd



Ontario

MINISTRY OF TRANSPORTATION, ONTARIO

HIGHWAY 401 AT FRASER ROAD
UNDERPASS REPLACEMENT
GWP 4248-15-00, SITE 31-230

FRASER ROAD TRAFFIC STAGING

FIGURE 8

- NORTHBOUND FRASER ROAD DETOUR
- SOUTHBOUND FRASER ROAD DETOUR
- NORMAL FRASER ROAD N/S ROUTE
- RAILWAY
- ROADS

0 250 500 Meters

N W E S

MAP DRAWING INFORMATION:

DATA PROVIDED BY: ESRI, MNRF, MTO

MAP PROJECTION: NAD 1983 MTM 8

SCALE 1:17,000

DILLON CONSULTING

PROJECT: 188202

DATE: 2019-12-02

MAP CREATED BY: 20LJK
MAP CHECKED BY: 10GH

FILE LOCATION: \\10dillon\cad\GIS\188202 Fraser Rd Underpass\MXD\2019\TEAR\Figure6_FraserRoad.mxd

5.2.1.1 Highway Safety, Construction Traffic and Emergency Services Access

The full closure of Highway 401 for demolition and some construction operations requires the use of a local roads detour. To minimize traffic impacts, it is recommended that the detours be implemented overnight on a weekend (i.e., either Friday night or Saturday night) when traffic volumes are lowest, to facilitate the underpass removal.

During the replacement of the Fraser Road Underpass, the two year detour will use local roads. The low volume of traffic being detoured (approximately 150 vehicles per day) is anticipated to have a negligible effect on traffic operations along the detour route.

5.2.1.2 Access during Construction

The Fraser Road Underpass will be closed for up to two construction seasons. Grading work is required at Lapierre Road, Raisin River Road and Airport Road to accommodate adjustments to the roadway elevation. Minor grading may be required at private entrances on the south side of Highway 401, which would require additional consultation; this is near the limits of construction and will be reviewed further in Detail Design.

Road closures have potential to impact emergency services response times. Local emergency services have been consulted and will continue to be updated during the Detail Design phase and throughout construction. During construction, advanced notice of road closures will be provided to the public, emergency services, municipalities and student transportation providers.

Access to Lapierre Road and Raisin River Road will be impacted while the Fraser Road Underpass is closed. Both roads intersect Fraser Road north of Highway 401 and dead-end to the west and east, respectively. Approximately eight residences are located on Lapierre Road. Raisin River Road includes agricultural properties and leads to an inactive campground owned by the St. Lawrence Parks Commission.

In the rare event that a train blocks the CN Rail crossing to the north while the bridge is closed, traffic access to these roads will be restricted. While there is a low potential of this occurring, this scenario would impact response times by Emergency Service Providers. Additional consultation with the local Emergency Service Providers should be carried out during the Detail Design phase to assist with the development of a suitable emergency response plan during construction in case an emergency occurs while access is blocked.

5.2.1.3 Utility Relocations

The Bell Canada National fibre optic line along the south side of Highway 401 runs beneath the existing underpass approach embankment. While utility impacts are not anticipated, Bell Canada will be consulted during the Detail Design phase to confirm potential impacts (i.e., the impacts of potential

settlement connected to the proposed embankment widening) and appropriate mitigation measures should be developed (if required).

5.2.1.4 Terrestrial Features

This section summarizes the potential impacts to wildlife and vegetation that could result if mitigation measures are not implemented. Construction activities will be completed within the MTO ROW and the Fraser Road ROW. A temporary staging area is anticipated to be required during construction, which is recommended to be located within the maintained landscape area identified as a greenlands community.

Mitigation measures to avoid or minimize potential terrestrial natural environment features are detailed in **Table 5**. Overall, impacts to wildlife and natural features are expected to be minimal and temporary in duration if mitigation measures are implemented. The area of impact and proposed mitigation measures should be reviewed in more detail during Detail Design once grading impacts are identified.

Temporary Impacts

Based on the Preliminary Design, the works associated with underpass replacement have the potential for the following temporary construction impacts:

- Increase erosion and sedimentation of lands adjacent to the construction area
- Increase vulnerability of areas cleared of vegetation to invasion by non-native species
- Result in a loss and/or disruption to wildlife and/or wildlife habitat. Potential examples include:
  - Temporary disruption of use of the migratory bird nesting habitat (e.g., Eastern Phoebe) beneath the Fraser Road Underpass and/or in areas cleared of vegetation along the ROW
  - Temporary disruption to wildlife movement and wildlife avoidance of habitats adjacent to the Fraser Road Underpass during replacement due to disturbance associated with construction activities
  - Harm or temporarily harass potential SAR bats that could be using the underside of the Fraser Road Underpass and/or wooded areas as roosting habitat.

The temporary impacts are not expected to result in significant impacts to the remaining adjacent natural features if the proposed mitigation measures are implemented during construction. Mitigation measures to protect wildlife and natural features include limiting vegetation removal, pre-tarping or timing windows to avoid impacts to migratory birds, procedures for wildlife encounter, erosion and sediment control and spills handling measures (**Table 5**).

Potential Permanent Impacts

Based on the preliminary design footprint (**Figure 6**), permanent natural vegetation community impacts along the Fraser Road alignment include minor edge encroachments into meadow, forest, thicket and swamp communities. Vegetation in these areas is expected to provide marginal habitat to local common

species and removal of these edge features is not anticipated to negatively impact the larger, contiguous features that extend outside the Study Area.

The deciduous swamp (wooded area) in the southeast quadrant of the Study Area has the potential to support SAR bats and is candidate Significant Wildlife Habitat (SWH) for bat maternity colonies. Based on the preliminary design footprint, it appears that only vegetation removals may be required along the boundary of this feature. These potential impacts should be reviewed as part of the Detail Design phase as design refinements to grading in this area may be able to avoid or minimize these removals. Within the impacted area, any tree removal within potential SAR bat habitat and SWH should be completed outside of the active bat season and breeding bird season. If impacts cannot be avoided, it is anticipated that these edge removals will not result in significant impacts to the remaining features, as the forests and swamps are extensive in this area and are anticipated to retain their form and function on the landscape.

The cracks and crevices on the underside of the underpass were observed to contain bat guano; indicating that the underpass may provide SAR bat habitat. The underpass removal is recommended to occur outside of the active bat season (i.e., May 1 to October 31) to avoid impacts to bats potentially using the structure. If this timing is not possible, the cracks and crevices should be filled in or blocked off (i.e., tarping) prior to the active bat season, in accordance with the ESA, 2007 and associated regulations. As noted above, there is extensive potential SAR bat habitat associated with the forests which extend beyond the Study Area; therefore, it is anticipated that the removal of potential SAR bat habitat associated with the underpass will not result in significant impacts to these species. Additional consultation with MECP may be considered during Detail Design to discuss whether targeted surveys are required to confirm use of the structure by SAR bats. Regardless, we anticipate that the project would be eligible for registration through a Notice of Activity (NOA) under the *Ontario Regulation* (*O.Reg.*) *242/08* – Section 23.18 (threats to health and safety, not imminent), along with the preparation of a SAR Mitigation Plan.

The underpass provides potential Barn Swallow habitat, although no active nests were observed during field investigations. A survey of the underpass structure is recommended to confirm presence/absence of bird nests prior to the start of construction activities.

5.2.1.5 Groundwater

Groundwater dewatering may be required for construction of the abutments. The need for a Permit to Take Water (PTTW) will be confirmed during the Detail Design phase.

5.2.1.6 Land Uses

As noted in **Section 2.2.7**, one landowner in the area owns agricultural property on both sides of Highway 401. Targeted consultation with this landowner and agricultural associations was completed and no concerns were raised with the bridge closure and proposed local roads detour for farm equipment.

5.2.1.7 Noise and Air Quality

Noise impacts to surrounding residential properties will be limited by adherence to best practices for noise mitigation during construction. Air quality impacts will be limited by contractor compliance with general conditions to minimize dust and other air quality impacts.

5.2.1.8 Archaeology

Construction activities are anticipated to be primarily limited to previously disturbed lands, where impacts to archaeological resources are not anticipated. Areas of archaeological potential near and beyond the existing toe of slopes of the Fraser Road approach embankments will potentially be impacted, as shown in **Figure 5**. These areas will be reviewed during Detail Design to confirm if areas of archaeological potential are to be impacted by construction and a Stage 2 Archaeological Assessment completed prior to any ground disturbance. We do not anticipate that intrusive investigations (e.g., geotechnical/foundation drilling) will be required in areas of potential archaeological significance; however, this should be reviewed prior to field investigations being completed during Detail Design. Procedures for encounter of archaeological resources during construction are included in **Table 5**.

5.2.2 Recommended Additional Design Studies

The following additional design studies are recommended:

- Survey of the underpass to confirm presence/absence of bird nests prior to the start of construction activities
- Acoustic surveys to confirm presence/absence of SAR bats, if required by MECP
- If areas with archaeological potential are to be impacted by intrusive field investigations during Detail Design or during construction, they will require a Stage 2 Archaeological Assessment prior to any ground disturbance
- Updates to natural environment studies as required and if field data is greater than five years old
- Preparation of a Design and Construction Report (DCR) documenting the Detail Design plans, including construction staging and traffic management. The DCR shall also document additional consultation efforts with impacted stakeholders. The DCR will be published for a 30-day public review period prior to Environmental Clearance – Construction Start being issued internally by MTO.

5.2.3 Anticipated Permits, Approvals and Exemptions

It is anticipated that the following permits, approvals and exemptions will need to be obtained prior to construction start:

- All outstanding permits, approvals and exemptions required to complete construction activities
- Confirm the need for a Permit to Take Water (PTTW)
- Review of the potential to register this project under *O Reg. 242/08* - Section 23.18 (threats to health and safety, not imminent) as well as preparation of mitigation plans
- MTCS Acceptance of required Archaeological Assessment Report(s).

5.3 Future Consultation

The following future consultation activities are recommended:

- Consultation with the Township of South Glengarry and United Counties of Stormont, Dundas and Glengarry regarding Council resolutions for the closure of Fraser Road, speed limit reduction to 60 km/h and general support from both levels of government
- Consultation with the local Emergency Service Providers regarding access disruptions from closure of Highway 401 and Fraser Road and input into a proposed emergency response plan for properties on Lapierre Road
- Consultation with affected property owners if grading impacts driveways or access to private properties
- While utility impacts are not anticipated, consultation with Bell Canada may be required if design refinements have the potential to impact the Bell Canada National fibre optic line along the south side of Highway 401.

5.4 Summary of Environmental Effects, Proposed Mitigation and Commitments to Further Work

Environmental protection and mitigation measures are outlined in **Table 5**. These commitments will be developed in more detail during the Detail Design phase. Overall, impacts of the project are expected to be minimal and temporary in duration if mitigation measures are implemented.

The TESR will be available for the required 30-day public and agency review period. If no Part II Order requests are received by the MECP during this time, the TESR is considered approved under MTO's Class EA and may proceed to Detail Design and Construction.

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Table 5: Summary of Environmental Concerns and Commitments

I.D. #	I.D. # Sub-issues	Issues/Concern Potential Effects	Potentially Interested Agencies/Stakeholders	Mitigation/Protection/Monitoring
1. Highway Safety, Construction Traffic and Emergency Services Access	1.1 Fraser Road Traffic Impacts	Out of the way travel during full closure of Fraser Road (required for duration of construction)	Township of South Glengarry, United Counties of Stormont, Dundas and Glengarry, student transportation providers, traveling public, local residents and agricultural operations	• Signed detour to be provided • Access to Airport Road, Diversion Road, Lapierre Road and Raisin River Road will be provided throughout construction • Advance notification to emergency services, municipality and student transportation providers of road closure.
	1.2 Highway 401 Traffic Impacts	Out of the way travel during overnight closures and temporary single lane closures on Highway 401	Township of South Glengarry, United Counties of Stormont, Dundas and Glengarry, student transportation providers, traveling public, local residents and agricultural operations	• Traffic to be detoured using existing EDR, with use of Police point duty at key locations along the detour route. • Advance notification to emergency services, municipality and student transportation providers of road closure • Single lane closure on Highway 401 can be removed on weekends and holidays.
	1.3 Construction Traffic	Potential disruptions to local traffic around Fraser Road caused by construction traffic	Township of South Glengarry, United Counties of Stormont, Dundas and Glengarry, local residents and agricultural operations	Disruption minimized by following Ontario Traffic Manual Book 7 Temporary Conditions.
	1.4 Emergency Services Access	Potential emergency vehicle delays to incident locations during construction due to closures of Highway 401 and Fraser Road	Emergency Services Providers	Meeting was held with Emergency Services Providers prior to study commencement to receive input on the planned closure. No objections to the planned closure were identified and modifications to existing emergency response plans can be completed. Potential delays minimized by: • Regular communication with Emergency Service Providers during Detail Design and construction. • Development of an emergency response plan to address scenario of increased emergency response times to Lapierre Road residents in the event a train blocks Fraser Road

2. Natural Features	2.1 Natural Features and Vegetation	• Increased erosion and sedimentation of lands adjacent to the construction area
		• Increased vulnerability of the areas cleared of vegetation to invasion by non-native species
			Ministry of the Environment, Conservation and Parks (MECP), Raisin River Conservation Authority, United Counties of Stormont, Dundas and Glengarry	Minimal vegetation removal and/or pruning is necessary to complete the proposed works. No SAR vegetation or significant trees of concern will be impacted by the removals. Impacts to remaining vegetation will be minimized by the following recommendations:
				• Minimize vegetation removal to the extent possible during Detail Design.
				• If any trees are proposed for removal, the construction contract should include tree felling and grubbing procedures as outlined in OPSS 201, Construction Specification for Clearing, Close Cut Clearing and Grubbing.
				• Areas temporarily cleared of vegetation to facilitate road and underpass works should be stabilized (e.g., vegetated/seeded) prior to removal of erosion and sedimentation control (ESC) measures:
				  ○ Minimize the disturbance of existing well-vegetated ditches and grassed slopes.
				  ○ Protect undisturbed slopes and sensitive ditching with silt fence and temporary flow check dams. These measures should remain in place until exposed soils are stabilized.
				  ○ ESC measures shall be monitored regularly and/or after every 10 mm or greater rainfall event as they could require periodic cleaning, maintenance and/or re-construction. If deficiencies are found, they should be repaired and/or replaced promptly.
				  ○ Grading, placement of topsoil and seeding specifications will be implemented to decrease erosion potential and promote suitable vegetation regeneration.
				  ○ The site shall be stabilized prior to removal of ESC measures.
				• Temporarily disturbed vegetated areas will be restored and/or re-vegetated to minimize invasion and colonization by non-native species, increase shade/cover for wildlife and mitigate edge disturbance effects.

I.D. #	I.D. # Sub-issues	Issues/Concern Potential Effects	Potentially Interested Agencies/Stakeholders	Mitigation/Protection/Monitoring
	2.2 Wildlife and Wildlife Habitat	Temporary disruption to wildlife movement and wildlife avoidance of habitat areas adjacent to the Fraser Road underpass due to disturbance associated with construction activity Temporary disruption to wildlife movement and wildlife avoidance of habitat areas adjacent to the Fraser Road underpass due to disturbance associated with construction activity	MECP, Raisin River Conservation Authority, United Counties of Stormont, Dundas and Glengarry	There is potential for the provincially rare Species of Conservation Concern (SCC), Eastern Wood-pewee, Western Chorus Frog and Monarch, to be present within the Study Area. To mitigate potential impacts on these species and other wildlife, the follow measures shall be implemented: • If wildlife is encountered in the construction area, work should be temporarily suspended until the animal is out of harm's way. If the species persists in the work area, a person qualified to handle wildlife should be contacted to relocate the animal. • Workers should be vigilant and check work areas and machinery for the presence of wildlife prior to each day of construction. Tree removal should be completed outside of the breeding bird season (i.e., **April 1** to **August 31**). If this is not possible, a nest survey should be completed (see migratory nesting birds section of this table for additional details). • Workers should be vigilant and check work areas and machinery for the presence of wildlife prior to each day of construction. • Minimal tree removal in candidate bat maternity colonies habitats within the impacted section of the Study Area should be completed outside of the active bat season (i.e., **May 1** to **October 31**).
	2.3 Migratory Nesting Birds	Temporary disruption of use of the migratory bird nesting habitat beneath the Fraser Road underpass and/or in areas cleared of vegetation along the ROW	Environment and Climate Change Canada, MECP, Raisin River Conservation Authority, United Counties of Stormont, Dundas and Glengarry	Some tree removals will be required which may provide nesting habitat for birds protected under the MBCA. The underpass will also be removed, which was confirmed to provide nesting habitat for birds (i.e., Eastern Phoebe). To protect birds and comply with the MBCA, the following measures should be incorporated into the construction contract: • Vegetation/underpass removal completed outside of the breeding bird season (i.e., **April 1** to **August 31**). • Vegetation/underpass removal can occur during restricted periods if a qualified biologist conducts a nest search of the area prior to work commencing and determines that active nests are not observed in proximity to the work area. This nest survey is valid for a period of 48 hours. If breeding birds and/or active nests are encountered, works should not continue in the location of the nest until after August 31, or as soon as it has been determined by a qualified biologist that the young have left the nest. This may result in construction delays. • Alternatively for the underpass removal, netting or tarping may be placed around the underpass to prevent birds from nesting on the structure if removal is to occur during the restricted breeding bird season. • During Detail Design, the team should review the award schedule and confirm whether the contract will be awarded in time for the contractor to conduct vegetation removals prior to April 1. If not, the ministry may need to consider an advanced clearing contract.
	2.5 Species at Risk	• Exclusion from bat roosting sites located on abutments beneath the Fraser Road underpass structure • Harm or temporarily harass potential SAR bats that could be using the underside of Fraser Road underpass and/or wooded areas as roosting habitat	Environment and Climate Change Canada, MECP, Raisin River Conservation Authority, United Counties of Stormont, Dundas and Glengarry	Construction activities require the removal of potential SAR bat roosting habitat observed on the abutments of the Fraser Road Underpass structure. The SAR bats are listed as *Endangered* under the ESA, 2007. As a mechanism to mitigate potential impacts on these species, a fact sheet and detection protocol for these species shall be provided to the contractor before the project begins. To mitigate potential impacts on these species, the following measures shall be implemented: • Any SAR sightings should be reported to MECP. • Vegetation removal beyond select trees at the woodland edge should be completed outside of the active bat season (i.e., **May 1** to **October 31**) within potential SAR bat habitat wooded areas. • During Detail Design, the team should review the potential for impacts within potential SAR bat habitat wooded areas and award schedule to confirm whether the contract will be awarded in time for the contractor to conduct vegetation removals in potential SAR bat habitat prior to May 1. If not, MTO may need to consider an advanced clearing contract for these areas. • Removal of the underpass structure completed outside of the active bat season (i.e., **May 1** to **October 31**). If this is not possible, the cracks and crevices that potentially provide bat roosting habitat within this structure should be filled in or blocked off (i.e., tarping) prior to the active bat season (i.e., **May 1** to **October 31**) to prevent bat use in accordance with the ESA, 2007 and associated regulations.
	2.6 Spills Handling and Contaminated Materials	Potential adverse impacts of spills on environment and natural features	MECP, MNRF, United Counties of Stormont, Dundas and Glengarry	• General Conditions to be included in Contract to specify incident management requirements following relevant legislation including, *Environmental Protection Act, Fisheries Act, Gasoline Handling Act,* Ontario *Pesticides Act,* Ontario *Water Resources Act* and *Transportation of Dangerous Goods Act*

I.D. #	I.D. # Sub-issues	Issues/Concern Potential Effects	Potentially Interested Agencies/Stakeholders	Mitigation/Protection/Monitoring
	2.7 Groundwater	Groundwater dewatering may be required for construction of the piers.	MECP	The need for a PTTW will be confirmed during the Detail Design phase.
4. Land Uses and Socio-Economic Environment	3.1 Construction Noise	Potential noise impacts during construction	MECP, local residents	To minimize impacts on adjacent residents, the following best practices related to noise should be in place during construction: • All equipment shall be maintained in an operating condition that prevents unnecessary noise, including non-defective muffler systems, properly secured components and the lubrication of moving parts • Idling of equipment will be restricted to the minimum necessary to perform the specified work. The *Ontario Legislation Act* (2006) exempts MTO from the requirements of municipal noise By-Laws. As such, MTO is not required to obtain exemptions from municipal noise By-Laws.
	3.2 Air Quality	Potential dust and air quality impacts caused by construction and construction traffic	MECP, local residents	Impacts minimized by Contractor compliance with General Conditions to minimize dust and other air quality impacts.
4. Cultural Resources	4.1 Deeply buried Cultural Deposits and unmarked Human Remains	Potential destruction/disturbance during construction	Ministry of Heritage, Sport, Tourism and Culture Industries (MHSTCI)	• Construction activities are anticipated to be limited to previously disturbed lands and impacts to archaeological resources are not anticipated • If areas with archaeological potential noted within the Stage 1 Archaeological Assessment are to be impacted by construction, they will require Stage 2 Archaeological Assessment prior to any disturbance • The Ontario *Cemeteries Act* applies to discovery of unmarked human remains.

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DILLON CONSULTING LIMITED
LONDON, ONTARIO

Prepared By:

Greg Hayes, B.E.S.
Environmental Planner

Reviewed By:

Adele Mochrie, B.Sc.
Environmental Team Lead

Reviewed By:

Nathan Bakker, P.Eng.
Project Manager

6.0 References

Raisin-South Nation Source Protection Region. 2016. Source Protection Plan. Accessed October 17, 2019 from: https://yourdrinkingwater.ca/files/source-protection-plan/Plan-1-4-0-Complete.pdf.

Appendix A

Public Consultation Materials

ONTARIO GOVERNMENT NOTICE
Notice of Study Commencement
Highway 401 Fraser Road Underpass Replacement
Preliminary Design and Class Environmental Assessment Study, GWP 4248-15-00

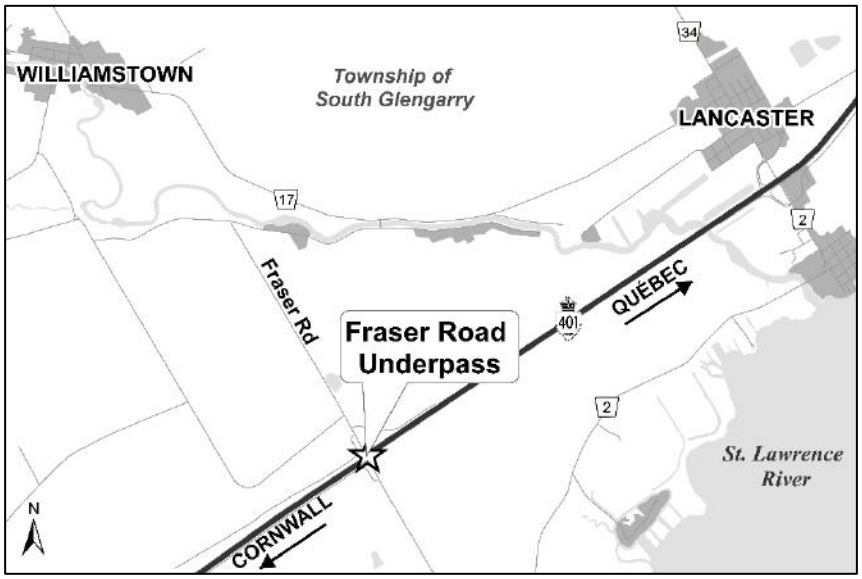
THE STUDY

The Ministry of Transportation Ontario (MTO) has retained Dillon Consulting Limited to undertake a Preliminary Design and Class Environmental Assessment Study (Class EA) to replace the Fraser Road Underpass along Highway 401 in the Township of South Glengarry, United Counties of Stormont, Dundas and Glengarry.

A number of alternatives are being considered to replace the Fraser Road Underpass and may involve temporarily closing the underpass during construction and establishing detour routes.

THE PROCESS

The Environmental Assessment Study for the replacement of the Fraser Road Underpass is following the approved environmental planning process for Group 'B' projects under MTO's Class EA for Provincial Transportation Facilities (2000). A Transportation Environmental Study Report (TESR) will be prepared and filed for public review at the completion of the study.



As part of the study process, an online Public Information Centre (PIC) will be held to provide an opportunity to review and comment on the proposed underpass replacement. Members of the project team will answer any questions you may have regarding the project. A notice will be published in local newspapers and sent to the mailing list when the PIC materials are available. For more information about the study and to view the PIC material when available online, visit the website: www.401bridgeimprovements.com (under the 'Projects' tab, select 'Fraser Road Underpass').

COMMENTS

We are interested in any information, comments or questions that you have regarding the project. Should you require further information regarding the study, please contact either the Consultant Project Manager or the MTO Project Engineer below:

Nathan Bakker, P. Eng., Consultant Project Manager
Dillon Consulting Limited
177 Colonnade Rd. S, Suite 101
Ottawa, ON, K2E7J4
Tel: 1-888-345-5668, Ext. 3009
Email: FraserRoadUnderpass@dillon.ca

Trenton Flick, P.Eng., Project Engineer
Ministry of Transportation – Eastern Region
1355 John Counter Boulevard
Kingston, ON K7L 5A3
Tel: 613-482-9609
Email: Trenton.Flick@ontario.ca

Pour des renseignements en français, veuillez communiquer avec Jeff Probert 1-877-934-5566, poste 3015.
If you have any accessibility requirements in order to participate in this project, please contact one of the Project Team members listed above. Information will be collected in accordance with the Freedom of Information and Protection of Privacy Act. With the exception of personal information, all comments will be part of the public record.

DILLON CONSULTING

Ontario

AVIS DU GOUVERNEMENT DE L'ONTARIO

Avis de début d'étude

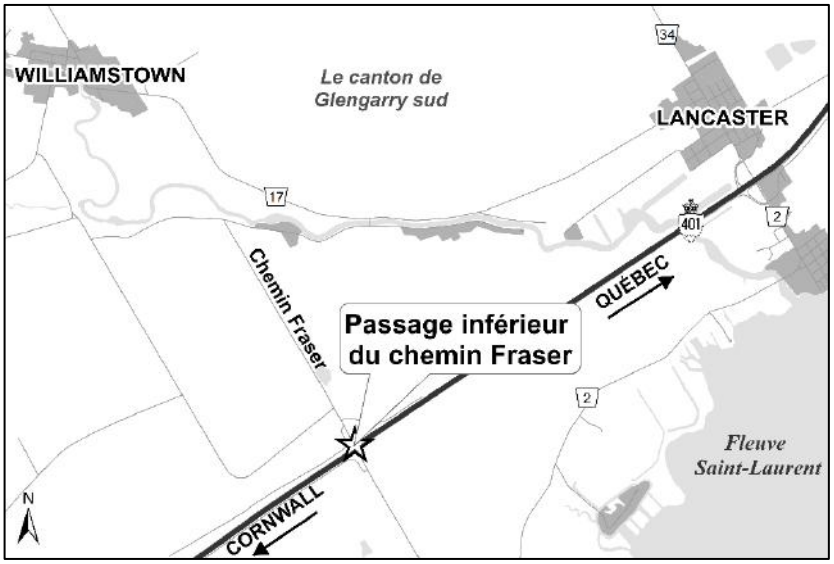
Remplacement du passage inférieur du chemin Fraser le long de l'autoroute 401

Étude d'évaluation environnementale de portée générale et de conception préliminaire, GWP 4248-15-00

L'ÉTUDE

Le ministère des Transports de l'Ontario (MTO) a retenu les services de Dillon Consulting Limited (Dillon) afin d'entreprendre une étude d'évaluation environnementale de portée générale (ÉE) et de conception préliminaire pour remplacer le passage inférieur du chemin Fraser le long de l'autoroute 401, dans le canton de Glengarry Sud, dans les Comtés unis de Stormont, Dundas et Glengarry .

Un certain nombre de solutions de rechange sont envisagées pour remplacer le passage inférieur du chemin Fraser. Ces solutions pourraient impliquer la fermeture temporaire du passage inférieur pendant la construction et la mise en place de voies de déviation.



LE PROCESSUS

L'Étude d'évaluation environnementale pour le remplacement du passage inférieur du chemin Fraser suit le processus de planification approuvé pour les projets de groupe « B » dans le cadre d'évaluations environnementales de portée générale (ÉE) pour les routes provinciales (2000) établies par le MTO. Un rapport d'étude environnementale sur les transports (REET) sera préparé et déposé pour consultation publique à la fin de l'étude.

Dans le cadre du processus d'étude, une séance d'information publique (SIP) en ligne sera tenue pour donner la chance d'examiner et de commenter le remplacement proposé du passage inférieur. Les membres de l'équipe du projet répondront à toutes vos questions concernant le projet. Un avis sera publié dans les journaux locaux et envoyé à la liste de diffusion lorsque les documents de la séance seront disponibles. Pour de plus amples renseignements sur l'étude et pour consulter les documents de la séance lorsqu'ils seront disponibles en ligne, visitez le site Web : www.401bridgeimprovements.com (sous l'onglet « Projets », sélectionnez « Passage inférieur du chemin Fraser »).

COMMENTAIRES

Nous sommes intéressés par toute information, commentaire ou question que vous avez concernant le projet. Si vous souhaitez obtenir des informations supplémentaires sur l'étude, veuillez communiquer avec le chargé de projet de la société-conseil ou l'ingénieur de projet du MTO ci-dessous :

Nathan Bakker, ing., chargé de projet de la société-conseil
Dillon Consulting Limited
177, chemin Colonnade Sud, bureau 101
Ottawa (Ontario) K2E 7J4
Tél. : 1 888 345-5668, poste 3009
Courriel : FraserRoadUnderpass@dillon.ca

Trenton Flick, ing., ingénieur de projet
Ministère des Transports – Région de l'Est
1355, boulevard John Counter
Kingston (Ontario) K7L 5A3
Tél. : 613-482-9609
Courriel : Trenton.Flick@ontario.ca

Pour des renseignements en français, veuillez communiquer avec Jeff Probert 1 877 934-5566, poste 3015.
Si vous avez des exigences en matière d'accessibilité pour participer à ce projet, veuillez communiquer avec l'un des membres de l'équipe du projet nommés ci-dessus. Les renseignements seront recueillis conformément à la Loi sur l'accès à l'information et la protection de la vie privée. À l'exception des renseignements personnels, tous les commentaires seront versés au dossier public.

DILLON CONSULTING

Ontario

Ministry of Transportation

Planning and Design Section
1355 John Counter Boulevard
Postal Bag 4000
Kingston, Ontario K7L 5A3
Tel.: 613-545-4871
1-800-267-0295
Fax: 613-540-5106

Ministère des Transports

Section de la planification et de la conception
1355, boulevard John Counter
CP/Service de sacs 4000
Kingston (Ontario) K7L 5A3
Tél.: 613-545-4871
1-800-267-0295
Téléc. 613-540-5106

Ontario

August 9, 2019

MPP Jim McDonell
Time Square
120 Second Street West
Cornwall, ON K6J 1G5

Re: Notice of Study Commencement
Highway 401 Fraser Road Underpass Replacement, GWP 4248-15-00
Preliminary Design and Class Environmental Assessment Study

Dear Mr. McDonell:

The Ministry of Transportation Ontario (MTO) has retained Dillon Consulting Limited (Dillon) to undertake a Preliminary Design and Class Environmental Assessment Study (Class EA) to replace the Fraser Road Underpass along Highway 401 in the Township of South Glengarry (see project location map in enclosed notice). Additional information is available at www.401bridgeimprovements.com (under the 'Projects' tab, select 'Fraser Road Underpass').

The enclosed notice will be published in the August 14, 2019 editions of the Glengarry News (English) and the Cornwall Express (French).

The study is following the approved environmental planning process for Group 'B' projects under MTO's *Class EA for Provincial Transportation Facilities (2000)*. The study will identify the most appropriate method to replace the structure, will assess the potential impacts and identify mitigation measures.

At any time during this study, interested persons have an opportunity to provide comments, questions and concerns to the study team. If you would like more information, or would like to provide comments, please contact the undersigned at 613-482-9609.

Yours sincerely,

Trenton Flick, P. Eng.
MTO Project Engineer

cc: Sharon Westendorp, Environmental Planner, MTO
Sarah Reive, Engineer-in-Training, MTO
Nathan Bakker, Consultant Project Manager, Dillon
Sabrina Stanlake-Wong, Environmental Planner, Dillon

Encl. Notice of Commencement

August 14, 2019

Agency Cover Letter

«Organization»
«Department»
«Address»
«CityProv»
«Postal_Code»

Attention: «Title» «First_Name» «Surname»
«Title1»

Notice of Study Commencement
Highway 401 Fraser Road Underpass Replacement, GWP 4248-15-00
Preliminary Design and Class Environmental Assessment Study

Dear «Title» «Surname»:

As outlined in the enclosed notice, the Ministry of Transportation Ontario (MTO) has retained Dillon Consulting Limited (Dillon) to undertake a Preliminary Design and Class Environmental Assessment Study (Class EA) to replace the Fraser Road Underpass along Highway 401 in the Township of South Glengarry (see project location map in enclosed notice). Additional information is available at www.401bridgeimprovements.com (under the 'Projects' tab, select 'Fraser Road Underpass').

The purpose of this letter is to introduce the study and request information you have on the existing environmental conditions (natural, socio-economic and cultural) within the area that are relevant to the study.

The study is following the approved environmental planning process for Group 'B' projects under MTO's Class EA for Provincial Transportation Facilities (2000). The study will identify the most appropriate method to replace the structure, will assess the potential impacts and identify mitigation measures.

At any time during this study, interested persons have an opportunity to provide comments, questions and concerns to the study team. If you would like more information, or would like to provide comments, please contact Sabrina Stanlake-Wong at 519-438-1288 ext. 1235, or FraserRoadUnderpass@dillon.ca.

Sincerely,

DILLON CONSULTING LIMITED

Sabrina Stanlake-Wong, RPP
for Nathan Bakker, P.Eng.
Project Manager

GJH:caw
Enclosed: Notice of Study Commencement

cc: Nathan Bakker, Dillon Project Manager
Trenton Flick, MTO Project Engineer
Sharon Westendorp, MTO Environmental Planner
Sarah Reive, MTO Engineer-in-Training

Our file: 18-8202

Ministry of Transportation

Planning and Design Section
1355 John Counter Boulevard
Postal Bag 4000
Kingston, Ontario K7L 5A3
Tel.: 613-545-4871
1-800-267-0295
Fax: 613-540-5106

Ministère des Transports

Section de la planification et de la conception
1355, boulevard John Counter
CP/Service de sacs 4000
Kingston (Ontario) K7L 5A3
Tél.: 613-545-4871
1-800-267-0295
Téléc. 613-540-5106

Ontario

August 12, 2019

Indigenous Communities
Cover Letter

«Organization»
«Department»
«Address»
«CityProv»
«Postal_Code»

Attention: «Title» «First_Name» «Surname»
«Title1»

Notice of Study Commencement
Highway 401 Fraser Road Underpass Replacement, GWP 4248-15-00
Preliminary Design and Class Environmental Assessment Study

Dear «Title» «Surname»:

As outlined in the enclosed notice, the Ministry of Transportation Ontario (MTO) has retained Dillon Consulting Limited (Dillon) to undertake a Preliminary Design and Class Environmental Assessment Study (Class EA) to replace the Fraser Road Underpass along Highway 401 in the Township of South Glengarry (see project location map in enclosed notice). Additional information is available at www.401bridgeimprovements.com (under the **'**Projects' tab, select 'Fraser Road Underpass').

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Yours sincerely,

MINISTRY OF TRANSPORTATION

Trenton Flick, P.Eng.
MTO Project Engineer

Encl. Notice of Commencement

cc: Sharon Westendorp, Environmental Planner, MTO
Sarah Reive, Engineer-in-Training, MTO
Nathan Bakker, Consultant Project Manager, Dillon
Sabrina Stanlake-Wong, Environmental Planner, Dillon

Your Targeting Report

Mailing Campaign Details

07-03-2019

GREG HAYES **Mailing ID XI5DB83890418439887**

Thank you for taking advantage of our targeting service - a one stop solution designed to help you get the most out of your Smartmail Marketing™ campaigns.

- Anonymous Precision Targeter users will have their reports saved and accessible for 30 days from the day the report has been generated.
- Signed-In Precision Targeter users will have their reports saved and accessible for 13 months from the day the report has been generated.

Inside, find comprehensive insight into your selected trade area, including:

Variables	
Address Attributes	Houses, Apartments, Farms and Businesses
Number of Mail Pieces	507
Urban / Rural	All
Estimated Delivery Cost	$99.69
Delivery Mode (Route Type)	Letter Carrier (LC), Rural Route (RR), Suburban Service (SS), General Delivery (GD), Lock Box (LB), Call For (CF), Motorized Route (MR), Direct (DR)
Valid for Mailings From	19-06-14 To 19-07-11
Householder Types	Consumer's Choice

Not only does the attached report provide an in-depth look at your chosen trade area, it also harnesses the power of data analytics to help maximize your return on investment (ROI) by providing you with:

- A Route Ranking report that prioritizes your postal route selections based on your demographic criteria, enabling you to deliver your message to the people most likely to respond;
- A Postal Station Summary report that indicates the facilities responsible for your mailing;
- Maps, Impact Assessment, and many other campaign-enhancing resources.

