

# Appendix A

## Consultation

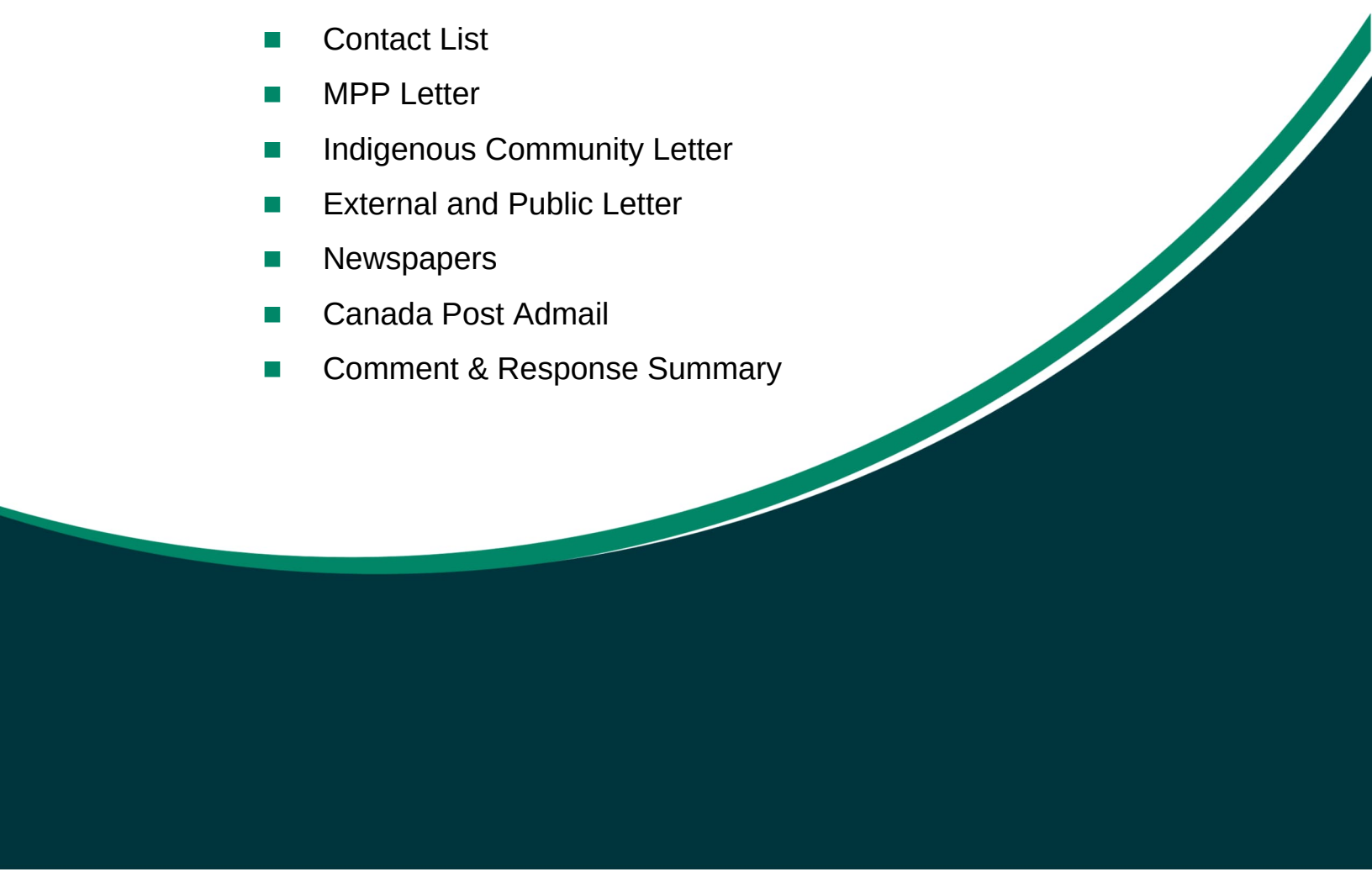
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|--------------|----------------------------------------------------|
| Appendix A.1 | Notice of Study Commencement and Correspondence    |
| Appendix A.2 | Public Information Centre #1 and Summary Materials |
| Appendix A.3 | Municipal Technical Advisory Committee Meetings    |
| Appendix A.4 | Notice of Study Completion and Correspondence      |





# Appendix A.1

## Notice of Study Commencement and Correspondence

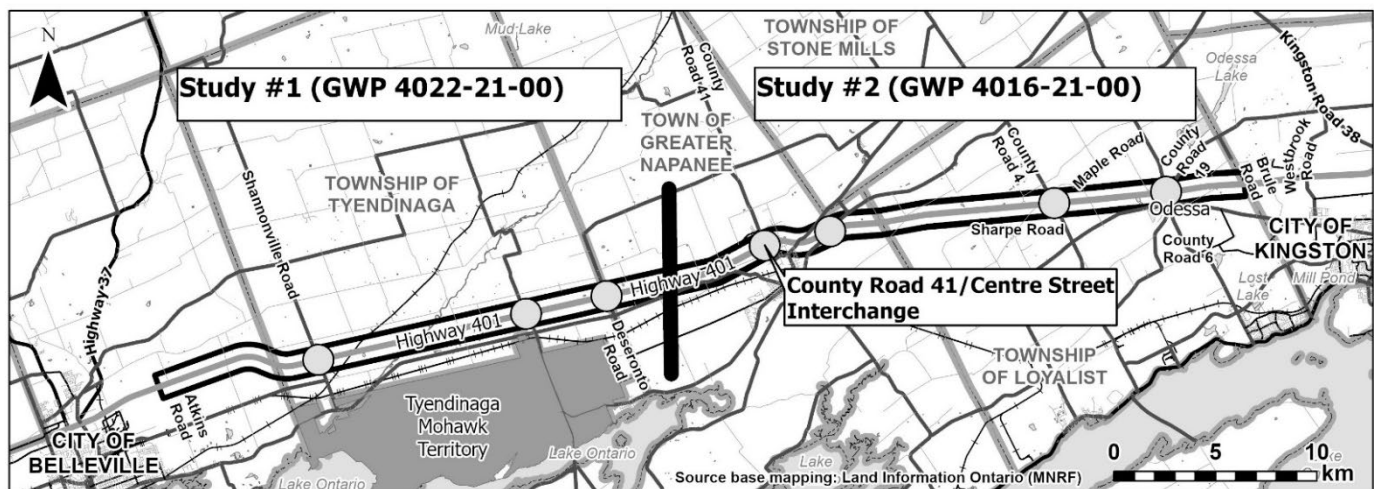
- Ontario Government Notice
  - Contact List
  - MPP Letter
  - Indigenous Community Letter
  - External and Public Letter
  - Newspapers
  - Canada Post Admail
  - Comment & Response Summary
- 
- A decorative graphic at the bottom of the page consists of a dark teal background with a wavy, curved line in a lighter green color that sweeps across the width of the page.



**NOTICE OF STUDY COMMENCEMENT**  
**HIGHWAY 401 IMPROVEMENTS BETWEEN BELLEVILLE AND KINGSTON**  
**PLANNING, PRELIMINARY DESIGN AND CLASS ENVIRONMENTAL ASSESSMENT**  
**STUDY #1 (GWP 4022-21-00) AND STUDY #2 (GWP 4016-21-00)**

## THE STUDY

The Ontario Ministry of Transportation of (MTO) has retained AECOM to undertake two Planning, Preliminary Design and Class Environmental Assessment (Class EA) Studies to address current and future transportation needs by developing a plan for the rehabilitation and/or replacement of various bridges and culverts, determining the long-term interchange configuration at seven locations, and establishing the footprint for the interim six and ultimate eight lanes of Highway 401, between the City of Belleville and the City of Kingston. As illustrated, **Study #1 (GWP 4022-21-00)** includes Highway 401 from 4.3 km east of Highway 37 to 5 km west of County Road 41/Centre Street for a total length of approximately 26 km. **Study #2 (GWP 4016-21-00)** includes Highway 401 from 5 km west of County Road 41/Centre Street to 8 km west of Kingston Road 38 for a total length of approximately 29 km.



## THE PROCESS

Each study is following the approved planning process for a Group 'B' project under the *Class Environmental Assessment for Provincial Transportation Facilities and Municipal Expressways, 2024 (Class EA)*. The project team, which includes representatives from AECOM and MTO, will complete environmental and engineering field investigations and seek input from individuals, organizations, and Indigenous communities. The project team will also develop and evaluate alternative methods of carrying out the project and outline environmental protection/mitigation measures. Two Public Information Centres are planned for each study at key milestones to provide stakeholders with the opportunity to view project materials and provide comments. Notices will also be sent to the project mailing list to provide individuals, organizations and Indigenous communities with the opportunity to learn about the project, view project materials and provide comments.

At the end of each study, the project team will prepare a *Transportation Environmental Study Report* (TESR) that describes how the requirements of the Class EA were met; how the project achieves the greatest overall transportation benefit while minimizing environmental impacts; other key decisions; consultation with individuals, organizations, and Indigenous communities; and commitments for consultation and environmental protection.

The project team will issue a Notice of Completion, at which point there will be a 30-day comment period allowing for an opportunity to provide comments on the TCSR. The project team will include comments received, responses to the comments and any supporting materials in a record of consultation. Documentation will be made available for viewing on the project website [Hwy401BellevilletoKingston.ca](http://Hwy401BellevilletoKingston.ca), or/and at a physical location (yet to be determined).

**Once a Technically Preferred Alternative has been identified, the Ministry of Transportation may designate lands as highway and acquire property prior to EA process completion.** A designation enables the Ministry to provide route/corridor protection through the application of development control measures along the corridor and in the vicinity of the designated lands. For more information about highway corridor management, please visit: <https://www.ontario.ca/page/highway-corridor-management>.

## COMMENTS

Additional details, including study notices, background information, PIC materials and reports, will be available on the project website [Hwy401BellevilletoKingston.ca](http://Hwy401BellevilletoKingston.ca). We encourage you to participate in the study and to provide comments through the website or by contacting the project team members listed below. If you wish to have your name added to the project mailing list or have questions about the study, please contact:

**Tim Sorochinsky, P.Eng.**  
**AECOM Project Manager**

AECOM Canada Ltd.  
105 Commerce Valley Drive West  
7th Floor  
Markham, Ontario L3T 7W3

**Tel:** 1-866-753-2640

**Email:**

[ProjectTeam@Hwy401BellevilletoKingston.ca](mailto:ProjectTeam@Hwy401BellevilletoKingston.ca)

**David Brake**

**MTO Senior Project Manager**

Ministry of Transportation, Eastern Region  
Capital Planning & Program Development East  
1355 John Counter Boulevard, PO Box 4000  
Kingston, Ontario K7L 5A3

**Tel:** 1-866-753-2640

**Email:**

[ProjectTeam@Hwy401BellevilletoKingston.ca](mailto:ProjectTeam@Hwy401BellevilletoKingston.ca)

If you have any accessibility requirements in order to participate in this project, please contact one of the Project Team members listed above. Comments and information are being collected to assist the MTO in meeting the requirements of the *Ontario Environmental Assessment Act*. Information will be collected in accordance with the *Freedom of Information and Protection of Privacy Act*. All comments will be maintained on file for use during the study and, with the exception of personal information, may be included in study documentation and become part of the public record.

**From:** EA Notices to ERegion (MECP) <[eanotification.eregion@ontario.ca](mailto:eanotification.eregion@ontario.ca)>

**Sent:** November 27, 2024 1:30 PM

**To:** Witt, Jordan <[Jordan.Witt1@aecom.com](mailto:Jordan.Witt1@aecom.com)>

**Subject:** Automatic reply: MTO Highway 401 Improvements between Belleville and Kingston Planning, Preliminary Design and Class Environmental Assessment Study #1 (GWP 4022-21-00) and Study #2 (GWP 4016-21-00)

This is to acknowledge your email has been delivered to the Regional email account. A Regional EA Coordinator will contact you if additional information is needed. To speak directly to a Regional EA Coordinator, go to the INFO-GO website and under our ministry, select: 1) Drinking Water and Environmental Compliance Division 2) applicable Regional Office 3) Technical Support Section 4) Air, Pesticides, and Environmental Planning 5) Environmental Resource Planner & EA Coordinator



| Group                  | Organization                               | Name / Title                                                               | Greeting                   | Address | Telephone | E-Mail |
|------------------------|--------------------------------------------|----------------------------------------------------------------------------|----------------------------|---------|-----------|--------|
| Indigenous Communities | Alderville First Nation                    | Chief Taynar Simpson                                                       | Chief Simpson              |         |           |        |
| Indigenous Communities | Alderville First Nation                    | Dave Simpson<br>Lands & Resource Coordinator                               | Dave Simpson               |         |           |        |
| Indigenous Communities | Alderville First Nation                    | Dr. Julie Kapyrka<br>Consultation Coordinator                              | Dr. Kapyrka                |         |           |        |
| Indigenous Communities | Curve Lake First Nation                    | Chief Keith Knott                                                          | Chief Knott                |         |           |        |
| Indigenous Communities | Curve Lake First Nation                    | Kaitlin Hill<br>Lands Resource Consultation Liaison                        | Kaitlin Hill               |         |           |        |
| Indigenous Communities | Curve Lake First Nation                    | Paige Williams<br>Lands Resource Consultation Liaison                      | Paige Williams             |         |           |        |
| Indigenous Communities | Hiawatha First Nation                      | Chief Laurie Carr                                                          | Chief Carr                 |         |           |        |
| Indigenous Communities | Hiawatha First Nation                      | Sean Davison<br>Lands Resource Consultation Liaison                        | Sean Davison               |         |           |        |
| Indigenous Communities | Hiawatha First Nation                      | Tom Cowie<br>Lands Resource Consultation Liaison                           | Tom Cowie                  |         |           |        |
| Indigenous Communities | Mississaugas of Scugog Island First Nation | Chief Kelly LaRocca                                                        | Chief LaRocca              |         |           |        |
| Indigenous Communities | Mississaugas of Scugog Island First Nation | Consultation Department                                                    |                            |         |           |        |
| Indigenous Communities | Mississaugas of Scugog Island First Nation | Don Richardson<br>Consultation Staff                                       | Don Richardson             |         |           |        |
| Indigenous Communities | Mississaugas of Scugog Island First Nation | Sam Shrubsole<br>Consultation Staff                                        | Sam Shrubsole              |         |           |        |
| Indigenous Communities | Williams Treaties First Nations            | Karry Sandy-McKenzie<br>Williams Treaties First Nations Claims Coordinator | Karry Sandy-McKenzie       |         |           |        |
| Indigenous Communities | Mohawks of the Bay of Quinte               | Chief Donald Maracle                                                       | Chief Maracle              |         |           |        |
| Indigenous Communities | Mohawks of the Bay of Quinte               | Sherry Maracle<br>Chief Administrative Officer                             | Sherry Maracle             |         |           |        |
| Indigenous Communities | Mohawks of the Bay of Quinte               | Lisa Maracle<br>Director of Community Services                             | Lisa Maracle               |         |           |        |
| Indigenous Communities | Mohawks of the Bay of Quinte               | Cassie Thompson<br>Consultation Coordinator                                | Cassie Thompson            |         |           |        |
| Indigenous Communities | Kawartha Nishnawbe                         | Kawartha Nishnawbe Council                                                 | Kawartha Nishnawbe Council |         |           |        |
| Indigenous Communities | Métis Nation of Ontario                    | Consultation Coordinator<br>Consultation Unit                              | Consultation Coordinator   |         |           |        |



| Group               | Organization                                                             | Name / Title                                                           | Greeting               | Address | Telephone | E-Mail |
|---------------------|--------------------------------------------------------------------------|------------------------------------------------------------------------|------------------------|---------|-----------|--------|
| Indigenous Agencies | Ministry of Indigenous Affairs and First Nations Economic Reconciliation | To Whom It May Concern<br>Director, Consultation Unit                  | To Whom It May Concern |         |           |        |
| Indigenous Agencies | Ministry of Indigenous Affairs and First Nations Economic Reconciliation | Matthew Landry<br>Stakeholder and Partner Relations Manager            | Matthew Landry         |         |           |        |
| MP and MPP          | MPP - Hastings - Lennox and Addington                                    | Ric Bresee                                                             | Ric Bresee             |         |           |        |
| MP and MPP          | MPP - Bay of Quinte                                                      | Tyler Allsopp                                                          | Tyler Allsopp          |         |           |        |
| Municipal           | Hastings County                                                          | Connor Dorey<br>CAO                                                    | Connor Dorey           |         |           |        |
| Municipal           | Hastings County                                                          | Justin Harrow<br>Director, Planning and Development                    | Justin Harrow          |         |           |        |
| Municipal           | City of Belleville                                                       | Matt MacDonald<br>CAO                                                  | Matt MacDonald         |         |           |        |
| Municipal           | City of Belleville                                                       | Deanna O'Leary<br>Manager of Engineering                               | Deanna O'Leary         |         |           |        |
| Municipal           | City of Belleville                                                       | Joseph Reid<br>General Manager - Transportation & Operational Services | To Whom It May Concern |         |           |        |
| Municipal           | Township of Tyendinaga                                                   | Carla Preston<br>CAO                                                   | Carla Preston          |         |           |        |
| Municipal           | Township of Tyendinaga                                                   | Dale Lockridge<br>Manager of Roads & Fleet                             | Dale Lockridge         |         |           |        |
| Municipal           | Lennox and Addington County                                              | Brenda Orchard<br>CAO                                                  | Brenda Orchard         |         |           |        |
| Municipal           | Lennox and Addington County                                              | Chris Wagar<br>Director, Infrastructure Services                       | Chris Wagar            |         |           |        |
| Municipal           | Town of Greater Napanee                                                  | Matthew Grant<br>CAO                                                   | Matthew Grant          |         |           |        |
| Municipal           | Town of Greater Napanee                                                  | Michael Nobes<br>General Manager/CBO                                   | Michael Nobes          |         |           |        |
| Municipal           | Town of Greater Napanee                                                  | Diana Tyner<br>Data Management Administrator                           | Diana Tyner            |         |           |        |
| Municipal           | Loyalist Township                                                        | Rebecca Murphy<br>CAO                                                  | Rebecca Murphy         |         |           |        |
| Municipal           | Loyalist Township                                                        | Luke MacDonald<br>Engineering & Environment Manager                    | Luke MacDonald         |         |           |        |
| Municipal           | Loyalist Township                                                        | Kyle Labbett<br>Roads Supervisor                                       | Kyle Labbett           |         |           |        |
| Municipal           | City of Kingston                                                         | Lanie Hurdle<br>CAO                                                    | Lanie Hurdle           |         |           |        |
| Municipal           | City of Kingston                                                         | Ian Semple, MCIP, RPP, P.Eng.<br>Director Transportation Services      | Ian Semple             |         |           |        |

| Group              | Organization                                                                   | Name / Title                                                                      | Greeting               | Address | Telephone | E-Mail |
|--------------------|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------|---------|-----------|--------|
| Municipal          | City of Kingston                                                               | Tarita Diczki<br>Project Manager, Engineering Infrastructure Engineering Services | Tarita Diczki          |         |           |        |
| Municipal          | City of Kingston                                                               | Luke Follwell<br>Engineering Services                                             | Luke Follwell          |         |           |        |
| Emergency Services | Ontario Provincial Police                                                      | Wendy Robertson<br>Administrative Assistant, Facilities Section                   | Wendy Robertson        |         |           |        |
| Emergency Services | Ontario Provincial Police – Lennox & Addington County East Detachment          | Detachment Commander                                                              | Detachment Commander   |         |           |        |
| Emergency Services | Ontario Provincial Police – Lennox & Addington County Detachment               | Detachment Commander                                                              | Detachment Commander   |         |           |        |
| Emergency Services | Belleville Police Service                                                      | Mike Callaghan<br>Chief of Police                                                 | Chief Callaghan        |         |           |        |
| Emergency Services | City of Belleville Fire & Emergency Services                                   | Jim Young<br>Fire Chief                                                           | Chief Young            |         |           |        |
| Emergency Services | Township of Tyendinaga Fire Department                                         | James Oliver<br>Fire Chief                                                        | Chief Oliver           |         |           |        |
| Emergency Services | Town of Greater Napanee Fire and Emergency Services                            | Shawn Armstrong<br>Acting Fire Chief                                              | Acting Chief Armstrong |         |           |        |
| Emergency Services | Hastings County Emergency Services / Hastings-Quinte Paramedic Services        | Carl Bowker<br>Chief of Emergency Services                                        | Chief Bowker           |         |           |        |
| Emergency Services | Lennox and Addington County Paramedic Services                                 | Paul Osborn<br>Deputy Chief                                                       | Paul Osborn            |         |           |        |
| Emergency Services | Loyalist Township Emergency Services & Fire                                    | Kent Readman<br>Director of Emergency Services/Fire Chief                         | Chief Readman          |         |           |        |
| Emergency Services | Kingston Police                                                                | Chief of Police                                                                   | Chief of Police        |         |           |        |
| Emergency Services | Kingston Police                                                                | Steve Koopman<br>Traffic Safety Sergeant                                          | Steve Koopman          |         |           |        |
| Emergency Services | Kingston Police                                                                | Carla Stacey<br>Staff Sergeant                                                    | Carla Stacey           |         |           |        |
| Emergency Services | City of Kingston Fire and Rescue                                               | Brandi Timpson                                                                    | Brandi Timpson         |         |           |        |
| Emergency Services | City of Kingston Fire and Rescue                                               | Don Carter<br>Deputy Chief                                                        | To Whom It May Concern |         |           |        |
| External           | Ministry of the Environment, Climate Change and Parks, Eastern Regional Office | To Whom It May Concern                                                            | To Whom It May Concern |         |           |        |
| External           | Ministry of the Environment, Climate Change and Parks                          | Roberto Sacilotto<br>Acting Supervisor - Eastern Region                           | Roberto Sacilotto      |         |           |        |
| External           | Ministry of Natural Resources                                                  | Keith Johnston<br>Environmental Planning Team Lead                                | Keith Johnston         |         |           |        |
| External           | Ministry of Natural Resources                                                  | Southern Region<br>Attn: Jessica Post                                             | Jessica Post           |         |           |        |