Do you want to further improve your Smartmail Marketing™? Take advantage of our suite of data and targeting solutions:

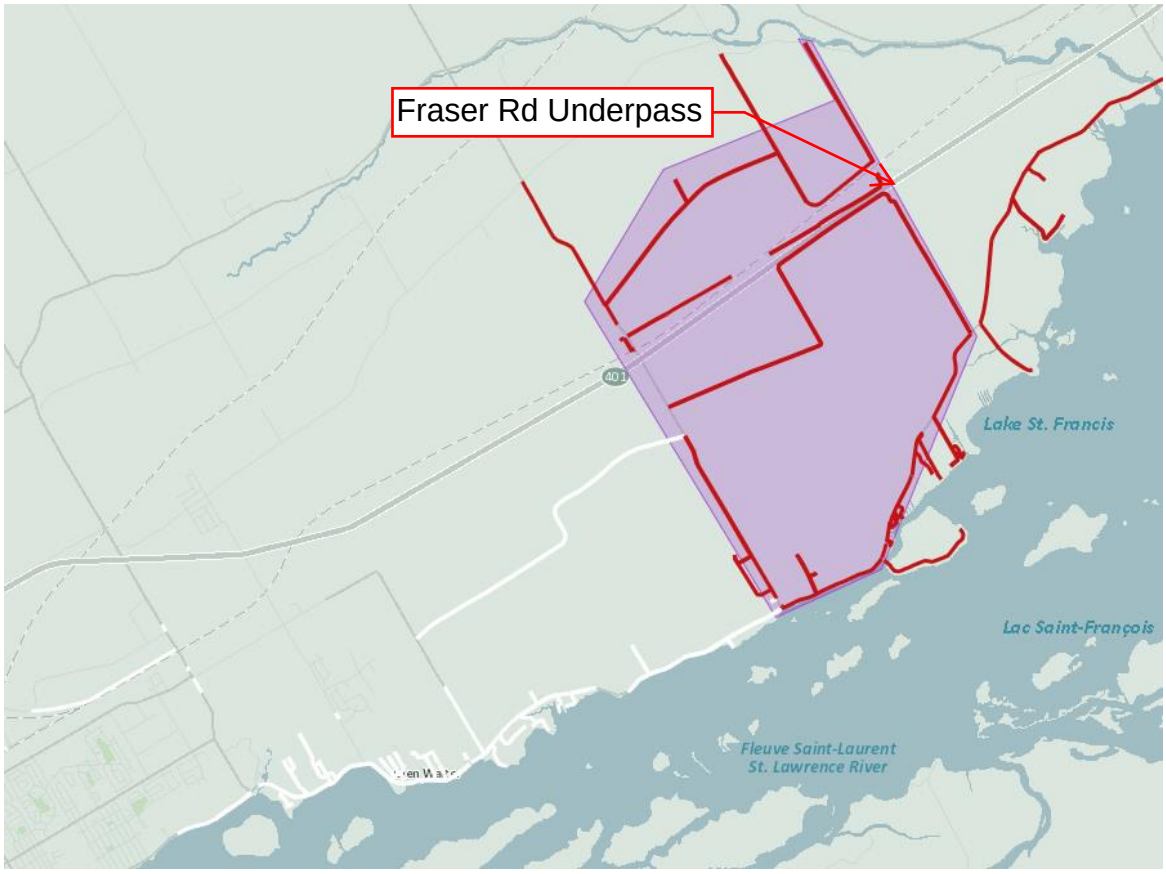
Canada Complete Lists	Data Management Services	Analytics
Canada Complete lists provide one of the largest reach in Canada, drawing from Canada Post's mail delivery database of over 13 million residential addresses and close to a million business addresses. With our additional targeting filters, supplement your list by pinpointing specific audiences that best match what your best prospects look like.	With the help of Canada Post's Data Management Services, you can improve your address accuracy, identify movers, and suppress duplicate records. This will ensure clean, current, and accurate mail files - in doing so, you will have less undeliverable mail and an improved ROI.	Our analytics experts will work with you to ensure your consumer data delivers optimal results. For example, we canhelp identify highest-potential customers and prospects through penetration analysis, location intelligence, segmentation, modeling and profiling.

Questions? Contact your Canada Post Sales Representative or our Commercial Service Network at 1-866-757-5480.

Your Targeting Report

Route Ranking Report

Reaching the right people with the right message is a key driver of campaign success. The map below shows your selected trade area and the routes that make up your coverage. The routes are colour coded according to the penetration of your selected demographic variable(s) to show how closely it matches your ideal prospect.



Your Targeting Report

Route Ranking Report

Below you will find your Route Ranking Report, which provides you with a tabular view of the routes within your trade area ranked according to the value of the selected demographic variable(s). By looking at the "Cumulative Penetration" and the "Cumulative Points of Call" columns, you can easily determine which routes you need to target in order to meet your desired quota.

GREG HAYES

FSA	Delivery Mode (Route)	Depot	All Points Of Call	Cumulative Points of Call
K0C	RR0073	SUMMERSTOWN PO	507	507

Your Targeting Report

Postal Station Summary

To avoid transportation charges, you may want to deposit your Neighbourhood Mail™ directly at each postal station responsible for your mailing. The table below provides you with a list of post offices where you need to induct your mailing, and how many pieces must be deposited at each location.

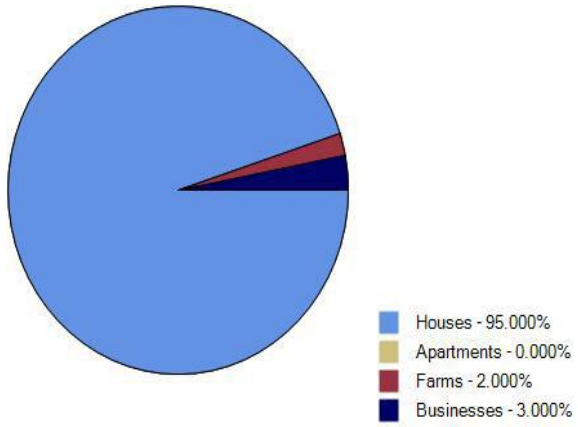
	HOUSES	APARTMENTS	FARMS	BUSINESSES	TOTAL POINTS OF CALL
SUMMERSTOWN POGD0001 SUMMERSTOWN ON K0C 2E0					
TOTAL	481	0	9	17	507
GRAND TOTAL	481	0	9	17	507

Your Targeting Report

Trade Area Marketing Insights

Below, you will find some insights to your trade area. The provided charts give a simple visual representation of some key characteristics of your target area in order to help you better understand the dynamics of your market.

Address Attributes



This chart provides you with a breakdown of various delivery points within your trade area, based on your selected address attributes.

The majority of your area is characterized by:
Houses

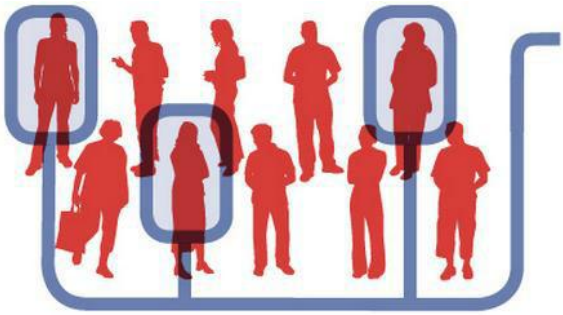
Did you know...

We can help you discover and harvest untapped market potential? We do so by generating a list of additional high value routes, typically located just outside your selected trade area, that meet or exceed your targeting criteria. To take advantage of this offering, simply accept our high value walk suggestions within the online application or request this feature when having an analysis run by our team of geospatial analysts.

Your Targeting Report

Powerful Data & Targeting

Looking for more ways to harvest the campaign-boosting powers of data and analytics? We have options...



It's time to be more direct. Reach more prospects with Canada Complete lists from Canada Post

Canada's best list just got even better. Our lists provide one of the largest reach in Canada, drawing from our mail delivery database of over 13 million residential addresses and close to a million business addresses. By customizing your mail with a name and/or an address you can provide an instant boost to open rates and responses. With our additional targeting filters, supplement your list by pinpointing specific audiences based on geographic, demographic, and lifestyle criteria that best match what your best prospects look like.

Why choose Canada Complete?

- We have more addresses than anyone else and with the best market penetration in the country
- Gain access to the most complete list that can provide nationwide access to apartments and suite numbers
- Validated addresses that you know are deliverable - save money by reducing returned mail
- Exclude existing customers by suppressing addresses you already have - only pay for the records you need
- Canada's best list for accessing Canadian New Movers - a segment that spends $11B annually
- Enhance your list with a range of unique and exclusive targeting filters to reach your best audience

Ensure your mailing list is valid

Is bad address data hindering your campaign performance? Thanks to our ***Smart Data Cleaner***, it doesn't have to. This easy-to-use online tool lets you clean and update your customer and prospect mailing lists. Not sure if your list needs a scrub? Get a free diagnostic first.

Reach people by name and boost response

Neighbourhood Mail™ is a powerful and effective marketing solution. To take your targeting to a whole new level use Canada Post Personalized Mail™, and reach Canadians by name and address at their place of residence or work. Studies have shown that 87% of Canadians are likely to read mail that is addressed to them personally, and that Personalized Mail™ garners three times as much attention as Neighbourhood Mail™.

Turn your customer data into actionable insight with our Advanced Analytics Services

Data is the fuel that drives campaign performance, but it can sometimes be a challenge to analyze and take action on it. That's where our dedicated team of analytics experts comes in. Through **penetration analysis, location intelligence, segmentation, modeling** and **profiling** they can help enhance your response potential by identifying your highest potential prospects.

Want to learn more about our powerful Data & Targeting Solutions?

Visit our website: **www.canadapost.ca/datatargetingsolutions**

email us at: **data.targetingsolutions@canadapost.ca**

If you wish to speak with one of our Data and Targeting specialists, call us at **1-877-281-4137**

Your Targeting Report

Glossary of Terms

1. **Address Attributes:** Describes the types of buildings present in your trade area, whether they are houses, apartments, farms, and/or businesses.
2. **All Points of Call:** The total number of physical locations (points of call) receiving your mailing on a given letter carrier's route, which can be houses, apartments, farms and/or businesses based on your selection criteria.
3. **Average Value:** The average value (%) of the chosen Statistics Canada demographic variables that can be associated with the letter carrier's route, which provides you with insight into your recipients.
4. **Cumulative Penetration:** The cumulative percentage of penetration associated with the letter carrier's routes based on the selected demographic variables.
5. **Cumulative Points of Call:** The cumulative point of call count associated with the letter carrier's routes, which has been calculated by adding the previous Delivery Mode rows in the report.
6. **Delivery Mode:** The area served by a letter carrier.
7. **Depot:** A postal facility established for the processing and delivery of mail. Example: Etobicoke, Ontario.
8. **Forward Sortation Area (FSA):** The first three characters (alpha-numeric-alpha) of a Postal Code ^{OM}, which represent a geographic area. Example: M9W
9. **Postal Station Summary:** This report indicates which postal stations are responsible for your targeted routes. The count of each point of call type (houses, apartments, farms, and/or businesses) is displayed for each depot. The total point of call count, listed at the end of the report, denotes the number of houses, apartments, farms, and/or businesses associated with each postal station.
10. **Route ID:** This represents the identifier assigned to each letter carrier's route. Its primary use is for the coordination of the mail delivery.
11. **Target Variables:** A report can have a minimum of one to a maximum of three Statistics Canada demographic variables selected. These variables are displayed in the value columns as a percentage (%) that can be associated with that entire Delivery Mode.
12. **Total Points of Call:** The total number of houses, apartments, farms, and/or businesses (based on your selection) associated with the depot in your Postal Station Summary. This number indicates how many pieces are required for each depot.
13. **Total:** This row represents the sum of each dwelling type (houses, apartments, farms, and/or businesses) within a depot.
14. **Valid for Mailings From:** Due to monthly route restructures, the results found within this report are valid between these dates. Mailing outside of these dates could cause delivery problems or pose a risk of non-delivery.

Ministry of Transportation Ontario (MTO)
Highway 401 Fraser Road Underpass Replacement
Class Environmental Assessment & Design, GWP 4248-15-00

Please fill out this form and return it to Dillon Consulting Limited using the information provided below.

Please indicate if you would like to be kept informed of the project.

☐ I/we would like to be kept informed about this project.
☐ I/we do not wish to be kept informed.

Name _____

Address _____

_____

Phone _____

Email _____

Comments / questions / concerns:

_____

_____

_____

_____

_____

_____

_____

_____

Please return this form by **September 4, 2019** to:

Dillon Consulting Limited
P.O. Box 426
London, Ontario, N6A 4W7
Attention: Sabrina Stanlake-Wong, RPP

Tel: 1-888-345-5668 Ext. 1235
Fax: 519-672-8209
E-mail: lancastercvif@dillon.ca

Information will be collected in accordance with the *Freedom of Information and Protection of Privacy Act*. Except for personal information, all comments will become part of the public record.

Ontario

DILLON CONSULTING

Dossier nº 11-5664

Ministère des Transports de l'Ontario

Remplacement du passage inférieur du chemin Fraser le long de l'autoroute 401
Étude d'évaluation environnementale de portée générale et de conception préliminaire, GWP 4248-15-00

Veuillez remplir le présent formulaire et le retourner à Dillon Consulting Limited aux coordonnées ci-dessous.

Veuillez indiquer si vous voulez qu'on vous tienne au courant du projet.

☐ Je veux être tenu (Nous voulons être tenus) au courant du projet.
☐ Je ne veux pas être tenu (Nous ne voulons pas être tenus) au courant.

Nom _____

Addresse _____

_____

Téléphone _____

Courriel _____

Commentaires ou questions:

_____

_____

_____

_____

_____

_____

_____

_____

Veuillez retourner le présent formulaire aux coordonnées suivantes d'ici **le 4 septembre 2019** :

Dillon Consulting Limited
C.P. 426
London (Ontario), N6A 4W7
Tél. : 1 888 345-5668, poste 1235
Téléc. : 519 672-8209
Courriel : FraserRoadUnderpass@dillon.ca
À l'attention de Sabrina Stanlake-Wong, planificatrice professionnelle certifiée

Les renseignements seront recueillis conformément à la *Loi sur l'accès à l'information et la protection de la vie privée*. À l'exception des renseignements personnels, tous les commentaires deviendront du domaine public.

Ontario

DILLON CONSULTING

Dossier nº 11-5664

Your Targeting Report

Mailing Campaign Details

07-03-2019

GREG HAYES **Mailing ID XI5DB83890418439887**

Thank you for taking advantage of our targeting service - a one stop solution designed to help you get the most out of your Smartmail Marketing™ campaigns.

- Anonymous Precision Targeter users will have their reports saved and accessible for 30 days from the day the report has been generated.
- Signed-In Precision Targeter users will have their reports saved and accessible for 13 months from the day the report has been generated.

Inside, find comprehensive insight into your selected trade area, including:

Variables	
Address Attributes	Houses, Apartments, Farms and Businesses
Number of Mail Pieces	507
Urban / Rural	All
Estimated Delivery Cost	$99.69
Delivery Mode (Route Type)	Letter Carrier (LC), Rural Route (RR), Suburban Service (SS), General Delivery (GD), Lock Box (LB), Call For (CF), Motorized Route (MR), Direct (DR)
Valid for Mailings From	19-06-14 To 19-07-11
Householder Types	Consumer's Choice

Not only does the attached report provide an in-depth look at your chosen trade area, it also harnesses the power of data analytics to help maximize your return on investment (ROI) by providing you with:

- A Route Ranking report that prioritizes your postal route selections based on your demographic criteria, enabling you to deliver your message to the people most likely to respond;
- A Postal Station Summary report that indicates the facilities responsible for your mailing;
- Maps, Impact Assessment, and many other campaign-enhancing resources.

Do you want to further improve your Smartmail Marketing™? Take advantage of our suite of data and targeting solutions:

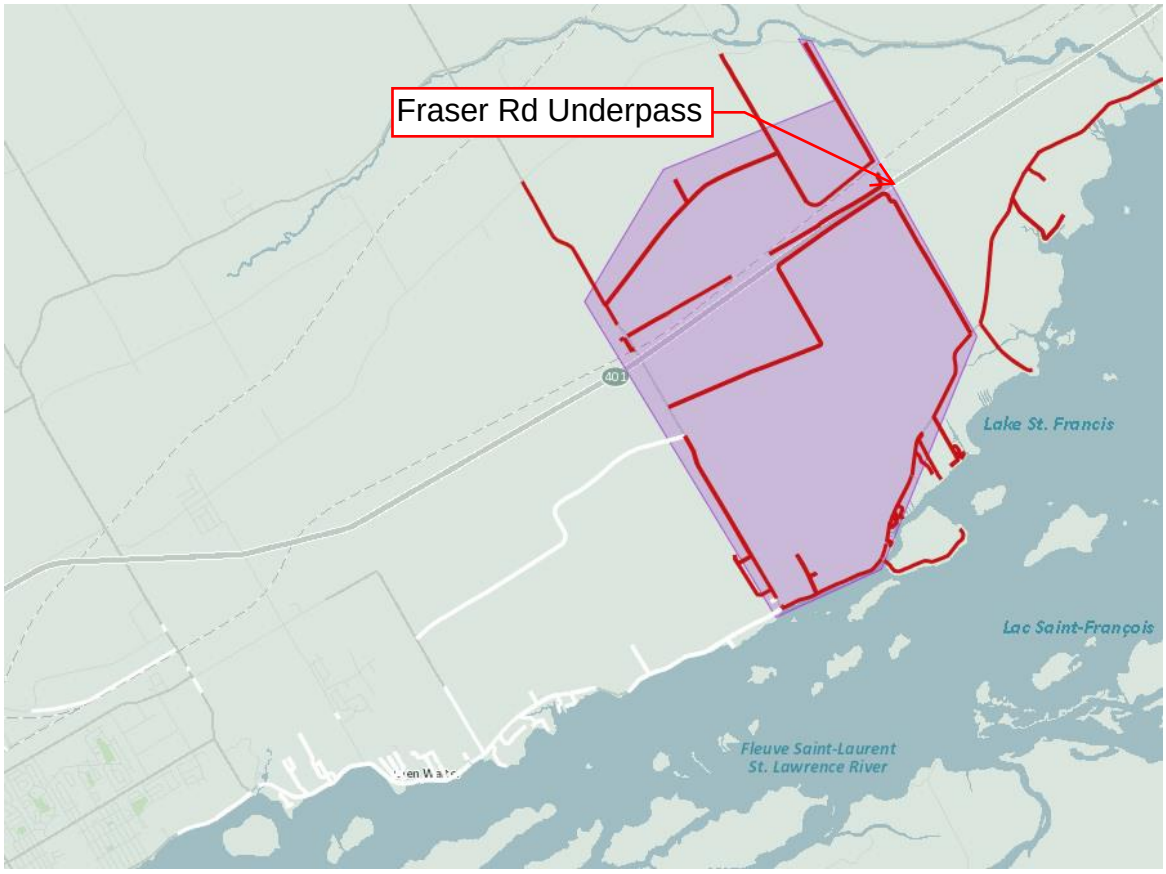
Canada Complete Lists	Data Management Services	Analytics
Canada Complete lists provide one of the largest reach in Canada, drawing from Canada Post's mail delivery database of over 13 million residential addresses and close to a million business addresses. With our additional targeting filters, supplement your list by pinpointing specific audiences that best match what your best prospects look like.	With the help of Canada Post's Data Management Services, you can improve your address accuracy, identify movers, and suppress duplicate records. This will ensure clean, current, and accurate mail files - in doing so, you will have less undeliverable mail and an improved ROI.	Our analytics experts will work with you to ensure your consumer data delivers optimal results. For example, we canhelp identify highest-potential customers and prospects through penetration analysis, location intelligence, segmentation, modeling and profiling.

Questions? Contact your Canada Post Sales Representative or our Commercial Service Network at 1-866-757-5480.

Your Targeting Report

Route Ranking Report

Reaching the right people with the right message is a key driver of campaign success. The map below shows your selected trade area and the routes that make up your coverage. The routes are colour coded according to the penetration of your selected demographic variable(s) to show how closely it matches your ideal prospect.



Your Targeting Report

Route Ranking Report

Below you will find your Route Ranking Report, which provides you with a tabular view of the routes within your trade area ranked according to the value of the selected demographic variable(s). By looking at the "Cumulative Penetration" and the "Cumulative Points of Call" columns, you can easily determine which routes you need to target in order to meet your desired quota.

GREG HAYES

FSA	Delivery Mode (Route)	Depot	All Points Of Call	Cumulative Points of Call
K0C	RR0073	SUMMERSTOWN PO	507	507

Your Targeting Report

Postal Station Summary

To avoid transportation charges, you may want to deposit your Neighbourhood Mail™ directly at each postal station responsible for your mailing. The table below provides you with a list of post offices where you need to induct your mailing, and how many pieces must be deposited at each location.

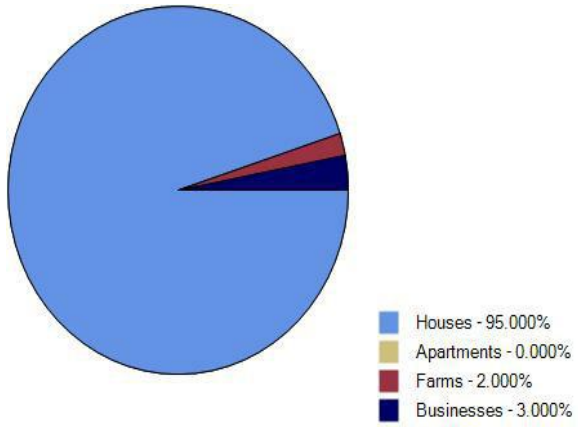
	HOUSES	APARTMENTS	FARMS	BUSINESSES	TOTAL POINTS OF CALL
SUMMERSTOWN POGD0001 SUMMERSTOWN ON K0C 2E0					
TOTAL	481	0	9	17	507
GRAND TOTAL	481	0	9	17	507

Your Targeting Report

Trade Area Marketing Insights

Below, you will find some insights to your trade area. The provided charts give a simple visual representation of some key characteristics of your target area in order to help you better understand the dynamics of your market.

Address Attributes



This chart provides you with a breakdown of various delivery points within your trade area, based on your selected address attributes.

The majority of your area is characterized by:
Houses

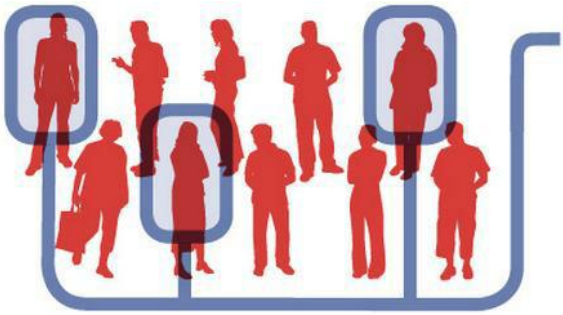
Did you know...

We can help you discover and harvest untapped market potential? We do so by generating a list of additional high value routes, typically located just outside your selected trade area, that meet or exceed your targeting criteria. To take advantage of this offering, simply accept our high value walk suggestions within the online application or request this feature when having an analysis run by our team of geospatial analysts.

Your Targeting Report

Powerful Data & Targeting

Looking for more ways to harvest the campaign-boosting powers of data and analytics? We have options...



It's time to be more direct. Reach more prospects with Canada Complete lists from Canada Post

Canada's best list just got even better. Our lists provide one of the largest reach in Canada, drawing from our mail delivery database of over 13 million residential addresses and close to a million business addresses. By customizing your mail with a name and/or an address you can provide an instant boost to open rates and responses. With our additional targeting filters, supplement your list by pinpointing specific audiences based on geographic, demographic, and lifestyle criteria that best match what your best prospects look like.

Why choose Canada Complete?

- We have more addresses than anyone else and with the best market penetration in the country
- Gain access to the most complete list that can provide nationwide access to apartments and suite numbers
- Validated addresses that you know are deliverable - save money by reducing returned mail
- Exclude existing customers by suppressing addresses you already have - only pay for the records you need
- Canada's best list for accessing Canadian New Movers - a segment that spends $11B annually
- Enhance your list with a range of unique and exclusive targeting filters to reach your best audience

Ensure your mailing list is valid

Is bad address data hindering your campaign performance? Thanks to our ***Smart Data Cleaner***, it doesn't have to. This easy-to-use online tool lets you clean and update your customer and prospect mailing lists. Not sure if your list needs a scrub? Get a free diagnostic first.

Reach people by name and boost response

Neighbourhood Mail™ is a powerful and effective marketing solution. To take your targeting to a whole new level use Canada Post Personalized Mail™, and reach Canadians by name and address at their place of residence or work. Studies have shown that 87% of Canadians are likely to read mail that is addressed to them personally, and that Personalized Mail™ garners three times as much attention as Neighbourhood Mail™.

Turn your customer data into actionable insight with our Advanced Analytics Services

Data is the fuel that drives campaign performance, but it can sometimes be a challenge to analyze and take action on it. That's where our dedicated team of analytics experts comes in. Through **penetration analysis, location intelligence, segmentation, modeling** and **profiling** they can help enhance your response potential by identifying your highest potential prospects.

Want to learn more about our powerful Data & Targeting Solutions?

Visit our website: **www.canadapost.ca/datatargetingsolutions**

email us at: **data.targetingsolutions@canadapost.ca**

If you wish to speak with one of our Data and Targeting specialists, call us at **1-877-281-4137**

Your Targeting Report

Glossary of Terms

1. **Address Attributes:** Describes the types of buildings present in your trade area, whether they are houses, apartments, farms, and/or businesses.
2. **All Points of Call:** The total number of physical locations (points of call) receiving your mailing on a given letter carrier's route, which can be houses, apartments, farms and/or businesses based on your selection criteria.
3. **Average Value:** The average value (%) of the chosen Statistics Canada demographic variables that can be associated with the letter carrier's route, which provides you with insight into your recipients.
4. **Cumulative Penetration:** The cumulative percentage of penetration associated with the letter carrier's routes based on the selected demographic variables.
5. **Cumulative Points of Call:** The cumulative point of call count associated with the letter carrier's routes, which has been calculated by adding the previous Delivery Mode rows in the report.
6. **Delivery Mode:** The area served by a letter carrier.
7. **Depot:** A postal facility established for the processing and delivery of mail. Example: Etobicoke, Ontario.
8. **Forward Sortation Area (FSA):** The first three characters (alpha-numeric-alpha) of a Postal Code ^{OM}, which represent a geographic area. Example: M9W
9. **Postal Station Summary:** This report indicates which postal stations are responsible for your targeted routes. The count of each point of call type (houses, apartments, farms, and/or businesses) is displayed for each depot. The total point of call count, listed at the end of the report, denotes the number of houses, apartments, farms, and/or businesses associated with each postal station.
10. **Route ID:** This represents the identifier assigned to each letter carrier's route. Its primary use is for the coordination of the mail delivery.
11. **Target Variables:** A report can have a minimum of one to a maximum of three Statistics Canada demographic variables selected. These variables are displayed in the value columns as a percentage (%) that can be associated with that entire Delivery Mode.
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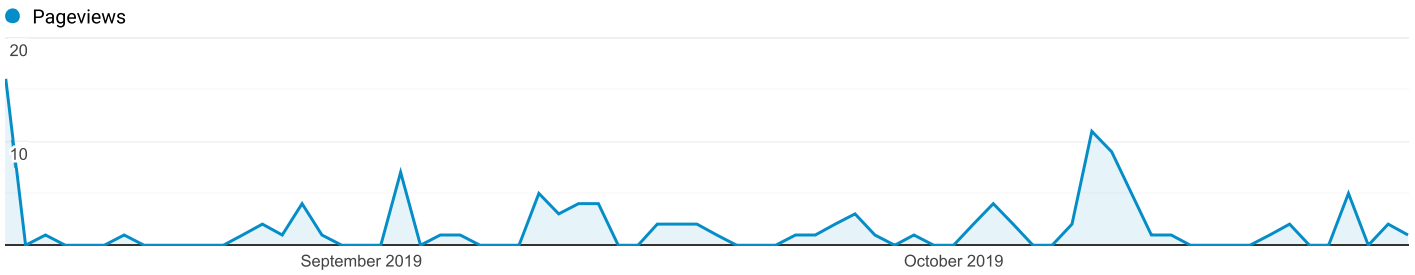
Pages

ALL » PAGE: /fraserroad.html

Aug 14, 2019 - Oct 24, 2019

All Users
9.88% Pageviews

Explorer



Page	Pageviews	Unique Pageviews	Avg. Time on Page	Entrances	Bounce Rate	% Exit	Page Value
	116 % of Total: 9.88% (1,174)	**72** % of Total: 8.13% (886)	**00:00:55** Avg for View: 00:00:44 (24.27%)	**30** % of Total: 6.49% (462)	**36.67%** Avg for View: 55.84% (-34.34%)	**39.66%** Avg for View: 39.35% (0.77%)	**$0.00** % of Total: 0.00% ($0.00)
1. /fraserroad.html	**116** **(100.00%)**	72 (100.00%)	00:00:55	30 (100.00%)	36.67%	39.66%	$0.00 (0.00%)

Rows 1 - 1 of 1

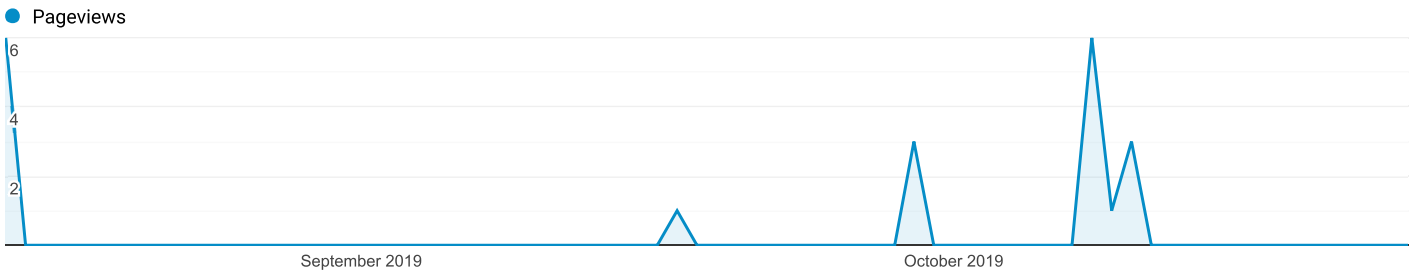
Pages

ALL » PAGE: /fraserroadfr.html

Aug 14, 2019 - Oct 24, 2019

All Users
1.70% Pageviews

Explorer



Page	Pageviews	Unique Pageviews	Avg. Time on Page	Entrances	Bounce Rate	% Exit	Page Value
	20 % of Total: 1.70% (1,174)	**9** % of Total: 1.02% (886)	**00:00:25** Avg for View: 00:00:44 (-43.73%)	**1** % of Total: 0.22% (462)	**100.00%** Avg for View: 55.84% (79.07%)	**30.00%** Avg for View: 39.35% (-23.77%)	**$0.00** % of Total: 0.00% ($0.00)
1. /fraserroadfr.html	**20** **(100.00%)**	9 (100.00%)	00:00:25	1 (100.00%)	100.00%	30.00%	$0.00 (0.00%)

Rows 1 - 1 of 1

Ministry of Transportation Ontario (MTO)
Highway 401 Fraser Road Underpass Replacement
Class Environmental Assessment & Design, GWP 4248-15-00

Please fill out this form and return it to Dillon Consulting Limited using the information provided below.

Please indicate if you would like to be kept informed of the project.

☑ I/we would like to be kept informed about this project.
☐ I/we do not wish to be kept informed.

Name MONICA SANFORD

Address 22521 ISLAND ROAD
PORT PERRY, ON L9L 1B6

Phone 905 985 3337

Email msanford@scugogfirstnation.com

Comments / questions / concerns:

No comments at this time.

Please return this form by **September 4, 2019** to:

Dillon Consulting Limited
P.O. Box 426
London, Ontario, N6A 4W7
Attention: Sabrina Stanlake-Wong, RPP

Tel: 1-888-345-5668 Ext. 1235
Fax: 519-672-8209
E-mail: lancastercvif@dillon.ca

Information will be collected in accordance with the *Freedom of Information and Protection of Privacy Act*. Except for personal information, all comments will become part of the public record.

Ontario

DILLON CONSULTING

Dossier nº 11-5664

DILLON CONSULTING

Hayes, Greg <ghayes@dillon.ca>

highway 401 Fraser Rd. underpass replacement GWP 4248-15-00

'Dave Simpson' via Lancaster CVIF <lancastercvif@dillon.ca> Tue, Sep 10, 2019 at 1:57 PM
Reply-To: Dave Simpson <consultation@alderville.ca>
To: "lancastercvif@dillon.ca" <lancastercvif@dillon.ca>

Thank you for reaching out to our community of Alderville First Nation but this project is not in our treaty area therefore we will not be commenting on the project

Thank you

Dave Simpson Consultation

Alderville First Nation

Ph. 905 352-2662

Cell 905 375-5480

cosultation@alderville.ca

Hayes, Greg <ghayes@dillon.ca>

Highway 401 Frazier road underpass GWP4248-15-00

Sun, Sep 29, 2019 at 11:01 AM

To: fraserRoadUnderpass@dillon.ca, Trento.Flick@ontario.ca

Dear Sir,

Careful consideration should be given to the benefits of the local community's to add west and east bound 401 on ramps to the Fraser Rd location .
In addition to speeding up emergency response times for fire and ambulance services the addition of on ramps would reduce heavy traffic on highway 2 prolonging the life of the small two lane highway. Highway 2 speed limits were reduced to 60 km / hr a few years back and as such adds travel time to and from Cornwall for local daily commutes. In addition, Due to the speed reduction, school busses and lack of safe passing locations on Hwy 2, there are a growing number of frustrated drivers during daily commute to and from Cornwall. Presently any time there is an accident on the 401 and a detour on hwy 2 is required the only access is by way of Summerstown road or Lancaster which are a long distance apart and thus hwy 2 takes a lot of wear due to the heavy trucks. By having on and off ramps on Fraser rd it will also facilitate access to the campgrounds (T&I and Charlottenburg Park) also reducing traffic on Hwy 2.
Thank you

Sent from my iPad

Hayes, Greg <ghayes@dillon.ca>

GWP 4248-15-00 Hwy 401 Fraser Road Underpass Replacement

Dillon, Mary (MNRF) <Mary.Dillon@ontario.ca> Mon, Oct 7, 2019 at 4:10 PM
To: "FraserRoadUnderpass@dillon.ca" <FraserRoadUnderpass@dillon.ca>

Good afternoon Mr. Bakker,

Thank you for the Notice of Study Commencement in accordance with the Class EA for the replacement of the Fraser Road Underpass in the Township of South Glengarry which was received by mail on August 19, 2019. Please accept my apology for the delay.

You are probably aware of the process, but I have attached a guide to help you access natural heritage data from convenient online sources and in-water timing guidelines should the proposed project activities require fisheries considerations. It is the proponent's responsibility to complete a preliminary screening for each project, obtain available information from multiple sources, conduct any necessary field studies, and to consider any potential environmental impacts that may result from an activity. If there are any questions or concerns regarding the Ministry's interests following completion of the preliminary screening, we would be happy to provide technical information and advice. Please note that Species at Risk data is no longer provided by the MNRF. All Endangered Species Act or Species at Risk enquiries should be directed to the Ministry of Environment, Climate Change and Parks at SAROntario@ontario.ca.

Here is some additional information to help you determine whether other legislation is applicable.

Petroleum Wells & Oil, Gas and Salt Resource Act

There may be petroleum wells within the proposed project area. Please consult the Ontario Oil, Gas and Salt Resources Library website (www.ogsrlibrary.com) for the best known data on any wells recorded by MNRF. Please reference the 'Definitions and Terminology Guide' listed in the publications on the Library website in order to better understand the well information available. Any oil and gas wells in your project area are regulated by the Oil, Gas and Salt Resource Act, and the supporting regulations and operating standards. If any unanticipated wells are encountered during development of the project, or if the proponent has questions regarding petroleum operations, the proponent should contact the Petroleum Operations Section at 519-873-4634.

We wish to remain engaged in this project and review the Transportation Environmental Study Report that is produced. Please contact me if you have any questions or concerns regarding MNRF interests.

Sincerely,

Mary Dillon

District Planner – Kemptville District

Ministry of Natural Resources and Forestry

613-258-8470

2 attachments

NHGuide_MNRF_2019-04-01.pdf
988K

KVD_In_Water_Work_Timing_Guidelines_2018-02-27.pdf
119K

Ministry of Natural Resources and Forestry

Kemptville District

10 Campus Drive
Postal Box 2002
Kemptville ON K0G 1J0
Tel.: 613 258-8204
Fax: 613 258-3920

Ministère des Richesses naturelles et des Forêts

District de Kemptville

10, promenade Campus
Case postale, 2002
Kemptville ON K0G 1J0
Tél.: 613 258-8204
Téléc.: 613 258-3920

Ontario

Last Revised: February 27, 2018

SUBJECT: UPDATED IN-WATER WORK TIMING GUIDELINES IN KEMPTVILLE DISTRICT

To: all interested parties

The Ministry of Natural Resources and Forestry Kemptville District Office has recently reviewed and updated its In-water Work Timing Guidelines. These guidelines are intended to provide the timing for in-water work related to an activity, in order to protect fish during spawning and other critical life stages. Timing guidelines are based on species* presence and are therefore subject to change if new information becomes available.

Timing Guidelines in Kemptville District are:

Waterbody (and applicable geography or Fisheries Management Zone)	Timing Guidelines (no in-water works)
○ St. Lawrence River (FMZ 20)	March 15 – July 15 (Spring spawning species)
○ Ottawa River – Lac Des Chats (FMZ 12)	October 1 to July 15 (Spring and fall spawning species, including Lake Trout and Lake Whitefish)
○ Ottawa River – Lac Deschenes (FMZ 12)	October 15 to July 15 (Spring and fall spawning species, including Cisco)
○ Ottawa River – Lac Dollard des Ormeaux (FMZ 12)	January 1 to July 15 (Winter and spring spawning species, including Burbot)
○ Big Rideau Lake (South Burgess, North Burgess, Bastard and South Elmsley Twps) ○ Charleston Lake (Lansdowne and Escott Twps) ○ Crow Lake (South Crosby Twp)	October 1 to June 30 (Spring and fall spawning species, including Lake Trout)
○ Bass Lake (South Elmsley Twp) ○ Lower Rideau Lake (South Elmsley Twp) ○ Bob's Lake (South Sherbrooke Twp) ○ Christie Lake (South Sherbrooke Twp) ○ Dalhousie Lake (Dalhousie Twp) ○ Davern Lake (South Sherbrooke Twp) ○ Farren Lake (South Sherbrooke Twp) ○ Grippen Lake (Leeds Twp) ○ Indian Lake (South Crosby Twp) ○ Little Long Lake (Lansdowne Twp) ○ Millpond Lake (South Burgess) ○ Otter Lake (South Elmsley, South Burgess and Bastard Twps)	October 15 to June 30 (Spring and Fall spawning species, including Lake Whitefish and Cisco)

○ Otty Lake (North Burgess and North Elmsley Twps) ○ Pike Lake (North Burgess Twp) ○ Silver Lake (South Sherbrooke Twp) ○ Redhorse Lake (Lansdowne Twp) ○ Tay River (South Sherbrooke, Bathurst, Drummond and North Elmsley Twps) ○ Wolfe Lake (North Crosby Twp)	
○ Bennett Lake (Bathurst Twp) ○ Crosby Lake (North Crosby Twp) ○ Gananoque River (Leeds Twp) ○ Lac Georges (Plantagenet and Alfred Twps) ○ Gillies Lake (Lanark Twp) ○ Little Crosby Lake (North Crosby Twp) ○ McLaren Lake (North Burgess Twp) ○ Mississippi Lake (Drummond, Beckwith and Ramsay Twps) ○ Mississippi River (Beckwith, Ramsay, Pakenham and Fitzroy Twps) ○ Raisin River below Martintown dam (Charlottenburgh Twp) ○ Rideau River (Wolford, Oxford, Montague, Marlborough, South Gower, North Gower, Osgood, Nepean and Gloucester Twps) ○ South Lake (Leeds Twp) ○ South Nation River below Plantagenet weir (Plantagenet Twp) ○ Upper Rideau Lake (North Crosby Twp) ○ Westport Sand Lake (North Crosby Twp)	January 1 – June 30 (Winter and spring spawning species, including Burbot)
○ Small rivers and streams (denoted on 1:50,000 National Topographic System maps as being one-lined) ○ All other waterbodies in FMZ 18	March 15 to June 30 (Spring spawning species)

**Additional timing guidelines may apply as they relate to endangered and threatened species for works in both water and wetland areas. Timing guidelines are subject to change, depending on species found in a given waterbody.*

Should you have any questions, please do not hesitate to contact Joffre Côté, Management Biologist (at 613-258-8214 or joff.cote@ontario.ca) or Jane Devlin, Management Biologist (at 613-258-8418 or jane.devlin@ontario.ca).