| Group    | Organization                                                  | Name / Title                                                                                     | Greeting               | Address | Telephone | E-Mail |
|----------|---------------------------------------------------------------|--------------------------------------------------------------------------------------------------|------------------------|---------|-----------|--------|
| External | Ministry of Tourism, Culture and Gaming and Ministry of Sport | James Antler<br>Policy Advisor                                                                   | James Antler           |         |           |        |
| External | Ministry of Tourism, Culture and Gaming and Ministry of Sport | Josh Wilson<br>Co-ordinator, Resource Based Tourism                                              | Josh Wilson            |         |           |        |
| External | Ministry of Tourism, Culture and Gaming and Ministry of Sport | Darja Ros<br>Manager - Sport, Recreation and Recognition Division                                | Darja Ros              |         |           |        |
| External | Ministry of Citizenship and Multiculturalism                  | Karla Barboza<br>Team Lead - Heritage                                                            | Karla Barboza          |         |           |        |
| External | Ministry of Agriculture, Food and Rural Affairs               | Nancy Rutherford<br>Rural Planner                                                                | Nancy Rutherford       |         |           |        |
| External | Ministry of Municipal Affairs and Housing                     | Michael Elms<br>Manager, Community Planning and Development                                      | Michael Elms           |         |           |        |
| External | Ministry of the Solicitor General                             | Wagdy Guirgis<br>Manager, Capital Planning Facilities and Capital Planning Branch                | Wagdy Guirgis          |         |           |        |
| External | Ministry of the Solicitor General                             | Amorette Rodrigues<br>Manager, P3 Delivery and Operations Facilities and Capital Planning Branch | Amorette Rodrigues     |         |           |        |
| External | Fisheries and Oceans Canada                                   | To Whom It May Concern                                                                           | To Whom It May Concern |         |           |        |
| External | Environment and Climate Change Canada                         | Rob Clavering<br>Manager - Environmental Assessment Section                                      | Rob Clavering          |         |           |        |
| External | Natural Resources Canada                                      | To Whom It May Concern                                                                           | To Whom It May Concern |         |           |        |
| External | Transport Canada                                              | Environmental Assessment Coordinator - Kingston Ontario Region                                   | To Whom It May Concern |         |           |        |
| External | Infrastructure Ontario                                        | Katherine Hotrum<br>Director Environmental Projects                                              | Katherine Hotrum       |         |           |        |
| External | Infrastructure Ontario                                        | Erica Anderson<br>Environmental Manager                                                          | Erica Anderson         |         |           |        |
| External | Infrastructure Ontario                                        | David Macey<br>Vice President, Portfolio Planning and Development                                | David Macey            |         |           |        |
| External | Infrastructure Ontario                                        | Joanna Craig<br>Planner                                                                          | Joanna Craig           |         |           |        |
| External | Ontario Federation of Agriculture                             | Resi Walt<br>Hastings, Lennox & Addington, Northumberland, Prince Edward (Zone 12)               | Resi Walt              |         |           |        |
| External | Hastings Federation of Agriculture                            | Harry Scanlan<br>President                                                                       | Harry Scanlan          |         |           |        |
| External | Lennox & Addington Federation of Agriculture                  | Leonard Austin<br>President                                                                      | Leonard Austin         |         |           |        |
| External | Ontario Trucking Association                                  | Geoff Wood                                                                                       | Geoff Wood             |         |           |        |
| External | CN Rail                                                       | Umair Naveed<br>Project Officer- Public Works   Eastern Canada Division of Engineering           | Umair Naveed           |         |           |        |

| Group    | Organization                                       | Name / Title                                                 | Greeting               | Address | Telephone | E-Mail |
|----------|----------------------------------------------------|--------------------------------------------------------------|------------------------|---------|-----------|--------|
| External | CP Rail                                            | Tom Twigge<br>Director - Project and Public Works            | Tom Twigge             |         |           |        |
| External | VIA Rail Canada Inc.                               |                                                              | To Whom It May Concern |         |           |        |
| External | Cataraqui Region Conservation Authority            | Janelle Treash<br>Resource Planner                           | Janelle Treash         |         |           |        |
| External | Cataraqui Region Conservation Authority            | Holly Evans<br>Coordinator, Watershed Planning               | Holly Evans            |         |           |        |
| External | Cataraqui Region Conservation Authority            | Tom Beaubiah<br>Manager, Conservation Lands                  | Tom Beaubiah           |         |           |        |
| External | Quinte Conservation Authority                      | Paul McCoy<br>Planning & Regulations Manager                 | Paul McCoy             |         |           |        |
| External | Quinte Conservation Authority                      | Christine Phillibert<br>Water Resources Manager              | Christine Phillibert   |         |           |        |
| External | A2A Algonquin to Adirondacks Collaborative         | Nasha Choudhury<br>Executive Director                        | Nasha Choudhury        |         |           |        |
| External | A2A Algonquin to Adirondacks Collaborative         | Aleisha Pannozzo<br>Communications Lead                      | Aleisha Pannozzo       |         |           |        |
| External | Limestone District School Board                    | Jane Douglas<br>Communications Consultant                    | Jane Douglas           |         |           |        |
| External | Hastings and Prince Edward District School Board   | Director's Office                                            | To Whom It May Concern |         |           |        |
| External | Algonquin and Lakeshore Catholic District Board    | Terry Shea<br>Chair of the Board                             | Terry Shea             |         |           |        |
| External | Conseil des ecoles publiques de l'Est de l'Ontario | Samia Ouled Ali<br>School Board President                    | Samia Ouled Ali        |         |           |        |
| External | Tri-Board Student Transportation Services          | C. Young<br>President                                        | C. Young               |         |           |        |
| External | Hydro One Networks Inc.                            | Hydro One Networks Inc. Secondary Land Use                   | To Whom It May Concern |         |           |        |
| External | Metrolinx                                          | Pam Foster<br>Director Environmental Programs and Assessment | Pam Foster             |         |           |        |

*Note: In accordance with the Freedom of Information and Protection of Privacy Act, personal information and public stakeholders have been removed.*



**Ministry of  
Transportation**

Capital Planning &  
Program Development East

1355 John Counter  
Boulevard  
Postal Bag 4000  
Kingston, Ontario K7L 5A3  
Tel.: 613-540-5106

**Ministère des Transports**

Planification des  
immobilisations et  
développement de  
programmes Est

1355, boulevard John  
Counter  
CP/Service de sacs 4000  
Kingston (Ontario) K7L 5A3  
Tél.: 613-540-5187



November 19, 2024

MP / MPP LETTER

Hon. «Name»  
«Position»  
«Organization»  
«Address»

Attn: Hon. xxxxxx

**Ref: Notice of Study Commencement  
Highway 401 Improvements between Belleville and Kingston  
Planning, Preliminary Design and Class Environmental Assessment  
Study #1 (GWP 4022-21-00) and Study #2 (GWP 4016-21-00)  
Ontario Ministry of Transportation**

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The Ontario Ministry of Transportation (MTO) has retained the services of AECOM to undertake the following two Planning, Preliminary Design and Class Environmental Assessment (Class EA) Studies to develop a plan of improvement to Highway 401 between the City of Belleville and the City of Kingston:

- **Study #1 (GWP 4022-21-00)** - includes Highway 401 from 4.3 km east of Highway 37 to 5 km west of County Road 41/Centre Street for a total length of approximately 26 km. The Study area is located within the City of Belleville, the Township of Tyendinaga, the Town of Greater Napanee, the County of Hastings, and the County of Lennox and Addington.
- **Study #2 (GWP 4016-21-00)** - includes Highway 401 from 5 km west of County Road 41/Centre Street to 8 km west of Kingston Road 38 for a total length of approximately 29 km. The Study area is located within the Town of Greater Napanee, the Township of Loyalist, and the County of Lennox and Addington.

The purpose of this letter is to advise you of the commencement of these studies. These studies will address current and future transportation needs by developing a plan for the rehabilitation and/or replacement of various structures, determining the long-term interchange configuration at seven locations, and establishing the footprint for the interim six and ultimate eight lanes of Highway 401. Each study is following the approved planning process for a Group 'B' project in accordance with the *MTO Class EA for Provincial Transportation Facilities and Municipal Expressways (2024)*. **Please refer to the enclosed Notice for additional details and to view the project study area.**

Letters notifying of study commencement will be provided to stakeholders on the project contact list by direct mail and email on November 27, 2024, and a Notice of Study Commencement will be published in the following newspapers to address both study areas:

- *Community Press* (Belleville & Region) on Thursday, November 28, 2024;
- *Belleville Intelligencer* on Saturday, November 30 2024;
- *Napanee Beaver* on Wednesday, November 27, 2024;
- *Kingston/Frontenac This Week* on Thursday, November 28, 2024; and
- *Kingston Whig-Standard* on Saturday, November 30, 2024.

Two Public Information Centres (PIC) are planned for each study to gather feedback on the alternatives under consideration and the Technically Preferred Alternative. Advanced notice will be provided so you can stay informed and participate. A Transportation Environmental Study Report (TESR) will be prepared near the end of the Study to document the preliminary design of the Recommended Plan and to provide a summary of the consultation process, the environmental conditions and constraints, the evaluation of the alternatives considered, and the environmental protection and mitigation strategies developed to address potential impacts. The TESR will be placed on the public record for a 30-day comment period. The release of the TESR for review will be the subject of a future notice.

There is an opportunity at any time during these studies for interested persons to provide input to the Project Team. Comments are being collected to provide and obtain information, and to identify concerns in accordance with the *Ontario EA Act*. This material will be maintained on file for use during this process and may be included in Study documentation. Information collected will be used in accordance with the *Freedom of Information and Protection of Privacy Act*. With the exception of personal information, all comments will become part of the public record.

Should you have any questions or concerns regarding this project, please visit the project website at [Hwy401BellevilletoKingston.ca](http://Hwy401BellevilletoKingston.ca) or contact the undersigned. In addition, if you are interested in meeting as a result of receiving this letter, please contact me at your earliest convenience to arrange a suitable date and time.

Sincerely,

**David Brake**  
**Senior Project Manager**  
Tel: 613-893-3031  
Email: dave.brake@ontario.ca

Encl. Notice of Study Commencement

cc: A. Dickson, MTO, Environmental Planner  
T. Sorochinsky, AECOM, Project Manager  
F. Sapateiro, AECOM, Deputy Project Manager  
A. Potter, AECOM, Senior Environmental Planner





November 20, 2024

INDIGENOUS COMMUNITY LETTER

«Name»  
«Position»  
«Organization»  
«Address»

Sent via email: Email Address

«Dear\_»«Greeting»:

**RE: Notice of Study Commencement  
Highway 401 Improvements between Belleville and Kingston  
Planning, Preliminary Design and Class Environmental Assessment  
Study #1 (GWP 4022-21-00) and Study #2 (GWP 4016-21-00)  
Ontario Ministry of Transportation**

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The Ontario Ministry of Transportation (MTO) has retained the services of AECOM to undertake the following two Planning, Preliminary Design and Class Environmental Assessment (Class EA) Studies to develop a plan of improvement to Highway 401 between the City of Belleville and the City of Kingston:

- **Study #1 (GWP 4022-21-00)** – includes Highway 401 from 4.3 km east of Highway 37 to 5 km west of County Road 41/Centre Street for a total length of approximately 26 km. The Study area is located within the City of Belleville, the Township of Tyendinaga, the Town of Greater Napanee, the County of Hastings, and the County of Lennox and Addington.
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**Purpose**

The purpose of this letter is to notify you of the commencement of these Preliminary Design and Class EA Studies. These studies will address current and future transportation needs by developing a plan for the rehabilitation and/or replacement of various structures, determining the long-term interchange configuration at seven locations, and establishing the footprint for the interim six and ultimate eight lanes of Highway 401.

## **Process**

Each study is following the approved planning process for a Group 'B' project in accordance with the *MTO Class EA for Provincial Transportation Facilities and Municipal Expressways (2024)*. **Please refer to the enclosed Notice for additional details and to view the project study area.** To obtain additional information, please visit the project website at [Hwy401BellevilletoKingston.ca](http://Hwy401BellevilletoKingston.ca).

## **Freedom of Information and Protection of Privacy**

Information collected during the Preliminary Design Study and Class Environmental Assessment will be used in accordance with the *Freedom of Information and Protection of Privacy Act*. With the exception of personal information, all comments will become part of the public record.

## **Accessibility**

The Ontario Public Service is committed to creating an accessible organization by preventing, identifying and removing barriers for people with disabilities. Please contact us if you have accessibility requirements in order to participate in this consultation.

Should you have any comments, questions or concerns regarding the proposed activities, or would like any additional information, please contact me, Franca Sacchetti, Director of East Operations at [Franca.Sacchetti@ontario.ca](mailto:Franca.Sacchetti@ontario.ca), or Peter Copping, Indigenous Liaison Specialist by email at [Peter.A.Copping@ontario.ca](mailto:Peter.A.Copping@ontario.ca) or by phone at 613-539-3148.

Sincerely,

Franca Sacchetti  
Director

cc: **[Secondary Community Contacts]**

D. Brake, MTO, Senior Project Manager  
A. Dickson, MTO, Environmental Planner  
T. Sorochinsky, AECOM, Project Manager  
F. Sapateiro, AECOM, Deputy Project Manager  
A. Potter, AECOM, Senior Environmental Planner

Encl. Notice of Study Commencement

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From: Potter, Andrea  
Sent: Wednesday, November 27, 2024 9:41 AM  
Subject: MTO Hwy 401 Improvements Between Belleville & Kingston PD & Class EA Study#1 (GWP 4022-21-00) & Study#2 (GWP 4016-21-00)  
Attachments: OGN\_Hwy 401\_Belleville to Kingston\_AODA\_FINAL\_2024-11-13.pdf

Hello,

The Ontario Ministry of Transportation (MTO) has retained the services of AECOM to undertake the following two Planning, Preliminary Design and Class Environmental Assessment (Class EA) Studies to develop a plan of improvement to Highway 401 between the City of Belleville and the City of Kingston:

- **Study #1 (GWP 4022-21-00)** – includes Highway 401 from 4.3 km east of Highway 37 to 5 km west of County Road 41/Centre Street for a total length of approximately 26 km. The Study area is located within the City of Belleville, the Township of Tyendinaga, the Town of Greater Napanee, the County of Hastings, and the County of Lennox and Addington.
- **Study #2 (GWP 4016-21-00)** – includes Highway 401 from 5 km west of County Road 41/Centre Street to 8 km west of Kingston Road 38 for a total length of approximately 29 km. The Study area is located within the Town of Greater Napanee, the Township of Loyalist, and the County of Lennox and Addington.

These studies will address current and future transportation needs by developing a plan for the rehabilitation and/or replacement of various structures, determining the long-term interchange configuration at seven locations, and establishing the footprint for the interim six and ultimate eight lanes of Highway 401. Each study is following the approved planning process for a Group 'B' project in accordance with the *MTO Class EA for Provincial Transportation Facilities and Municipal Expressways (2024)*. **Please refer to the attached Notice for additional details and to view the project study area.**

**The purpose of this email is to notify you of the commencement of these Planning, Preliminary Design and Class EA Studies.** Please advise whether your organization has an interest in this project and who will act as your main contact. In order to assist us with our planning process, would you also please indicate if the project will affect the delivery of your organization's programs or services. **A reply by [January 17, 2024](#), would be appreciated.**

There is an opportunity at any time during these studies for interested persons to provide input to the Project Team including comments and information regarding the studies. Comments are being collected to provide and obtain information, and to identify concerns in accordance with the Ontario EA Act. This material will be maintained on file for use during the process and may be included in project documentation. Information collected will be used in accordance with the Freedom of Information and Protection of Privacy Act. With the exception of personal information, all comments will become part of the public record. Please contact the undersigned if you have accessibility requirements in order to participate in this project.

Should you have any questions or concerns regarding this project, please visit the project website at [Hwy401BellevilletoKingston.ca](http://Hwy401BellevilletoKingston.ca) or contact one of the Team members as identified on the attached notice.

**(Sent on behalf of the Project Team)**

**Andrea Potter, B.E.S.**  
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Sent: Wednesday, November 27, 2024 10:03 AM  
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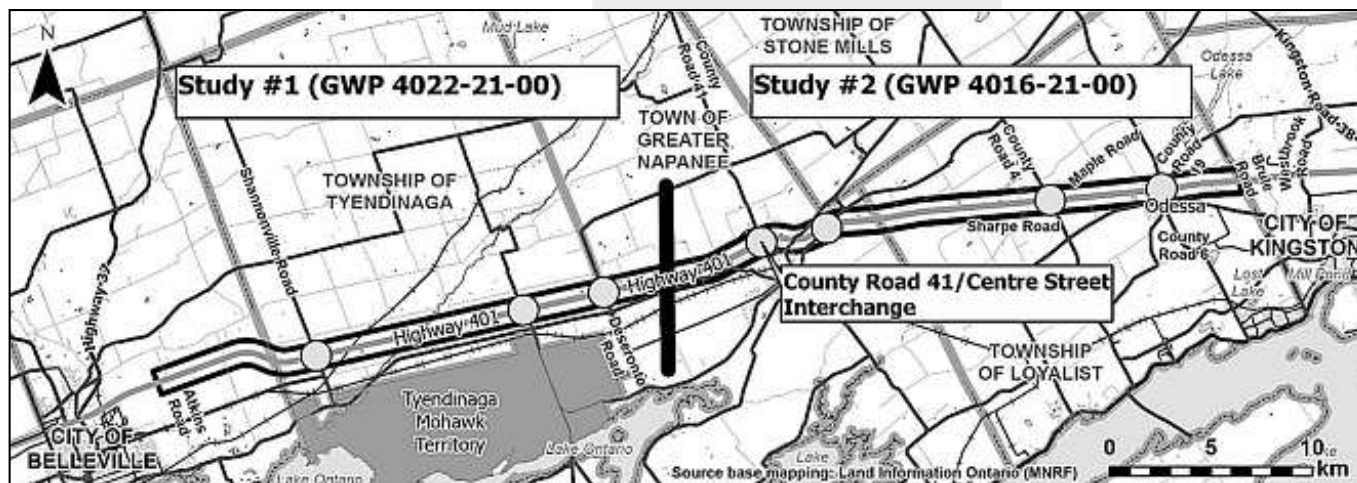
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## Notice of Study Commencement

Highway 401 Improvements Between Belleville and Kingston  
Planning, Preliminary Design and Class Environmental Assessment  
Study #1 (GWP 4022-21-00) and Study #2 (GWP 4016-21-00)



### THE STUDY

The Ontario Ministry of Transportation (MTO) has retained AECOM to undertake two Planning, Preliminary Design and Class Environmental Assessment (Class EA) Studies to address current and future transportation needs by developing a plan for the rehabilitation and/or replacement of various bridges and culverts, determining the long-term interchange configuration at seven locations, and establishing the footprint for the interim six and ultimate eight lanes of Highway 401, between the City of Belleville and the City of Kingston. As illustrated, **Study #1 (GWP 4022-21-00)** includes Highway 401 from 4.3 km east of Highway 37 to 5 km west of County Road 41/Centre Street for a total length of approximately 26 km. **Study #2 (GWP 4016-21-00)** includes Highway 401 from 5 km west of County Road 41/Centre Street to 8 km west of Kingston Road 38 for a total length of approximately 29 km.

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The project team will issue a Notice of Completion, at which point there will be a 30-day comment period allowing for an opportunity to provide comments on the TESR. The project team will include comments received, responses to the comments and any supporting materials in a record of consultation. Documentation will be made available for viewing

on the project website [Hwy401BellevilletoKingston.ca](http://Hwy401BellevilletoKingston.ca), or/and at a physical location (yet to be determined).

**Once a Technically Preferred Alternative has been identified, the Ministry of Transportation may designate lands as highway and acquire property prior to EA process completion.**

A designation enables the Ministry to provide route/corridor protection through the application of development control measures along the corridor and in the vicinity of the designated lands. For more information about highway corridor management, please visit: <https://www.ontario.ca/page/highway-corridor-management>.