Sincerely,

John Boos

Resources Management Supervisor
Kemptville District Office
Ministry of Natural Resources and Forestry

Ministry of Heritage, Sport, Tourism, and Culture Industries

Programs and Services Branch
401 Bay Street, Suite 1700
Toronto ON M7A 0A7
Tel: 416.314.7133

Ministère des Industries du Patrimoine, du Sport, du Tourisme et de la Culture

Direction des programmes et des services
401, rue Bay, Bureau 1700
Toronto ON M7A 0A7
Tél: 416.314.7133

Ontario

November 15, 2019 EMAIL ONLY

Nathan Bakker, P.Eng.
Consultant Project Manager
Dillon Consulting Limited
177 Colonnade Road, Suite 101
Ottawa, ON K2E 7J4
fraserroadunderpass@dillon.ca

MHSTCI File	**:**	**0009757**
Proponent	**:**	**Ministry of Transportation**
Subject	**:**	**Notice of Study Commencement**
Project	**:**	**Highway 401 Fraser Road Underpass Replacement- GWP 4248-15-00**
Location	**:**	**Fraser Road Underpass along Highway 401 in the Township of South Glengarry, United Counties of Stormont, Dundas and Glengarry**

Dear Mr. Bakker:

Thank you for providing the Ministry of Heritage, Sport, Tourism and Culture Industries (MHSTCI) with the Notice of Study Commencement for the above-referenced project. MHSTCI's interest in this Environmental Assessment (EA) project relates to its mandate of conserving Ontario's cultural heritage, which includes:

- Archaeological resources, including land and marine;
- Built heritage resources, including bridges and monuments; and,
- Cultural heritage landscapes.

Under the EA process, the proponent is required to determine a project's potential impact on cultural heritage resources.

Project Summary
The Ministry of Transportation Ontario (MTO) has retained Dillon Consulting Limited to undertake a Preliminary Design and Class EA to replace the Fraser Road Underpass along Highway 401 in the Township of South Glengarry, United Counties of Stormont, Dundas and Glengarry.

Identifying Cultural Heritage Resources
While some cultural heritage resources may have already been formally identified, others may be identified through screening and evaluation. Indigenous communities may have knowledge that can contribute to the identification of cultural heritage resources, and we suggest that any engagement with Indigenous communities includes a discussion about known or potential cultural heritage resources that are of value to these communities. Municipal Heritage Committees, historical societies and other local heritage organizations may also have knowledge that contributes to the identification of cultural heritage resources.

Please note that the *Standards and Guidelines for Conservation of Provincial Heritage Properties* (S&G), prepared pursuant to Section 25.2 of the *Ontario Heritage Act* (*OHA*), came into effect on July 1, 2010. All Ontario government ministries and public bodies that are prescribed under

Ontario Regulation 157/10 must comply with the S&Gs. They apply to property that is owned or controlled by the Crown in right of Ontario or by a prescribed public body.

Archaeological Resources
This EA project may impact archaeological resources and should be screened using the MHSTCI *Criteria for Evaluating Archaeological Potential* to determine if an archaeological assessment is needed. MHSTCI archaeological sites data are available at *archaeology@ontario.ca*. If the EA project area exhibits archaeological potential, then an archaeological assessment (AA) should be undertaken by an archaeologist licenced under the *OHA*, who is responsible for submitting the report directly to MHSTCI for review.

Built Heritage and Cultural Heritage Landscapes
The MHSTCI *Criteria for Evaluating Potential for Built Heritage Resources and Cultural Heritage Landscapes* should be completed to help determine whether this EA project may impact cultural heritage resources. The Clerk for the municipality encompassing the EA project can provide information on property registered or designated under the *Ontario Heritage Act*. Municipal Heritage Planners can also provide information that will assist in completing the checklist. The draft *MTO Ontario Heritage Bridge Guidelines for Provincially Owned Bridges* screening criteria have also been established for cultural heritage evaluation of bridges under the Class EA for Provincial Transportation Facilities.

A Cultural Heritage Evaluation Report (CHER) is used to determine the cultural heritage value or interest of a potential Provincial Heritage Property. If potential or known heritage resources exist, MHSTCI recommends that a Heritage Impact Assessment (HIA), prepared by a qualified consultant, should be completed to assess potential project impacts. Our Ministry's *Info Sheet #5: Heritage Impact Assessments and Conservation Plans* outlines the scope of HIAs. Please send the HIA to MHSTCI and the local municipality as appropriate for review, and make it available to local organizations or individuals who have expressed interest in review.

Environmental Assessment Reporting
All technical cultural heritage studies and their recommendations are to be addressed and incorporated into EA projects. Please advise MHSTCI whether any technical cultural heritage studies will be completed for this EA project, and provide them to MHSTCI before issuing a Notice of Completion or commencing any work on the site. If screening has identified no known or potential cultural heritage resources, or no impacts to these resources, please include the completed checklists and supporting documentation in the EA report or file.

Thank you for consulting MHSTCI on this project and please continue to do so throughout the EA process. If you have any questions or require clarification, do not hesitate to contact me.

Sincerely,

Kimberly Livingstone
Heritage Planner (A)
Heritage Planning Unit
kimberly.livingstone@ontario.ca

Copied to: Trenton Flick, Project Engineer, MTO- Eastern Region, trenton.flick@ontario.ca

It is the sole responsibility of proponents to ensure that any information and documentation submitted as part of their EA report or file is accurate. MHSTCI makes no representation or warranty as to the completeness, accuracy or quality of the any checklists, reports or supporting documentation submitted as part of the EA process, and in no way shall MHSTCI be liable for any harm, damages, costs, expenses, losses, claims or actions that may result if any checklists, reports or supporting documents are discovered to be inaccurate, incomplete, misleading or fraudulent.

Please notify MHSTCI if archaeological resources are impacted by EA project work. All activities impacting archaeological resources must cease immediately, and a licensed archaeologist is required to carry out an archaeological assessment in accordance with the *Ontario Heritage Act* and the *Standards and Guidelines for Consultant Archaeologists*.

If human remains are encountered, all activities must cease immediately and the local police or coroner as well as the Registrar, Burials of the Ministry of Government and Consumer Services (https://www.ontario.ca/feedback/contact-us?id=26922&nid=72703) must be contacted. In situations where human remains are associated with archaeological resources, MHSTCI should also be notified to ensure that the site is not subject to unlicensed alterations which would be a contravention of the *Ontario Heritage Act*.

March 10, 2020

sent via email: XXXXX

Comment Response – Preliminary Design and Class Environmental Assessment Study
Highway 401 Fraser Road Underpass Replacement (GWP 4248-15-00)
Ministry of Transportation, Ontario

Dear XXXXX:

Thank you for providing comments about the Fraser Road Underpass Replacement project. We understand you are requesting the Ministry of Transportation, Ontario (MTO) consider adding westbound and eastbound Highway 401 on-ramps at Fraser Road.

The purpose of this study is to evaluate design alternatives for replacing the Fraser Road Underpass. Replacement of the underpass is required due to the existing condition of the structure, deficient vertical clearance over Highway 401 and future plans to widen Highway 401. A new interchange at this location is not being considered as part of this study, and is not warranted at this time, for the following reasons:

- Fraser Road is classified as a collector road and traffic volumes on this road are not sufficient to justify a new interchange
- The local community has safe and efficient access to Highway 401 via interchanges located at County Road 27, to the west, and County Road 2/34 to the east, which meet current MTO highway access management guidelines for fully controlled access freeways
- The close proximity of the new Commercial Vehicle Inspection Facility (CVIF) proposed on the north side of Highway 401, just east of Fraser Road, would not allow for the sufficient separation of ramps to meet Ministry design guidelines.

For these reasons, an interchange at Fraser Road is not feasible. We appreciate your feedback.

A Transportation Environmental Study Report (TESR) is being prepared to document the Preliminary Design and Class Environmental Assessment Study. We anticipate the TESR will be published in early spring 2020. We will send you a notice when the report is available for review.

Sincerely,

DILLON CONSULTING LIMITED

Greg Hayes, B.E.S.
for Nathan Bakker, P.Eng.
Project Manager

GJH:amw

cc: Adele Mochrie, Dillon Consulting Limited
Michael Sleeth, MTO Project Engineer
Sharon Westendorp, MTO Environmental Planner

Our file: 18-8202

ONTARIO GOVERNMENT NOTICE
Notice of Online Public Information Centre
Highway 401 Fraser Road Underpass Replacement
Preliminary Design and Class Environmental Assessment Study, GWP 4248-15-00

THE STUDY

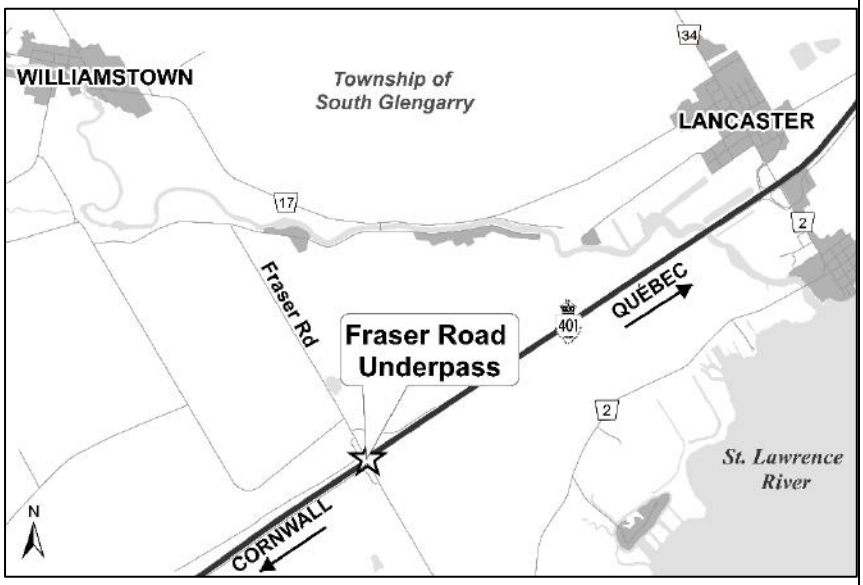
The Ministry of Transportation, Ontario (MTO) has retained Dillon Consulting Limited to undertake a Preliminary Design and Class Environmental Assessment (EA) Study to replace the Fraser Road Underpass along Highway 401 in the Township of South Glengarry, United Counties of Stormont, Dundas and Glengarry.

The study considered alternatives for the bridge and is recommending the underpass be replaced along the existing alignment. To accommodate the replacement, Fraser Road at the underpass would be closed for up to two construction seasons. Highway 401 would also be closed when the existing underpass is removed. Signed detour routes would be provided during the closures. At this time we are seeking public input on the study recommendations.

ONLINE PUBLIC INFORMATION CENTRE

An online Public Information Centre (PIC) is being held from October 9 to 25, 2019 to provide an opportunity to review and comment on the proposed underpass replacement, including traffic impacts and the evaluation of alternatives.

To view the PIC materials, please visit www.401bridgeimprovements.com. Under the Projects tab, select Fraser Road Underpass. Next, select Public Involvement and then click the link under Online Public Information Centre.



THE PROCESS

The EA Study for the replacement of the Fraser Road Underpass is following the approved environmental planning process for Group 'B' projects under MTO's Class EA for Provincial Transportation Facilities (2000). A Transportation Environmental Study Report (TESR) will be prepared and filed for public review at the completion of the study.

COMMENTS

We are interested in any information, comments, or questions you have regarding the project. Please provide comments by October 25, 2019. Should you require assistance accessing the online PIC materials or any further information regarding the study, please contact either the Consultant Project Manager or the MTO Project Engineer below:

Nathan Bakker, P. Eng., Consultant Project Manager
Dillon Consulting Limited
177 Colonnade Rd. S, Suite 101
Ottawa, ON, K2E7J4
Tel: 1-888-345-5668, Ext. 3009
Email: FraserRoadUnderpass@dillon.ca

Trenton Flick, P.Eng., Project Engineer
Ministry of Transportation – Eastern Region
1355 John Counter Boulevard
Kingston, ON K7L 5A3
Tel: 613-482-9609
Email: Trenton.Flick@ontario.ca

Pour des renseignements en français, veuillez communiquer avec Jeff Probert 1-877-934-5566, poste 3015.
If you have any accessibility requirements in order to participate in this project, please contact one of the Project Team members listed above. Information will be collected in accordance with the Freedom of Information and Protection of Privacy Act. With the exception of personal information, all comments will be part of the public record.

DILLON CONSULTING

Ontario

AVIS DU GOUVERNEMENT DE L'ONTARIO

Avis de séance d'information publique en ligne

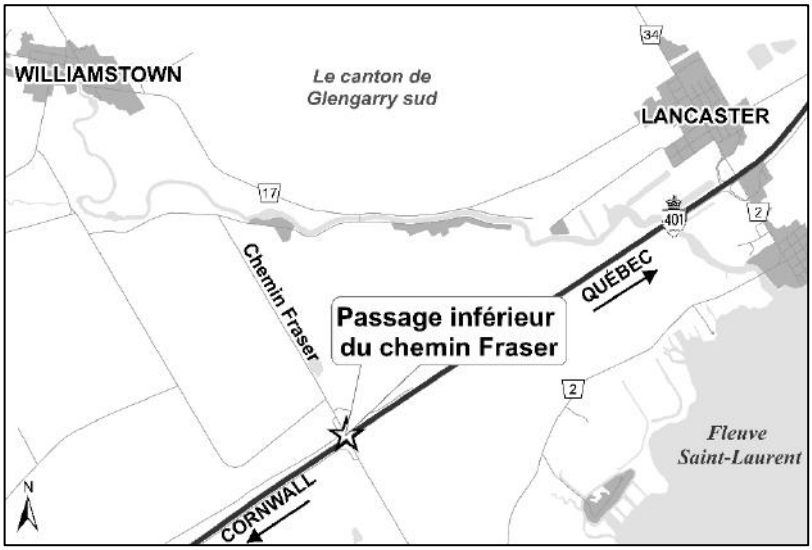
Remplacement du passage inférieur du chemin Fraser le long de l'autoroute 401

Étude de conception préliminaire et d'évaluation environnementale de portée générale, GWP 4248-15-00

ÉTUDE

Le ministère des Transports de l'Ontario (MTO) a retenu les services de Dillon Consulting Limited afin d'entreprendre une étude de conception préliminaire et d'évaluation environnementale de portée générale (ÉE) visant à remplacer le passage inférieur du chemin Fraser le long de l'autoroute 401 dans le canton de South Glengarry, dans les Comtés unis de Stormont, Dundas et Glengarry.

L'étude a envisagé d'autres solutions pour le pont et recommande le remplacement du passage inférieur le long du tracé existant. Pour aménager le remplacement, le chemin Fraser au niveau du passage inférieur serait fermé pendant une période pouvant aller jusqu'à deux saisons de construction. L'autoroute 401 serait également fermée lorsque le passage inférieur actuel serait enlevé. Des voies de déviation seraient prévues et indiquées lors des fermetures. Nous sollicitons actuellement l'avis du public sur les propositions de l'étude.



SÉANCE D'INFORMATION PUBLIQUE EN LIGNE

Une séance d'information publique en ligne se tiendra du 9 au 25 octobre 2019 afin de donner l'occasion d'examiner la proposition de remplacement du passage inférieur, notamment les répercussions sur la circulation et l'évaluation des autres solutions, et de faire des commentaires.

Pour consulter les documents de la séance d'information publique en ligne, veuillez visitez le site Web www.401bridgeimprovements.com/accueil.html. Sous l'onglet « Projets », sélectionnez « Passage inférieur du chemin Fraser ». Ensuite, sélectionnez « Participation du public », puis cliquez sur le lien qui se trouve sous « Séance d'information publique en ligne ».

PROCESSUS

L'Étude d'évaluation environnementale pour le remplacement du passage inférieur du chemin Fraser suit le processus de planification approuvé pour les projets de groupe « B » dans le cadre d'évaluations environnementales de portée générale (ÉE) pour les routes provinciales (2000) établies par le MTO. Un rapport d'étude environnementale sur les transports (REET) sera préparé et déposé pour consultation publique à la fin de l'étude.

COMMENTAIRES

Nous vous saurions gré de nous faire parvenir toute information, tout commentaire ou toute question que vous avez au sujet du projet. Veuillez nous faire part de vos commentaires d'ici le 25 octobre 2019. Si vous souhaitez obtenir de l'aide pour accéder aux documents de la séance d'information publique en ligne ou pour plus de renseignements au sujet de l'étude, veuillez communiquer avec le chargé de projet de la société-conseil ou l'ingénieur de projet du MTO ci-dessous :

Nathan Bakker, ing., chargé de projet de la société-conseil
Dillon Consulting Limited
177, chemin Colonnade Sud, bureau 101
Ottawa (Ontario) K2E 7J4
Tél. : 1 888 345-5668, poste 3009
Courriel : FraserRoadUnderpass@dillon.ca

Trenton Flick, ing., Ingénieur de projet
Ministère des Transports – Région de l'Est
1355, boulevard John Counter
Kingston (Ontario) K7L 5A3
Tél. : 613 482-9609
Courriel : Trenton.Flick@ontario.ca

Pour des renseignements en français, veuillez communiquer avec Jeff Probert en composant le 1 877 934-5566, poste 3015. Si vous avez des exigences en matière d'accessibilité pour pouvoir participer à ce projet, veuillez communiquer avec l'un des membres de l'équipe du projet nommés ci-dessus. Les renseignements seront recueillis conformément à la Loi sur l'accès à l'information et la protection de la vie privée. À l'exception des renseignements personnels, tous les commentaires seront du domaine public.

DILLON CONSULTING

Ontario

Ministry of Transportation

Planning and Design Section
1355 John Counter Boulevard
Postal Bag 4000
Kingston, Ontario K7L 5A3
Tel.: 613 544-2220

Ministère des Transports

Section de la planification et de la conception
1355, boulevard John Counter
CP/Service de sacs 4000
Kingston (Ontario) K7L 5A3
Tél.: 613 544-2220

Ontario

October 2, 2019

MPP Jim McDonell
Time Square
120 Second Street West
Cornwall, ON
K6J 1G5

Notice of Online Public Information Centre
Highway 401 Fraser Road Underpass Replacement, GWP 4248-15-00
Preliminary Design and Class Environmental Assessment Study

Dear Mr. McDonell:

The Ministry of Transportation Ontario (MTO) has retained Dillon Consulting Limited (Dillon) to undertake a Preliminary Design and Class Environmental Assessment Study (Class EA) to replace the Fraser Road Underpass along Highway 401 in the Township of South Glengarry (see project location map in enclosed notice). Additional information is available at www.401bridgeimprovements.com (under the 'Projects' tab, select 'Fraser Road Underpass').

The enclosed Notice of Online Public Information Centre (PIC) will be published in the October 9, 2019 editions of the Glengarry News (English) and the Cornwall Express (French). The purpose of the online PIC is to provide information and seek public input on the study recommendations, including potential impacts and mitigation measures.

The study is following the approved environmental planning process for Group 'B' projects under MTO's *Class EA for Provincial Transportation Facilities (2000)*. The study will identify the most appropriate method to replace the structure, will assess the potential impacts and identify mitigation measures.

At any time during this study, interested persons have an opportunity to provide comments, questions and concerns to the study team. If you would like more information or would like to provide comments, please contact the undersigned at 613-482-9609.

Yours sincerely,

Trenton Flick, P. Eng.
MTO Project Engineer

cc: Sharon Westendorp, Environmental Planner, MTO
Sarah Reive, Engineer-in-Training, MTO
Nathan Bakker, Consultant Project Manager, Dillon
Sabrina Stanlake-Wong, Environmental Planner, Dillon

Encl. Notice of Online Public Information Centre

October 7, 2019

Agency Cover Letter

«Organization»
«Department»
«Address»
«CityProv»
«Postal_Code»

Attention: «Title» «First_Name» «Surname»
«Title1»

Notice of Online Public Information Centre
Highway 401 Fraser Road Underpass Replacement, GWP 4248-15-00
Preliminary Design and Class Environmental Assessment Study

The Ministry of Transportation Ontario (MTO) has retained Dillon Consulting Limited (Dillon) to undertake a Preliminary Design and Class Environmental Assessment Study (Class EA) to replace the Fraser Road Underpass along Highway 401 in the Township of South Glengarry (see project location map in enclosed notice). Additional information is available at www.401bridgeimprovements.com (under the 'Projects' tab, select 'Fraser Road Underpass').

You are invited to participate in the online Public Information Centre (PIC) for this project, which is taking place from October 9 to October 25, 2019. The purpose of the online PIC is to provide information and seek input on the study recommendations, including potential impacts and mitigation measures. The enclosed notice provides details on how you can access the materials on the project website.

The study is following the approved environmental planning process for Group 'B' projects under MTO's Class EA for Provincial Transportation Facilities (2000). The study will identify the most appropriate method to replace the structure, will assess the potential impacts and identify mitigation measures.

At any time during this study, interested persons have an opportunity to provide comments, questions and concerns to the study team. If you would like more information, or would like to provide comments, please contact Sabrina Stanlake-Wong at 519-438-1288 ext. 1235, or FraserRoadUnderpass@dillon.ca.

Sincerely,

DILLON CONSULTING LIMITED

Nathan Bakker, P.Eng.
Project Manager

GJH:xxx
Enclosed: Notice of Online Public Information Centre

cc: Sabrina Stanlake-Wong, Dillon Environmental Planner
Trenton Flick, MTO Project Engineer
Sharon Westendorp, MTO Environmental Planner
Sarah Reive, MTO Engineer-in-Training

Our file: 18-8202

Ministry of Transportation

Planning and Design Section
1355 John Counter Boulevard
Postal Bag 4000
Kingston, Ontario K7L 5A3
Tel.: 613 544-2220

Ministère des Transports

Section de la planification et de la conception
1355, boulevard John Counter
CP/Service de sacs 4000
Kingston (Ontario) K7L 5A3
Tél.: 613 544-2220

Ontario

October 7, 2019

Indigenous Communities
Cover Letter

Métis Nation of Ontario (Head Office)
Métis Consultation Unit
66 Slater Street, Suite 1100
Ottawa, ON
K1P 5H1

Attention: Mr. Aly Alibhai
Director

Notice of Online Public Information Centre
Highway 401 Fraser Road Underpass Replacement, GWP 4248-15-00
Preliminary Design and Class Environmental Assessment Study

Dear Mr. Alibhai:

The Ministry of Transportation Ontario (MTO) has retained Dillon Consulting Limited (Dillon) to undertake a Preliminary Design and Class Environmental Assessment Study (Class EA) to replace the Fraser Road Underpass along Highway 401 in the Township of South Glengarry (see project location map in enclosed notice). Additional information is available at www.401bridgeimprovements.com (under the 'Projects' tab, select 'Fraser Road Underpass').

You are invited to participate in the online Public Information Centre (PIC) for this project, which is taking place from October 9 to October 25, 2019. The purpose of the online PIC is to provide information and seek input on the study recommendations, including potential impacts and mitigation measures. The enclosed notice provides details on how you can access the materials on the project website.

The study is following the approved environmental planning process for Group 'B' projects under MTO's *Class EA for Provincial Transportation Facilities (2000)*. The study will identify the most appropriate method to replace the structure, will assess the potential impacts and identify mitigation measures.

At any time during this study, interested persons have an opportunity to provide comments, questions and concerns to the study team. If you would like more information, or would like to provide comments, please contact the undersigned at 613-482-9609.

Yours sincerely,

MINISTRY OF TRANSPORTATION

Trenton Flick, P.Eng.
MTO Project Engineer

Encl. Notice of Online Public Information Centre

cc: Sharon Westendorp, Environmental Planner, MTO
Sarah Reive, Engineer-in-Training, MTO
Nathan Bakker, Consultant Project Manager, Dillon
Sabrina Stanlake-Wong, Environmental Planner, Dillon

Highway 401 Fraser Road Underpass Replacement
GWP 4248-15-00

Preliminary Design and Class Environmental Assessment Study

ONLINE PUBLIC INFORMATION CENTRE

Under the Integrated Accessibility Standards Regulation (2011), the Ministry of Transportation, Ontario is committed to ensuring this Online Public Information Centre is accessible to all participants. If you have any accessibility requirements to participate, please contact one of the project team members listed at the end of this presentation and on the project website. Project team members are available to assist with website navigation and written submission of comments via telephone.

Ontario

DILLON CONSULTING

Online Public Information Centre Objectives

Thank you for your interest in this project. The purpose of this online Public Information Centre is to provide the public with an overview of the study and to review potential impacts.

Once you have reviewed the materials, please submit any questions or comments to FraserRoadUnderpass@Dillon.ca or via the project website Contact page by October 25, 2019. A member of the Project Team will respond to you directly.

The following slides provide information on:

- Study process being followed
- Why the project is being undertaken
- Existing conditions in the area
- Alternatives considered to replace the underpass
- Description of the recommended plan, including anticipated impacts during construction and timing
- Next steps.

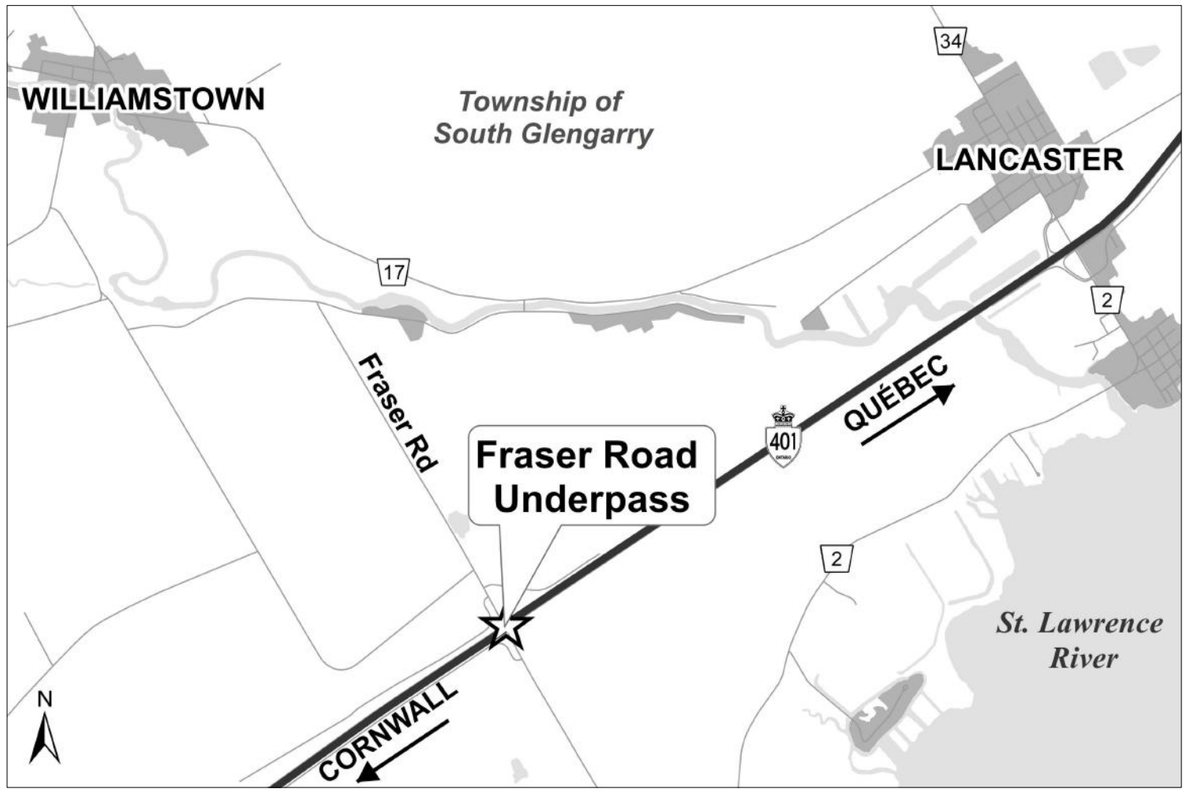
Project Location and Scope

The Ministry of Transportation, Ontario (MTO) retained Dillon Consulting Limited to complete the Preliminary Design and Class Environmental Assessment (Class EA) Study to replace the Fraser Road Underpass along Highway 401 in the Township of South Glengarry, United Counties of Stormont, Dundas and Glengarry.

The scope of work includes:

- Remove the existing structure
- Construct a new 2-span structure that will allow for future widening of Highway 401
- Increase height of underpass for clearance on Highway 401.

A number of alternatives were considered to replace the Fraser Road Underpass and will involve temporarily closing the underpass during construction and establishing detour routes.

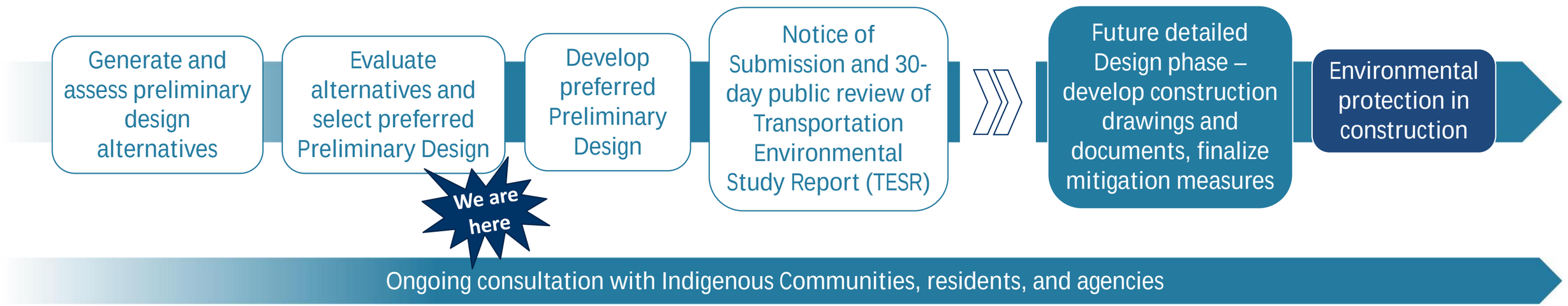


Environmental Assessment Process

The EA Study for the Fraser Road Underpass is following the approved environmental planning process for Group 'B' projects under MTO's Class EA for Provincial Transportation Facilities (2000). The Class EA process requires:

- Relevant engineering and environmental factors are considered in the planning and design process
- Assessment of the impacts of the proposed changes and identification of environmental protection/mitigation measures
- Public and agency input integrated into the process.

A Transportation Environmental Study Report will be prepared and filed for public review at the completion of the study. The report will document the study process and recommendations.



Key Study Milestones

November 2018 to September 2019	October 2019	October 2019 to early 2020	2020 and beyond
Study Initiation	Review of Study Recommendations	Study Documentation	Future Project Phases
Initial meeting with Municipality, County, and emergency services	Online Public Information Centre	Design continues	Detailed Design
Site investigations	Present alternatives considered, recommended option, schedule, and impacts / mitigation	Discussions with impacted stakeholders as required	Construction (earliest start date: 2022)
Develop and evaluate alternatives for the underpass	We are here	Notice of Transportation Environmental Study Report (TESR) Publication	
Notice of Study Commencement		Public review period for TESR in late 2019 / early 2020	

Ongoing consultation with Indigenous Communities, residents, and agencies

Existing Bridge Condition

- The bridge is in fair condition overall but is approaching the end of its intended service life.
- It does not meet current design standards:
  - Deficient vertical clearance above Highway 401 - previous damage has been caused to the structure and girders by high-load strikes from trucks
  - Seismic design deficiencies
  - Substandard bridge railing system.
- The bridge approach embankments have settled over time due to deep sensitive and compressible clay deposit.
- The current structure restricts future expansion of Highway 401 to six lanes.

The asphalt wearing surface has wide cracks and raveling throughout.

There is concrete deterioration on the underside of the deck and girders. High-load strikes have caused previous damage to the bridge.

The curb and bridge railing system do not meet current design standards.

The substructure components are in fair condition with areas of deterioration and cracking.

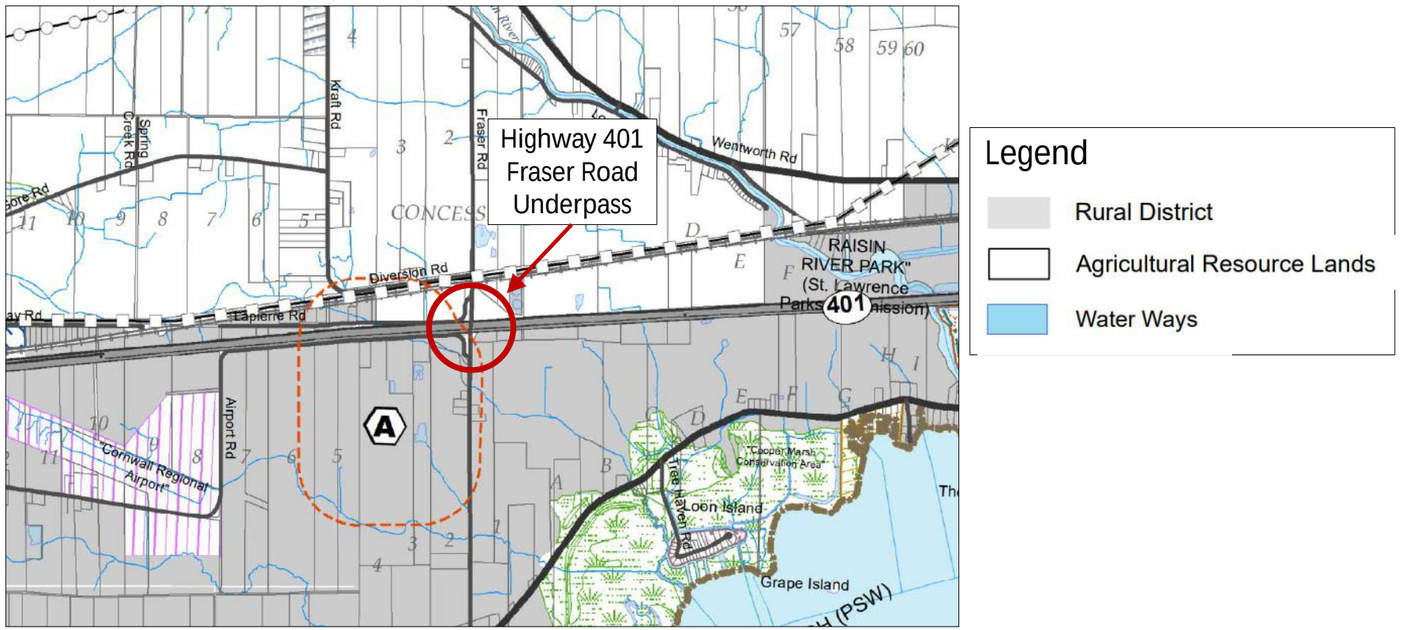
Existing Surrounding Land Uses

- Agricultural fields on both sides of Highway 401
- Primarily residential and agricultural land uses along Fraser Road in the area
- CN Railway crosses Fraser Road approximately 350 m north of the underpass
- Cornwall Regional Airport is approximately 2.3 km southwest
- Williamstown is approximately 4.3 km north
- Lancaster is approximately 4.2 km east

United Counties of Stormont, Dundas and Glengarry Official Plan (2018) designates the area as follows:

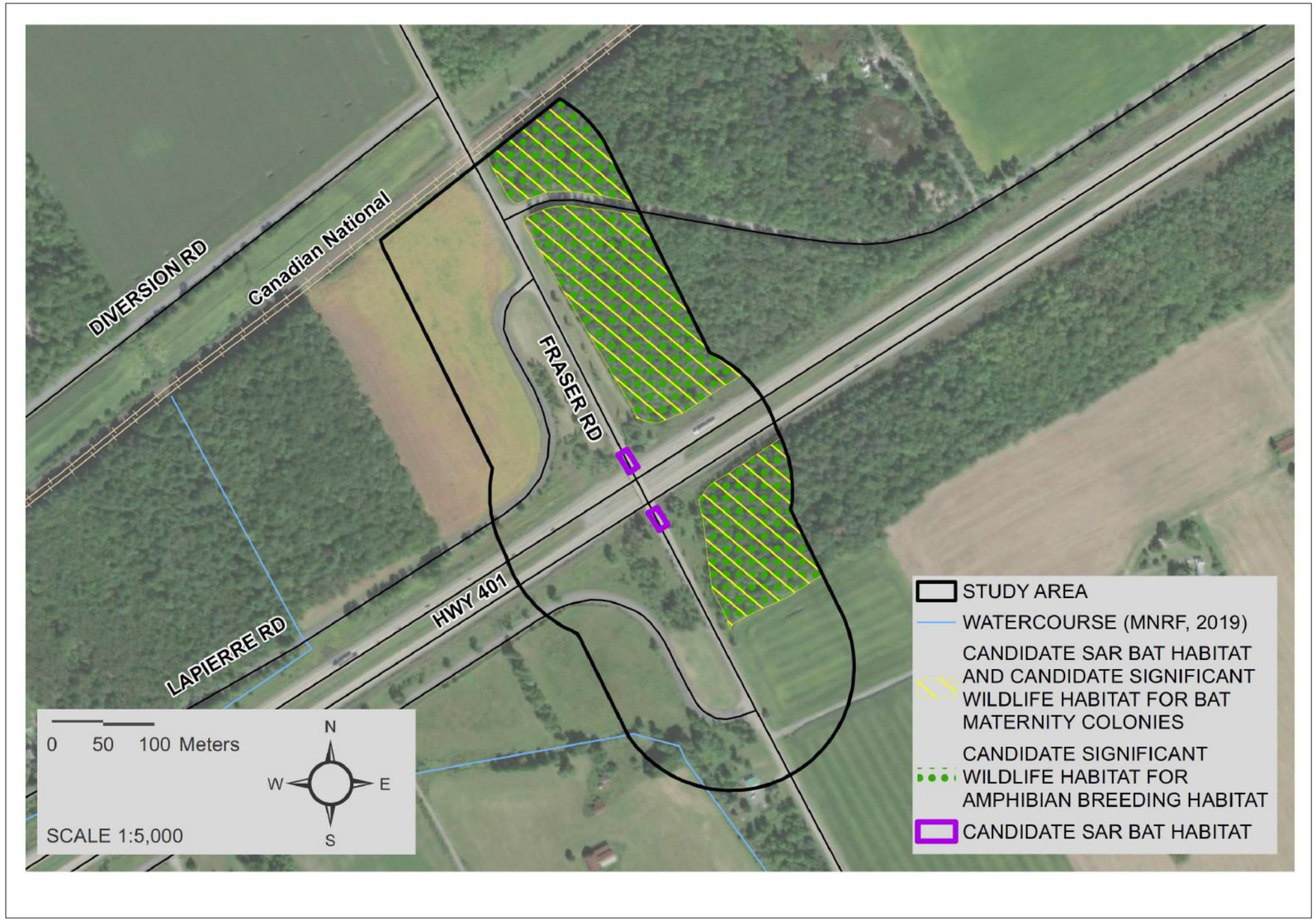
- Agricultural Resource Lands: agricultural, public service, natural areas, passive outdoor recreation, limited resource extraction, and infrastructure
- Rural District: agricultural, forestry, limited residential and commercial, open space, natural areas, and infrastructure.

Land Use Schedule A6, United Counties of Stormont, Dundas and Glengarry Official Plan (2018)



Existing Natural Environment Conditions

- The existing natural environment in the study area was examined through field investigations and review of background information.
- Ecological Land Classification mapping was completed of the study area.
- Candidate habitat for Species at Risk (SAR) was observed within the study area.



Alternatives Developed

The Class EA process requires alternatives be developed and evaluated to address the project need. A comparative evaluation of the alternatives was completed based on a range of criteria, including ability to address the project need, potential impacts to the environment, design guidelines, and cost. As part of the evaluation, the alternatives must meet the project objectives to be carried forward for further consideration.

1. Rehabilitate the existing bridge (Not Recommended) – This alternative would involve repairing the existing underpass to extend the service life of the bridge. This alternative was screened out from further consideration as it does not fully address the project needs. The existing bridge will restrict the future widening of Highway 401 and it does not address the problem of the low vertical clearance from Highway 401.

2. Replace the existing bridge (Recommended) – Two options were developed to replace the bridge, as described below and illustrated on Panel 10. Panel 11 provides an overview of the evaluation completed.

   A. Maintain the current alignment of Fraser Road – this option maintains the straight alignment of Fraser Road, but requires the road be fully closed at the bridge during construction. The existing bridge would be removed and a new one built in the same location.

   B. Shift Fraser Road to the east or west at the bridge – this option adds a curve to Fraser Road so that a new bridge can be constructed off-line, allowing Fraser Road to remain open at the bridge during construction.

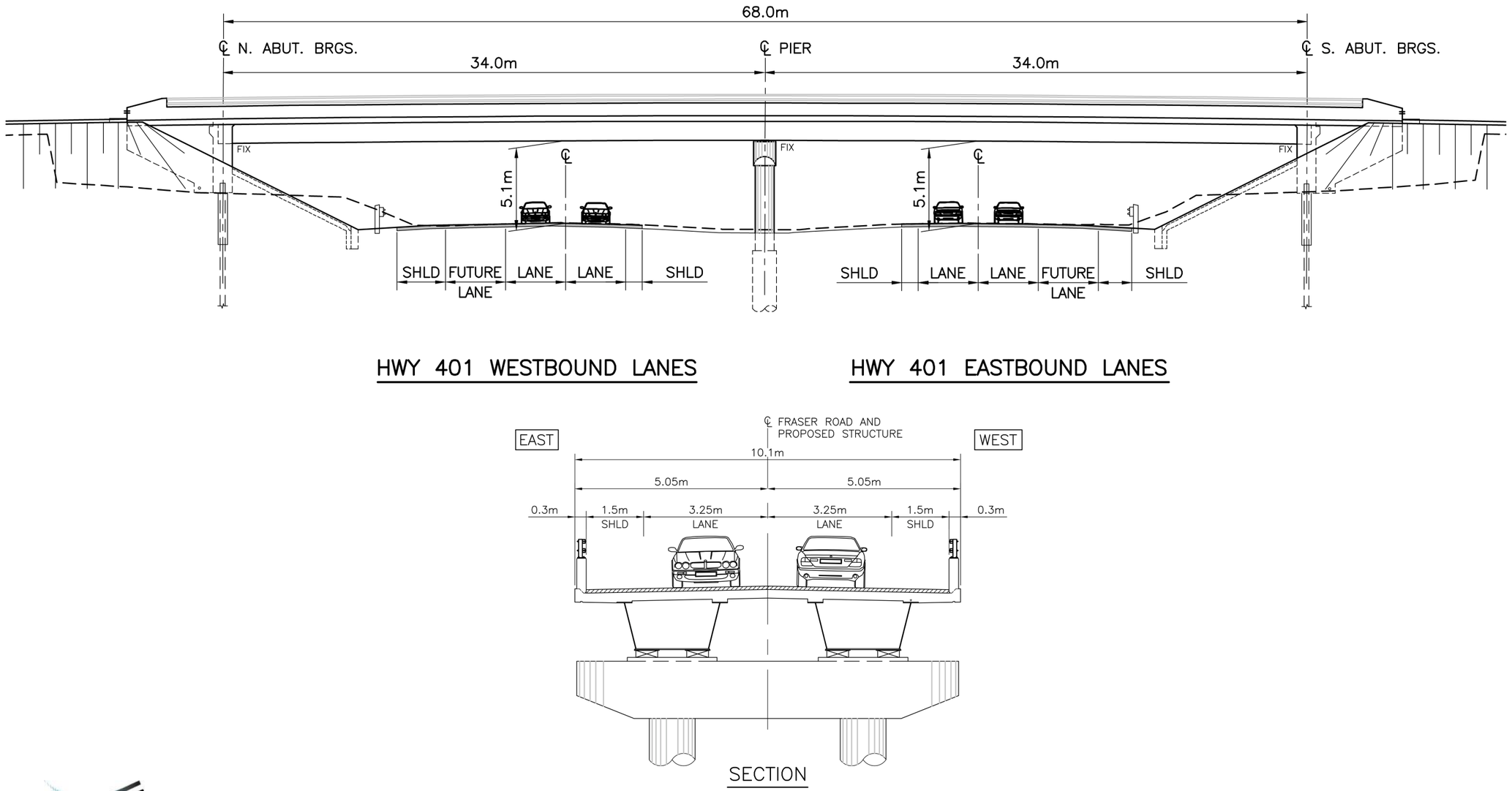
Replacement Alternatives Developed

Evaluation of Bridge Replacement Alternatives

Criteria	Replace Bridge Along Current Alignment (Alternative 2A)	Replace Bridge and Shift Fraser Road to the East or West (Alternative 2B)
Traffic Staging (impacts to traffic during construction)	• Fraser Road - full closure required for duration of construction • Highway 401 - weekend and short duration closures required for bridge demolition and some aspects of construction.	• Fraser Road - traffic maintained in both directions except for short duration (i.e., 3 - 4 weeks) closure to complete Fraser Road connections • Highway 401 - weekend and short duration closures required for bridge demolition and some aspects of construction.
Property Requirements	• Additional property not anticipated	• Additional property required
Natural Environment / Sustainability	• Smaller project footprint - less vegetation removals required • Significant reuse of approach roadways	• Larger project footprint - more vegetation removals required • Limited reuse of road infrastructure
Construction Complexity / Duration	• Shorter construction duration - 2 construction seasons or less • Reuse of existing embankments results in less complex design and construction • Can be designed to avoid significant utility impacts	• Longer construction duration - more than 2 construction seasons • Higher complexity design and construction techniques to accommodate poor soil conditions • High potential for long-term settlement of approach embankments which would require repair • Utility relocations required
Roadway Geometry	• Fraser Road remains on straight alignment • No change in sightlines at nearby Fraser Road intersections	• Curve introduced on Fraser Road on both sides of the structure • Potential for reduced sightlines at nearby Fraser Road intersections
Archaeology / Heritage	• Least impact beyond footprint of existing embankments • May require Stage 2 Archaeological Assessment	• Larger impacted area • Stage 2 Archaeological Assessment required
Cost	• Lower cost	• Higher cost
Summary	Replacing along the current alignment (Alternative 2A) is the recommended alternative. Based on the comparative evaluation completed, it is preferred for all criteria except traffic staging.	

Recommended Alternative

The recommended alternative is to replace the bridge in the same location as the existing bridge (Alternative 2A). The preferred Preliminary Design is illustrated below.

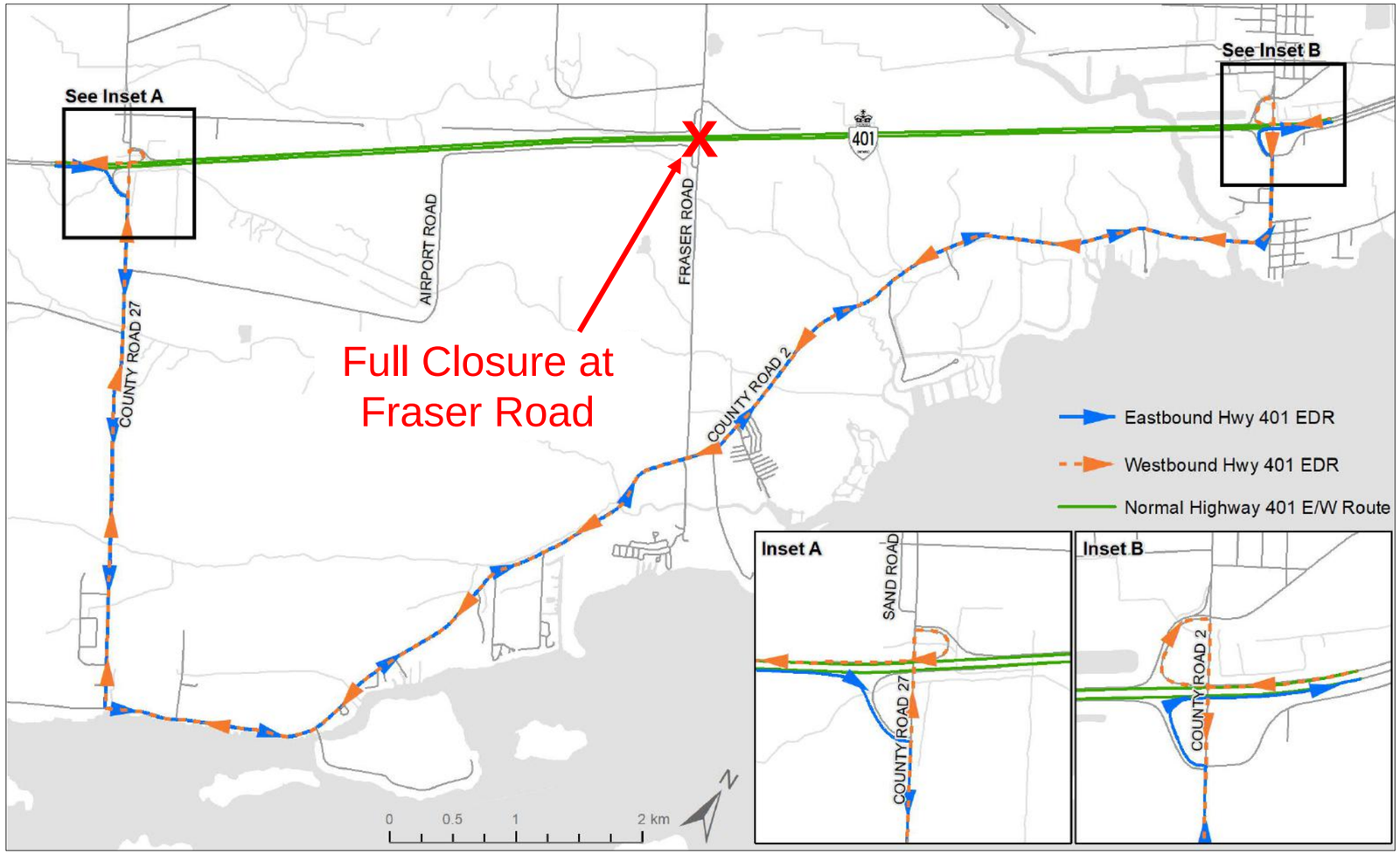


Highway 401 Traffic Impacts During Construction

Full closure of Highway 401 is required for demolition and some construction operations for the new bridge.

- Detour length: 16.5 km following County Road 27 and County Road 2.
- Anticipated duration and timing: overnight and weekend closures to detour eastbound and westbound Highway 401 traffic anticipated.

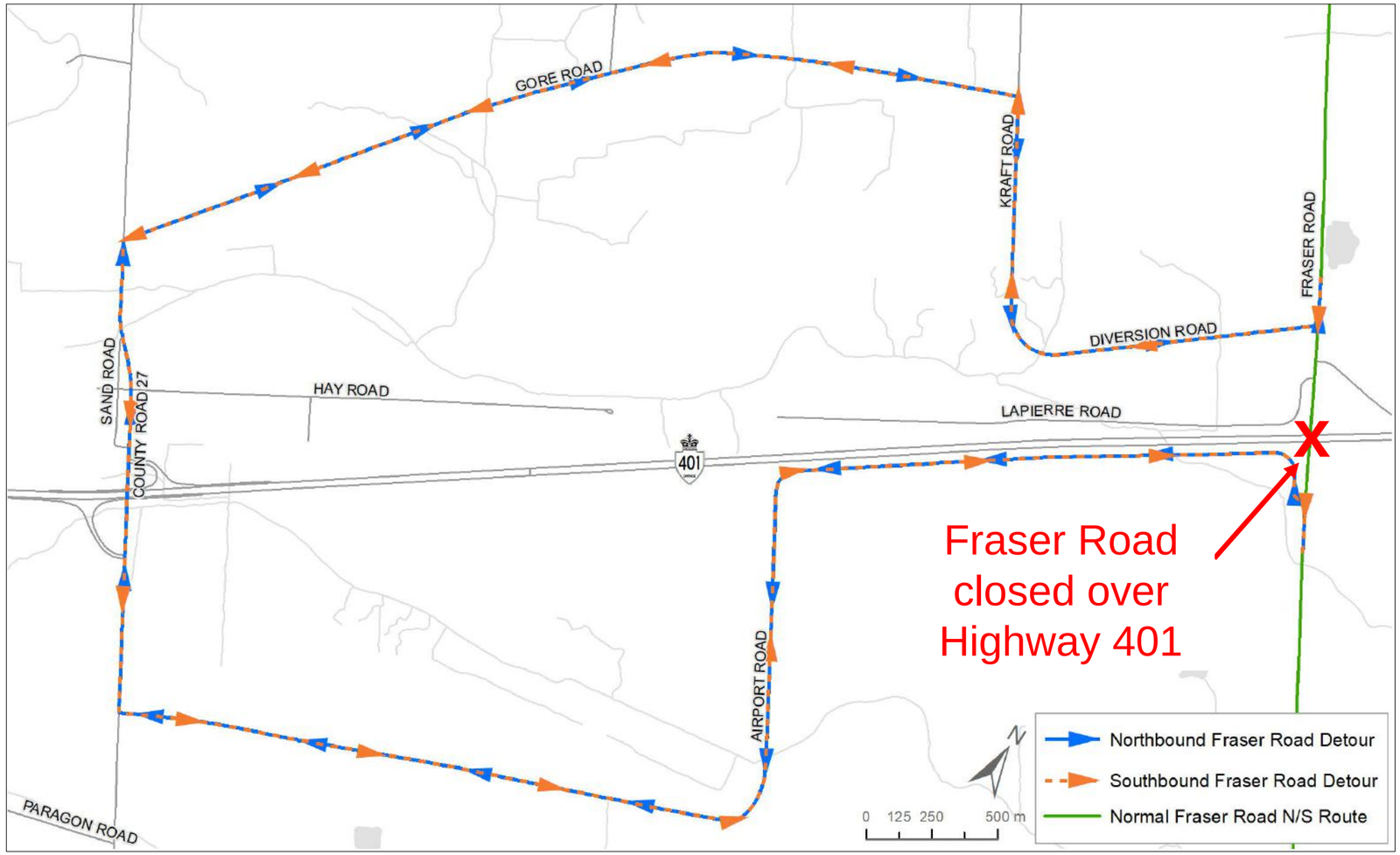
Lane reductions are also required on Highway 401 throughout construction.



Fraser Road Traffic Impacts During Construction

Full closure of Fraser Road is required for the duration of construction.

- Detour length: 14 km and approximately 15 minutes of travel time following County Road 27, Airport Road, Gore Road, Kraft Road, and Diversion Road.
- Anticipated duration and timing: underpass to be closed for up to 2 construction seasons.



Access to Airport Road, Diversion Road, Lapierre Road, and Raisin River Road will be provided throughout construction.

Anticipated Impacts and Mitigation Measures

The following outlines potential impacts and mitigation measures. These will be confirmed as the study continues and based on feedback received from the public and agencies. Additional measures will also be developed during the Detailed Design phase.

Potential Impacts	Mitigation Measure(s)
Construction impacts to wildlife and vegetation	• Erosion and sediment control measures will be installed. • Vegetation removal will be completed outside of the migratory bird nesting and wildlife sensitivity window for bats. • Procedures for wildlife encounters, including Species at Risk, during construction will be included in the construction documents.
Potential conflicts with existing utilities	• Utilities in the area will be protected or relocated as required in consultation with utility companies.
Traffic impacts caused by Fraser Road closure and short-term Highway 401 closures	• Signed detour routes will direct traffic during closures. • Full closures of Highway 401 will be scheduled during off-peak times to minimize traffic impacts. Highway 401 traffic will be detoured using existing Emergency Detour Route. • Advanced notice and duration of the roadway closures will be provided to the public. • Lane reductions on Highway 401 will be minimized.
Road closures may impact emergency services response times	• Local emergency services have been consulted and will continue to be updated during detailed design and construction.
Construction impacts to archaeological resources	• Initial Archaeological Assessment completed. • Procedures to protect archaeological resources and human remains, if encountered during construction will be included in the construction documents.
Elevated noise during construction, including overnight	• The Contractor will be required to maintain equipment in good working order to minimize unnecessary noise and to limit idling of equipment to the extent possible. • Local residents will be advised of the timing of overnight construction activities.

Next Steps and Contact Information

- Additional mitigation measures will be developed during Detailed Design, as required.
- There will be additional opportunities for public input during Detailed Design.
- More specific information on timing and duration of construction, as well as roadway closures, will be provided closer to construction.

	Study Timeline and Next Steps		
	October 2019	December 2019	January 2020 and Beyond
Respond to comments received to PIC materials	Fall / Winter		
Finalize Recommended Preliminary Design		Incorporate comments into design	
Publish TESR		Public review in late 2019 / early 2020	
Future Detailed Design Phase and Construction			Timing to be determined. Earliest construction start date: 2022.

Please submit any questions or comments you may have via the project website Contact page or to one of the team members by October 25, 2019.

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Kingston, ON K7L 5A3
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Remplacement du passage inférieur du chemin Fraser le long de l'autoroute 401 GWP 4248-15-00

Étude de conception préliminaire et
d'évaluation environnementale de portée générale

SÉANCE D'INFORMATION PUBLIQUE EN LIGNE

En vertu du Règlement sur les normes d'accessibilité intégrées (2011), le ministère des Transports de l'Ontario s'est engagé à faire en sorte que cette séance d'information publique en ligne soit accessible à tous les participants. Si vous avez des exigences en matière d'accessibilité pour pouvoir participer à cette séance d'information, veuillez communiquer avec l'un des membres de l'équipe de projet mentionnés ci-dessus. Les membres de l'équipe de projet sont à votre disposition par téléphone pour faciliter la navigation sur le site web et la soumission écrite de vos commentaires.

Ontario Ontario DILLON CONSULTING

Objectifs de la séance d'information publique en ligne

Merci de votre intérêt dans ce projet. Cette séance d'information publique en ligne vise à fournir au public un aperçu de l'étude et d'examiner les répercussions possibles.

Après avoir examiné les documents, veuillez envoyer vos questions ou vos commentaires à l'adresse FraserRoadUnderpass@Dillon.ca ou sur la page de contact du site web du projet d'ici le 25 octobre 2019. Un membre de l'équipe de projet vous répondra directement.

Les diapositives suivantes fournissent des renseignements sur :

- Le processus d'étude suivi
- Les raisons d'être du projet
- Les conditions actuelles dans la région
- Les autres solutions envisagées pour le remplacement du passage inférieur
- La description du plan proposé, notamment les répercussions prévues pendant la construction et le calendrier des travaux
- Les prochaines étapes.

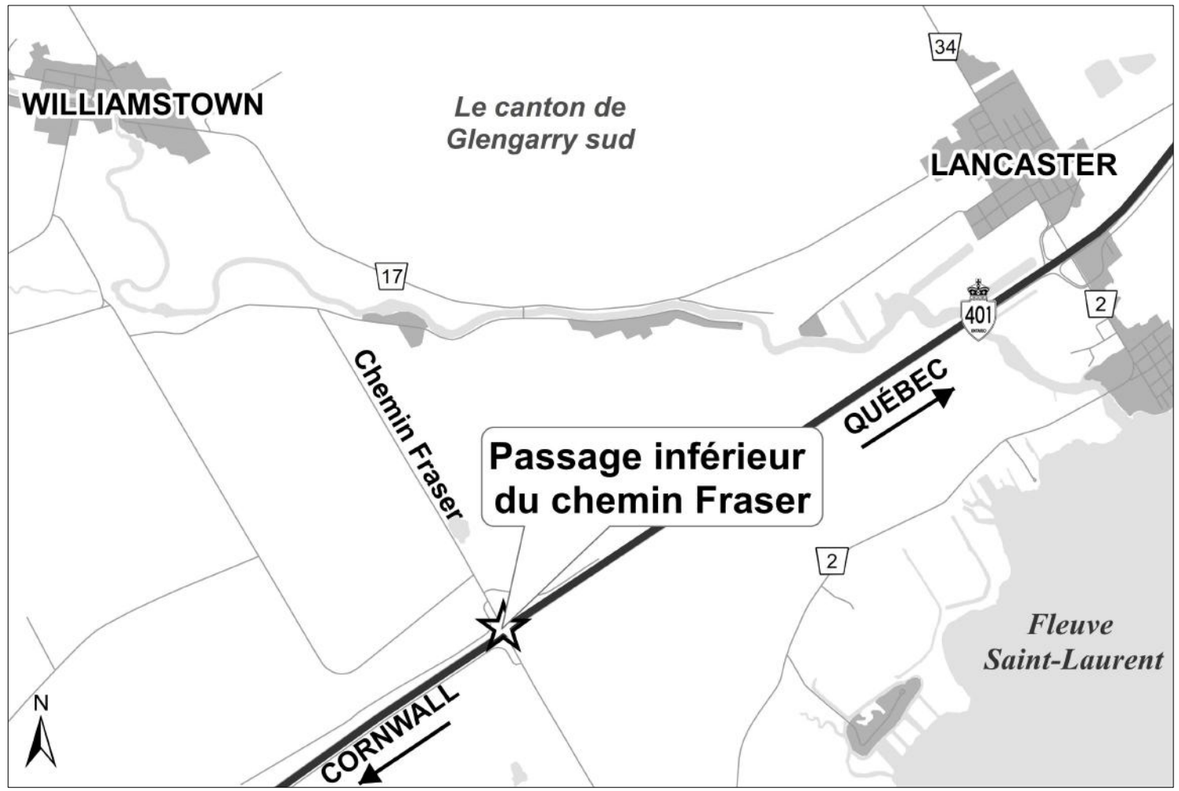
Emplacement et portée du projet

Le ministère des Transports de l'Ontario (MTO) a retenu les services de Dillon Consulting Limited afin d'entreprendre une étude de conception préliminaire et d'évaluation environnementale de portée générale (ÉE) visant à remplacer le passage inférieur du chemin Fraser le long de l'autoroute 401 dans le canton de South Glengarry, dans les Comtés unis de Stormont, Dundas et Glengarry.

L'ampleur des travaux comprend les éléments suivants :

- L'enlèvement de la structure existante
- La construction d'une nouvelle structure à deux travées qui permettra l'élargissement futur de l'autoroute 401
- L'augmentation de la hauteur du passage inférieur pour dégager l'autoroute 401.

On a envisagé un certain nombre de solutions pour remplacer le passage inférieur du chemin Fraser, notamment la fermeture temporaire du passage inférieur pendant la construction et la mise en place de voies de déviation.



Processus d’évaluation environnementale

L’ étude d'évaluation environnementale pour le remplacement du passage inférieur du chemin Fraser suit le processus de planification approuvé pour les projets de groupe « B » dans le cadre d’évaluations environnementales de portée générale (ÉE) pour les routes provinciales (2000) établies par le MTO. Le processus d’ÉE de portée générale nécessite ce qui suit :

- Facteurs techniques et environnementaux pertinents pris en compte dans le processus de planification et de conception
- Évaluation des répercussions des modifications proposées et détermination des mesures de protection ou d’atténuation environnementales
- Participation du public et des organismes intégrée aux processus.

Un rapport d’étude environnemental sur les transports sera préparé et déposé pour consultation public à la fin de l’étude. Le rapport documentera le processus d’étude et les recommandations.

Principales étapes de l'étude

De novembre 2018 à septembre 2019

Lancement de l'étude

- Première réunion avec la municipalité, le comté et les services d'urgence
- Études du site
- Élaborer et évaluer d'autres solutions pour le passage inférieur
- Avis de début d'étude

Octobre 2019

Examen des recommandations de l'étude

- Séance d'information publique en ligne
- Présenter les autres solutions envisagées, l'option recommandée, le calendrier des travaux, et les répercussions ou mesures d'atténuation

Nous sommes ici

Octobre 2019 au début de 2020

Documentation de l'étude

- La conception se poursuit
- Discussions avec les parties prenantes concernées, au besoin
- Publication de l'avis du rapport d'étude environnemental sur les transports (REET)
- Période d'examen public du REET à la fin de 2019 ou au début de 2020

2020 et au-delà

Phases futures du projet

- Conception détaillée
- Construction (date de début, au plus tôt : 2022)

Consultations continues avec les communautés autochtones, les résidents et les organismes

État actuel du pont

- Le pont est globalement en assez bon état mais la fin de sa durée de vie utile prévue s'approche.
- Il ne respecte pas les normes de conception actuelles :
  - Dégagement vertical insuffisant au-dessus de l'autoroute 401 - la structure et les poutres ont déjà été endommagées précédemment par des collisions à charge élevée de camions
  - Faiblesses de conception sismique
  - Système de parapet de pont inférieur aux normes.
- Les remblais d'approche du pont se sont tassés au fil du temps en raison d'un dépôt profond d'argile sensible et compressible.
- La structure actuelle limite l'expansion future de l'autoroute 401 à six voies.

La surface d'usure de l'asphalte présente de larges fissures et du déchaussement partout.

Le béton se détériore sur le dessous du pont et des poutres. Des collisions à charge élevée ont provoqué des dommages antérieurs au pont.

Le système de bordure et de parapet de pont ne respecte pas les normes de conception actuelles.

Les composants de la sous-structure sont en assez bon état et présentent des zones de détérioration et de fissuration.

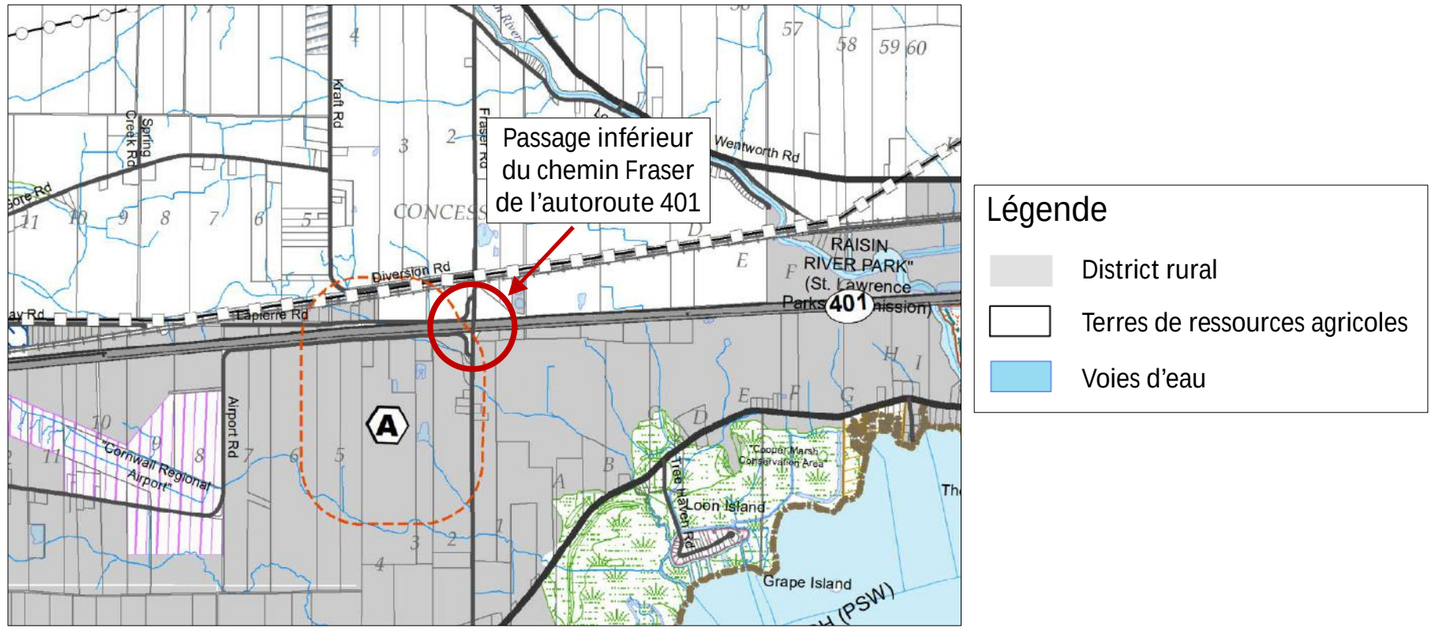
Utilisations de terres environnantes existantes

- Champs agricoles des deux côtés de l'autoroute 401
- Principales utilisations résidentielles et agricoles des terres le long du chemin Fraser dans la région
- Le chemin de fer du CN traverse le chemin Fraser à environ 350 m au nord du passage inférieur.
- L'aéroport régional de Cornwall se situe à environ 2,3 km au sud-ouest.
- Williamstown se situe à environ 4,3 km au nord.
- Lancaster se situe à environ 4,2 km à l'est.

Le Plan officiel des comtés unis de Stormont, Dundas et Glengarry (2018) désigne la zone comme suit :

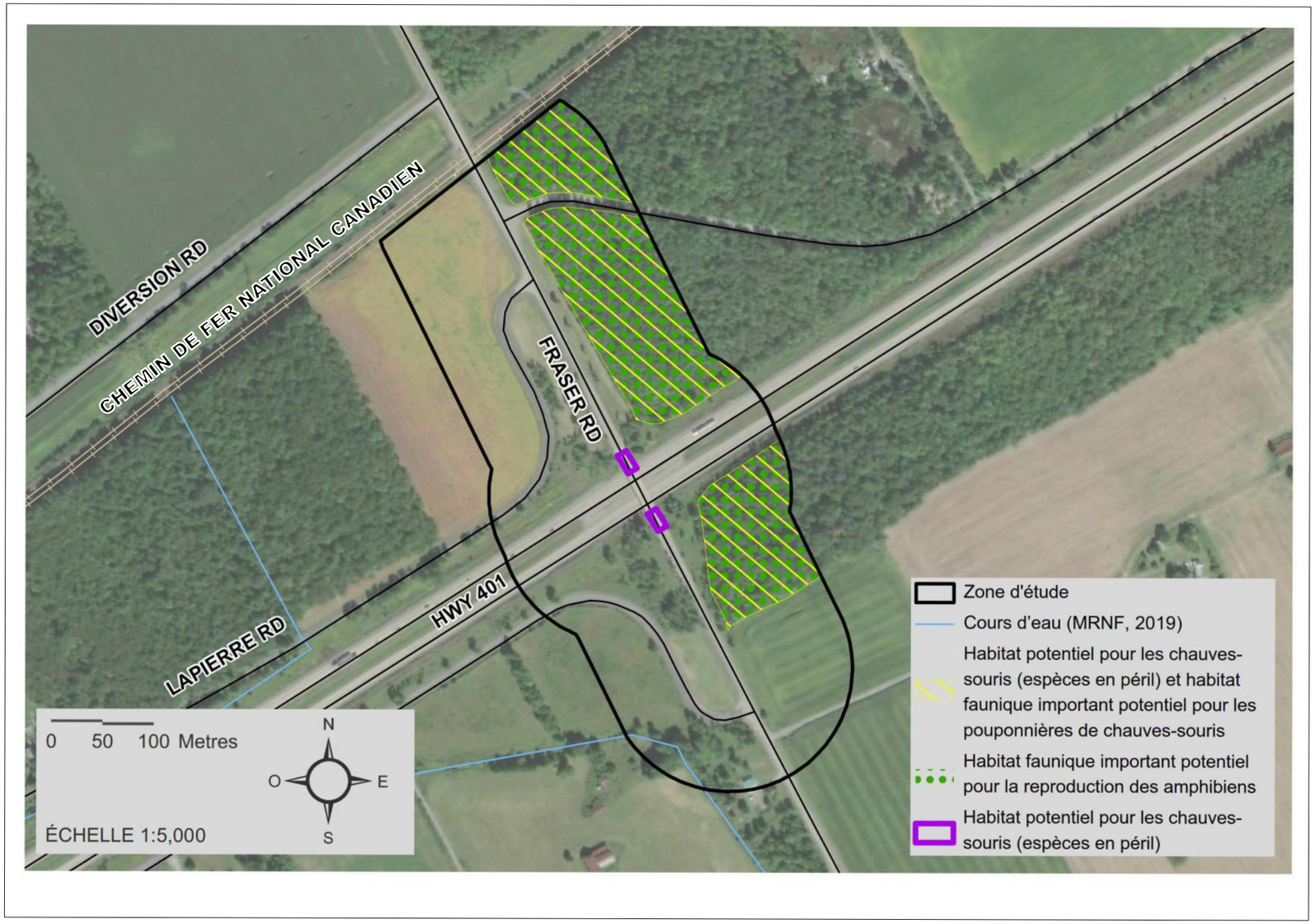
- Terres de ressources agricoles : l'agriculture, la fonction publique, les aires naturelles, les loisirs de plein air passifs, l'extraction de ressources et les infrastructures.
- District rural : l'agriculture, la foresterie, les zones résidentielles et commerciales limitées, les espaces ouverts, les aires naturelles et les infrastructures.

Annexe A6 sur l'utilisation des terres, Plan officiel des comtés unis de Stormont, Dundas et Glengarry (2018)



Conditions actuelles du milieu naturel

- Le milieu naturel actuel dans la zone d'étude a été examiné dans le cadre d'enquêtes sur place et d'un examen d'information générale.
- La cartographie de la classification écologique des terres de la zone d'étude a été achevée.
- On a découvert un habitat acceptable pour les espèces en péril dans la zone d'étude.



Autres solutions élaborées

Le processus d'ÉE de portée générale exige que d'autres solutions soient élaborées et évaluées afin de répondre aux besoins du projet. Une évaluation comparative des autres solutions a été effectuée à partir d'un éventail de critères, y compris la capacité à répondre aux besoins du projet, les répercussions possibles sur l'environnement, les directives de conception et les coûts. Dans le cadre de l'évaluation, les autres solutions doivent répondre aux objectifs du projet pour être reportées ultérieurement à un examen plus approfondi.

1. Rénovation du pont existant (Non recommandé) – Cette solution consisterait à réparer le passage inférieur existant afin de prolonger la durée de vie utile du pont. Cette solution a été écartée car elle ne répond pas entièrement aux besoins du projet. Le pont actuel limitera l'élargissement futur de l'autoroute 401 et ne résout pas le problème du faible dégagement vertical de l'autoroute 401.

2. Remplacement du pont actuel (recommandé) – Deux options ont été élaborées pour le remplacement du pont, comme décrites ci-dessous et illustrées sur le panneau 10. Le panneau 11 fournit un aperçu de l'évaluation effectuée.

   A. Maintenir le tracé actuel du chemin Fraser – cette option maintient le tracé droit du chemin Fraser mais exige que la route soit entièrement fermée au pont pendant la construction. Le pont actuel serait enlevé et remplacé par un tout nouveau pont au même endroit.

   B. Déplacer le chemin Fraser vers l'est ou vers l'ouest du pont – cette option ajoute une courbe au chemin Fraser afin qu'un nouveau pont puisse être construit hors ligne, ce qui permet au chemin Fraser de rester ouvert au pont pendant la construction.