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**Tim Sorochinsky, P.Eng.**  
**AECOM Project Manager**  
AECOM Canada Ltd.  
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e-mail:  
[ProjectTeam@Hwy401BellevilletoKingston.ca](mailto:ProjectTeam@Hwy401BellevilletoKingston.ca)

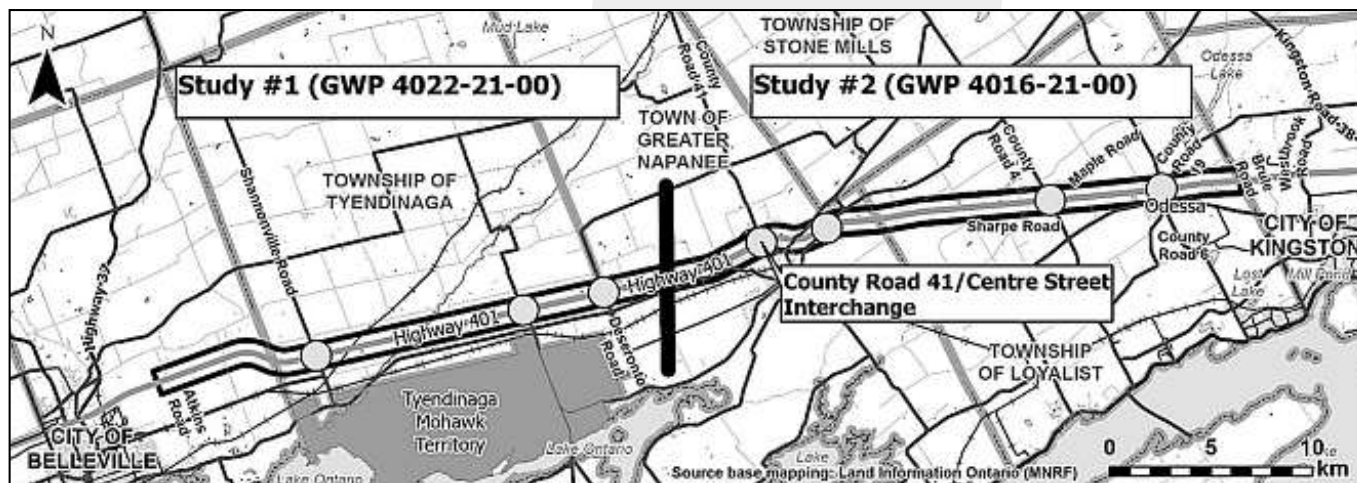
**David Brake**  
**MTO Senior Project Manager**  
Ministry of Transportation, Eastern Region  
Capital Planning & Program Development East  
1355 John Counter Boulevard, PO Box 4000  
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# Deloro affordable housing gets Hastings County council approval

Must break ground in 30 days; three dissenting votes

LUKE HENDRY

Hastings County council has granted a sixth – and, it appears, final – extension to partners in an affordable-housing development in Deloro.

Council granted the extension Thursday to All-Together Affordable Housing Corp. and Springale Development Inc., both based in Belleville.

The \$4.2-million project, a deal dating back to December 2019, involves construction of 15 units for people of low to modest income.

Council’s approval came after a rare weighted vote requested by Deputy Warden Paul Jenkins, who amended the community and human services committee’s recommendation.

Jenkins’ amendment set further timelines for the project and for a Bancroft project involving the same partners.

As approved by council, the Deloro project now has 30 days in which to start the construction process.

The partners must provide a construction report county staff by Dec. 28, 2024 and complete the project as promised by Dec. 31, 2025.

Should the partners fail to meet those conditions, the motion continued, the county will end its contribution deal with them.



All-Together Affordable Housing Corp. president Bob Cottrell asks Hastings County council to extend a deadline for a Deloro affordable-housing project. Council granted the request; Coun. Tom Deline, right, said if it succeeds it would be faster than starting another project from scratch.

Jenkins, who is Bancroft’s mayor, also amended the motion to require All-Together and Springale to meet the occupancy certificate date of Dec. 31, 2024 for the pair’s Chemaushgon affordable-housing project in Bancroft. Failing that, county staff are to seek legal advice on ending county’s contribution to that, too.

All dates and funding agreements mentioned in the motion remain subject to approval by the Ontario Municipal Affairs and Housing.

All-Together’s president, Bob Cottrell, and Springale’s president, Phil Spry, appeared Thursday before council, making statements similar to those made Nov. 13 before the community and human services committee.

Cottrell said the project is the latest in a series of lower-cost projects around the county.

“Those affordable rents will remain affordable in perpetuity,” he

said of those planned for Deloro.

“We’re the ones who build hope; we are the ones who build community.”

“We are good custodians of provincial funding,” Cottrell said.

The original budget was \$2.8 million, but rising costs in the construction sector have increased that to \$4.2 million, with \$1.1 million of that supplied by the Ontario government, he said.

Spry said the company has built nearly 100 units in the last five years, with “exceptional value for the funding we’ve received.” He said the funding to date for Deloro’s would likely cover only half of those planned.

He said while the deal was inked in 2019, the funds didn’t arrive until 2021, which he added was contrary to the request for proposals. The committee heard funds would have been released had construction started.

## Cost relief

FROM **A1**

The issue is a hot one in municipal circles. Municipal leaders across the province have reacted with shock and anger to often large increases in their 2025 OPP bills. Some have been expecting hikes of more than 20 per cent – and all at once. A similar increase several years ago was implemented over three years, Hastings County council has heard.

In a telephone interview Friday, County Warden Bob Mullin welcomed the news and expressed the county’s thanks.

“The 10 per cent (bill reduction) is certainly a respectable number,” Mullin said.

He said the government was “responding to the concerns expressed by all” municipalities.

Yet Mullin said even with the proposed reductions, municipalities will still see significant increases in their bills.

A municipality’s policing budget is such a large item in its overall budget that deducting 10 per cent still leaves the municipality with “a big number” in terms of the overall increase for the service, he said.

Prior to Friday’s announcement, the total cost of OPP service across the county in 2025 was to be \$10.3 million, an increase in one year of \$1.8 million, or 24 per cent, chief administration officer Connor Dorey said Nov. 19.

Speaking that day to the county’s finance committee, he said county municipalities were expecting a resulting average increase of 3.2 per cent on their tax levies.

The government’s contract with the OPP Association gives officers a raise of 4.75 per cent retroactive to 2023, the first year of the contract. It then promises raises of 4.5 per cent in the second year and 2.75 per cent in each of the last two years, ending in 2026.

Mullin replied, “I’m not a fan – never have been a fan of percentage increases.”

He said earlier provincial action on the costs could have saved municipalities a lot of grief.

## Wait times

FROM **A1**

“The teams are trying to identify improvement efforts where they think they could make a difference. And this happens to be one that that made quite a difference,”

Daub said in a post-meeting telephone interview.

Vice-president and chief transformation officer Matthew Campbell said he has worked on the issue of health care improvement throughout his career and had never seen such a change.

“It’s tremendous ... and it’s really exciting,” he said.

“What really struck me is how

comprehensive the approach was,” said the board’s Nancy Evans, who leads the quality of patient care committee and is a past chairperson.

She said there is an “opportunity to incrementally improve” the situation in the department and called the results “extraordinarily impressive” and “very encouraging” while occurring under “enor-

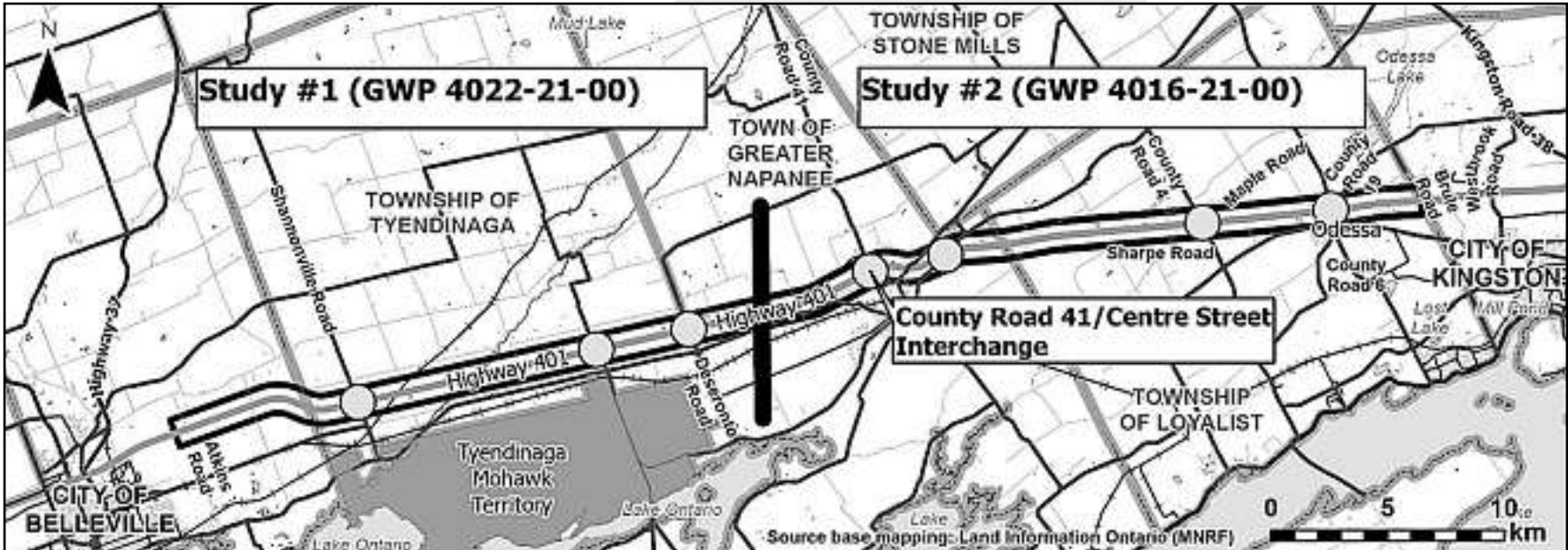
mous volume” of patients.

Evans also said it improved morale as the team was able “to see an idea that they came up with having a real impact.”

Vice-president and chief nursing executive Lina Rinaldi said Trenton and Picton tend to have better results, but the plan is to adapt what’s been done in Belleville for use in other hospitals.