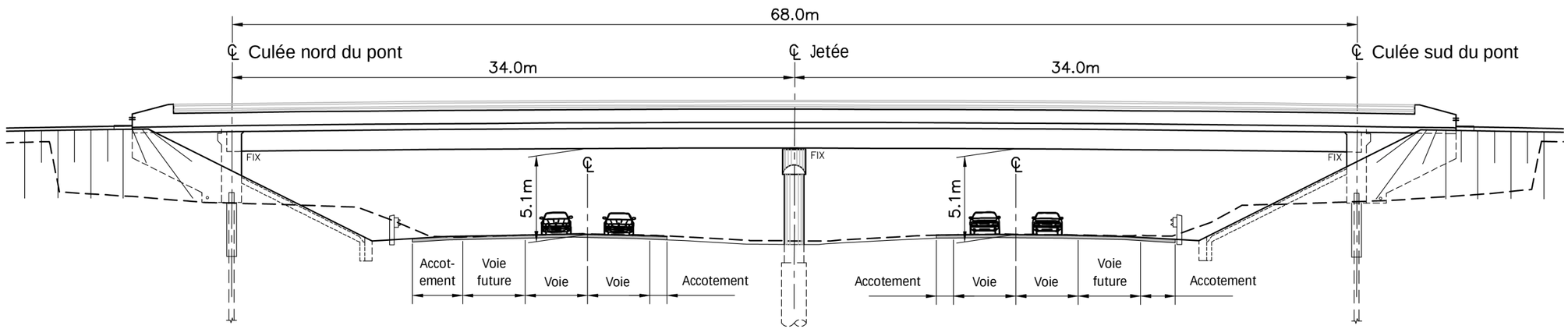
Solutions de remplacement élaborées

Évaluation des solutions au remplacement du pont

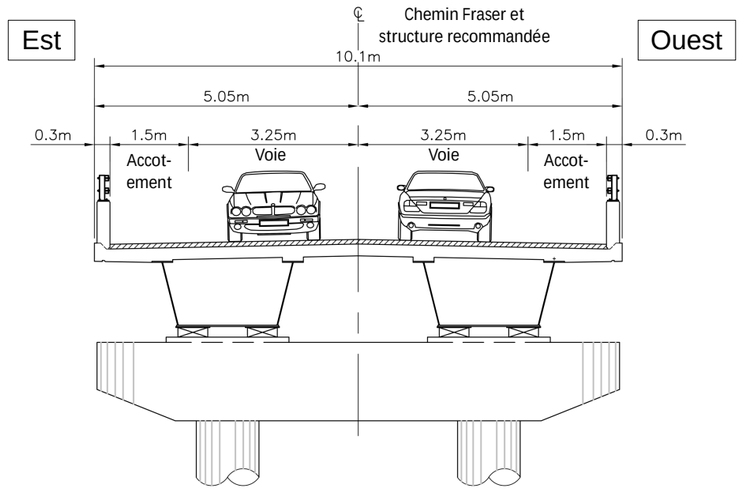
Critères	Remplacement du pont le long du tracé actuel (Solution 2A)	Remplacement du pont et déplacement du chemin Fraser vers l'est ou vers l'ouest (Solution 2B)
Organisation de la circulation (répercussions sur la circulation pendant la construction)	• Chemin Fraser - fermeture complète requise pendant toute la durée des travaux de construction • Autoroute 401 - fermetures de fin de semaine et de courte durée nécessaires pour la démolition du pont et pour certaines activités de construction.	• Chemin Fraser - circulation maintenue dans les deux sens, à l'exception d'une fermeture de courte durée (c.-à-d. de 3 à 4 semaines) afin d'effectuer les raccordements du chemin Fraser. • Autoroute 401 - fermetures de fin de semaine et de courte durée nécessaires pour la démolition du pont et pour certaines activités de la construction.
Exigences en matière de terrain	• Terrain supplémentaire non prévu	• Terrain supplémentaire nécessaire
Milieu naturel et durabilité	• Plus petite empreinte de projet - moins d'enlèvement de végétation nécessaire • Réutilisation importante des abords routiers	• Plus grande empreinte de projet - plus d'enlèvement de végétation nécessaire • Réutilisation limitée des infrastructures routières
Complexité et durée de la construction	• Durée de construction plus courte - 2 saisons de construction ou moins • La réutilisation des remblais actuels entraîne une conception et une construction moins complexes • Peut être conçu afin d'éviter des répercussions importantes sur les services publics	• Durée de construction plus longue - plus de 2 saisons de construction • Techniques de conception et de construction plus complexes pour s'adapter aux mauvaises conditions du sol • Risque élevé de tassement à long terme des remblais d'approche qui nécessiterait des réparations • Déménagements de services publics nécessaires
Géométrie de la chaussée	• Le chemin Fraser reste aligné • Aucun changement des lignes de visibilité aux intersections voisines du chemin Fraser	• Courbe introduite sur le chemin Fraser des deux côtés de la structure • Possibilité de lignes de visibilité réduites aux intersections voisines du chemin Fraser
Archéologie et patrimoine	• Répercussions minimales au-delà de l'empreinte des remblais actuels • Peut nécessiter une évaluation archéologique de phase 2	• Zone touchée plus grande • Évaluation archéologique de phase 2 nécessaire
Coût	• Coût inférieur	• Coût supérieur
Résumé	Le remplacement le long du tracé actuel (Solution 2A) est la solution recommandée. D'après l'évaluation comparative effectuée, il est préférable pour tous les critères à l'exception de l'organisation de la circulation.	

La solution recommandée

La solution recommandée est le remplacement du pont au même endroit que le pont actuel (Solution 2A). La conception préliminaire préférée est indiquée ci-dessous.



Voies de l'autoroute 401 en direction ouest Voies de l'autoroute 401 en direction est



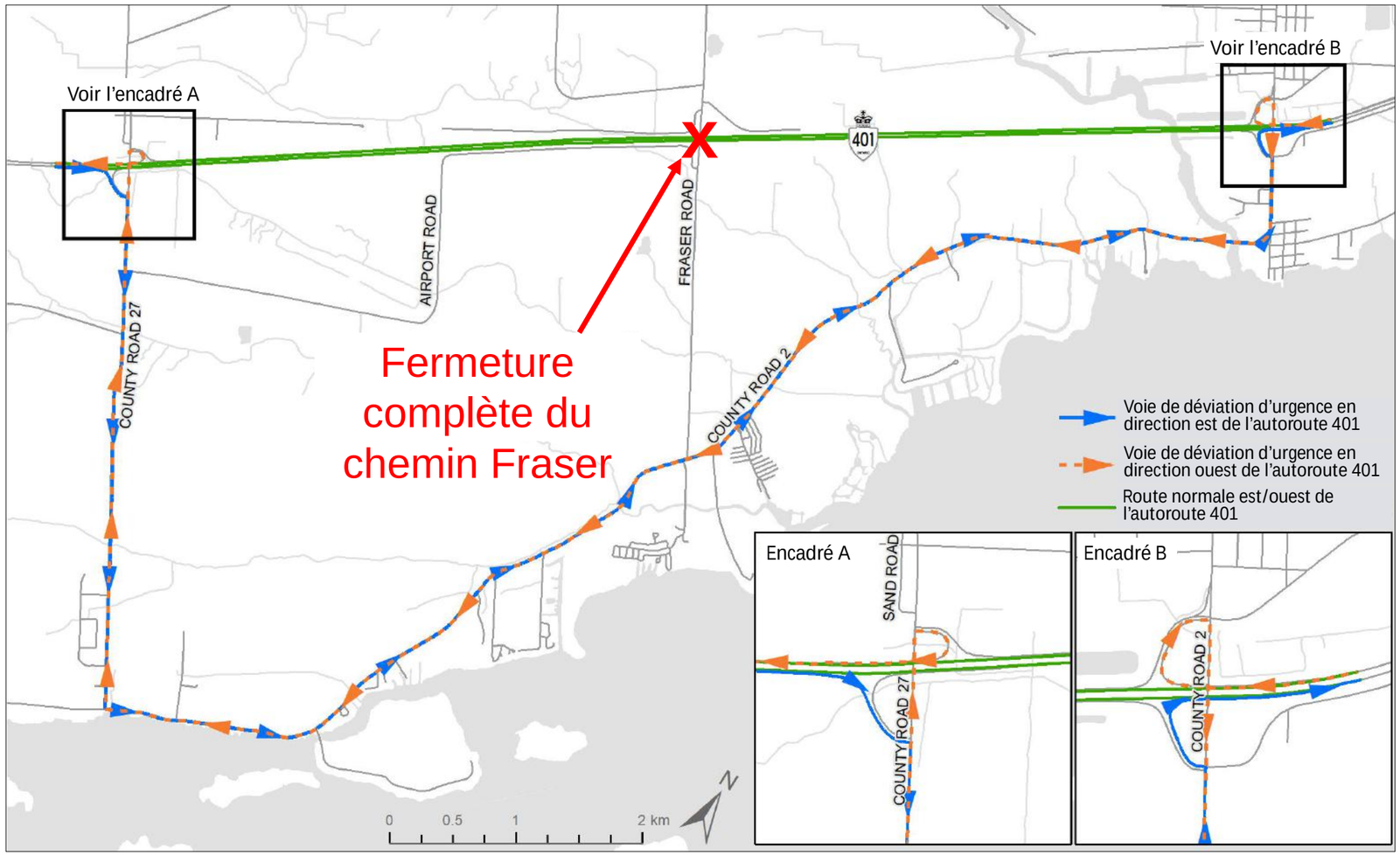
Coupe transversale

Repercussions sur la circulation de l'autoroute 401 pendant la construction

La fermeture complète de l'autoroute 401 est nécessaire pour la démolition et pour certaines activités de construction du nouveau pont.

- Longueur de la voie de déviation : 16,5 km le long de la route de comté 27 et de la route de comté 2.
- Durée et calendrier des travaux prévus : fermetures prévues de nuit et de fin de semaine afin de faire dévier la circulation vers l'est et l'ouest de l'autoroute 401.

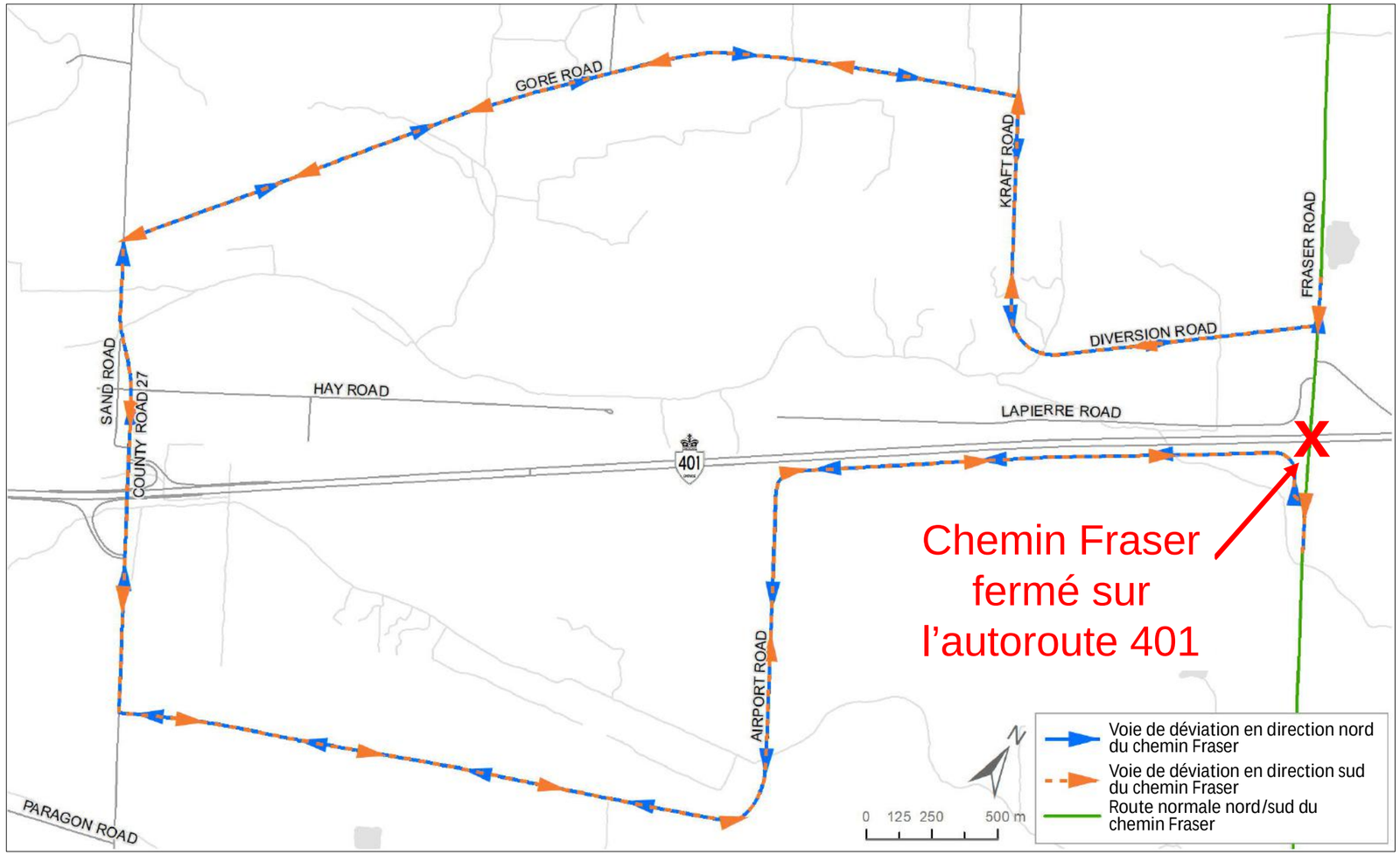
Des réductions de voies sont également nécessaires sur l'autoroute 401 tout au long de la construction.



Repercussions sur la circulation du chemin Fraser pendant la construction

La fermeture complète du chemin Fraser est nécessaire pendant toute la durée de la construction.

- Longueur de la voie de déviation : 14 km et environ 15 minutes de trajet le long de la route de comté 27, du chemin Airport, du chemin Gore, du chemin Kraft et du chemin Diversion.
- Durée et calendrier des travaux prévus : le passage inférieur doit être fermé pour un maximum de deux saisons de construction.



L'accès au chemin Airport, au chemin Diversion, au chemin Lapierre et au chemin Raisin River sera assuré tout au long des travaux de construction.

Répercussions prévues et mesures d'atténuation

Ce qui suit décrit les répercussions potentielles et les mesures d'atténuation. Celles-ci seront confirmées au fur et à mesure que l'étude se poursuivra et en fonction des commentaires reçus du public et des organismes. Des mesures supplémentaires seront également élaborées pendant la phase de conception détaillée.

Répercussions potentielles	Mesure(s) d'atténuation
Répercussions de la construction sur la faune et la flore	• Des mesures de contrôle de l'érosion et des sédiments seront mises en place. • L'enlèvement de la végétation sera effectué à l'extérieur de la période de nidification des oiseaux migrateurs et de la période de sensibilité de la faune pour les chauves-souris. • Les processus pour les rencontres avec la faune, y compris les espèces en péril, pendant la construction seront inclus dans les documents de construction.
Conflits potentiels avec les services publics existants	• Les services publics de la région seront protégés ou déplacés, au besoin, en consultation avec les sociétés de services publics.
Répercussions sur la circulation provoquées par la fermeture du chemin Fraser et des fermetures à court terme de l'autoroute 401	• Des panneaux indiquant les voies de déviation dirigeront la circulation pendant les fermetures. • Des fermetures complètes de l'autoroute 401 seront prévues en dehors des heures de pointe afin de réduire au minimum les répercussions sur la circulation. La circulation sur l'autoroute 401 sera détournée par la voie de déviation existante. • Un préavis et la durée des fermetures de routes seront communiqués au public. • Les réductions de voies sur l'autoroute 401 seront réduites au minimum.
Les fermetures de routes peuvent avoir une incidence sur les délais d'intervention des services d'urgence.	• Nous avons consulté les services d'urgence locaux et nous continuerons de les mettre à jour pendant la conception détaillée et la construction.
Répercussions de la construction sur les ressources archéologiques	• Évaluation archéologique initiale terminée. • Les processus de protection des ressources archéologiques et des restes humains, s'ils sont découverts pendant la construction, seront inclus dans les documents de construction.
Bruit élevé pendant la construction, y compris la nuit	• L'entrepreneur sera tenu d'entretenir le matériel en bon état de fonctionnement afin de réduire au minimum le bruit inutile et de limiter la marche au ralenti, dans la mesure du possible. • Les résidents locaux seront informés du calendrier des activités de construction de nuit.

Prochaines étapes et coordonnées

- Des mesures d'atténuation supplémentaires seront élaborées pendant la conception détaillée, au besoin.
- Le public aura l'occasion de donner son avis lors de la conception détaillée.
- Des renseignements plus précis sur le calendrier et la durée de la construction, ainsi que sur les fermetures de routes, seront fournis à l'approche de la construction.

Veuillez envoyer vos questions ou vos commentaires sur la page de contact du site web du projet ou à l'un des membres de l'équipe avant le 25 october 2019.

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Kingston (Ontario) K7L 5A3
Tél. : 613 482-9609
Courriel : Trenton.Flick@ontario.ca

Les renseignements relatifs à ce projet sont recueillis conformément à la Loi sur l'accès à l'information et la protection de la vie privée. À l'exception des renseignements personnels, tous les commentaires seront du domaine public.

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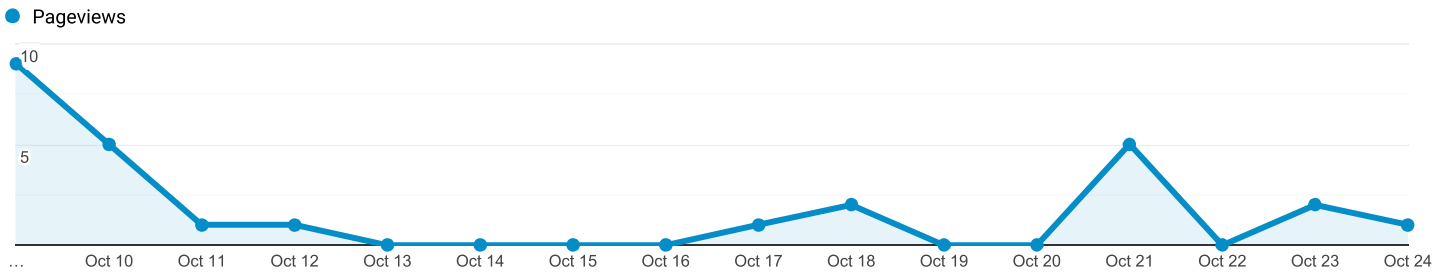

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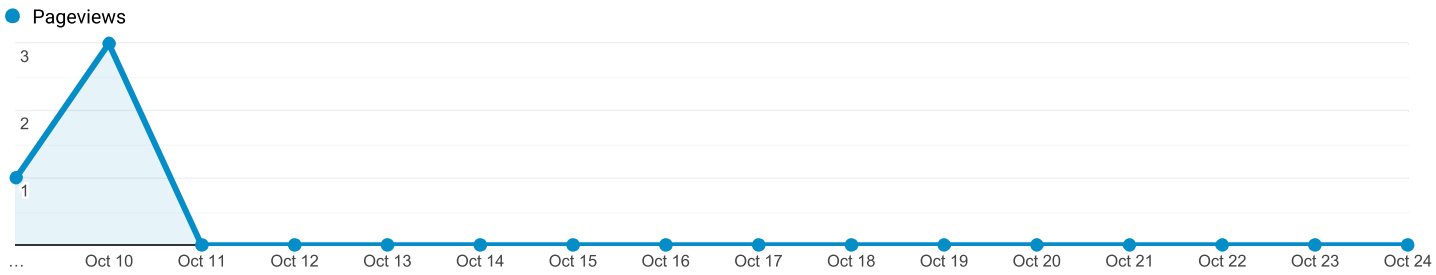

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Appendix B

MHSTCI Heritage Checklist

Ontario

Ministry of Tourism, Culture and Sport

Programs & Services Branch
401 Bay Street, Suite 1700
Toronto ON M7A 0A7

Criteria for Evaluating Potential for Built Heritage Resources and Cultural Heritage Landscapes

A Checklist for the Non-Specialist

The **purpose of the checklist** is to determine:

- if a property(ies) or project area:
  - is a recognized heritage property
  - may be of cultural heritage value
- it includes all areas that may be impacted by project activities, including – but not limited to:
  - the main project area
  - temporary storage
  - staging and working areas
  - temporary roads and detours

Processes covered under this checklist, such as:

- *Planning Act*
- *Environmental Assessment Act*
- *Aggregates Resources Act*
- *Ontario Heritage Act* – Standards and Guidelines for Conservation of Provincial Heritage Properties

Cultural Heritage Evaluation Report (CHER)

If you are not sure how to answer one or more of the questions on the checklist, you may want to hire a qualified person(s) (see page 5 for definitions) to undertake a cultural heritage evaluation report (CHER).

The CHER will help you:

- identify, evaluate and protect cultural heritage resources on your property or project area
- reduce potential delays and risks to a project

Other checklists

Please use a separate checklist for your project, if:

- you are seeking a Renewable Energy Approval under Ontario Regulation 359/09 – separate checklist
- your Parent Class EA document has an approved screening criteria (as referenced in Question 1)

Please refer to the Instructions pages for more detailed information and when completing this form.

Project or Property Name

Fraser Road Underpass Replacement

Project or Property Location (upper and lower or single tier municipality)

Township of South Glengarry, United Counties of Stormont, Dundas and Glengarry

Proponent Name

Ministry of Transportation, Ontario (MTO)

Proponent Contact Information

Michael Sleeth, P.Eng., MTO Project Engineer - 613-449-6459, michael.sleeth@ontario.ca

Screening Questions

	Yes	No
1. Is there a pre-approved screening checklist, methodology or process in place?	☐	☑

If Yes, please follow the pre-approved screening checklist, methodology or process.

If No, continue to Question 2.

Part A: Screening for known (or recognized) Cultural Heritage Value

	Yes	No
2. Has the property (or project area) been evaluated before and found **not** to be of cultural heritage value?	☐	☑

If Yes, do **not** complete the rest of the checklist.

The proponent, property owner and/or approval authority will:

- summarize the previous evaluation and
- add this checklist to the project file, with the appropriate documents that demonstrate a cultural heritage evaluation was undertaken

The summary and appropriate documentation may be:

- submitted as part of a report requirement
- maintained by the property owner, proponent or approval authority

If No, continue to Question 3.

	Yes	No
3. Is the property (or project area):		
a. identified, designated or otherwise protected under the *Ontario Heritage Act* as being of cultural heritage value?	☐	☑
b. a National Historic Site (or part of)?	☐	☑
c. designated under the *Heritage Railway Stations Protection Act*?	☐	☑
d. designated under the *Heritage Lighthouse Protection Act*?	☐	☑
e. identified as a Federal Heritage Building by the Federal Heritage Buildings Review Office (FHBRO)?	☐	☑
f. located within a United Nations Educational, Scientific and Cultural Organization (UNESCO) World Heritage Site?	☐	☑

If Yes to any of the above questions, you need to hire a qualified person(s) to undertake:

- a Cultural Heritage Evaluation Report, if a Statement of Cultural Heritage Value has not previously been prepared or the statement needs to be updated

If a Statement of Cultural Heritage Value has been prepared previously and if alterations or development are proposed, you need to hire a qualified person(s) to undertake:

- a Heritage Impact Assessment (HIA) – the report will assess and avoid, eliminate or mitigate impacts

If No, continue to Question 4.

Part B: Screening for Potential Cultural Heritage Value

	Yes	No
4. Does the property (or project area) contain a parcel of land that:		
a. is the subject of a municipal, provincial or federal commemorative or interpretive plaque?	☐	☑
b. has or is adjacent to a known burial site and/or cemetery?	☐	☑
c. is in a Canadian Heritage River watershed?	☐	☑
d. contains buildings or structures that are 40 or more years old?	☐	☑

Part C: Other Considerations

	Yes	No
5. Is there local or Aboriginal knowledge or accessible documentation suggesting that the property (or project area):		
a. is considered a landmark in the local community or contains any structures or sites that are important in defining the character of the area?	☐	☑
b. has a special association with a community, person or historical event?	☐	☑
c. contains or is part of a cultural heritage landscape?	☐	☑

If Yes to one or more of the above questions (Part B and C), there is potential for cultural heritage resources on the property or within the project area.

You need to hire a qualified person(s) to undertake:

- a Cultural Heritage Evaluation Report (CHER)

If the property is determined to be of cultural heritage value and alterations or development is proposed, you need to hire a qualified person(s) to undertake:

- a Heritage Impact Assessment (HIA) – the report will assess and avoid, eliminate or mitigate impacts

If No to all of the above questions, there is low potential for built heritage or cultural heritage landscape on the property.

The proponent, property owner and/or approval authority will:

- summarize the conclusion
- add this checklist with the appropriate documentation to the project file

The summary and appropriate documentation may be:

- submitted as part of a report requirement e.g. under the *Environmental Assessment Act, Planning Act* processes
- maintained by the property owner, proponent or approval authority

Hayes, Greg <ghayes@dillon.ca>

Fraser Road Underpass - Heritage Inquiry

Kelli Campeau <kcampeau@southglengarry.com> Wed, Dec 4, 2019 at 2:08 PM
To: "Hayes, Greg" <ghayes@dillon.ca>

Hi Greg,

There are no heritage resources or designated heritage sites within the study area.

Thanks

Kelli

From: Hayes, Greg <ghayes@dillon.ca>
Sent: December-04-19 10:19 AM
To: Kelli Campeau <kcampeau@southglengarry.com>
Subject: Fraser Road Underpass - Heritage Inquiry

Hi Kelli,

As mentioned in our phone conversation, we are working with the Ministry of Transportation on a Class Environmental Assessment Study for the replacement of the Highway 401 Fraser Road Underpass. As part of the study, we are completing a self-screening to evaluate the potential for built heritage resources within the study area, which is shown in the attached figure. Could you please confirm whether or not the study area contains lands that are:

- designated by a municipal by-law as being of cultural heritage value or interest
- the subject of an agreement, covenant or easement entered into under Parts II or IV of the Ontario Heritage Act
- part of an area designated by a municipal by-law made under Section 41 of the Ontario Heritage Act as a heritage conservation district
- listed on a register of heritage properties maintained by the municipality.

Any additional information that you may have on heritage resources at or near the study area, including those that have been identified but not formally designated, would be appreciated.

Thanks,

Greg

Greg Hayes
Dillon Consulting Limited
130 Dufferin Avenue, Suite 1400
London, Ontario, N6A 5R2
T - 519.438.1288 ext. 1251
F - 519.672.8209
GHayes@dillon.ca
www.dillon.ca

Hayes, Greg <ghayes@dillon.ca>

MHSTCI Response: Fraser Road Underpass - Heritage Inquiry

Registrar (MHSTCI) <Registrar@ontario.ca> Tue, Dec 17, 2019 at 3:32 PM
To: "Hayes, Greg" <ghayes@dillon.ca>
Cc: "Registrar (MHSTCI)" <Registrar@ontario.ca>, "Livingstone, Kimberly (MHSTCI)" <Kimberly.Livingstone@ontario.ca>

MHSTCI File 0009757 - Highway 401 Fraser Road Underpass Replacement

Hi Greg,

T the Ministry of Heritage, Sport, Tourism and Culture and Industries (MHSTCI) developed screening checklists to assist property owners, developers, consultants and others to identify known and potential cultural heritage resources:
- Criteria for Evaluating Archaeological Potential
- Criteria for Evaluating Marine Archaeological Potential
- Criteria for Evaluating Potential for Built Heritage Resources and Cultural Heritage Landscapes

I have used the document above (Built Heritage and Cultural Heritage Landscapes) in order to respond to your question:

- Question 3a. i. Is the property (or project area) identified, designated or otherwise protected under the Ontario Heritage Act as being of cultural heritage value e.g. a property that is designated by order of the Minister of Heritage, Sport, Tourism and Culture Industries as being of cultural heritage value or interest of provincial significance [s.34.5]?
  MHSTCI Response: To date, no properties have been designated by the Minister.

- Question 3a.v. Is the property (or project area) identified, designated or otherwise protected under the Ontario Heritage Act as being of cultural heritage value included in the Ministry of Heritage, Sport, Tourism and Culture Industries' list of provincial heritage properties?
  MHSTCI Response: At this time, there are no provincial heritage properties within the municipality of South Dundas.
  Please note that if the subject lands or parts of the subject lands are owned or controlled by an Ontario Ministry or Prescribed Public Body (PPB) on behalf of the Crown (the list of PPBs is available as O. Reg. 157/10), a Ministry or PPB may have responsibilities under the Standards and Guidelines for Conservation of Provincial Heritage Properties.

MHSTCI would appreciate if any technical cultural heritage studies (e.g. Cultural Heritage Assessment Report, Cultural Heritage Evaluation Report, Heritage Impact Assessment) be sent to our attention. I'm copying Kimberly Livingstone, MHSTCI Heritage Planner, who is assigned to this file.

I hope this helps. Let me know if you have any questions.

Regards,
Karla

Karla Barboza MCIP, RPP, CAHP | (A) Team Lead, Heritage
Ministry of Heritage, Sport, Tourism and Culture Industries

Culture Division | Programs and Services Branch | Heritage Planning Unit

T. 416.314.7120 | Email: karla.barboza@ontario.ca

From: Hayes, Greg <ghayes@dillon.ca>
Sent: December-04-19 10:31 AM
To: Registrar (MHSTCI) <Registrar@ontario.ca>
Subject: Fraser Road Underpass - Heritage Inquiry

Good morning,

We are working with the Ministry of Transportation on a Class Environmental Assessment Study for the replacement of the Highway 401 Fraser Road Underpass. As part of the study, we are completing a self-screening to evaluate the potential for built heritage resources within the study area, which is shown in the attached figure. Could you please provide responses to the following questions from the MHSTCI Criteria for Evaluating Potential for Built Heritage Resources and Cultural Heritage Landscapes?

- Question 3a.i. Is the property (or project area) identified, designated or otherwise protected under the Ontario Heritage Act as being of cultural heritage value e.g. a property that is designated by order of the Minister of Tourism, Culture and Sport as being of cultural heritage value or interest of provincial significance [s.34.5]?
- Question 3a.v. Is the property (or project area) identified, designated or otherwise protected under the Ontario Heritage Act as being of cultural heritage value included in the Ministry of Tourism, Culture and Sport's list of provincial heritage properties?

Thanks,

Greg

DILLON CONSULTING

CANADA BEST MANAGED COMPANIES
Platinum member

Greg Hayes
Dillon Consulting Limited
130 Dufferin Avenue, Suite 1400
London, Ontario, N6A 5R2
T - 519.438.1288 ext. 1251
F - 519.672.8209
GHayes@dillon.ca
www.dillon.ca

Figure 2 - Study Area.pdf
1764K

Hayes, Greg <ghayes@dillon.ca>

Fraser Road Underpass - Heritage Inquiry

Kevin DeMille <Kevin.DeMille@heritagetrust.on.ca> Wed, Dec 11, 2019 at 10:54 AM
To: "Hayes, Greg" <ghayes@dillon.ca>

Good morning Greg,

I'm terribly sorry for the delay. We had an issue with our computers for a short while.

Thank you for your information request for the Class Environmental Assessment Study for the replacement of the Highway 401 Fraser Road Underpass. Your request to verify the presence cultural heritage easements and Trust-owned properties within or adjacent to the study area displayed in the map you provided has been processed. I've reviewed the site against our database of OHT easements and properties. We can confirm that the OHT does not have any conservation easements or Trust-owned properties within or adjacent to the areas that you provided in the map.

If you have not already done so, I recommend you contact the local municipality to verify no local heritage properties are present within the identified study area.

As described in Section 23 of the *Ontario Heritage Act,* the Trust holds and maintains the provincial Ontario Heritage Act Register of properties that have been designated by municipalities under sections 29 and 41 of the *Act* as well as properties designated under the *Act* by the Minister. We rely on municipalities to send us information and it is advisable to check with the clerk's office to verify information.

Under Section 27 of the *Act* (OHA) the clerk of a municipality is required to maintain a local register of all designated properties. Section 27 also states that municipalities may keep a register of property that has not been designated, but that the municipality has determined to be of cultural heritage value or interest. These are often referred to as "listed" properties. These non-designated heritage properties are not reflected in the OHA Register.

Karla Barboza at karla.barboza@ontario.ca at the Ministry of Tourism, Culture, and Sport can assist you with any questions you may have about any other provincially owned heritage properties within or adjacent to the study area.

Kind regards,

Kevin De Mille

Kevin De Mille| Heritage Planner

Ontario Heritage Trust
Telephone: 416.314.5972
Email: Kevin.DeMille@heritagetrust.on.ca

heritagetrust.on.ca | doorsopenontario.on.ca

From: Hayes, Greg <ghayes@dillon.ca>
Sent: Wednesday, December 04, 2019 10:54 AM
To: Kevin DeMille <Kevin.DeMille@heritagetrust.on.ca>
Subject: Fraser Road Underpass - Heritage Inquiry

Hi Kevin,

As mentioned in our phone conversation, we are working with the Ministry of Transportation on a Class Environmental Assessment Study for the replacement of the Highway 401 Fraser Road Underpass. As part of the study, we are completing a self-screening to evaluate the potential for built heritage resources within the study area, which is shown in the attached figure. Could you please confirm whether or not the Ontario Heritage Trust has any:

- Conservation easements or Trust-owned properties within or adjacent to the study area
- Documents that indicate any properties in the study area are designated under the OHA?

Any additional information that you may have on heritage resources at or near the study area, including those that have been identified but not formally designated, would be appreciated.

Thanks,

Greg

DILLON CONSULTING

BEST MANAGED COMPANIES CANADA
Platinum member

Greg Hayes
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GHayes@dillon.ca
www.dillon.ca

Please consider the environment before printing this email.

Appendix C

Terrestrial Ecosystem Impact Assessment Report

DILLON CONSULTING

MINISTRY OF TRANSPORTATION, ONTARIO

Terrestrial Ecosystem Impact Assessment Report (Final)

Fraser Road Underpass (Site 31-230), GWP 4248-15-00

March 2020 | 18-8202

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Appendices

1.0 Introduction

The Ministry of Transportation Ontario (MTO) retained Dillon Consulting Limited (Dillon) to complete the Preliminary Design and Class Environmental Assessment (EA) for the replacement of the Highway 401 Fraser Road Underpass (SN 31-230) (GWP 4248-15-00). The Fraser Road Underpass is located on Fraser Road at Highway 401 approximately 4.5 km west of Lancaster, Ontario in the Township of South Glengarry and United Counties of Stormont, Dundas and Glengarry (SDG). The Fraser Road Underpass was constructed in 1968 and is a four-span prestressed concrete girder bridge with a total length of 89.62 m and width of 10.36 m, accommodating two lanes of traffic, one in each direction. The structure has been rehabilitated three times in 1975, 1984 and 2009.

The Class EA study is currently underway and the technical evaluation completed to date is recommending the underpass be replaced along the existing alignment. The new structure would also require modifications to the existing approach embankments.

This Terrestrial Ecosystem Impact Assessment Report (TEIAR) identifies existing terrestrial features and the potential environmental impacts associated with the improvements, following the requirements of MTO's Environmental Reference for Highway Design (ERD; MTO, 2013). This report also identifies recommended mitigation measures to reduce or avoid potential impacts. The Study Area extends along Fraser Road from the Canadian National Rail tracks in the north to south of Highway 401 (Appendix A: Figure 1).

As documented in the Existing Environmental Conditions Memo (January 2019), the MNRF identified an unnamed, warmwater stream/drain within the southern portion of the Study Area. The watercourse was not reviewed as part of this study as impacts to the culvert are not anticipated.

2.0 Legislative Framework

This TEIAR was completed with regards to the Acts, Regulations and Policies outlined below.

2.1 Class Environmental Assessment for Provincial Transportation Facilities

The MTO's Class EA (MTO, 2000) is an approved planning document that defines groups of similar projects and activities and provides guidance on the processes these projects must follow. The Environmental Protection Principles provide guidance on the assessment of the types of impacts, identification of environmental conditions and sensitivities, and development of environmental protection measures.

The ERD (MTO, 2013) was developed as part of the Environmental Standards and Practices by MTO. The ERD outlines specific scoping and documentation requirements for terrestrial assessments.

2.2 Provincial Policy Statement

The Provincial Policy Statement (PPS) (Ministry of Municipal Affairs and Housing, 2014) provides policy direction on land use planning that is of provincial interest, including transportation corridors and natural heritage. It provides for the long term protection of the diversity, connectivity and function of natural features.

Under the transportation and infrastructure corridors Policy 1.6.8.5 of the PPS, it states "when planning for corridors and rights-of-*way for significant transportation, electricity transmission, and infrastructure facilities, consideration will be given to the significant resources in Section 2: Wise Use and Management* of Resources." Section 2 of the PPS identifies the protection of natural heritage (Section 2.1) and water (Section 2.2) features. Consideration is to be given to the natural heritage and water features identified in Section 2, including the following:

- significant wetlands;
- significant coastal wetlands;
- significant woodlands;
- significant valleylands;
- significant wildlife habitat (SWH);
- significant areas of natural and scientific interest (ANSI);
- fish habitat;
- habitat of Endangered and Threatened species;
- sensitive surface water features; and
- sensitive ground water features.

2.3 Ontario Endangered Species Act

The Ontario Endangered Species Act (ESA, 2007) (Government of Ontario, 2007) provides for the identification and protection of Species at Risk (SAR) and their habitats, and the promotion of species recovery. The ESA, 2007 protects all Threatened, Endangered and *Extirpated* species on the Species at Risk in Ontario (SARO) list.

2.4 Migratory Birds Convention Act

Environment and Climate Change Canada implements the *Migratory Birds Convention Act* (MBCA) (Government of Canada, 1994) to protect migratory birds and their nests. A person shall not harm a migratory bird or nest without authorization under the regulations.

2.5 Fish and Wildlife Conservation Act

The *Ontario Fish and Wildlife Conservation Act* (FWCA) (Government of Ontario, 1997) prohibits hunting (killing, capturing, injuring and harassing) and trapping of specialty protected wildlife.

3.0 Background Review

This TEIAR was completed for the Study Area following the requirements outlined in Section 3.2, Terrestrial Ecosystems of MTO's ERD (MTO, 2013). To complete the assessment, Dillon reviewed supporting background documents and information sources to assist with the characterization of the existing terrestrial ecosystem and to inform the development of the fieldwork program. Background documents and information sources relied upon for this study are detailed in the following sections.

The SAR and Species of Conservation Concern (SCC) identified during this background review with the potential to occur in the vicinity of the Study Area, based on historical occurrence records are summarized below. The SAR and SCC identified during these searches, along with the data sources, a description of habitat requirements and a habitat screening assessment are included in Table B1 (Appendix B). SCC are defined as species listed as Special Concern, Threatened or Endangered under the federal Species at Risk Act (SARA, 2002), and those designated as Special Concern provincially (ESA, 2007). They do not include species designated as Threatened or Endangered provincially (ESA, 2007).

Twenty one SAR listed as Threatened or Endangered under the ESA, 2007 and 23 SCC have the potential to occur in the vicinity of the Study Area, based on historical occurrence records and potential suitable habitat (see Tables 1 and 2).