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|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Tim Sorochinsky, P.Eng.</b><br><b>AECOM Project Manager</b><br>AECOM Canada Ltd.<br>105 Commerce Valley Drive West<br>7th Floor<br>Markham, ON L3T 7W3<br>tel: 1-866-753-2640<br>e-mail: <a href="mailto:ProjectTeam@Hwy401BellevilletoKingston.ca">ProjectTeam@Hwy401BellevilletoKingston.ca</a> | <b>David Brake</b><br><b>MTO Senior Project Manager</b><br>Ministry of Transportation, Eastern Region<br>Capital Planning & Program Development East<br>1355 John Counter Boulevard, PO Box 4000<br>Kingston, ON K7L 5A3<br>tel: 1-866-753-2640<br>e-mail: <a href="mailto:ProjectTeam@Hwy401BellevilletoKingston.ca">ProjectTeam@Hwy401BellevilletoKingston.ca</a> |
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# Canada pledges \$50M for Palestinians

DYLAN ROBERTSON

OTTAWA The Liberal government is announcing \$50 million in humanitarian assistance for Palestinians in both the Gaza Strip and the West Bank.

International Development Minister Ahmed Hussen says the money will provide life-saving help such as medical assistance, food, water and protection services.

He says the funding will be delivered through partners such as the United Nations and the Red Cross.

His office did not immediately say how much of the funding will go to each territory, and how much will go to UNRWA, an agency supporting Palestinians with which Israel has cut ties.

The announcement comes ahead of a conference next Monday in Cairo on the humanitarian response in Gaza, where Canada has expressed concern over a possible looming famine.

Hussen's office says more funding is needed to deal with "persistent and worsening catastrophic humanitarian conditions" in the territory.

Earlier Friday, two children and a woman were crushed to death as a crowd of Palestinians pushed to get bread at a Gaza bakery amid food shortages, The Associated Press reports.

Israel has faced sustained criticism over the amount humanitarian aid it allows to enter the Gaza Strip, particularly in the northern party of the Palestinian territory, since the start of the Israel-Hamas war last autumn.

Israel says it vets truckloads for security risks and is increasing how much aid is allowed into Gaza, but UN agencies and numerous countries say only a fraction of what is needed has been permitted to reach Palestinians.

The Canadian Press



Premier Danielle Smith, with Justice Minister Mickey Amery, shared an update on Alberta's response to the federal Impact Assessment on Thursday. Smith says amendments made to the federal legislation earlier this year don't make it constitutional. *SHAUGHN BUTTS*

# 'Clever word games' don't make law constitutional, Smith says

## Alberta premier angry at Impact Assessment Act amendments

RAHIM MOHAMED

OTTAWA Alberta Premier Danielle Smith said Thursday she's once again taking Ottawa to court over the revised Impact Assessment Act, saying that amendments made to the federal legislation earlier this year don't make it constitutional.

"(The) amendments contained some clever word games but still ultimately gave the federal government control over projects that fall under Alberta's exclusive jurisdiction," Smith told reporters at a news conference in Edmonton.

Smith said that the province filed a reference case with the Alberta Court of Appeal earlier in the day.

The Supreme Court of Canada ruled in October 2023 that most of the 2019 Impact Assessment Act was unconstitutional, finding that it gave the federal government

overly broad jurisdiction over provincial resource projects.

The ruling nevertheless left the door open for an Ottawa-led impact assessment system for projects bankrolled by federal dollars, prompting the Liberal government to push amendments to the legislation through Parliament in June.

Smith sent an open letter to Prime Minister Justin Trudeau last month stating that the amendments didn't go far enough. She gave the prime minister a month to tuck on a series of additional amendments proposed by the Alberta government.

Federal Environment Minister Steven Guilbeault and Natural Resources Minister Jonathan Wilkinson said in a joint statement that Smith was "choosing divisive politics over constructive collaboration."

"With this action, Premier Smith is putting 45 projects under threat, including four in Alberta that are currently being assessed representing billions of dollars and hundreds of potential jobs in her home province," reads the statement.

Sander Duncanson, a Calgary-based partner at law firm Osler, Hoskin & Harcourt LLP, told the National Post that Smith has a strong case against Ottawa.

"The federal government made relatively minor and superficial amendments to address the (Supreme) Court's findings," Duncanson said.

"Many of the fundamental concerns that the provinces expressed about the Act — things like the federal Minister's broad discretion to designate provincial projects for federal assessment and the federal government's ability to block provincial projects on policy grounds — those concerns very much still exist."

Duncanson added that he's worried about the impact drawn out legal wrangling could have on Can-

ada's already checkered reputation as a place to do business.

"Unfortunately, constitutional litigation takes years. One of the biggest issues we're facing as a country is that capital investment in energy and infrastructure is fleeing south of the border and to other jurisdictions, and regulatory uncertainty is one of the key drivers behind this."

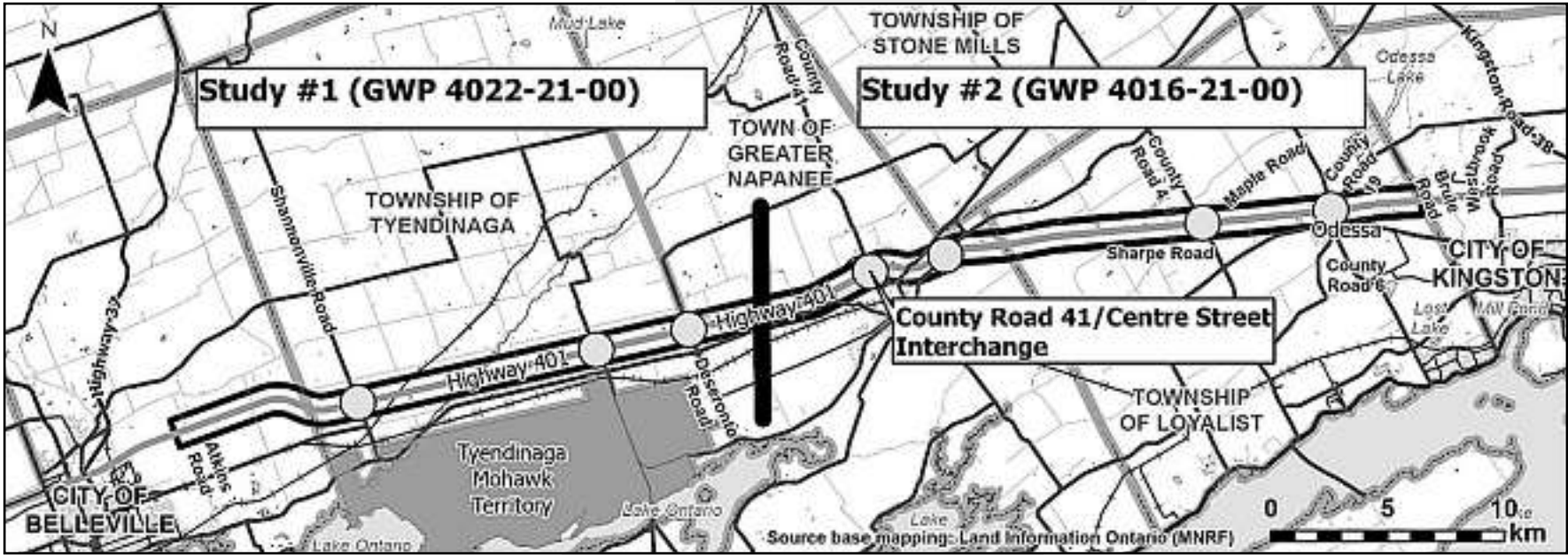
Duncanson's words echoed those of the federal natural resources minister, who said on Thursday that Canada's lucrative energy sector will be a key bargaining chip in its dealings with incoming United States president Donald Trump.

"We have a couple of months before the president is inaugurated and I think there's time for some robust conversations between (our) countries," Wilkinson said in an interview. "Both (have) been benefiting hugely from an economic perspective because of the trade that goes between us, particularly in energy."

National Post  
rmohamed@postmedia.com

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Study #1 (GWP 4022-21-00) and Study #2 (GWP 4016-21-00)



### THE STUDY

The Ontario Ministry of Transportation of (MTO) has retained AECOM to undertake two Planning, Preliminary Design and *Class Environmental Assessment* (Class EA) Studies to address current and future transportation needs by developing a plan for the rehabilitation and/or replacement of various bridges and culverts, determining the long-term interchange configuration at seven locations, and establishing the footprint for the interim six and ultimate eight lanes of Highway 401, between the City of Belleville and the City of Kingston. As illustrated, **Study #1 (GWP 4022-21-00)** includes Highway 401 from 4.3 km east of Highway 37 to 5 km west of County Road 41/Centre Street for a total length of approximately 26 km. **Study #2 (GWP 4016-21-00)** includes Highway 401 from 5 km west of County Road 41/Centre Street to 8 km west of Kingston Road 38 for a total length of approximately 29 km.

### THE PROCESS

Each study is following the approved planning process for a Group 'B' project under the *Class Environmental Assessment for Provincial Transportation Facilities and Municipal Expressways, 2024* (Class EA). The project team, which includes representatives from AECOM and MTO, will complete environmental and engineering field investigations and seek input from individuals, organizations, and Indigenous communities. The project team will also develop and evaluate alternative methods of carrying out the project and outline environmental protection/mitigation measures. Two Public Information Centres are planned for each study at key milestones to provide stakeholders with the opportunity to view project materials and provide comments. Notices will also be sent to the project mailing list to provide individuals, organizations and Indigenous communities with the opportunity to learn about the project, view project materials and provide comments.

At the end of each study, the project team will prepare a *Transportation Environmental Study Report* (TESR) that describes how the requirements of the Class EA were met; how the project achieves the greatest overall transportation benefit while minimizing environmental impacts; other key decisions; consultation with individuals, organizations, and Indigenous communities; and commitments for consultation and environmental protection.

The project team will issue a Notice of Completion, at which point there will be a 30-day comment period allowing for an opportunity to provide comments on the TESR. The project team will include comments received, responses to the comments and any supporting materials in a record of consultation. Documentation will be made available for viewing

on the project website [Hwy401BellevilletoKingston.ca](http://Hwy401BellevilletoKingston.ca), or/and at a physical location (yet to be determined).

**Once a Technically Preferred Alternative has been identified, the Ministry of Transportation may designate lands as highway and acquire property prior to EA process completion.**

A designation enables the Ministry to provide route/corridor protection through the application of development control measures along the corridor and in the vicinity of the designated lands. For more information about highway corridor management, please visit: <https://www.ontario.ca/page/highway-corridor-management>.