Table 1: Species at Risk Identified Through Background Review

Scientific Name	Common Name	SARA[1]	ESA[2]	SRANK[3]	Information Source[4]
BIRDS					
Ammodramus henslowii	Henslow's Sparrow	END	END	SHB	MNRF
Caprimulgus vociferus	Eastern Whip-poor-will	THR	THR	S4B	MNRF
Chaetura pelagica	Chimney Swift	THR	THR	S4B,S4N	MNRF
Dolichonyx oryzivorus	Bobolink	THR	THR	S4B	MNRF, OBBA
Hirundo rustica	Barn Swallow	THR	THR	S4B	MNRF, OBBA
Ixobrychus exilis	Least Bittern	THR	THR	S4B	MNRF, OBBA
Pelecanus erythrorhynchos	American White Pelican	---	THR	S2B	MNRF
Rallus elegans	King Rail	END	END	S2B	MNRF
Riparia riparia	Bank Swallow	THR	THR	S4B	MNRF, OBBA

Scientific Name	Common Name	SARA[1]	ESA[2]	SRANK[3]	Information Source[4]
Sturnella magna	Eastern Meadowlark	THR	THR	S4B	MNRF, OBBA
HERPTILES					
Emydoidea blandingii	Blanding's Turtle	THR	THR	S3	MNRF, OHA
MAMMALS					
Myotis leibii	Eastern Small-footed Myotis	---	END	S2S3	MNRF, MWH
Myotis lucifugus	Little Brown Myotis	END	END	S4	MNRF, MWH
Myotis septentrionalis	Northern Myotis	END	END	S3	MNRF, MWH
Pipistrellus subflavus	Tri-colored Bat	END	END	S3?	MNRF, MWH
Urocyon cinereoargenteus	Gray Fox	THR	THR	S1	MNRF, MWH
FISH					
Anguilla rostrata	American Eel	---	END	S1?	MNRF
Acipenser fulvescens pop. 3	Lake Sturgeon (Great Lakes - Upper St. Lawrence River population)	---	END	S2	MNRF
Exoglossum maxillingua	Cutlip Minnow	---	THR	S1S2	NHIC, MNRF
VASCULAR PLANTS					
Juglans cinerea	Butternut	END	END	S3?	MNRF
Panax quinquefolius	American Ginseng	END	END	S2	MNRF

[1]Federal Species at Risk Act, 2002; [2]Provincial Endangered Species Act, 2007; [3]Provincial Sub-national Rank (S1 – Critically Imperiled, S2 – Imperiled, S3 – Vulnerable, S4 – Apparently Secure, S5 – Secure); [4]Information sources: MNRF = MNRF Species at Risk in Ontario List by area of the province and MNRF Kemptville District Consultation, NHIC = Natural Heritage Information Centre, OBBA = Ontario Breeding Bird Atlas, OHA = Ontario Herpetofaunal Atlas, MWH = Digital Distribution Maps of the Mammals of the Western Hemisphere, version 3.0.

Table 2: Species of Conservation Concern Identified Through Background Review

Scientific Name	Common Name	SARA[1]	ESA[2]	SRANK[3]	Information Source[4]
BIRDS					
Ammodramus savannarum	Grasshopper Sparrow	---	SC	S4B	OBBA
Ardea alba	Great Egret	---	---	S2B	MNRF
Cardellina Canadensis	Canada Warbler	THR	SC	S4B	MNRF, OBBA
Chlidonias niger	Black Tern	---	SC	S3B	MNRF, OBBA
Chordeiles minor	Common Nighthawk	THR	SC	S4B	MNRF
Coccothraustes vespertinus	Evening Grosbeak	---	SC	S4B	MNRF
Contopus cooperi	Olive-sided Flycatcher	THR	SC	S4B	MNRF
Contopus virens	Eastern Wood-pewee	SC	SC	S4B	MNRF, OBBA
Coturnicops noveboracensis	Yellow Rail	SC	SC	S4B	MNRF
Euphagus carolinus	Rusty Blackbird	SC	SC	S4B	MNRF
Haliaeetus leucocephalus	Bald Eagle	---	SC	S2N,S4B	MNRF
Hylocichla mustelina	Wood Thrush	END	SC	S4B	MNRF, OBBA
Nycticorax nycticorax	Black-crowned Night-heron	---	---	S3B,S3N	MNRF
HERPTILES					
Chelydra serpentina	Snapping Turtle	SC	SC	S3	MNRF, OHA
Graptemys geographica	Northern Map Turtle	SC	SC	S3	MNRF
Pseudacris triseriata pop. 1	Western Chorus Frog (Great Lakes / St. Lawrence - Canadian Shield Population)	THR	---	S3	MNRF
Sternotherus odoratus	Eastern Musk Turtle	SC	SC	S3	MNRF, OHA
Thamnophis sauritus	Eastern Ribbonsnake (Great Lakes population)	SC	SC	S3	MNRF
BUTTERFLIES					
Danaus plexippus	Monarch	SC	SC	S2N,S4B	MNRF, OBA
Pieris virginiensis	West Virginia White	---	SC	S3	MNRF
VASCULAR PLANTS					
Aplectrum hyemale	Puttyroot	---	---	S2	MNRF, NHIC

Scientific Name	Common Name	SARA[1]	ESA[2]	SRANK[3]	Information Source[4]
Cypripedium arietinum	Ram's-head Lady's-slipper	---	---	S3	MNRF
Persicaria arifolia	Halberd-leaved Smartweed	---	---	S3	MNRF, NHIC

[1]Federal Species at Risk Act, 2002; [2]Provincial Endangered Species Act, 2007; [3]Provincial Sub-national Rank (S1 – Critically Imperiled, S2 – Imperiled, S3 – Vulnerable, S4 – Apparently Secure, S5 – Secure); [4]Information sources: MNRF = MNRF Species at Risk in Ontario List by area of the province and MNRF Kemptville District Consultation, NHIC = Natural Heritage Information Centre, OBBA = Ontario Breeding Bird Atlas, OHA = Ontario Herpetofaunal Atlas, OBA = Ontario Butterfly Atlas.

3.1 Land Information Ontario

The Ministry of Natural Resources and Forestry (MNRF) maintains the Land Information Ontario (LIO) geographic database (MNRF, 2019), which contains shared data from the public and private sectors, and includes information related to natural heritage features. The LIO database was accessed in 2019 to obtain available data for the Study Area. The following natural heritage features are mapped within the Study Area (Appendix A: Figure 2):

- Woodlands;
- Unevaluated Wetlands; and,
- Watercourses.

Woodlands and unevaluated wetlands make up the vegetative cover within the eastern portion of the Study Area. There is a watercourse in the southwestern portion of the Study Area. There are no Provincially Significant Wetlands (PSWs) or ANSIs identified within the Study Area.

3.2 MNRF SAR by Municipality

The MNRF has developed an online search tool to identify SAR occurrence records by municipality. Given the size of this search area, not all species will have potential to be present within the Study Area. While helpful in understanding SAR distribution within the municipality, Dillon also contacted the MNRF to identify and confirm species likely to occur within the Study Area, as detailed in **Section 3.9**.

3.3 Natural Heritage Information Centre

The Natural Heritage Information Centre (NHIC) database (MNRF, 2019) is maintained by the MNRF and provides occurrence data based on 1 km by 1 km area blocks. The NHIC database was accessed for records of SAR and SCC with potential to occur in the Study Area.

3.4 Ontario Breeding Bird Atlas

The Ontario Breeding Bird Atlas (OBBA) (Cadman et al., 2007) provides recorded occurrences of bird species within 10 km by 10 km squares. The OBBA was reviewed for squares that overlapped with the

Study Area to identify potential bird species that may be present. Given the large dataset available beyond the Study Area, potential habitat to support these species may not be within the Study Area, and therefore, not all species listed will occur.

3.5 Ontario Nature Reptile and Amphibian Atlas

The Ontario Nature Reptile and Amphibian Atlas (Ontario Nature, 2019) is a citizen science project that tracks the distribution and spatial trends of reptiles and amphibians across the province of Ontario. The data is presented in 10 km by 10 km squares. The data squares overlapping the Study Area are used to determine reptile and amphibian species that may have the potential to occur within the project limits. Since the overall 10 km by 10 km data squares extend beyond the Study Area, it is unlikely that all reptile and amphibian records within the squares will correspond to those species being present within the Study Area. The presence of species-specific habitat and the ability of the habitat to support reptile and amphibian life processes is a factor in determining potential reptile and amphibian species presence and use.

3.6 Mammals of the Western Hemisphere

NatureServe has developed a digital distribution map library of the terrestrial mammals of the Western Hemisphere (NatureServe, 2007). This atlas is helpful in determining what SAR mammals may be present within the vicinity of the Study Area.

3.7 Ontario Butterfly Atlas

The Ontario Butterfly Atlas is available online (Toronto Entomologists Association, 2019), and includes maps showing species occurrences that have been recorded in Ontario within 10 km by 10 km squares. Due to the scale of the mapping, species occurrence records have been interpreted as potential occurrences within the Study Area, subject to the presence of suitable habitat.

3.8 United Counties of Stormont, Dundas and Glengarry Official Plan

The United Counties of Stormont, Dundas and Glengarry Official Plan (2018) was reviewed with regards to the Study Area for natural features and environmental constraints.

3.9 Consultation and Agency Correspondence

3.9.1 Ministry of Natural Resources and Forestry

The Kemptville District MNRF office was contacted with an information request on November 9, 2018. A response was received from the MNRF on December 18, 2018. The response identified the various data sources for obtaining information on SAR and significant natural features for the project, as well a list of potential SAR and SCC that may occur within the vicinity of the Study Area. Agency correspondence is provided in Appendix C.

4.0 Methodology

The natural environment assessment was completed following the requirements outlined in Section 3.2, Terrestrial Ecosystems, of MTO's ERD (2013).

4.1 Field Inventory Methodology

Field verification of terrestrial natural resources was completed for the Study Area, which included the following:

- Ecological Land Classification (ELC) of vegetation communities and a concurrent vegetation survey, using accepted protocols in Ontario for ELC for Southern Ontario, second approximation (Lee et al., 1998);
- A migratory bird nest search;
- Bat habitat (i.e. snag/cavity tree, underpass visual inspection) surveys;
- Documentation of incidental wildlife and wildlife habitat encountered in the field, including visual and auditory wildlife observations, road kill, and indirect wildlife evidence such as scat, tracks, feeding sites, dens, or dams; and,
- Documentation of sensitive/rare species, SAR, and/or associated habitat encountered in the field.

Dillon terrestrial biologists completed field investigations during the 2018 and 2019 field seasons when weather conditions and timing were deemed suitable based on the survey protocols being implemented. Table 3 provides a list of the types of surveys conducted, dates, survey personnel and weather conditions.

Table 3: Details of the Field Surveys

Date	Dillon Personnel	Weather Conditions	Survey Type
October 3, 2018	Connor Edington	12°C, overcast, Beaufort wind 0, no precipitation	ELC Fall Vegetation Survey Migratory Bird Nest Survey Wildlife Habitat Survey
June 27, 2019	Connor Edington	29°C, 30% cloud cover, Beaufort wind 3, no precipitation	Confirmation of ELC communities Summer Vegetation Survey Migratory Bird Nest Survey Confirmation of Wildlife Habitats Bat Habitat (snag/cavity tree/ underpass visual inspection) Survey

4.2 Vegetation Communities

Detailed vegetation community mapping was completed using the ELC System for Southern Ontario; second approximation (Lee et al., 1998). The vegetation communities were reviewed for rarity based on

the provincial rankings provided by the NHIC. Nomenclature of plant species generally follows the nomenclature of Flora Ontario (University of Guelph FOBIS website). Refer to Appendix D for representative photos of the vegetation communities.

Surveys included searches for SAR flora species identified in the background review, subject to seasonal identification constraints, along with habitat that may be considered candidate SWH under the Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E (MNRF, 2015). Natural features accessible from the MTO ROW were surveyed to confirm dominant species and the absence/presence of SAR flora.

4.3 Wildlife and Wildlife Habitat

4.3.1 Migratory Bird Nest Surveys

Dillon completed migratory bird nest searches of structures (e.g. underpass) in the Study Area to determine species presence/absence and the location of nesting sites, or signs of previous nesting, where applicable. Structures were inspected for bird nesting activity, including remnant (inactive) nests. In addition, the vegetation within the Study Area was searched for the presence of migratory bird nests, as defined by the MBCA.

4.3.2 Bat Habitat Surveys

A bat habitat survey was conducted within the Study Area. This involved the inspection of structures (e.g. underpass) for signs of bat use (e.g. guano), as well as searches of the vegetated areas for snag/cavity trees within and adjacent to the ROW in the Study Area.

4.3.3 Incidental Wildlife Observations

Incidental wildlife observations were noted during field investigations (if any observed), including live wildlife observations, road kill, and indirect wildlife evidence such as scat, tracks, feeding sites, dens or dams.

4.4 Species at Risk, Species of Conservation Concern and/or Significant Wildlife Habitat

Field investigations were completed to document SAR, SCC or rare species and/or habitats within the Study Area. The data identified in the background review for the project was used to assess the potential for wildlife habitat during the field investigations.

5.0 Results

The following sections summarize the terrestrial natural features inventoried in the Study Area. Refer to Appendix D for photographic records of the terrestrial features observed during the field investigations. Refer to Appendix E for associated field notes.

5.1 Ecological Land Classification

ELC was completed for the Study Area based on aerial photograph interpretation and field observations from the ROW. The landscape in the Study Area consists of a mix of wetlands, woodlands, meadows, thickets and agricultural fields. The results of the ELC are included in Table 4 and are shown on Figure 3 (Appendix A). None of the vegetation communities documented in the Study Area are considered rare in Ontario.

Table 4: Descriptions of ELC Communities within the Study Area

ELC Code	Classification	Vegetation	Photo Reference (Appendix D)
CGL	Greenlands	Regularly maintained stretches of area dominated by grass species (Poaceae sp.).	Photo 1
CVR	Residential	Residential building surrounded by Greenlands and trees.	---
FOCM6	Naturalized Coniferous Plantation	Forest community dominated by Norway Spruce (Picea abies).	Photo 2
FOD	Deciduous Forest	Forest community dominated by deciduous trees.	---
FODM3	Dry-Fresh Poplar – White Birch Deciduous Forest	Forest community dominated by Trembling Aspen (Populus tremuloides) with occasional occurrences of Green Ash (Fraxinus pennsylvanica) and Common Buckthorn (Rhamnus cathartica) within the understory. Riverbank Grape (Vitis riparia) occurs through the understory and sub-canopy.	Photo 3
MEF	Forb Meadow	Meadow community characterized by forb species, particularly Goldenrod species (Solidago sp.) and Aster sp. (Symphotrichum sp.).	Photo 4
MEM	Mixed Meadow	Meadow community characterized by grass species, Goldenrod species and Aster species. Sapling Trembling Aspen and Green Ash occur rarely.	Photo 5
OAGM1	Annual Row Crops	Annual row crop (corn and soybean) as part of agricultural operations.	Photos 6 and 7
OAGM2	Perennial Cover Crops	Perennial cover crop of hayfield.	Photo 8

ELC Code	Classification	Vegetation	Photo Reference (Appendix D)
SWD	Deciduous Swamp	Wetland community consisting of Silver Maple (Acer saccharinum) and Green Ash with an understory of occasional Common Buckthorn and occasional to abundant Sensitive Fern (Onoclea sensibilis) within the ground layer.	Photo 9
TH	Thicket	Thicket community characterized by a mixture of coniferous and deciduous shrubs and trees.	---
THD	Deciduous Thicket	Thicket community dominated by Common Buckthorn with occasional Willow species (Salix sp.) and rare Green Ash saplings.	---

5.2 Vegetation Survey

A total of 45 botanical species were identified within the Study Area. Of the 45 species, approximately 56% are listed as native species considered to be Apparently Secure (SRank of S4) or Secure (SRank of S5) in the province of Ontario. Approximately 33% of the botanical species are introduced; therefore, a status ranking is not applicable as the species are not considered a suitable target for conservation activities (SNA rank). The remaining 11% were either not identified to species level, status is uncertain due to insufficient information (SU Rank) or was an exotic species non-native to Ontario (SE Rank), and therefore, status rankings are not applicable. No SAR or SCC botanical species were observed. The Coefficient of Conservatism (CC) is an average of 4.12 for the Study Area, indicating an altered habitat. A list of botanical species encountered during the field investigations, including their federal and provincial status, is presented in Appendix B.

5.3 Wildlife and Wildlife Habitat

5.3.1 Migratory Bird Nest Surveys

Migratory bird nest surveys were conducted within the Study Area. Specifically, the Fraser Road Underpass and the vegetation within the Study Area were searched for migratory bird nests during the field investigations in 2018 and 2019.

Two Eastern Phoebe (Sayornis phoebe) nests (both inactive) were observed on the underside of the south side of the Fraser Road Underpass in 2018 and 2019.

5.3.2 Bat Habitat Surveys

Bat habitat (snag/cavity tree) surveys were conducted within the Study Area to determine the presence/absence and location of suitable bat roosting trees, where applicable. Surveys were conducted on June 27, 2019 during the leaf-on period. A number of suitable bat habitat trees were observed within the Study Area, principally west of the swamp within the southeast quadrant and within the forests in the southwest quadrant.

In addition, a visual inspection was conducted of the abutments of the Fraser Road Underpass during the October 3, 2018 and June 27, 2019 field investigations. In 2018, bat guano was observed on the underside of both the north and south abutments in association with cracks and crevices, suitable for bat roosting habitat. There was a reduced amount of bat guano observed during the 2019 field investigation, which was observed within an isolated section of the northern abutment. The bat species could not be identified from the bat guano. Photos of the bat guano are provided in Appendix D.

5.3.3 Incidental Wildlife Observations

During the field investigations, incidental wildlife observations were noted in the Study Area. In total, six species of bird and two herptile species were observed during the field investigations (Table 5). The two herptile (snake) observations were road kill, likely the result of roadside mortalities (Appendix D). All species observed are considered common in Ontario, no SAR and/or SCC were observed within the Study Area.

Table 5: Incidental Wildlife Observations

Scientific Name	Common Name	SARA[1]	ESA[2]	SRANK[3]
BIRDS				
Agelaius phoeniceus	Red-winged Blackbird	---	---	S4
Carduelis tristis	American Goldfinch	---	---	S5B
Corvus brachyrhynchos	American Crow	---	---	S5B
Picoides villosus	Hairy Woodpecker	---	---	S5
Setophaga magnolia	Magnolia Warbler	---	---	S5B
Zenaida macroura	Mourning Dove	---	---	S5
HERPTILES				
Storeria occipitomaculata	Red-bellied Snake	---	---	S5B
Thamnophis sauritus	Eastern Gartersnake	---	---	S5

[1]Federal Species at Risk Act, 2002; [2]Provincial Endangered Species Act, 2007; [3]Provincial Sub-national Rank (S1 – Critically Imperiled, S2 – Imperiled, S3 – Vulnerable, S4 – Apparently Secure, S5 – Secure)

5.4 Ecological Corridors and Linkages

The Study Area contains a mix of agricultural fields, swamps, meadows, thickets and deciduous forests. Wildlife movement between natural areas in proximity to the Study Area is likely; however, movements are limited by Highway 401 and Fraser Road. Wetland features within and adjacent to east quadrant of the Study Area are ecologically connected to natural features in the greater landscape area, including Charlottenburgh Marsh and Cooper Marsh Conservation Area, which are located approximately 1.5 km to the east. These natural features form part of a broader natural heritage system with ecological corridors that connect the St. Lawrence River and Ottawa River Valleys.

6.0 Determination of Significance

Wherever possible, an evaluation has been undertaken for features, including the determination of significance for woodlands, wetlands, SWH and the presence of confirmed or potential SAR habitat observed in the Study Area.

6.1 Woodlands

The province delegates the responsibility of defining the evaluation criteria for significant woodlands to the local planning authority. Evaluation criteria are generally based on the guidelines of the Natural Heritage Reference Manual (NHRM; MNRF, 2010) (i.e. woodland size, ecological functions, uncommon characteristics and economic and social functional values). According to the United Counties of Stormont, Dundas and Glengarry Official Plan (2018), significance was determined using the NHRM and is shown on Schedule B6.

Woodlands identified on Schedule B6 are considered significant woodlands in the Official Plan. According to Schedule B6, Constraints Plan, lands within the Study Area do not contain woodlands designated as significant.

6.2 Wetlands

Based on a review of the MNRF LIO mapping (MNRF, 2019) and data obtained by the MNRF (December 18, 2018), no PSWs occur within or adjacent to the Study Area; however, unevaluated wetland units are present in the eastern portion (Appendix A: Figure 2).

6.3 Significant Wildlife Habitat

Provincially rare species/SCC with the potential to occur in the Study Area are discussed in Table B1 (Appendix B). Potential SWH are associated with the forests and swamps within the Study Area. Using the ELC classifications described in **Section 5.1** and the guidelines for identifying SWH in the NHRM (MNRF, 2010), Significant Wildlife Habitat Technical Guide (MNRF, 2000) and the guide's addendum for Ecoregion 6E (MNRF, 2015), candidate SWH within the Study Area were identified (Appendix A: Figure 4). Field investigations to evaluate the significance of candidate SWH have not been completed, and as such, it will be assumed that these habitats are significant. An assessment of potential impacts and mitigation measures is provided in **Section 8**.

SWH within the Study Area includes:

- **Seasonal Concentration Areas of Animals**
    - Candidate Bat Maternity Colonies. There is the potential for Bat Maternity Colonies to occur in the deciduous swamps in the eastern portion of the Study Area. These

communities were observed to contain snags that may provide suitable bat roosting habitat.

- **Rare Vegetation Communities or Specialized Habitat for Wildlife**
  - Amphibian Breeding Habitat. There is the potential for amphibian breeding habitat in the swamps within the Study Area.
- **Habitat for Species of Conservation Concern**
  - Special Concern and Rare Wildlife Species - Eastern Wood-pewee (Contopus virens) and Western Chorus Frog (Pseudacris triseriata) Habitat.
- Animal Movement Corridors
  - None.

6.4 Species at Risk

The correspondence from the MNRF regarding the potential SAR that could be present in the Study Area is provided in Appendix C. The evaluation of the Study Area for its potential to support habitat for Endangered or Threatened SAR is discussed in Table B1 in Appendix B. As noted in Table B1 (Appendix B), based on the background review, 21 SAR were identified as having potential habitat within the Study Area. Of the 21 SAR identified, and considering their range, known occurrences and/or the vegetation communities observed in the Study Area, the following SAR may be affected by the proposed Highway 401 Fraser Road Underpass replacement.

- Barn Swallow – No Barn Swallow (Hirundo rustica) nests or individuals were observed during the field investigations; however, the Fraser Road Underpass may serve as suitable nesting habitat for this species in future breeding bird seasons. If construction has not begun by spring of 2021, a survey of the underpass structure is recommended to confirm presence/absence of bird nests prior to the start of construction activities.
- SAR bats – Potential SAR bat habitat has been identified in the underpass structure (i.e. bat guano presence) and within the deciduous forests (i.e. snag trees) in the southern portion of the Study Area. The proposed works include replacement of the underpass structure and may require minor tree removal in the ROW; however, none of these trees were identified as snag or cavity bat habitat trees. Prior to removal of the underpass, mitigation measures should be implemented, including filling in or blocking off (i.e. tarping) access to the cracks and crevices in the underpass structure prior to the active bat season (i.e. May 1 to October 31) to temporarily prevent bats from roosting in the underpass structure.

7.0 Proposed Improvements

The preferred alternative is replacement of the Fraser Road Underpass along the existing horizontal alignment of Fraser Road. The new underpass will run from the existing 4-span arrangement to a 2-span configuration to accommodate future widening of Highway 401 to six lanes. The vertical clearance over Highway 401 will be increased as the current structure has deficient vertical clearance. Construction of the new structure will include:

- Replacement of the existing structure with a new two-span bridge;
- Approach embankment profile grade raise to accommodate the improvements in the vertical clearance over Highway 401 and new superstructure depth; and,
- Embankment widening, pavement reconstruction, drainage improvements, and replacement of curb and gutter and guide rail as required for the new structure and vertical alignment improvements.

8.0 Assessment of Potential Impacts and Proposed Mitigation

This section summarizes the potential impacts to wildlife and vegetation that could result if mitigation measures are not implemented. Construction activities will be completed within the MTO ROW and the Fraser Road ROW. The preliminary area of impact for the proposed work is shown on Figures 3 and 4 (Appendix A). This impact area will be refined during the Detail Design phase and should be reviewed again to confirm impacts and proposed mitigation measures. In addition, a temporary staging area is anticipated to be required during construction, which is recommended to be located within the maintained landscape area identified as a greenlands community, as shown on Figure 3 (Appendix A).

Mitigation measures to avoid or minimize potential terrestrial natural environment features are detailed in Table 6. Overall, impacts to wildlife and natural features are expected to be minimal and temporary in duration if mitigation measures are implemented. The area of impact and proposed mitigation measures should be reviewed in more detail during Detail Design once grading impacts are identified.

8.1 Potential Temporary Impacts

Based on the Preliminary Design, the works associated with the Fraser Road Underpass replacement have the potential for the following temporary impacts:

- Increase erosion and sedimentation of lands adjacent to the construction area;
- Increase vulnerability of areas cleared of vegetation to invasion by non-native species;
- Result in a loss and/or disruption to wildlife and/or wildlife habitat. Potential examples include:
    - Temporary disruption of use of the migratory bird nesting habitat beneath the Fraser Road Underpass and/or in areas cleared of vegetation along the ROW;
    - Temporary disruption to wildlife movement and wildlife avoidance of habitats adjacent to the Fraser Road Underpass during replacement due to disturbance associated with construction activities; and,
    - Harm or temporarily harass potential SAR bats that could be using the underside of the Fraser Road Underpass and/or wooded areas as roosting habitat.

8.2 Potential Permanent Impacts

Based on the preliminary design footprint, permanent natural vegetation community impacts along the Fraser Road alignment include minor edge encroachments into meadow, forest, thicket and swamp communities. Vegetation in these areas is expected to provide marginal habitat to local common species, and removal of these edge features is not anticipated to negatively impact the larger, contiguous features that extend outside the Study Area.

The deciduous swamp wooded area in the southeast quadrant of the Study Area has the potential to support SAR bats and is candidate bat maternity colonies SWH. Based on the preliminary design, it appears that only edge vegetation removals may be required along the boundary of this feature. These potential impacts should be reviewed as part of the Detail Design phase as design refinements to grading in this area may be able to avoid or minimize these removals. Within the impacted area, any tree removal required within potential SAR bat habitat and SWH should be completed outside of the active bat season. If impacts cannot be avoided, it is anticipated that these edge removals will not result in significant impacts to the remaining features, as the forests and swamps are extensive in this area and are anticipated to retain their form and function on the landscape.

The cracks and crevices on the underside of the underpass were observed to contain bat guano; indicating that the underpass may provide SAR bat habitat. The underpass removal is recommended to occur outside of the active bat season (i.e. May 1 to October 31) to avoid impacts to bats potentially using the structure. If this timing is not possible, the cracks and crevices should be filled in or blocked off (i.e. tarping) prior to the active bat season in accordance with the ESA, 2007 and associated regulations. As noted above, there is extensive potential SAR bat habitat associated with the forests which extend beyond the Study Area; therefore, it is anticipated that the removal of potential SAR bat habitat associated with the underpass will not result in significant impacts to these species. Additional consultation with MECP may be considered during Detail Design to discuss whether targeted surveys are required to confirm use of the structure by SAR bats. Regardless, we anticipate that the project would be eligible for registration through a Notice of Activity (NOA) under the Ontario Regulation (O. Reg.) 242/08 - Section 23.18 (threats to health and safety, not imminent), along with the preparation of a SAR Mitigation Plan.

The underpass provides potential Barn Swallow habitat, although no active nests were observed during field investigations. A survey of the underpass structure is recommended to confirm presence/absence of bird nests prior to the start of construction activities.

Table 6: Potential Impacts and Proposed Mitigation

I.D. #	Potential Impacts/Concerns	Potentially Concerned Agencies/Stakeholders	Mitigation/Protection/Monitoring
1. Natural Features and Vegetation	Increased erosion and sedimentation of lands adjacent to the construction area Increased vulnerability of the areas cleared of vegetation to invasion by non-native species	MECP, Raisin River Conservation Authority, United Counties of Stormont, Dundas and Glengarry	Minimal vegetation removal and/or pruning is necessary to complete the proposed works. No SAR or significant trees of concern will be impacted by the removals. Impacts to vegetation will be minimized by the following recommendations: • Minimize vegetation removal to the extent possible during Detail Design. • If any trees are proposed for removal, the construction contract should include tree felling and grubbing procedures as outlined in OPSS 201, Construction Specification for Clearing, Close Cut Clearing, and Grubbing. • Areas temporarily cleared of vegetation to facilitate road and underpass works should be stabilized (e.g., vegetated/seeded) prior to removal of erosion and sedimentation control (ESC) measures: o Minimize the disturbance of existing well-vegetated ditches and grassed slopes. o Protect undisturbed slopes and sensitive ditching with silt fence and temporary flow check dams. These measures should remain in place until exposed soils are stabilized. o ESC measures shall be monitored regularly and/or after every 10 mm or greater rainfall event as they could require periodic cleaning, maintenance and/or re-construction. If deficiencies are found, they should be repaired and/or replaced promptly. o Grading, placement of topsoil and seeding specifications will be implemented to decrease erosion potential and promote suitable vegetation regeneration. o The site shall be stabilized prior to removal of ESC measures. • Temporarily disturbed vegetated areas will be restored and/or re-vegetated to minimize invasion and colonization by non-native species, increase shade/cover for wildlife and mitigate edge disturbance effects.
2. Wildlife and Wildlife Habitat	Temporary disruption to wildlife movement and wildlife avoidance of habitat areas adjacent to the Fraser Road Underpass due to disturbance associated with construction activity Temporary disruption to wildlife movement and wildlife avoidance of habitat areas adjacent to the Fraser Road Underpass due to disturbance associated with construction activity	MECP, Raisin River Conservation Authority, United Counties of Stormont, Dundas and Glengarry	There is potential for the provincially rare SCC, Eastern Wood-pewee, Western Chorus Frog and Monarch, to be present within the Study Area. To mitigate potential impacts on these species and other wildlife, the follow measures shall be implemented: • If wildlife is encountered in the construction area, work should be temporarily suspended until the animal is out of harm's way. If the species persists in the work area, a person qualified to handle herptiles should be contacted to relocate the animal. • Workers should be vigilant and check work areas and machinery for the presence of herptiles prior to each day of construction. • Tree removal should be completed outside of the breeding bird season (i.e. April 1 to August 31). If this is not possible, a nest survey should be completed (see migratory nesting birds section of this table for additional details). • Minimal tree removal in candidate bat maternity colonies habitats within the impacted section of the Study Area should be completed outside of the active bat season (i.e. May 1 to October 31).

I.D. #	Potential Impacts/Concerns	Potentially Concerned Agencies/Stakeholders	Mitigation/Protection/Monitoring
3. Migratory Nesting Birds	Temporary disruption of use of the migratory bird nesting habitat beneath the Fraser Road Underpass and/or in areas cleared of vegetation along the ROW	Environment and Climate Change Canada, MECP, Raisin River Conservation Authority, United Counties of Stormont, Dundas and Glengarry	Some tree removals will be required which may provide nesting habitat for birds protected under the MBCA. The underpass will also be removed, which was confirmed to provide nesting habitat for birds (i.e. Eastern Phoebe). To protect birds and comply with the MBCA, the following measures should be incorporated into the construction contract: • Vegetation/underpass removal completed outside of the breeding bird season (i.e. April 1 to August 31). • Vegetation/underpass removal can occur during restricted periods if a qualified biologist conducts a nest search of the area prior to work commencing and determines that active nests are not observed in proximity to the work area. This nest survey is valid for a period of 48 hours. If breeding birds and/or active nests are encountered, works should not continue in the location of the nest until after August 31, or as soon as it has been determined by a qualified biologist that the young have left the nest. • Alternatively for the underpass removal, netting or tarping may be placed around the underpass to prevent birds from nesting on the structure if removal is to occur during the restricted breeding bird season. • During Detail Design, the team should review the award schedule and confirm whether the contract will be awarded in time for the contractor to conduct vegetation removals prior to April 1. If not, the ministry may need to consider an advanced clearing contract.
5. Species at Risk	Exclusion from bat roosting sites located on abutments beneath the Fraser Road Underpass structure Harm or temporarily harass potential SAR bats that could be using the underside of Fraser Road Underpass and/or wooded areas as roosting habitat	Environment and Climate Change Canada, MECP, Raisin River Conservation Authority, United Counties of Stormont, Dundas and Glengarry	Construction activities require the removal of potential SAR bat roosting habitat observed on the abutments of the Fraser Road Underpass structure. The SAR bats are listed as Endangered under the ESA, 2007. As a mechanism to mitigate potential impacts on these species, a fact sheet and detection protocol for these species shall be provided to the contractor before the project begins. To mitigate potential impacts on these species, the following measures shall be implemented: ▪ Any SAR sightings should be reported to MECP. ▪ Vegetation removal completed outside of the active bat season (i.e. May 1 to October 31) within potential SAR bat habitat wooded areas. ▪ During Detail Design, the team should review the potential for impacts within potential SAR bat habitat wooded areas and award schedule to confirm whether the contract will be awarded in time for the contractor to conduct vegetation removals in potential SAR bat habitat prior to May 1. If not, MTO may need to consider an advanced clearing contract for these areas. ▪ Removal of the underpass structure completed outside of the active bat season (i.e. May 1 to October 31). If this is not possible, the cracks and crevices that potentially provide bat roosting habitat within this structure should be filled in or blocked off (i.e. tarping) prior to the active bat season (i.e. May 1 to October 31) to temporarily prevent bat use in accordance with the ESA, 2007 and associated regulations.

9.0 Conclusion

The Highway 401 Fraser Road Underpass replacement has limited potential for impacts to the terrestrial natural environment. Based on the proposed underpass replacement designs, the construction works will require removal of minimal vegetation in the ROW. Overall, the mitigation measures proposed in this document will avoid or minimize the potential impacts to terrestrial natural features including potential habitat of SAR/SCC, migratory nesting birds, and other potential wildlife and wildlife habitat in the Highway 401 Fraser Road Underpass replacement project Study Area.

There is a limited potential for encountering SCC and SAR species in the construction zone, and as such, general contractor awareness and implementation of wildlife mitigation and encounter protocols outlined in this document are recommended. Potential SAR bat habitat has been identified on the underside of the underpass. The removal of the Fraser Road Underpass structure would exclude bats from roosting sites on the abutments of the underpass. The underpass removal is recommended to occur outside of the active bat season (i.e. May 1 to October 31). If this timing is not possible, the cracks and crevices in the underpass are to be filled in or blocked off (i.e. tarping) prior to the active bat season. Within the impacted area, tree removal required within potential SAR bat and candidate bat maternity colonies habitat should be completed outside of the active bat season (i.e. May 1 to October 31). Further review of the potential to register this underpass replacement project under O. Reg. 242/08 - Section 23.18 (threats to health and safety, not imminent) as well as finalizing mitigation plans should be considered during detailed design.

There is the potential for incidental occurrences of herptile SCC species such as Western Chorus Frog during the construction period. Potential impacts to SCC herptiles will be mitigated by installing ESC measures (i.e. silt fencing), as required, during construction which will exclude them from the active construction area. The design, location and extent of silt fencing will be confirmed during the detailed design phase. There is also the potential for Eastern Wood-pewee, a SCC bird, to nest in the woodlands that overlap the Study Area. Tree removal should be completed outside of the breeding bird season (i.e. April 1 to August 31) in accordance with the MBCA to avoid impacting bird nesting.

Bird nesting underneath the underpass was confirmed, and as such, the underpass should be removed outside of the breeding bird season (i.e. April 1 to August 31). If this is not possible, prior to the breeding bird season a nest survey should be completed and nest prevention measures such as netting or tarping should be placed under the structure to exclude bird access to identified potential nesting sites.