### COMMENTS

Additional details, including study notices, background information, PIC materials and reports, will be available on the project website [Hwy401BellevilletoKingston.ca](http://Hwy401BellevilletoKingston.ca). We encourage you to participate in the study and to provide comments through the website or by contacting the project team members listed below. If you wish to have your name added to the project mailing list or have questions about the study, please contact:

**Tim Sorochinsky, P.Eng.**  
**AECOM Project Manager**  
AECOM Canada Ltd.  
105 Commerce Valley Drive West  
7<sup>th</sup> Floor  
Markham, ON L3T 7W3  
tel: 1-866-753-2640  
e-mail: [ProjectTeam@Hwy401BellevilletoKingston.ca](mailto:ProjectTeam@Hwy401BellevilletoKingston.ca)

**David Brake**  
**MTO Senior Project Manager**  
Ministry of Transportation, Eastern Region  
Capital Planning & Program Development East  
1355 John Counter Boulevard, PO Box 4000  
Kingston, ON K7L 5A3  
tel: 1-866-753-2640  
e-mail: [ProjectTeam@Hwy401BellevilletoKingston.ca](mailto:ProjectTeam@Hwy401BellevilletoKingston.ca)

If you have any accessibility requirements in order to participate in this project, please contact one of the Project Team members listed above. Comments and information are being collected to assist the MTO in meeting the requirements of the *Ontario Environmental Assessment Act*. Information will be collected in accordance with the *Freedom of Information and Protection of Privacy Act*. All comments will be maintained on file for use during the study and, with the exception of personal information, may be included in study documentation and become part of the public record.



# Lennox and Addington OPP charge two drivers with impaired

## Police report

Lennox and Addington County OPP have charged two people with impaired driving in separate incidents.

On Saturday, Nov. 16, shortly after 5 p.m., L&A OPP were called by a community member regarding a vehicle that had failed to stop at multiple stop signs and was travelling at high

rates of speed before it entered a drive-thru.

Police attended and following an investigation, Obaidullah Yousofi, a 31-year-old male from Toronto was charged with: operation while impaired - alcohol, operation while impaired - over 80mgs of alcohol

■ On Sunday, Nov. 17, just before 7 p.m., L&A County OPP were called to the

scene of a two-vehicle collision on County Road 41 in Greater Napanee. No one was injured in the crash.

Following an investigation, Richard Stanley, a 38-year-old male from Roblin was charged with operation while impaired - alcohol, operation while impaired - over 80mgs of alcohol and careless driving.

Both of the accused were released from custody and

are scheduled to appear in the Ontario Court of Justice in Napanee on Dec. 12.

■ The Ontario Provincial Police (OPP) East Region Community Street Crime Unit has recovered multiple stolen vehicles in Addington Highlands.

Members of the Lennox and Addington County OPP called in the street crime unit when it was learned that suspected stolen items

were being stored on a person's property in the Flintston area.

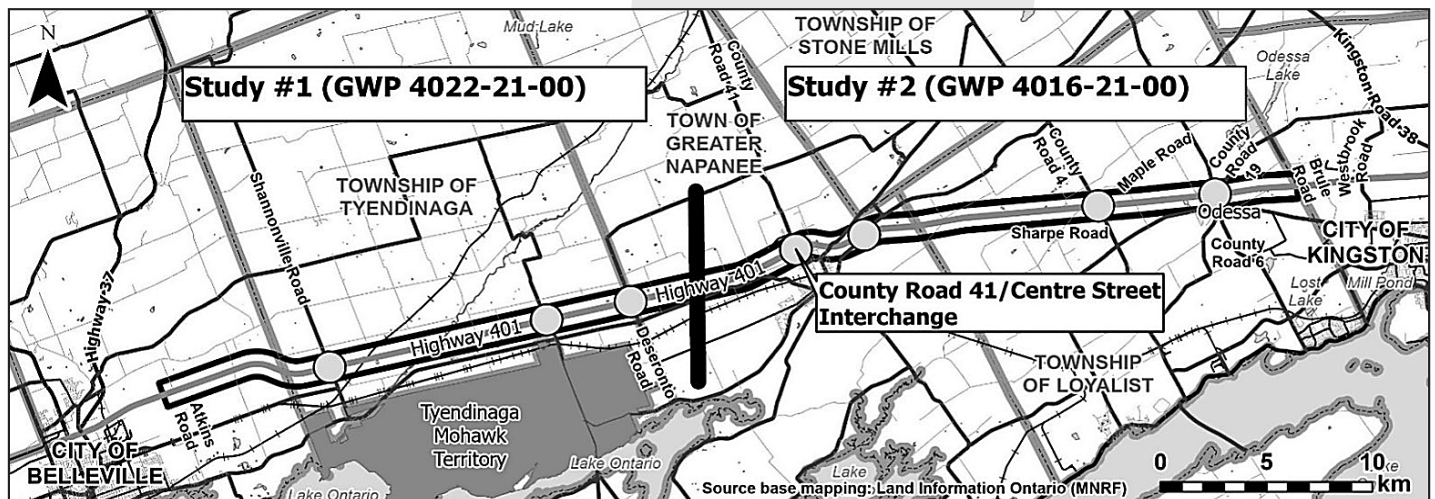
A search of the location on Nov. 12, by Street Crime Unit members and officers from the L&A County and Central Hastings Detachments, resulted in the recovery of a stolen 2009 Volkswagen Golf and two stolen snowmobiles. An individual was found hiding in the residence and arrested without

incident. A second person was escorted off the property and warned that returning would be considered trespassing.

Matthew French, age 33 of Addington Highlands, has been charged with possession of property obtained by crime-over \$5000- two counts possession of property obtained by crime-under \$5000 and fail to comply with a probation order.

## Notice of Study Commencement

Highway 401 Improvements Between Belleville and Kingston  
Planning, Preliminary Design and Class Environmental Assessment  
Study #1 (GWP 4022-21-00) and Study #2 (GWP 4016-21-00)



### THE STUDY

The Ontario Ministry of Transportation (MTO) has retained AECOM to undertake two Planning, Preliminary Design and Class Environmental Assessment (Class EA) Studies to address current and future transportation needs by developing a plan for the rehabilitation and/or replacement of various bridges and culverts, determining the long-term interchange configuration at seven locations, and establishing the footprint for the interim six and ultimate eight lanes of Highway 401, between the City of Belleville and the City of Kingston. As illustrated, **Study #1 (GWP 4022-21-00)** includes Highway 401 from 4.3 km east of Highway 37 to 5 km west of County Road 41/Centre Street for a total length of approximately 26 km. **Study #2 (GWP 4016-21-00)** includes Highway 401 from 5 km west of County Road 41/Centre Street to 8 km west of Kingston Road 38 for a total length of approximately 29 km.

### THE PROCESS

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### COMMENTS

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**Tim Sorochinsky, P.Eng.**  
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**David Brake**  
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If you have any accessibility requirements in order to participate in this project, please contact one of the Project Team members listed above. Comments and information are being collected to assist the MTO in meeting the requirements of the *Ontario Environmental Assessment Act*. Information will be collected in accordance with the *Freedom of Information and Protection of Privacy Act*. All comments will be maintained on file for use during the study and, with the exception of personal information, may be included in study documentation and become part of the public record.



# HIGHWAY 401 IMPROVEMENTS BETWEEN BELLEVILLE AND KINGSTON PLANNING, PRELIMINARY DESIGN AND CLASS ENVIRONMENTAL ASSESSMENT NOTICE OF STUDY COMMENCEMENT

[Canada Post Admail Flyer Delivery](#)

Following the end of the Canada Post strike in Dec. 2024, the OGN was issued as a flyer to the area shown below (i.e. within 0.5 km of study area, approximately 5515 units) via Canada Post Admail the week of Jan. 13, 2025.

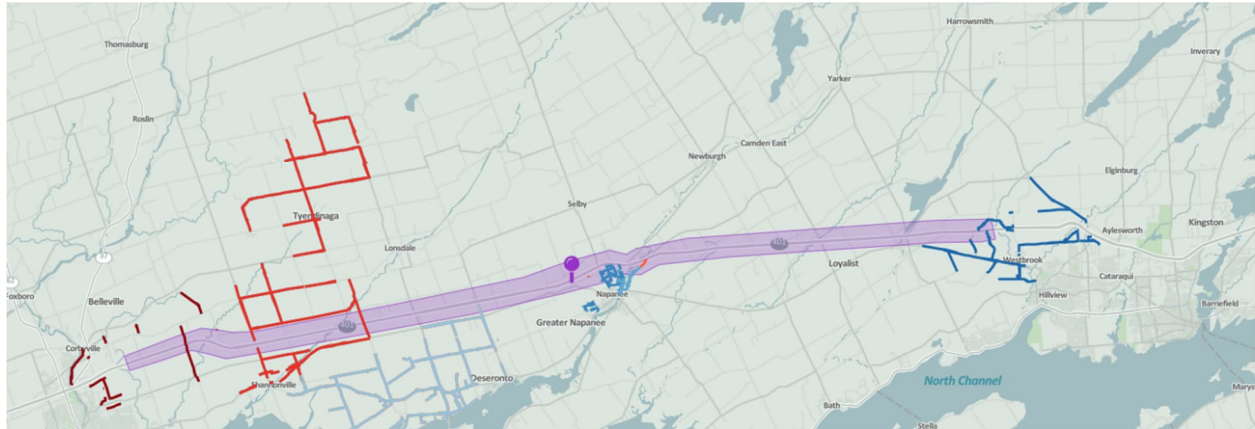
## Precision Targeter

Your total number of mail pieces is **5,515** for an estimated delivery cost of **\$1,196.53**

[Place order](#)