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Appendix A

Figures

Ontario

MINISTRY OF TRANSPORTATION, ONTARIO

HIGHWAY 401 AT FRASER ROAD
UNDERPASS REPLACEMENT
GWP 4248-15-00, SITE 31-230

PROJECT LOCATION

FIGURE 1

STUDY AREA

RAILWAY

ROADS

0 50 100 Meters

N W E S

MAP DRAWING INFORMATION:

DATA PROVIDED BY: ESRI, MNRF, MTO

MAP PROJECTION: NAD 1983 MTM 8

SCALE 1:3,000

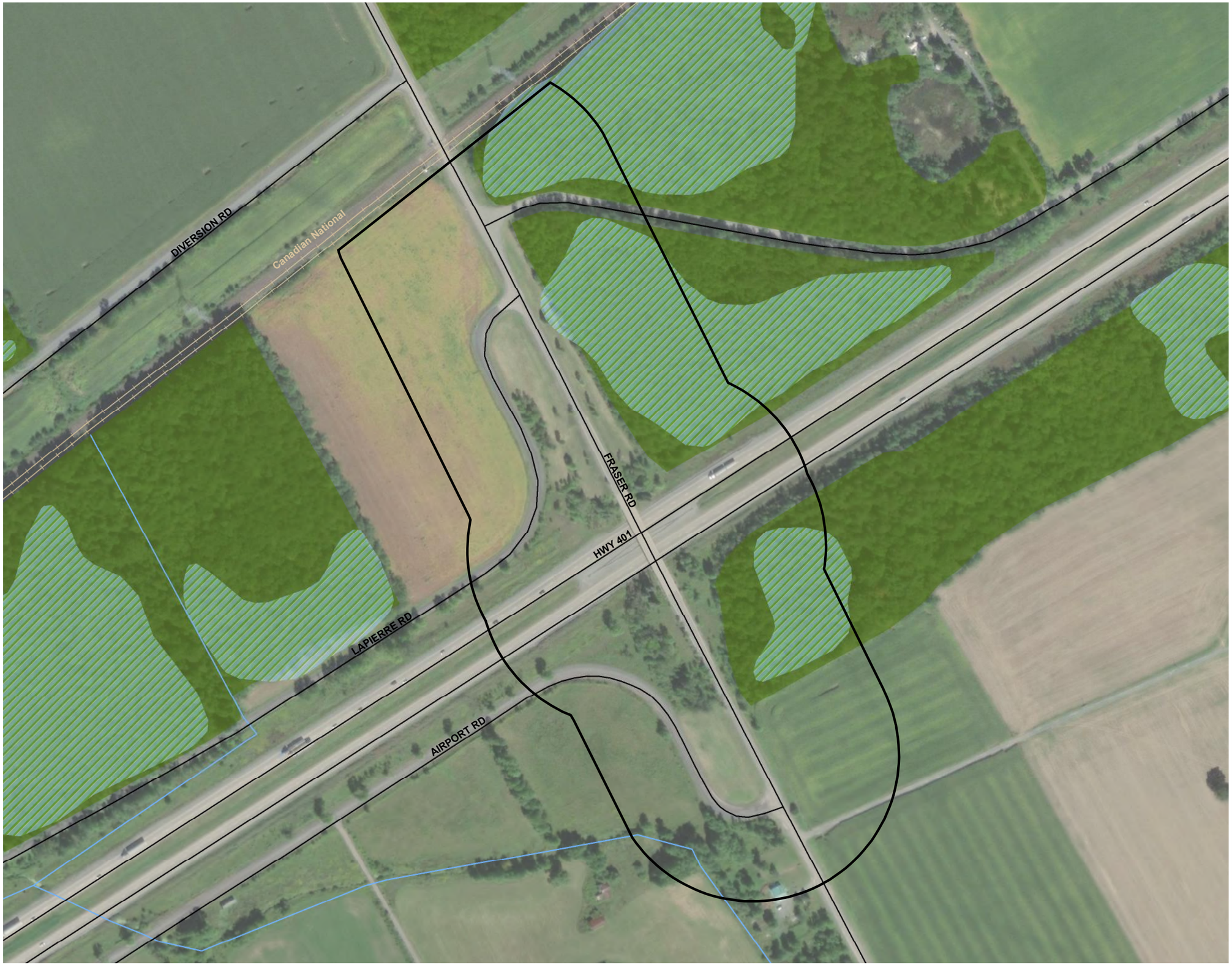
DILLON CONSULTING

PROJECT: 188202

DATE: 2019-09-18

MAP CREATED BY: 44PH
MAP CHECKED BY: 30CE

FILE LOCATION: G:\GIS\2018\188202 Fraser Road Underpass\Maps\2019 TEAR\Figure 1 - Project Location.mxd



Ontario

MINISTRY OF TRANSPORTATION, ONTARIO

HIGHWAY 401 AT FRASER ROAD
UNDERPASS REPLACEMENT
GWP 4248-15-00, SITE 31-230

NATURAL HERITAGE FEATURES

FIGURE 2

- STUDY AREA
- WATERCOURSE (MNRF, 2019)
- UNEVALUATED WETLAND (MNRF, 2019)
- WOODLAND (MNRF, 2019)

0 50 100 Meters

N W E S

MAP DRAWING INFORMATION:

DATA PROVIDED BY: ESRI, MNRF, MTO

MAP PROJECTION: NAD 1983 MTM 8

SCALE 1:3,000

DILLON CONSULTING

PROJECT: 188202

DATE: 2019-09-18

MAP CREATED BY: 44PH
MAP CHECKED BY: 30CE

Ontario

MINISTRY OF TRANSPORTATION, ONTARIO

HIGHWAY 401 AT FRASER ROAD
UNDERPASS REPLACEMENT
GWP 4248-15-00, SITE 31-230

SITE INVESTIGATION RESULTS

FIGURE 3

STUDY AREA

IMPACTED AREA

WATERCOURSE (MNRF, 2019)

ECOLOGICAL LAND CLASSIFICATION

1. CGL: GREENLANDS
2. CVI_1: TRANSPORTATION
3. CVR: RESIDENTIAL
4. FOCM6: NATURALIZED CONIFEROUS PLANTATION
5. FOD: DECIDUOUS FOREST
6. FODM3: DRY - FRESH POPLAR - WHITE BIRCH DECIDUOUS FOREST
7. MEF: FORB MEADOW
8. MEM: MIXED MEADOW
9. OAGM1: ANNUAL ROW CROPS
10. OAGM2: PERENNIAL COVER CROPS
11. SWD: DECIDUOUS SWAMP
12. TH: THICKET
13. THD: DECIDUOUS THICKET

0 50 100 Meters

N W E S

MAP DRAWING INFORMATION:

DATA PROVIDED BY: ESRI, MNRF, MTO

MAP PROJECTION: NAD 1983 MTM 8

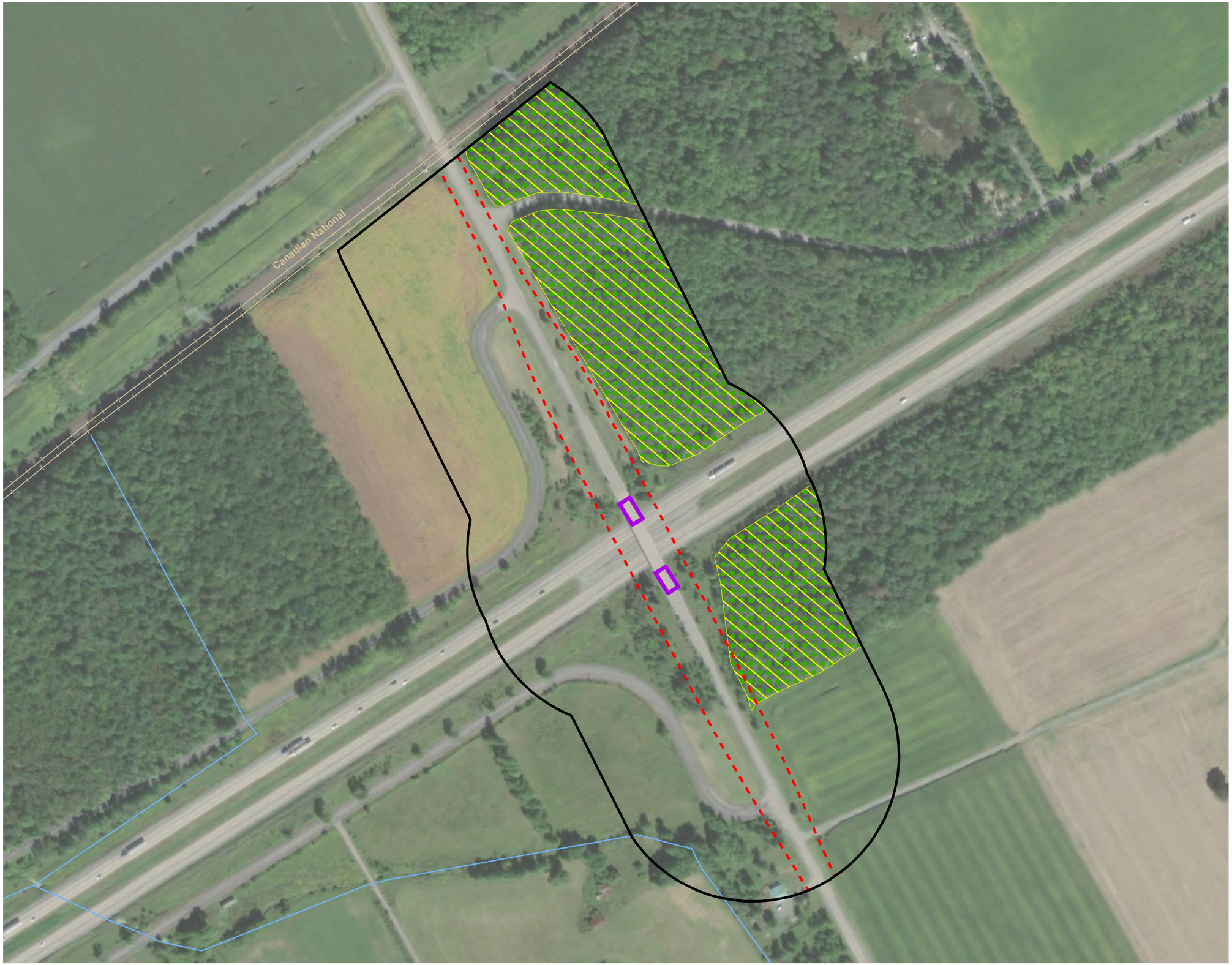
SCALE 1:3,000

DILLON CONSULTING

PROJECT: 188202

DATE: 2019-09-20

MAP CREATED BY: 44PH
MAP CHECKED BY: 30CE



Ontario

MINISTRY OF TRANSPORTATION, ONTARIO

HIGHWAY 401 AT FRASER ROAD
UNDERPASS REPLACEMENT
GWP 4248-15-00, SITE 31-230

SIGNIFICANT NATURAL FEATURES

FIGURE 4

- STUDY AREA
- IMPACTED AREA
- WATERCOURSE (MNRF, 2019)
- CANDIDATE SAR BAT HABITAT AND CANDIDATE SIGNIFICANT WILDLIFE HABITAT FOR BAT MATERNITY COLONIES
- CANDIDATE SIGNIFICANT WILDLIFE HABITAT FOR AMPHIBIAN BREEDING HABITAT
- CANDIDATE SAR BAT HABITAT

0 50 100 Meters

N W E S

MAP DRAWING INFORMATION:

DATA PROVIDED BY: ESRI, MNRF, MTO

MAP PROJECTION: NAD 1983 MTM 8

SCALE 1:3,000

DILLON CONSULTING

PROJECT: 188202

DATE: 2019-09-20

MAP CREATED BY: 44PH
MAP CHECKED BY: 30CE

Appendix B

Tables

Table B1: Species at Risk and Species of Conservation Concern

Species		SARA[1]	ESA[2]	S-Rank[3]	Information Source[4]	Observed during field studies	Habitat Requirements[5,6,7,8]	Potential Habitat in the Study Area	Rationale for Potential to Occur	Will Species and/or Habitat be Impacted by the Project
Scientific Name	Common Name									
VASCULAR PLANTS										
Aplectrum hyemale	Puttyroot	---	---	S2	MNRF, NHIC	No	Moist, shaded forests with enriched humus.	No	Small forests were found to occur within the Study Area; however they lack suitable canopy coverage to support this species.	No. Suitable habitat is not found within the Study Area.
Cypripedium arietinum	Ram's-head Lady's-slipper	---	---	S3	MNRF	No	Occurs in a variety of habitats including, cold sphagnum, Tamarack, Cedar swamps, bogs, coniferous forest and wooded rocky slopes.	No	Swamps with Tamarack or Cedar and coniferous forest were not found to occur within the Study Area.	No. Suitable habitat is not found within the Study Area.
Juglans cinerea	Butternut	END	END	S3?	MNRF	No	Typically found in deciduous forests along open streams and/or riparian areas, fence lines or in open fields. This species is intolerant of shade.	No	Suitable habitat exists within the deciduous forests along a watercourse within the Study Area, however, Butternut was not observed during field investigations.	No. Species was not observed during field investigations.
Panax quinquefolius	American Ginseng	END	END	S2	MNRF	No	In Ontario, American Ginseng typically grows in rich, moist, but well-drained, and relatively mature, deciduous woods dominated by Sugar Maple (Acer saccharum), White Ash (Fraxinus americana) and American Basswood (Tilia americana). It usually grows in deep, nutrient rich soil over limestone or marble bedrock.	No	Mature forests dominated by Sugar Maple, White Ash and American Basswood do not occur within the Study Area.	No. Suitable habitat is not found within the Study Area.
Persicaria arifolia	Halberd-leaved Smartweed	---	---	S3	MNRF, NHIC	No	Grows in anthropogenic (man-made or disturbed habitats), marshes, shores of rivers or lakes, swamps and wetland margins.	No	Swamps may provide suitable habitat. However, this species was not observed during field investigations.	No. Suitable habitat is not found within the Study Area.

Species		SARA[1]	ESA[2]	S-Rank[3]	Information Source[4]	Observed during field studies	Habitat Requirements[5,6,7,8]	Potential Habitat in the Study Area	Rationale for Potential to Occur	Will Species and/or Habitat be Impacted by the Project
Scientific Name	Common Name									
BIRDS										
Ammodramus henslowii	Henslow's Sparrow	END	END	SHB	MNRF	No	Large, fallow, grassy area with ground mat of dead vegetation, dense herbaceous vegetation, ground litter and some song perches; neglected weedy fields; wet meadows; cultivated uplands; a moderate amount of moisture needed; requires a minimum tract of grassland of 40 ha, but usually in areas >100 ha.	No	Grasslands do not occur within the Study Area.	No. Suitable habitat is not found within the Study Area.
Ammodramus savannarum	Grasshopper Sparrow	---	SC	S4B	OBBA	No	Well-drained grassland or prairie with low cover of grasses, taller weeds on sandy soil; hayfields or weedy fallow fields; uplands with ground vegetation of various densities; perches for singing; requires tracts of grassland > 10 ha.	No	Hayfields are present within and adjacent to the Study Area, however they are not of sufficient size to support this species.	No. Suitable habitat is not found within the Study Area.
Ardea alba	Great Egret	---	---	S2B	MNRF	No	Open swamp woods or willow thickets, offshore islands, mudflats for feeding; nests in standing trees in open water, thickets, sometimes low vegetation on islands or in rookeries of other herons and egrets.	No	Swamps within the Study Area were not found to contain open habitat suitable for this species.	No. Suitable habitat is not found within the Study Area.
Caprimulgus vociferus	Eastern Whip-poor-will	THR	THR	S4B	MNRF	No	Typically found in areas with a mix of open and forested area, such as savannahs, open woodlands or openings in more mature, deciduous, coniferous and mixed forests.	No	The deciduous forests within the Study Area do not provide suitable open woodland areas for this species.	No. Suitable habitat is not found within the Study Area.
Cardellina canadensis	Canada Warbler	THR	SC	S4B	MNRF, OBBA	No	Found in deciduous, coniferous and mixed forests with a well-developed shrub layer and structurally complex forest floor. Most commonly found in moist, mixed forests.	No	Suitable forests with a well-developed shrub layer were not found within the Study Area.	No. Suitable habitat is not found within the Study Area.
Chaetura pelagica	Chimney Swift	THR	THR	S4B	MNRF	No	Typically found in and around urban settlements where they nest and roost in chimney and other manmade structures.	No	Manmade structures suitable for nesting were not observed within the Study Area.	No. Suitable habitat is not found within the Study Area.
Chlidonias niger	Black Tern	---	SC	S3B	MNRF, OBBA	No	Wetlands, coastal or inland marshes; large cattail marshes, marshy edges of rivers, lakes or ponds, wet open fens, wet meadows; returns to same area to nest each year in loose colonies; must have	No	Wetlands of sufficient sizes were not found within the Study Area.	No. Suitable habitat is not found within the Study Area.

Species		SARA[1]	ESA[2]	S-Rank[3]	Information Source[4]	Observed during field studies	Habitat Requirements[5,6,7,8]	Potential Habitat in the Study Area	Rationale for Potential to Occur	Will Species and/or Habitat be Impacted by the Project
Scientific Name	Common Name									
							shallow (0.5 to 1 m deep) water and areas of open water near nests; requires marshes >20 ha in size; feeds over adjacent grasslands for insects; also feeds on fish, crayfish and frogs.			
Chordeiles minor	Common Nighthawk	THR	SC	S4B	MNRF	No	Open ground; clearings in dense forests; ploughed fields; gravel beaches or barren areas with rocky soils; open woodlands; flat gravel roofs.	No	Dense forests with clearings or barren areas were not found to occur within the Study Area.	No. Suitable habitat is not found within the Study Area.
Coccothraustes vespertinus	Evening Grosbeak	---	SC	S4B	MNRF	No	Generally found in open, mature mixed-wood forests dominated by fir species, White Spruce and/or Trembling Aspen. Its abundance is strongly linked to the cycle of its primary prey, the Spruce Budworm. Outside the breeding season, the species depends mostly on seed crops from tree species in the boreal forest such as firs and spruces. It is also attracted to ornamental trees that have seeds or fruit, and may visit bird feeders.	No	Mature mixed forests were not found to occur within or adjacent to the Study Area.	No. Suitable habitat is not found within the Study Area.
Contopus cooperi	Olive-sided Flycatcher	THR	SC	S4B	MNRF	No	Semi-open, conifer forest, prefers spruce; near pond, lake or river; treed wetlands for nesting; burns with dead trees for perching	No	Coniferous forests were not found to occur within the Study Area.	No. Suitable habitat is not found within the Study Area
Contopus virens	Eastern Wood-pewee	---	SC	S4B	MNRF, OBBA	No	Lives in the mid-canopy layer of forest clearings and edges of deciduous and mixed forests. It is most abundant in intermediate-age mature forest stands with little understory vegetation.	Yes	Deciduous forests within the Study Area may provide suitable habitat for this species.	Potential for impacts to the species if present in the area. Minimal potential for impact if mitigation measures are implemented.
Coturnicops noveboracensis	Yellow Rail	SC	SC	S4B	MNRF	No	Large, freshwater or brackish grass and sedge marshes with dense vegetation including bulrushes, horsetails, grasses; loss of wintering habitat and southern wetlands is limiting to this species.	No	Large marshes were not found to occur within the Study Area.	No. Suitable habitat is not found within the Study Area

Species		SARA[1]	ESA[2]	S-Rank[3]	Information Source[4]	Observed during field studies	Habitat Requirements[5,6,7,8]	Potential Habitat in the Study Area	Rationale for Potential to Occur	Will Species and/or Habitat be Impacted by the Project
Scientific Name	Common Name									
Dolichonyx oryzivorus	Bobolink	THR	THR	S4B	MNRF, OBBA	No	Found in large, open expansive grasslands with dense ground cover; hayfields, meadows or fallow fields; marshes; generally requires tracts of grassland >50 ha.	No	Meadows and hayfields exist within the Study Area. However, based on the regular maintenance observed the fields, these are not considered suitable habitat.	No. Suitable habitat is not found within the Study Area.
Euphagus carolinus	Rusty Blackbird	SC	SC	S4B	MNRF	No	Breeds in habitats that are dominated by coniferous forest with wetlands nearby including bogs, marshes and beaver ponds. During the winter, it is found in wet woodlands, swamps, and pond edges and often forages in agricultural lands.	No	Coniferous forests were not found to occur within the Study Area.	No. Suitable habitat is not found within the Study Area.
Haliaeetus leucocephalus	Bald Eagle	---	SC	S2N,S4B	MNRF	No	Require large continuous area of deciduous or mixed woods around large lakes, rivers; require area of 255 ha for nesting, shelter, feeding, roosting; prefer open woods with 30 to 50% canopy cover; nest in tall trees 50 to 200 km from shore; require tall, dead, partially dead trees within 400 m of nest for perching; sensitive to toxic chemicals.	No	Large continuous deciduous or mixed forests were not found to occur within the Study Area. Tall dead or dying trees ideal for Bald Eagle nesting were not observed.	No. Suitable habitat is not found within the Study Area
Hirundo rustica	Barn Swallow	THR	THR	S4B	MNRF, OBBA	No	Barn swallow often live in close association with humans, building their cup-shaped mud nests almost exclusively on human-made structures such as open barns, under bridges and in culverts. The species is attracted to open structures that include ledges where they can build their nests, which are often re-used from year to year. They prefer unpainted, rough-cut wood, since the mud does not adhere as well to smooth surfaces.	Yes	The underside of the Fraser Road underpass may be utilized by this species for nesting, however no Barn Swallow nests or individuals were observed during field investigations.	There is the potential for this species to utilize the Fraser Road underpass for nesting. No nesting of this species was observed during field investigations in 2018 or 2019. However, there is potential for this species to nest in this structure in subsequent breeding seasons. Should construction commencement be deferred several years, a survey could be conducted to confirm presence/absence of bird nests prior to the start of construction activities.
Hylocichla mustelina	Wood Thrush	END	SC	S4B	MNRF, OBBA	No	Carolinian and Great Lakes-St. Lawrence forest zones; undisturbed moist mature deciduous or mixed forest with deciduous sapling growth; near pond or swamp; hardwood forest edges; must have some trees higher than 12m	No	Undisturbed moist mature mixed or deciduous forests were not observed to occur within the Study Area.	No. Suitable habitat is not found within the Study Area

Species		SARA[1]	ESA[2]	S-Rank[3]	Information Source[4]	Observed during field studies	Habitat Requirements[5,6,7, 8]	Potential Habitat in the Study Area	Rationale for Potential to Occur	Will Species and/or Habitat be Impacted by the Project
Scientific Name	Common Name									
Ixobrychus exilis	Least Bittern	THR	THR	S4B	MNRF, OBBA	No	This species is found in a variety of wetland habitats prefers cattail marshes with a mix of open pools and channels.	No	Large cattail marshes were not found to occur within the Study Area.	No. Suitable habitat is not found within the Study Area.
Nycticorax nycticorax	Black-crowned Night-heron	---	---	S3B,S3N	MNRF	No	Deciduous woodland swamps, cattail marshes, islands wooded river and lake banks, coastal wetlands.	No	Deciduous woodland swamps were found to exist within the Study Area. However, there is not enough aquatic habitat in close proximity to the Study Area to support this species.	No. Suitable habitat is not found within the Study Area.
Pelecanus erythrorhynchos	American White Pelican	---	THR	S2B	MNRF	No	Nest in groups on remote islands that are barren or sparsely treed located in lakes, reservoirs, or on large rivers.	No	The Study Area does not contain remote islands or lakes reservoirs or rivers.	No. Suitable habitat is not found within the Study Area.
Rallus elegans	King Rail	END	END	S2B	MNRF	No	Found in densely vegetated freshwater marshes with open shallow water that merges with shrubby areas. They are sometimes found in smaller isolated marshes but most seem to prefer larger, coastal wetlands.	No	Mashes were not found to occur within the Study Area.	No. Suitable habitat is not found within the Study Area.
Riparia riparia	Bank Swallow	THR	THR	S4B	MNRF, OBBA	No	Nest in burrows in natural and human-made settings where there are vertical faces in silt and sand deposits. Many nests are on banks of rivers and lakes, but they are also found in active sand and gravel pits or former ones where the banks remain suitable. The birds breed in colonies ranging from several to a few thousand pairs.	No	Vertical faces in silt and sand deposits and/or banks of rivers or lakes were not found to occur within the Study Area.	No. Suitable habitat is not found within the Study Area.
Sturnella magna	Eastern Meadowlark	THR	THR	S4B	MNRF, OBBA	No	Found in open, grassy meadows, farmland, pastures, hayfields or grasslands with elevated singing perches; cultivated land and weedy areas with trees; old orchards with adjacent, open grassy areas generally >10 ha in size.	No	Meadows and hayfields exist within the Study Area. However, based on the regular maintenance observed the fields, these are not considered suitable habitat.	No. Suitable habitat is not found within the Study Area.

Species		SARA[1]	ESA[2]	S-Rank[3]	Information Source[4]	Observed during field studies	Habitat Requirements[5,6,7,8]	Potential Habitat in the Study Area	Rationale for Potential to Occur	Will Species and/or Habitat be Impacted by the Project
Scientific Name	Common Name									
MAMMALS										
Myotis leibii	Eastern Small-footed Myotis	---	END	S2S3	MNRF, MWH	No	Roosts in caves, mine shafts, crevices or buildings that are in or near woodland; hibernates in cold dry caves or mines; maternity colonies in caves or buildings; hunts in forests.	Yes	The deciduous swamps within the Study Area may provide suitable roosting habitat for this species. In addition, usage of cracks and crevices by bats beneath the underpass was confirmed by the evidence of bat guano.	The underpass structure will be affected by the proposed works and minor tree removal is proposed in the ROW; however, none of these trees were identified as snag or cavity bat habitat trees. Prior to removal of the underpass, the SAR bat species should be registered with a Notice of Activity (NOA) under the Ontario Regulation 242/08 Section 23.18 “threats to health and safety, not imminent”. A mitigation plan will be prepared with respect to the activity and in accordance with the Ontario Regulation 242/08 Section 23.18.
Myotis lucifugus	Little Brown Myotis	END	END	S4	MNRF, MWH	No	Found in caves, quarries, tunnels, hollow trees or buildings for roosting; winters in humid caves; maternity sites in dark warm areas such as attics an barns; feed primarily in wetlands, forest edges.	Yes	The deciduous swamps within the Study Area may provide suitable roosting habitat for this species. In addition, usage of cracks and crevices by bats beneath the underpass was confirmed by the evidence of bat guano.	The underpass structure will be affected by the proposed works and minor tree removal is proposed in the ROW; however, none of these trees were identified as snag or cavity bat habitat trees. Prior to removal of the underpass, the SAR bat species should be registered with a NOA under the Ontario Regulation 242/08 Section 23.18 “threats to health and safety, not imminent”. A mitigation plan will be prepared with respect to the activity and in accordance with the Ontario Regulation 242/08 Section 23.18.
Myotis septentrionalis	Northern Myotis	END	END	S3	MNRF, MWH	No	Hibernates during winter in mines or caves; during summer males roost alone and females form maternity colonies of up to 60 adults; roosts in houses, manmade structures but prefers hollow trees or under loose bark; hunts within forests, below canopy.	Yes	The deciduous swamps within the Study Area may provide suitable roosting habitat for this species. In addition, usage of cracks and crevices by bats beneath the underpass was confirmed by the evidence of bat guano.	The underpass structure will be affected by the proposed works and minor tree removal is proposed in the ROW; however, none of these trees were identified as snag or cavity bat habitat trees. Prior to removal of the underpass, the SAR bat species should be registered with a NOA under the Ontario Regulation 242/08 Section 23.18 “threats to health and safety, not imminent”. A mitigation plan will be prepared with respect to the activity and in accordance with the Ontario Regulation 242/08 Section 23.18.

Species		SARA[1]	ESA[2]	S-Rank[3]	Information Source[4]	Observed during field studies	Habitat Requirements[5,6,7,8]	Potential Habitat in the Study Area	Rationale for Potential to Occur	Will Species and/or Habitat be Impacted by the Project
Scientific Name	Common Name									
Perimyotis subflavus	Tri-colored Bat	END	END	S3?	MNRF, MWH	No	Found in open woods near water; roosts in trees, cliff crevices, buildings or caves; hibernates in damp, draft-free, warm caves, mines or rock crevices.	Yes	The deciduous swamps within the Study Area may provide suitable roosting habitat for this species. In addition, usage of cracks and crevices by bats beneath the underpass was confirmed by the evidence of bat guano.	The underpass structure will be affected by the proposed works and minor tree removal is proposed in the ROW; however, none of these trees were identified as snag or cavity bat habitat trees. Prior to removal of the underpass, the SAR bat species should be registered with a NOA under the Ontario Regulation 242/08 Section 23.18 "threats to health and safety, not imminent". A mitigation plan will be prepared with respect to the activity and in accordance with the Ontario Regulation 242/08 Section 23.18.
Urocyon cinereoargenteus	Gray Fox	THR	THR	S1	MNRF, MWH	No	Hardwood forests with a mix of fields and woods; swamps; wooded, brushy or rocky habitats; woodland farmland edge; old fields with thickets; dens in hollow log or tree; individual has numerous winter dens throughout its range which is > 40 ha.	No	In Ontario, Gray Fox has a distinct range of occurrence known to be mainly concentrated to the southernmost portion of the province. Where rare to occasional sightings of the species have arisen outside this concentrated range, they occur outside of the greater region of the Study Area.	No. Suitable habitat is not found within the Study Area.
HERPTILES										
Chelydra serpentina	Snapping Turtle	SC	SC	S3	MNRF, OHA	No	Highly aquatic. Occurs in almost any freshwater habitat, typically found in slow-moving water with mud or sand bottom and abundant vegetation. May inhabit small wetlands, ponds and ditches. Hibernates in the mud or silt on the bottom of lakes and rivers.	No	The Study Area contains wetlands, however, shallow water was not observed. Due to the highly aquatic nature of this species, suitable habitat for this species does not occur within the Study Area.	No. Suitable habitat is not found within the Study Area.
Emydoidea blandingii	Blanding's Turtle	THR	THR	S3	MNRF, OHA	No	Found in shallow water marshes, bogs, ponds or swamps, or coves in larger lakes with soft muddy bottoms and aquatic vegetation; basks on logs, stumps, or banks; surrounding natural habitat is important in summer as they frequently move from aquatic habitat to terrestrial habitats; hibernates in bogs; not readily observed.	No	Shallow water wetlands were not found to occur within the Study Area. There was no suitable overwintering or basking habitat observed for Blanding's Turtle in the Study Area. This species was considered as potentially traveling through the wetland or habitat units within the Study Area as it has been known to cover large distances from aquatic habitat to terrestrial nesting habitat.	No. The proposed works will not impact the wetlands within the Study area.

Species		SARA[1]	ESA[2]	S-Rank[3]	Information Source[4]	Observed during field studies	Habitat Requirements[5,6,7,8]	Potential Habitat in the Study Area	Rationale for Potential to Occur	Will Species and/or Habitat be Impacted by the Project
Scientific Name	Common Name									
Graptemys geographica	Northern Map Turtle	SC	SC	S3	MNRF	No	Inhabits rivers and lakeshores where it basks on emergent rocks and fallen trees throughout the spring and summer. In winter, the turtles hibernate on the bottom of deep, slow-moving sections of river. They require high-quality water that supports the female's mollusc prey. Their habitat must contain suitable basking sites, such as rocks and deadheads, with an unobstructed view from which a turtle can drop immediately into the water if startled	No	No rivers or lakeshores ideal for this species to bask or hibernate occur. Due to the highly aquatic nature of this species, suitable habitat for this species does not occur within the Study Area.	No. Suitable habitat is not found within the Study Area.
Pseudacris triseriata	Western chorus frog (Great Lakes-St. Lawrence Population)	THR	---	S3	MNRF	No	Found in roadside ditches or temporary ponds in fields; swamps or wet meadows; woodland or open country with cover and moisture; small ponds and temporary pools.	Yes	Suitable swamp habitat and roadside ditches were observed within the Study Area.	Potential for impacts to the species if present in the area. Minimal potential for impact if mitigation measures are implemented.
Sternotherus odoratus	Eastern Musk Turtle	SC	SC	S3	MNRF, OHA	No	Highly aquatic, except when laying eggs; shallow slow moving water of lakes, streams, marshes and ponds; hibernate in underwater mud, in banks or in muskrat lodges; eggs are laid in debris or under stumps or fallen logs at waters edge; often share nest sites; sometimes congregate at hibernation sites; not readily observed.	No	The Study Area does not contain slow moving lakes, streams, marshes or ponds, or hibernation (overwintering) sites that would provide suitable habitat for this species.	No. Suitable habitat is not found within the Study Area.
Thamnophis sauritus	Eastern Ribbonsnake (Great Lake population)	SC	SC	S3	MNRF	No	Usually found close to water, especially in marshes where it hunts for frogs and small fish. This species will congregate in underground burrows or rock crevices to hibernate.	No	Marshes do not exist within the Study Area.	No. Suitable habitat is not found within the Study Area.
FISH										
Acipenser fulvescens pop. 3	Lake Sturgeon (Great Lakes - Upper St. Lawrence River population)	---	END	S2	MNRF	No	Larger rivers and lakes, with soft bottoms of mud, sand or gravel. They are usually found at depths of five to 20 metres. They spawn in relatively shallow, fast-flowing water (usually below waterfalls, rapids, or dams) with gravel and boulders at the bottom. However, they will spawn in deeper water where habitat is available. They also are known to spawn on open shoals in large rivers with strong currents.	No	The Study Area does not contain large rivers or lakes.	No. Suitable habitat is not found within the Study Area.

Species		SARA[1]	ESA[2]	S-Rank[3]	Information Source[4]	Observed during field studies	Habitat Requirements[5,6,7,8]	Potential Habitat in the Study Area	Rationale for Potential to Occur	Will Species and/or Habitat be Impacted by the Project
Scientific Name	Common Name									
Anguilla rostrata	American Eel	---	END	S1?	MNRF	No	Over the course of its life, the American Eel can be found in both salt and fresh water. Has adapted to an extremely broad diversity of habitats.	No	The Study Area contains a small agricultural drainage ditch that is not an ideal wetted depth for this species.	No. Suitable habitat is not found within the Study Area.
Exoglossum maxillingua	Cutlip Minnow	---	THR	S1S2	NHIC, MNRF	No	Prefers warmer rivers and creeks with clear, slow-moving water, and a rocky or gravel bottom. The males dig nests in the gravel where the females lay their eggs. Nests are often found under banks, logs, or around large rocks. The adult feeds on the river bottom and eats aquatic insects.	No	The Study Area does not contain rivers or creeks large enough with rocky or gravel bottom for this species.	No. Suitable habitat is not found within the Study Area.
BUTTERFLIES										
Danaus plexippus	Monarch	SC	SC	S2N,S4B	MNRF, OBA	Yes	Caterpillars feed on milkweed plants and are confined to meadows and open areas where milkweed grows. Adult butterflies prefer diverse habitats where they feed on nectar from wildflowers.	Yes	Meadows with rare occurrence of Milkweed plants were observed within the Study Area. Based on the small size of the meadows and limited amount of Milkweed plants present, meadows in the Study Area likely provide poor habitat for this species.	Potential for impacts to the species if present in the area. Minimal potential for impact if mitigation measures are implemented.
Pieris virginiensis	West Virginia White	---	SC	S3	MNRF	No	Lives in moist, deciduous woodlots. This butterfly requires a supply of toothwort, a small, spring-blooming plant that is a member of the mustard family, since it is the only food source for larvae.	No	Moist deciduous woodlots within toothwort were not observed within the Study Area.	No. Suitable habitat is not found within the Study Area.

[1] – Federal Species at Risk Act, 2002; [2] – Provincial Endangered Species Act, 2007; [3] – Subnational (Provincial) Rank; [4] – Information Source: MNRF = MNRF Species at Risk in Ontario List by area of the province and MNRF Kemptville District Consultation, NHIC = Natural Heritage Information Centre, OBBA = Ontario Breeding Bird Atlas, OBA = Ontario Butterfly Atlas, OHA = Ontario Herpetofaunal Atlas, MWH = Mammals of the Western Hemisphere; [5] – MNRF Significant Wildlife Technical Guide - Appendix G (2000); [6] – SAR in Ontario List under the provincial ESA, 2007; [7] – IUCN 2019, The IUCN Red List of Threatened Species, Version 2018-2; [8] – Lady Bird Johnson Wildflower Center, University of Texas at Austin; --- denotes no information or not applicable.

Table B2: Vegetation Species Observed within the Study Area

Scientific Name	Common Name	SARA[1]	ESA[2]	SRank[3]	CC[4]	CW[5]	Invasive Ranking[6]	Noxious[7]
Anemone canadensis	Canada Anemone	---	---	S5	3	-3	---	---
Acer saccharinum	Silver Maple	---	---	S5	5	-3	---	---
Acer saccharum	Sugar Maple	---	---	S5	4	3	---	---
Achillea millefolium	Common Yarrow	---	---	SE	---	3	---	---
Bromus inermis	Awnless Brome	---	---	SNA	---	5	4	---
Cichorium intybus	Chicory	---	---	SNA	---	5	---	---
Cornus alternifolia	Alternate-leaved Dogwood	---	---	S5	6	5	---	---
Cornus sericea ssp sericea	Red-osier Dogwood	---	---	S5	2	-3	---	---
Daucus carota	Wild Carrot	---	---	SNA	---	5	3	---
Digitaria ischaemum	Smooth Crabgrass	---	---	SNA	---	3	---	---
Echium vulgare	Common Viper's-bugloss	---	---	SNA	---	5	---	---
Equisetum arvense	Field Horsetail	---	---	S5	0	0	---	---
Erigeron hyssopifolius	Daisy Fleabane	---	---	S5	10	-3	---	---
Fragaria virginiana	Wild Strawberry	---	---	S5	2	1	---	---
Fraxinus pennsylvanica	Green Ash	---	---	S4	3	-3	---	---
Gentianopsis crinita	Fringed Gentian	---	---	S5	8	-4	---	---
Hieracium kalmii	Canada Hawkweed	---	---	SU	7	5	---	---
Lotus corniculatus	Garden Bird's-foot Trefoil	---	---	SNA	---	1	---	---
Lythrum salicaria	Purple Loosestrife	---	---	SNA	---	-5	9	---
Onoclea sensibilis	Sensitive Fern	---	---	S5	4	-3	---	---
Oxalis montana	Common Wood-sorrell	---	---	S5	8	3	---	---
Parthenocissus quinquefolia	Virginia Creeper	---	---	S4?	6	1	---	---
Phragmites australis ssp. australis	European Common Reed	---	---	SNA	---	-4	9	---
Picea abies	Norway Spruce	---	---	SNA	---	5	---	---
Picea glauca	White Spruce	---	---	S5	6	3	---	---
Pinus sylvestris	Scotch Pine	---	---	SNA	---	5	2	---
Poaceae sp.	Grass species	---	---	---	---	---	---	---
Populus balsamifera	Balsam Poplar	---	---	S5	4	-3	---	---
Populus deltoides ssp. deltoides	Eastern Cottonwood	---	---	S5	4	-1	---	---
Populus tremuloides	Trembling Aspen	---	---	S5	2	0	---	---
Pastinaca sativa	Wild Parsnip	---	---	SNA	---	5	9	Y
Quercus alba	White Oak	---	---	S5	6	3	---	---
Rhus hirta	Staghorn Sumac	---	---	S5	1	5	---	---
Rudbeckia hirta var. pulcherrima	Black-eyed Susan	---	---	S5	---	---	---	---
Ribes rubrum	Northern Red Currant	---	---	SNA	---	5	6	---
Rubus occidentalis	Black Raspberry	---	---	S5	2	5	---	---
Salix nigra	Black Willow	---	---	S4?	6	-5	---	---
Salix sp.	Willow species	---	---	---	---	---	---	---
Setaria pumila	Yellow Foxtail	---	---	SNA	---	0	---	---
Solidago sp.	Goldenrod species	---	---	---	---	---	---	---
Sonchus arvensis ssp. arvensis	Field Sow-thistle	---	---	SNA	---	1	---	Y
Symphyotrichum novae-angliae	New England Aster	---	---	S5	2	-3	---	---
Typha angustifolia	Narrow-leaved Cattail	---	---	SNA	3	-5	6	---
Ulmus americana	American Elm	---	---	S5	3	-2	---	---
Vitis riparia	Riverbank Grape	---	---	S5	0	-2	---	---

[1] – as designated under Schedule 1 of the federal Species at Risk Act, 2002; [2] – as designated under the provincial Endangered Species Act, 2007; 3 – provincial conservation rankings as determined by the NHIC: S4 - Considered to be common in Ontario. It denotes a species that is apparently secure, with over 80 occurrences in the province, S5 - Indicates that a species is widespread in Ontario. It is demonstrably secure in the province,? - A question mark following the rank indicates that there is some uncertainty with the classification due to insufficient information. These provincial ranks may further be modified, SNR - Unranked — conservation status Not Ranked, SNA - Not Applicable – a conservation status rank is not applicable because the species is not a suitable target for conservation activities, SU - Indicates that the status is uncertain due to insufficient information, SE - Exotic species, non-native to Ontario; 4 - Coefficient of Conservatism (CC) as determined by the NHIC's Floristic Quality Assessment System for Southern Ontario (1995); 5 - Coefficient of Wetness (CW) as determined by the NHIC's Floristic Quality Assessment System for Southern Ontario (1995); 6 – Invasive Ranking as determined by the Invasive Exotic Plant Species Rankings for Southern Ontario (Draft - Urban Forest Associates/MNRF, 2014), species that are designated as 4,5,6 are more locally invasive and tend to be naturalized whereas 7,8,9 are highly invasive often forming monocultures; 7 – Noxious designation as determined by the Schedule of Noxious Weeds under the Ontario Weed Control Act, RSO 1990.

Appendix C

Agency Correspondences

Ministry of Natural Resources and Forestry

Kemptville District

10 Campus Drive
Postal Box 2002
Kemptville ON K0G 1J0
Tel.: 613 258-8204
Fax: 613 258-3920

Ministère des Richesses naturelles et des Forêts

District de Kemptville

10, promenade Campus
Case postale, 2002
Kemptville ON K0G 1J0
Tél.: 613 258-8204
Téléc.: 613 258-3920

Ontario

Tue. Dec 18, 2018

Adele Mochrie
Dillon Consulting
130 Dufferin Ave., Suite 1400
London, Ontario
N6A 5R2
(519) 438-6192
amochrie@dillon.ca

Attention: Adele Mochrie

Subject: Information Request - Infrastructure
Project Name: Road Underpass Replacement
Site Address: Highway 401 & Fraser Road, Charlottenburgh Twp.
Our File No. 2018_CHA-4531

Natural Heritage Values

The Ministry of Natural Resources and Forestry (MNRF) Kemptville District has carried out a preliminary review of the above-mentioned area in order to identify any potential natural resource and natural heritage values.

The following Natural Heritage values were identified for the general subject area:

- **Unnamed, warmwater Stream/Drain, south of project site (fish species presence & fish habitat: unknown), primarily managed for forage/bait fish production.**
- **Significant Woodland – High Potential on site**
- **Unevaluated Wetland on site.**

Municipal Official Plans contain information related to natural heritage features. Please see the local municipal Official Plan for more information, such as specific policies and direction pertaining to activities which may impact natural heritage features. For planning advice or Official Plan interpretation, please contact the local municipality. Many municipalities require environmental impact studies and other supporting studies be carried out as part of the development application process to allow the municipality to make planning decisions which are consistent with the Provincial Policy Statement (PPS, 2014).

The MNRF strongly encourages all proponents to contact partner agencies and appropriate municipalities early on in the planning process. This provides the proponent with early knowledge regarding agency requirements, authorizations and approval timelines; Ministry of the Environment and Climate Change (MOECC) and the local Conservation Authority may require approvals and permitting where natural values and natural hazards (e.g., floodplains) exist.

As per the Natural Heritage Reference Manual (NHRM, 2010) the MNRF strongly recommends that an ecological site assessment be carried out to determine the presence of natural heritage features and species at risk and their habitat on site. The MNRF can provide survey methodology for particular species at risk and their habitats.

The NHRM also recommends that cumulative effects of development projects on the integrity of natural heritage features and areas be given due consideration. This includes the evaluation of the past, present and possible future impacts of development in the surrounding area that may occur as a result of demand created by the presently proposed project.

Wildland Fire

MNRF woodland data shows that the site contains woodlands. The lands should be assessed for the risk of wildland fire as per PPS 2014, Section 3.1.8 "*Development shall generally be directed to areas outside of lands that are unsafe for development due to the presence of hazardous forest types for wildland fire. Development may however be permitted in lands with hazardous forest types for wildland fire where the risk is mitigated in accordance with wildland fire assessment and mitigation standards".* Further discussion with the local municipality should be carried out to address how the risks associated with wildland fire will be covered for such a development proposal. Please see the Wildland Fire Risk Assessment and Mitigation Guidebook (2016) for more information.

Significant Woodlands

MNRF woodland data shows that the site likely contains significant woodlands. Section 2.1.5 b) of the PPS states: *Development and site alteration shall not be permitted in significant woodlands unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions.* The 2014 PPS directs that significant woodlands must be identified following criteria established by the Ontario Ministry of Natural Resources and Forestry, i.e. the Natural Heritage Reference Manual (NHRM), 2010. Where the local or County Official Plan has not yet updated significant woodland mapping to reflect the 2014 PPS, all wooded areas should be reviewed on a site specific basis for significance. The MNRF Kemptville District modelled locations of significant woodlands in 2011 based on NHRM criteria. The presence of significant woodland on site or within 120 metres should trigger an assessment of the impacts to the feature and its function from the proposed development.

Significant Wildlife Habitat

Section 2.1.5 d) of the PPS states: *Development and site alteration shall not be permitted in significant wildlife habitat unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions.* It is the responsibility of the approval authority to identify significant wildlife habitat or require its identification. The MNRF has several guiding documents which may be useful in identification of significant wildlife habitat and characterization of impacts and mitigation options:

- Significant Wildlife Habitat Technical Guide, 2000
- The Natural Heritage Reference Manual, 2010
- Significant Wildlife Habitat Mitigation Support Tool, 2014
- Significant Wildlife Habitat Criteria Schedule for Ecoregion 5E and 6E, 2015

The habitat of special concern species (as identified by the Species at Risk in Ontario list) and Natural Heritage Information Centre tracked species with a conservation status rank of S1, S2 and S3 may be significant wildlife habitat and should be assessed accordingly.

Water

The Ministry of Natural Resources and Forestry (MNRF) has established timing window guidelines to restrict in-water work related to an activity during certain periods. These restricted periods are identified in order to protect fish from impacts of works or undertakings in and around water during spawning and other critical life stages. A suite of appropriate measures should be taken for projects involving in-water works to minimize and mitigate impacts to fish, water quality and fish habitat, and include:

- avoiding in-water works during the timing guidelines;
- installation of sediment/erosion control measures;
- avoiding the removal, alteration, or covering of substrates used for fish spawning, feeding, over-wintering or nursery areas; and
- debris control measures to manage falling debris (e.g. spalling).

Timing guidelines are based on species* presence and are therefore subject to change if new information becomes available. Timing guidelines in Kemptville District are:

Waterbody (and applicable geography or Fisheries Management Zone)	Timing Guidelines (no in-water works)
○ St. Lawrence River (FMZ 20)	March 15 – July 15 (Spring spawning species)
○ Ottawa River – Lac Des Chats (FMZ 12)	October 1 to July 15 (Spring and fall spawning species, including Lake Trout and Lake Whitefish)
○ Ottawa River – Lac Deschenes (FMZ 12)	October 15 to July 15 (Spring and fall spawning species, including Cisco)
○ Ottawa River – Lac Dollard des Ormeaux (FMZ 12)	January 1 to July 15 (Winter and spring spawning species, including Burbot)
○ Big Rideau Lake (South Burgess, North Burgess, Bastard and South Elmsley Twps) ○ Charleston Lake (Lansdowne and Escott Twps) ○ Crow Lake (South Crosby Twp)	October 1 to June 30 (Spring and fall spawning species, including Lake Trout)
○ Bass Lake (South Elmsley Twp) ○ Lower Rideau Lake (South Elmsley Twp) ○ Bob's Lake (South Sherbrooke Twp) ○ Christie Lake (South Sherbrooke Twp) ○ Dalhousie Lake (Dalhousie Twp) ○ Davern Lake (South Sherbrooke Twp) ○ Farren Lake (South Sherbrooke Twp) ○ Grippen Lake (Leeds Twp) ○ Indian Lake (South Crosby Twp) ○ Little Long Lake (Lansdowne Twp) ○ Millpond Lake (South Burgess) ○ Otter Lake (South Elmsley, South Burgess and Bastard Twps)	October 15 to June 30 (Spring and Fall spawning species, including Lake Whitefish and Cisco)

○ Otty Lake (North Burgess and North Elmsley Twps) ○ Pike Lake (North Burgess Twp) ○ Silver Lake (South Sherbrooke Twp) ○ Redhorse Lake (Lansdowne Twp) ○ Tay River (South Sherbrooke, Bathurst, Drummond and North Elmsley Twps) ○ Wolfe Lake (North Crosby Twp)	
○ Bennett Lake (Bathurst Twp) ○ Crosby Lake (North Crosby Twp) ○ Gananoque River (Leeds Twp) ○ Lac Georges (Plantagenet and Alfred Twps) ○ Gillies Lake (Lanark Twp) ○ Little Crosby Lake (North Crosby Twp) ○ McLaren Lake (North Burgess Twp) ○ Mississippi Lake (Drummond, Beckwith and Ramsay Twps) ○ Mississippi River (Beckwith, Ramsay, Pakenham and Fitzroy Twps) ○ Raisin River below Martintown dam (Charlottenburgh Twp) ○ Rideau River (Wolford, Oxford, Montague, Marlborough, South Gower, North Gower, Osgood, Nepean and Gloucester Twps) ○ South Lake (Leeds Twp) ○ South Nation River below Plantagenet weir (Plantagenet Twp) ○ Upper Rideau Lake (North Crosby Twp) ○ Westport Sand Lake (North Crosby Twp)	January 1 – June 30 (Winter and spring spawning species, including Burbot)
○ **Small rivers and streams (denoted on 1:50,000 National Topographic System maps as being one lined)** ○ All other waterbodies in FMZ 18	**March 15 to June 30** **(Spring spawning species)**

**Please note: Additional timing restrictions may apply as they relate to endangered and threatened species for works in both water and wetland areas. Timing restrictions are subject to change, depending on species found in a given waterbody.*

In addition to adhering to the above timing guidelines, a work permit from the MNRF may be required depending on the nature and scope of work. No encroachment on the bed or banks of a waterbody/watercourse (e.g. abutments, embankments, etc.) is permitted without MNRF approval. Additional information regarding work permits may be found online at https://www.ontario.ca/page/crown-land-work-permits#section-2.

The MNRF does not have any water quality or quantity data available. We recommend that the Ministry of the Environment and Climate Change be contacted for such data along with the local Conservation Authority. For further information regarding fish habitat and protocols, please refer to the following interagency, document, *Fish Habitat Referral Protocol for* Ontario at: http://www.web2.mnr.gov.on.ca/mnr/ebr/fish_hab_referral/protocol_en.pdf.

Additional approvals and permits may be required under the Fisheries Act and the Species at Risk Act; please contact Fisheries and Oceans Canada to determine requirements and next steps. There may also be approvals required by the local Conservation Authority or Transport Canada, and these agencies should be contacted directly to determine requirements. As the MNRF is responsible for the management of provincial fish populations, we request ongoing involvement in such discussions in order to ensure population conservation.

Species at Risk

A review of the Natural Heritage Information Centre (NHIC) and internal records indicate that there is a potential for the following threatened (THR), endangered (END) and special concern (SC) species on the site or in proximity to it:

Charlottenburgh Township SAR List

Birds	**Rank**
American White Pelican	Other
Bald Eagle	SC
Barn Swallow	THR
Bank Swallow	THR
Black-crowned Night-heron	Other
Black Tern	SC
Bobolink	THR
Canada Warbler	SC
Chimney Swift	THR
Common Nighthawk	SC
Eastern Meadowlark	THR
Eastern Wood Pewee	SC
Evening Grosbeak	SC
Great Egret	Other
King Rail	END
Least Bittern	THR
Olive-sided Flycatcher	SC
Rusty Blackbird	SC
Whip poor will	THR
Wood Thrush	SC
Yellow Rail	SC

Fish	
American Eel	END
Bridle Shiner	SC
Cutlip Minnow	THR
Eastern Silvery Minnow	Other
Ghost Shiner	Other
Grass Pickerel	SC
Lake Sturgeon	SC
Northern Longear Sunfish	SC
River Redhorse	SC
Silver Lamprey	SC

Invertebrates	
Monarch	SC
West Virginia White	SC
Snakes	
Eastern Ribbonsnake	SC
Amphibians	
Western Chorus Frog	Other
Turtles	
Blanding's Turtle	THR
Eastern Musk Turtle	SC
Northern Map Turtle	SC
Snapping Turtle	SC
Mammals	
Common Gray Fox	THR
Eastern Small-footed Myotis	END
Little Brown Myotis	END
Northern Myotis	END
Tricolored Bat	END
Vascular Plants	
American Ginseng	END
Butternut	END
Halbert-leaved Smartweed	Other
Puttyroot	Other
Ram's-head Lady's-slipper	Other

All endangered and threatened species receive individual protection under section 9 of the ESA and receive general habitat protection under Section 10 of the ESA, 2007. Thus any potential works should consider disturbance to the individuals as well as their habitat (e.g. nesting sites). General habitat protection applies to all threatened and endangered species. Note some species in Kemptville District receive regulated habitat protection. The habitat of these listed species is protected from damage and destruction and certain activities may require authorization(s) under the ESA. For more on how species at risk and their habitat is protected, please see: https://www.ontario.ca/page/how-species-risk-are-protected.

If the proposed activity is known to have an impact on any endangered or threatened species at risk (SAR), or their habitat, an authorization under the ESA may be required. It is recommended that MNRF Kemptville be contacted prior to any activities being carried out to discuss potential survey protocols to follow during the early planning stages of a project, as well as mitigation measures to avoid contravention of the ESA. Where there is potential for species at risk or their habitat on the

property, an Information Gathering Form should be submitted to Kemptville MNRF at sar.kemptville@ontario.ca.

The Information Gathering Form may be found here:
http://www.forms.ssb.gov.on.ca/mbs/ssb/forms/ssbforms.nsf/FormDetail?OpenForm&ACT=RDR&TAB=PROFILE&ENV=WWE&NO=018-0180E

For more information on the ESA authorization process, please see:
https://www.ontario.ca/page/how-get-endangered-species-act-permit-or-authorization

One or more special concern species has been documented to occur either on the site or nearby. Species listed as special concern are not protected under the ESA, 2007. However, please note that some of these species may be protected under the Fish and Wildlife Conservation Act and/or Migratory Birds Convention Act. Again, the habitat of special concern species may be significant wildlife habitat and should be assessed accordingly.

If any of these or any other species at risk are discovered throughout the course of the work, and/or should any species at risk or their habitat be potentially impacted by on site activities, MNRF should be contacted and operations be modified to avoid any negative impacts to species at risk or their habitat until further direction is provided by MNRF.

Please note that information regarding species at risk is based largely on documented occurrences and does not necessarily include an interpretation of potential habitat within or in proximity to the site in question. Although this data represents the MNRF's best current available information, it is important to note that a lack of information for a site does not mean that additional features and values are not present. It is the responsibility of the proponent to ensure that species at risk are not killed, harmed, or harassed, and that their habitat is not damaged or destroyed through the activities carried out on the site.

The MNRF continues to strongly encourage ecological site assessments to determine the potential for SAR habitat and occurrences. When a SAR or potential habitat for a SAR does occur on a site, it is recommended that the proponent contact the MNRF for technical advice and to discuss what activities can occur without contravention of the Act. For specific questions regarding the Endangered Species Act (2007) or SAR, please contact MNRF Kemptville District at sar.kemptville@ontario.ca.

The approvals processes for a number of activities that have the potential to impact SAR or their habitat have recently changed. For information regarding regulatory exemptions and associated online registration of certain activities, please refer to the following website: https://www.ontario.ca/page/how-get-endangered-species-act-permit-or-authorization.

Please note: The advice in this letter may become invalid if:

- The Committee on the Status of Species at Risk in Ontario (COSSARO) re-assesses the status of the above-named species OR adds a species to the SARO List such that the section 9 and/or 10 protection provisions apply to those species; or
- Additional occurrences of species are discovered on or in proximity to the site.

This letter is valid until: Dec. 18, 2019

The MNRF would like to request that we continue to be circulated on information with regards to this project. If you have any questions or require clarification please do not hesitate to contact me.

Sincerely,

Joffre Côté
(FLS) Management Biologist
joff.cote@ontario.ca

Encl.\
-ESA Infosheet
-NHIC/LIO Infosheet

Appendix D

Photographs

Appendix D: Photo Inventory

Photo Comments	Photo
Photo #1 October 03, 2018 Notes: CGL: Greenlands Facing southwest from west quadrant of Study Area at Highway 401.	
Photo #2 October 03, 2018 Notes: FOCM6: Naturalized Coniferous Plantation Facing east at culturally planted coniferous trees in north quadrant of the Study Area.	

Photo #3 October 03, 2018 Notes: FODM3: Dry-Fresh Poplar – White Birch Deciduous Forest Facing south from interior of forest.	
Photo #4 October 03, 2018 Notes: MEF: Forb Meadow Facing northwest from interior of meadow within east quadrant.	

Photo #5 October 03, 2018 Notes: MEM: Mixed Meadow Facing south at meadow within west quadrant.	
Photo #6 October 03, 2018 Notes: OAGM1: Annual Row Crops (Corn) Facing northeast at cornfield from intersection of Airport Road and Fraser Road.	

Photo #7
October 03, 2018

Notes:

OAGM1: Annual Row Crops (Soybean)

Facing west at soybean field from Lapierre Road.

Photo #8
October 03, 2018

Notes:

OAGM2: Perennial Cover Crops (Hayfield)

Looking southwest from Airport Road at recently cut hayfield.

Photo #9 October 03, 2018 Notes: SWD: Deciduous Swamp	
Photo #10 October 03, 2018 Notes: Fraser Road Underpass South Abutment Cracks and crevices between south abutment and underpass structure.	

Photo #11 October 03, 2018 Notes: Fraser Road Underpass North Abutment Bat Guano on north abutment below cracks and crevices.	
Photo #12 October 03, 2018 Notes: Fraser Road Underpass South Side Eastern Phoebe nest on beam near south abutment.	

Photo #13
October 03, 2018

Notes:

Fraser Road Underpass
South Side

Eastern Phoebe nest on beam above pier cap. South side of bridge.

Photo #14
October 18, 2018

Notes:

Fraser Road Underpass
South Side

Eastern Garter Snake roadside mortality near southeast expansion joint.

Photo #15
October 18, 2018

Notes:

Fraser Road Underpass
South Side

Red-bellied Snake roadside mortality near southeast expansion joint.

Appendix E

Field Notes

DILLON CONSULTING

Project	Proj. No.	Page of
FRASER ROAD - MTO	18-8202	1 2
	Notes By	Date
	CONNOR E.	2019/06/27
Subject	Checked by	Date
BAT HABITAT SEARCH		

TIME 16:01
TEMP 29°C
WIND 3 (Beaufort)
CC 3/10

NOTES / OBSERVATIONS

Elm DBH cm: 25.
Green Ash DBH cm: 23.0, 22.4+24.0 Δ
Trembling Aspen DBH cm: 10, 11,

- Wild Parsnip occurs occassional → abundant roadside
SE Quadrant trees are Green Ash @ → cm DBH
Trembling Aspen @ → cm DBH
- Nest Eastern Phoebe @ WP 195 (Inactive
Eastern Phoebe nest @ WP 196 (Inactive)
- North side has much less snags b/c of Maple dominance
Guano has dissappeared almost like someone vacuumed it up.
abutements are clean on south side
*** Isolated guano @ one corner @ WP 211
- ~~Guano~~ - Appears that bats also hang further towards road on xp corner of beam.

HIGHLIGHTS

* - Guano observed in isolated corner on North abutment
↑ - Lots of snags on SE quadrant. Damage from storm recent
- Guano samples taken

INCIDENTALS

- MAWA
- Hairy Woodpecker
- MODE
- RWBL
- AMCR

SNAG TREES INVENTORY

Δ = Multi-stem
* = Candidate good bat tree
+ = Tree is alive

DBH	WP	LOOSE BARK?	CREVICES?	CAVITIES?	Comments
13.6	174	Y	N	N	Dead poplar, Limited roosting to 1 piece of bark
Δ 10, 12	175	Y	N	N	Dead Ash, isolated from woods
* 14.5	176	Y	N	Y	Dead Ash, along fence w/n ROW
* 26.3	177	Y	N	Y	Dead poplar, "
20.0	178	Y	N	Y	Dead poplar, " , trunk snapped @ 6m
* 24.0	179	Y	N	Y	Dead poplar, " , " @ 8m
12.0	180	Y	N	Y	" , " @ 3m
+ 15.3	181	Y	N	N	Trembling Aspen poor condition
12.0	182	Y	N	N	Dead Ash, near road isolated
11.5	~~183~~ 184	Y	N	N	"
16.0	185	Y	N	N	Dead Ash isolated near road
* 17.6	186	Y	Y	Y	Dead poplar within forest canopy, trunk @ 10
* 17.7	187	Y	N	Y	" " " @ 4, 7m
* 27.6	188	Y	Y	Y	" " @ 5
					large diameter snag

DILLON CONSULTING

Project	Proj. No.	Page of
FRASER ROAD - MTO	18-8202	2 2
	Notes By	Date
	CONNOR E	2019/06/27
Subject	Checked by	Date
BAT HABITAT SEARCH		

WP	DBH	LOOSE BARK?	CREVICES?	CAVITIES?	COMMENTS
189	24.4	N	N	N	Dead Ash, Borders forest dripline
190	16.6	Y	N	N	" " "
191	19.0	Y	N	N	" " "
192	17.2	~~N~~ Y	N	N	Dead Poplar trunk fail @ 7m
193	15.0	~~N~~ Y	N	N	"
194	19.5	Y	N	Y	"
Δ 197 Δ	21,18	Y	Y	N	Dead Ash, isolated
Δ 198	22,21	Y	N	Y	Dead Ash, within canopy
199	22	Y	N	N	Dead Poplar, "
200	16.5	Y	N	N	Dead Ash, "
201	14.0	Y	N	N	Dead Ash, "
202	13.3	Y	N	N	" " "
203	15.0	Y	N	N	Dead poplar, "
204	17.0	Y	N	N	" " "
205	17.5	Y	N	N	" " "
206	16.0	Y	N	N	" " Trunk fail @ 5m
206	14.0	Y	N	N	" " ~~Trunk fail @ 6m~~
207	21.0	N	N	N	Dead poplar, " Trunk fail @ 6m
208	23.3	N	Y	N	" " Trunk fail @ 6m
209	39.0	Y	Y	N	" " Fail @ 9m
210	12.0	N	N	N	" " No fail
212	25.4	Y	N	N	Dead Ash, near canopy of forest
213	19.5	Y	N	N	" "
214	22	Y	N	N	Dead pop.
215	15	Y	N	N	Dead Ash
216	28.0	N	N	N	" in canopy

BS interior with canopy by 10m fix GPS point

* Look for Utility * locate lines fiber optics tube pipes

DILLON CONSULTING

Project	Proj. No.	Page of
FRASER ROAD	18-8202	1 2
	Notes By: CONNOR E	Date: 2018/10/03
Subject: MTO BRIDGES - ELC, VEG, INCIDENTALS	Checked by	Date

TIME 4:20
TEMP 12°C
WIND ø
CC 10/10

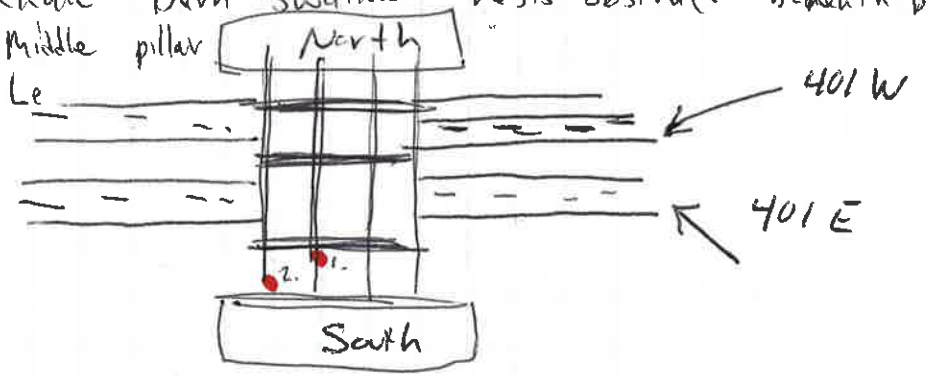
SUMMARY / HIGHLIGHTS

* • Barn Swallow nests observed on south abutment
* • Bat Guano observed N+S side of Bridge abutment
• Wetlands accurate to MNRF Mapping

SE Portion

- Corn crops @ southern extent of Study area
- Green Ash / Trembling Aspen buffers eastern woodlot (SWD)
- Snags present in (1)
- SWD Should be digitized within FOD as mapped by MNRF mapping → Silver Maple w/ Green Ash, Buckthorn ~~s~~ understory, Sensitive Fern ground layer.

- Forb (2) meadow north of FOD buffer (1)
- Small thicket inclusion close to road
- 2 candidate Barn Swallow nests observed beneath bridge
  1. Middle pillar
  2. Le



INCIDENTALS

• AMCR heard calling

SW Portion

(4) Trembling Aspen / Green Ash forest → See ELC Sheet
↳ Overrun w/ Riverbank Grape Vine
↳ Snags Rare

NE Portion

-SWD as mapped + manicured lawn

NW Patch

- Soybean Field
- Trembling Aspen / Green Ash Hedgerow / Fencerow Stands (too small for FOD)

Similar Community Type as (4) but "Young" Age

DILLON CONSULTING

Project	Proj. No.	Page of
FRASER ROAD - MTC	18-8202	2 2
	Notes By	Date
	CONNOR E	2018/10/03
Subject	Checked by	Date
SITE RECON, ELC, SAR, Veg Inv.		

VEG INV-

- Gordon Birdfoot's Trefoil
- Green Ash
- Trembling Aspen
- Purple Aster
- Wild Parsnip
- Crab Grass
- Daisy Fleabane
- Late Golden Rod
- Common Buckthorn
- Crown vetch
- Daisy Fleabane
- Wild Carrot
- Riverbank Grape Vine
- Field Horsetail
- Sensitive Fern
- Wood Sorrel
- Canada Anemone
- Northern Red Currant (Shrub w/ Red berry)
- ~~ZB~~
- Fringed Gentian (purple closed flower)
- Purple Loosestrife
- Virginia Creeper
- Field Strawberry
- European Common Reed
- Red-osier dogwood
- Staghorn Sumac
- Yarrow
- _____ (grass sp.)
- Wild Blackberry
- Knapweed
- Blue Eyed Susan
- Yellow Hawkweed
- Sow Thistle
- Viper's Bugloss
- Chicory
- Red Fox tail
- Narrow-leaved Cattail
- Smooth Brome Grass

Trees

- Green Ash
- Trembling Aspen
- American Elm
- Alternate-leaved Dogwood
- Silver Maple
- White Oak
- White Spruce
- Scot's Pine
- Blue Spruce
- Eastern Cottonwood
- Balsam Poplar
- Sugar Maple
- Alt-leaved Dogwood (Dogwood Sp)
- ~~Willow~~
- Black Willow

Diversion Rd

Raisin River Rd

Municipal

1

SWM

Forb meadow MSF

Soybean

Hwy 401 and Fraser Road (Site 31-230)

Hwy 401 and Fraser Road (Site 31-230)

TH

THD

Bell line

Municipal lawn

401

MacDonald-Cartier Fwy

Municipal lawn

Municipal lawn

Fraser Rd

Corn

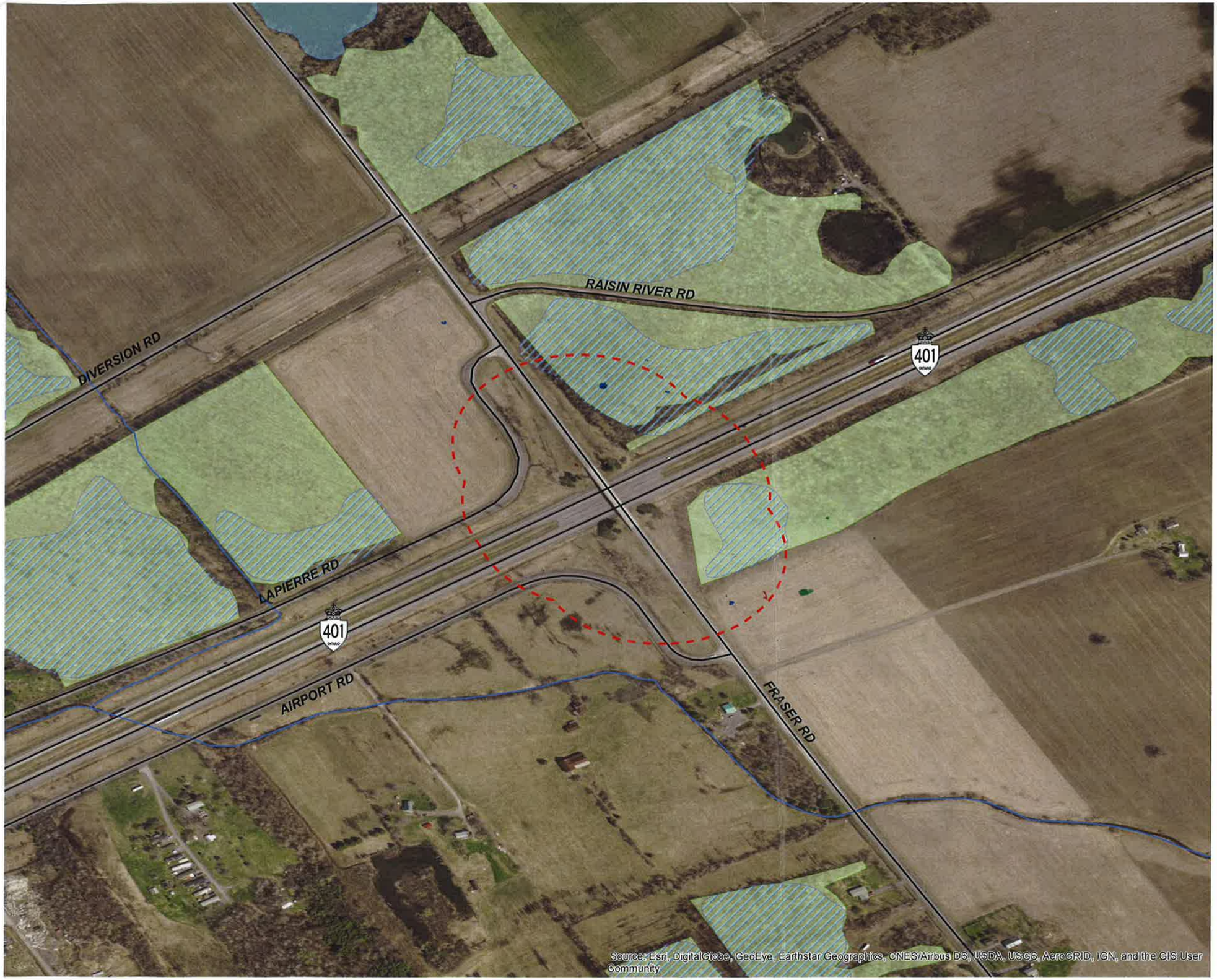
Hay

Municipal lawn

Google Earth

N

200 m



Ontario

MINISTRY OF TRANSPORTATION ONTARIO

HWY 401/Fraser Rd Underpass Replacement (GWP 4248-15-00, Site 31-230)

Designated Natural Heritage Features

FIGURE 2

- Study Area
- Roads
- Water Courses
- Wooded Area
- WaterBodies

Wetlands

- Evaluated-Other
- Evaluated-Provincial
- Not evaluated per OWES

0 0.125 0.25 km

SCALE 1:5,000

MAP DRAWING INFORMATION:
DATA PROVIDED BY MNR

MAP CREATED BY: JES
MAP CHECKED BY: ANM
MAP PROJECTION: NAD 1983 UTM Zone 17N

FILE LOCATION: G:\GIS\MTO ER Retainer 0022-21-01\MXD

DILLON CONSULTING

PROJECT: TBD
STATUS: DRAFT
DATE: 2018/06/01

ELC COMMUNITY DESCRIPTION & CLASSIFICATION

SITE: FRASER ROAD		POLYGON: 4	
SURVEYOR(S): CONNOR E.	DATE: 2018/10/03	TIME: start	
		finish	
UTMZ:	UTME:	UTMN:	

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
G TERRESTRIAL	G ORGANIC	G LACUSTRINE	G NATURAL	G PLANKTON	G LAKE
G WETLAND	G MINERAL SOIL	G RIVERINE	G CULTURAL	G SUBMERGED	G POND
G AQUATIC	G PARENT MIN.	G BOTTOMLAND		G FLOATING-LVD.	G RIVER
	G ACIDIC BEDRK.	G TERRACE		G GRAMINOID	G STREAM
SITE	G BASIC BEDRK.	G VALLEY SLOPE	COVER	G FORB	G MARSH
G OPEN WATER	G CARB. BEDRK.	G TABLELAND	G OPEN	G LICHEN	G SWAMP
G SHALLOW WATER		G ROLL UPLAND	G SHRUB	G BRYOPHYTE	G FEN
G SURFICIAL DEP.		G CLIFF	G TREED	G DECIDUOUS	G BOG
G BEDROCK		G TALUS		G CONIFEROUS	G BARREN
		G CREVICE / CAVE		G MIXED	G MEADOW
		G ALVAR			G PRAIRIE
		G ROCKLAND			G THICKET
		G BEACH / BAR			G SAVANNAH
		G SAND DUNE			G WOODLAND
		G BLUFF			G FOREST
					G PLANTATION

STAND DESCRIPTION:

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (up to 4 sp) (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY	2	3	Trembling Aspen > Green Ash >> Sugar Maple
2	SUB-CANOPY			
3	UNDERSTOREY	3	3	Trembling Aspen = Common Buck. > Balsam Poplar > Riverbank Vine
4	GRD. LAYER	6	4	Golden Rod = Wild Raspberry > Common Buck.

HT CODES: 1 = >25 m 2 = 10<HT≤25 m 3 = 2<HT≤10 m 4 = 1<HT≤2 m 5 = 0.5<HT≤1 m 6 = 0.2<HT≤0.5 m 7 = HT<0.2 m

CVR CODES 0= NONE 1= 0% < CVR ≤ 10% 2= 10 < CVR ≤ 25% 3= 25 < CVR ≤ 60% 4= CVR > 60%

STAND COMPOSITION:	BA:

SIZE CLASS ANALYSIS:		< 10		10 - 24		25 - 50		> 50
STANDING SNAGS:	R	< 10	R	10 - 24	N	25 - 50	N	> 50
DEADFALL / LOGS:	R	< 10	N	10 - 24	N	25 - 50	N	> 50

ABUNDANCE CODES: N = NONE R = RARE O = OCCASIONAL A = ABUNDANT

COMM. AGE :		PIONEER		YOUNG	X	MID-AGE		MATURE		OLD GROWTH

SOIL ANALYSIS:

TEXTURE:	DEPTH TO MOTTLES / GLEY	g =	G=
MOISTURE:	DEPTH OF ORGANICS:		(cm)
HOMOGENEOUS / VARIABLE	DEPTH TO BEDROCK:		(cm)

COMMUNITY CLASSIFICATION:

		ELC CODE
COMMUNITY CLASS:		
COMMUNITY SERIES:		
ECOSITE:		
VEGETATION TYPE:		FODM3
INCLUSION		
COMPLEX		

Notes:

ELC STAND CHARACTERISTICS

SITE:	
POLYGON:	
DATE:	
SURVEYOR(S):	

TREE TALLY BY SPECIES:

PRISM FACTOR

SPECIES	TALLY 1	TALLY 2	TALLY 3	TALLY 4	TALLY 5	TOTAL	REL. AVG
TOTAL							100
BASAL AREA (BA)							
DEAD							

STAND COMPOSITION:

COMMUNITY PROFILE DIAGRAM

See pictures

Notes:

ELC
MANAGEMENT / DISTURBANCE

SITE: FRASER ROAD
POLYGON: 4
DATE: 2006/10/03
SURVEYOR(S): CONNIE

DISTURBANCE / EXTENT	0	1	2	3	SCORE †
TIME SINCE LOGGING	> 30 YRS	15 - 30 YRS	5 - 15 YRS	0 - 5 YEARS	
INTENSITY OF LOGGING	NONE	FUEL WOOD	SELECTIVE	DIAMETER LIMIT	
EXTENT OF LOGGING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
SUGAR BUSH OPERATIONS	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF OPERATIONS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
GAPS IN FOREST CANOPY	NONE	SMALL	INTERMEDIATE	LARGE	
EXTENT OF GAPS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
LIVESTOCK (GRAZING)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF LIVESTOCK	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ALIEN SPECIES	NONE	OCCASIONAL	ABUNDANT	DOMINANT	
EXTENT OF ALIEN SPECIES	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
PLANTING (PLANTATION)	NONE	OCCASIONAL	ABUNDANT	DOMINANT	
EXTENT OF PLANTING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
TRACKS AND TRAILS	NONE	FAINT TRAILS	WELL MARKED	TRACKS OR	
EXTENT OF TRACKS/TRAILS	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DUMPING (RUBBISH)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DUMPING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
EARTH DISPLACEMENT	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DISPLACEMENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
RECREATIONAL USE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF RECR. USE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
NOISE	NONE	SLIGHT	MODERATE	INTENSE	
EXTENT OF NOISE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
DISEASE/DEATH OF TREES	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF DISEASE / DEATH	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
WIND THROW (BLOW DOWN)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF WIND THROW	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BROWSE (e.g. DEER)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF BROWSE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
BEAVER ACTIVITY	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF BEAVER	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
FLOODING (pools & puddling)	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF FLOODING	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
FIRE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF FIRE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
ICE DAMAGE	NONE	LIGHT	MODERATE	HEAVY	
EXTENT OF ICE DAMAGE	NONE	LOCAL	WIDESPREAD	EXTENSIVE	
OTHER	NONE	LIGHT	MODERATE	HEAVY	
EXTENT	NONE	LOCAL	WIDESPREAD	EXTENSIVE	

† INTENSITY x EXTENT = SCORE

4

ELC
WILDLIFE

SITE:
POLYGON:
DATE:
SURVEYOR(S):
START TIME: END TIME:

TEMP (°C): 12 CLOUD (10th): 1% WIND: C PRECIPITATION: NONE
CONDITIONS:

POTENTIAL WILDLIFE HABITAT:

NO	VERNAL POOLS	R	SNAGS
NO	HIBERNACULA	R	FALLEN LOGS

SPECIES LIST:

TY	SP. CODE	EV	NOTES	#	TY	SP. CODE	EV	NOTES	#

FAUNAL TYPE CODES (TY):
B = BIRD M = MAMMAL H = HERPETOFAUNA L = LEPIDOPTERA F = FISH O = OTHER

EVIDENCE CODES (EV):
BREEDING BIRD - POSSIBLE:
SH = SUITABLE HABITAT SM = SINGING MALE

BREEDING BIRD - PROBABLE:
T = TERRITORY D = DISPLAY P = PAIR
A = ANXIETY BEHAVIOUR N = NEST BUILDING V = VISITING NEST

BREEDING BIRD - CONFIRMED:
DD = DISTRACTION NU = USED NEST FY = FLEDGED YOUNG
NE = EGGS NY = YOUNG FS = FOOD/FAECAL SACK
AE = NEST ENTRY

OTHER WILDLIFE EVIDENCE:
OB = OBSERVED VO = VOCALIZATION CA = CARCASS
DP = DISTINCTIVE PARTS HO = HOUSE/DEN FY = EGGS OR YOUNG
TK = TRACKS FE = FEEDING EVIDENCE SC = SCAT
SI = OTHER SIGNS (specify)