[View more details](#)





| Reference # | Date          | To                                                            | From                                                                                                                                                  | Topic                                                                                                            | Comment / Question/ Request                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Response                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Who Responded                        | Date Response Sent | Action                                                                |
|-------------|---------------|---------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|--------------------|-----------------------------------------------------------------------|
| NofC-01     | Sept. 3, 2024 | Matthew MacLean (MTO)<br>Eastern Transportation Planning Team | Michael Nobes<br>General Manager/CBO<br>Town of Greater Napanee<br>[REDACTED]                                                                         | Town of Greater Napanee advised of a completed Recreation Master Plan & that a Utilities Master Plan is underway | <p><b>Municipal comment in response to Eastern Transportation Planning Team TAC Meeting:</b></p> <p>Thank you for sending this email with TAC meeting information.</p> <p>I would like to note that the Town of Greater Napanee has significant need for pedestrian connectivity over/under the Highway 401 to accommodate active transportation and that we would also be seeking utilities corridor crossings for water/sewer servicing.</p> <p>The Town has <b>completed a Recreation Master Plan</b> and a sub committee focusing on active transportation/trails has focused efforts on how to connect the urban area of the Town to the lands north of the 401. There is an identified need for accommodation of active transportation over/under the 401 as a result of these works. The most ideal locations haven't yet been determined.</p> <p>Additionally, the <b>Town is undertaking a Utilities Master Plan</b> where we are focusing effort on determining an ideal location for water/sewer crossings to provide system looping to lands north of the 401. The most ideal locations for these crossings haven't yet been determined.</p> <p>Can you please advise how the Town of Greater Napanee would best advocate for these needs and the associated contacts at MTO (if other than yourself)?</p> | <p>Thank you very much for your input on the long list of options and also your questions related to the recreation master plan and utilities master plan.</p> <p>We will include the active transportation crossing of the 401 as an item in our long list in conjunction with other items considering the expansion of the province-wide cycling network and supporting active transportation.</p> <p>I need to confirm the best person to respond to your other question about the utilities corridor so I will get back to you once I have the information.</p>                                                                                                                                                                                                                     | Matthew MacLean (MTO)                | Sept. 3, 2024      | N/A                                                                   |
|             |               |                                                               |                                                                                                                                                       |                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <p>Regarding your inquiry about planning for a utilities corridor crossing Hwy 401, I was informed that the Town of Greater Napanee will require a pre-consultation with MTO prior to initiating the Planning and/or Environmental Assessment (EA) for the utilities (water/sewer) crossing. All pre-consultation should be submitted through the Ministry's online permitting portal HCMS: <a href="https://www.hcms.mto.gov.on.ca/">https://www.hcms.mto.gov.on.ca/</a>.</p> <p>If contact information is needed, the Head of Corridor is Kartik Suresh at 613-539-7628 and/or <a href="mailto:kartik.suresh@ontario.ca">kartik.suresh@ontario.ca</a></p> <p>As mentioned previously, we'll include the active transportation crossing as a long list item in our planning study.</p> | Matthew MacLean (MTO)                | Sept. 4, 2024      | N/A                                                                   |
|             | Oct. 31, 2024 | Matthew MacLean (MTO)<br>Eastern Transportation Planning Team | [REDACTED]<br>Data Management Administrator<br>Community & Corporate Services<br>Town of Greater Napanee<br>99-A Advance Ave<br>K7R 3Y5<br>[REDACTED] | Details regarding Spookhorn Cemetery                                                                             | <p>With regards to the Eastern Ontario Transportation Planning Study and future expansion of the 401, Greater Napanee owns an inactive cemetery (Spookhorn) within proximity to the 401 within 147 ft of the property boundary from the centreline of the current 401. Please see attached map for estimated location of <b>Spookhorn Cemetery</b>, our GIS system has identified the cemetery on two land parcels.</p> <p>[REDACTED]</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | n/a                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Eastern Transportation Planning Team |                    | Location of Spookhorn Cemetery forwarded to AECOM Archaeological Team |



| Reference # | Date          | To                                                                                                       | From                                                                                           | Topic                                                                                                                           | Comment / Question/ Request                                                                                                                                                                                                                                                                                                                                                                                       | Response                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Who Responded                               | Date Response Sent | Action                                                      |
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|             |               |                                                                                                          |                                                                                                |                                                                                                                                 | <p>[REDACTED] Also, the BAO has specific requirements when working around cemeteries in Ontario.</p> <p>[REDACTED]</p> <p>Greater Napanee simply wants to make you aware of this proximity of the Spookhorn cemetery and its historical heritage of the area and the proximity to the 401 with future planning considerations.</p>                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                             |                    |                                                             |
| NofC-02     | Nov. 27, 2024 | <a href="mailto:ProjectTeam@Hwy401BellevilletoKingston.ca">ProjectTeam@Hwy401BellevilletoKingston.ca</a> | <p>[REDACTED]<br/> General Manager/CBO<br/> <b>Town of Greater Napanee</b><br/> [REDACTED]</p> | <p>Update Contact List. Key concerns re: active transportation, future municipal servicing and recently discovered cemetery</p> | <p>Please ensure that my contact information is added to this distribution list as the primary contact for the Town of Greater Napanee.</p> <p>The municipality has interest in discussing with MTO active transportation, future municipal servicing and recently discovered cemetery interests within our section of the Highway #401. Please advise of the best approach to engaging in these discussions.</p> | <p><b>Initial response issued to acknowledge receipt of comment</b></p> <p>Thank you for your email. Please note that we have added you as the primary contact for the Town of Greater Napanee. The Project Team will review your comments below and make arrangements for further discussion, as required.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | A. Potter (AECOM) on behalf of Project Team | Nov. 28, 2024      | Ensure Contact List is updated with Michael's contact info. |
|             |               |                                                                                                          |                                                                                                |                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                   | <p><b>Formal Response Issued to Address Comments</b></p> <p>Thank you for your email regarding the two Planning, Preliminary Design and Class EA studies currently being undertaken by the MTO to develop a plan of improvement to Highway 401 between Belleville and Kingston, Study #1 (GWP 4022-21-00) and Study #2 (GWP 4016-21-00).</p> <p>We recognize that the municipality is interested in discussing active transportation, future municipal servicing and recently discovered cemetery interests.</p> <p>We assume that the cemetery you are referring to is the Spookhorn Cemetery located southwest of the Highway 401 / Palace Road interchange near the Napanee River based on an earlier email forwarded by Diana Tyner of the Town of Greater Napanee to the MTO's Eastern Ontario Transportation Planning Study Team.</p> <p>We greatly appreciate the municipality making the Project Team aware of this heritage resource. The Archaeological Team for the current project will consider the cemetery in the Stage 1 Archaeological Assessment to be completed for this undertaking. The location will also be included in the assessment of the alternative solutions.</p> | A. Potter (AECOM) on behalf of Project Team | Feb. 5, 2025       |                                                             |

| Reference # | Date          | To                    | From                                                                                                         | Topic                                     | Comment / Question/ Request                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Response                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Who Responded                               | Date Response Sent | Action                   |
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|             |               |                       |                                                                                                              |                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <p>Please also note that the Project Team will be scheduling a Municipal Technical Advisory Committee (MTAC) meeting in late March with affected municipalities, emergency services, and the local Conservation Authority. The purpose of the meeting will be to introduce the project, summarize existing conditions, confirm the municipality's future road network plans/widenings, and to generally discuss details pertinent to the early development of the Preliminary Design.</p> <p>An invitation to attend the planned MTAC #1 meeting will be forwarded in advance of the meeting. Should additional discussion be required following this initial meeting, the Project Team will be happy to meet with the municipality separately.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                             |                    |                          |
| NofC-03     | Nov. 27, 2024 | Andrea Potter (AECOM) | <p>██████████<br/> Policy Advisor<br/> Ministry of Tourism, Culture and Gaming<br/> ██████████</p>           | Retirement Notice                         | <p><b>Retirement Alert:</b> Please be advised that I will be out of the office as of August 2, 2024. If you need assistance please contact ██████████</p> <p>██████████ Thanks.</p>                                                                                                                                                                                                                                                                                                                                                                                                     | Andrea Potter resent the NofC to the contacts advised in James's email.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | A. Potter (AECOM) on behalf of Project Team | Nov. 27, 2024      | N/A                      |
| NofC-04     | Nov. 27, 2024 | Andrea Potter (AECOM) | <p>██████████<br/> Director, Infrastructure Services<br/> County of Lennox and Addington<br/> ██████████</p> | Project Interest and Update Contact List. | <p>The County of Lennox and Addington is interested in this project and would like to add Dan Baxter ██████████ to your contact list. We would like to discuss our 10 year capital plan and how this can affect your project or be affected by your project. Also we would like to discuss some design considerations during the MTO capital improvements that will accommodate additional modes of transportation such as sidewalks and multi-use pathways. These additions to MTO infrastructure will then connect the north and south parts of our municipality for cycling etc.</p> | <p><b>Initial response issued to acknowledge receipt of comment</b></p> <p>Thank you for your email. Please note that the Project Team will review your comments below and provide a formal response. We will also add Dan Baxter to the contact list as instructed.</p> <p><b>Formal Response Issued to Address Comments</b></p> <p>Thank you for your email regarding the two Planning, Preliminary Design and Class EA studies currently being undertaken by the MTO to develop a plan of improvement to Highway 401 between Belleville and Kingston, Study #1 (GWP 4022-21-00) and Study #2 (GWP 4016-21-00).</p> <p>We acknowledge the municipality's key concerns regarding the County's 10 year capital plan and how it could be impacted by the recommended plans developed by these studies. MTO will consider additional modes of transportation such as sidewalks, multi-use pathways, cycling lanes as part of this work.</p> <p>Please note that the Project Team will be scheduling a Municipal Technical Advisory Committee (MTAC) meeting in late March with affected municipalities, emergency services, and the local Conservation Authority. The purpose of the meeting will be to introduce the project, summarize</p> | A. Potter (AECOM) on behalf of Project Team | Nov. 27, 2024      | Add Dan to Contact List. |
|             |               |                       |                                                                                                              |                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | A. Potter (AECOM) on behalf of Project Team | Feb. 5, 2025       |                          |

| Reference # | Date          | To                    | From                                                                                                                                                                                   | Topic                                    | Comment / Question/ Request                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Response                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Who Responded                               | Date Response Sent | Action                                                   |
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|             |               |                       |                                                                                                                                                                                        |                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | existing conditions, confirm the municipality's future road network plans/widenings, and to generally discuss details pertinent to the early development of the Preliminary Design.<br><br>An invitation to attend the planned MTAC #1 meeting will be forwarded in advance of the meeting. Should additional discussion be required following this initial meeting, the Project Team will be happy to meet with the municipality separately.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                             |                    |                                                          |
| NofC-05     | Nov. 28, 2024 | Andrea Potter (AECOM) | ██████████<br>Facilities Coordinator<br><b>Ontario Provincial Police</b><br>██████████                                                                                                 | Update Contact List.                     | Please update your contact list for present and future projects to the following:<br><br>████████████████████<br><br>Kindly remove ██████████ from your distribution list.<br><br>Communication by email is preferred and will expedite the process.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Hi Nicole, thank you for your email. We will update the contact list accordingly.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | A. Potter (AECOM) on behalf of Project Team | Nov. 28, 2024      | Update Contact List to include Jennifer and Nicole.      |
| NofC-06     | Nov. 28, 2024 | Andrea Potter (AECOM) | ██████████<br>Engineering & Environment Manager<br>Economic Growth & Community Development Services<br><b>Loyalist Township</b><br>263 Main Street<br>Odessa, ON K0H 2H0<br>██████████ | Update Contact List and Project Impacts. | I will be acting as the main point of contact for Loyalist Township, please add me to the distribution list.<br><br>This project does have the potential to impact the Townships services:<br><ul style="list-style-type: none"> <li>• We have a number of roads that stub up to the 401 throughout the study area that could potentially be impacted</li> <li>• The Switzerville Road overpass</li> <li>• At the County Rd interchange Sharpe Road connects to the on-off ramp</li> <li>• At the County Rd 6 interchange Mud Lake Road connects to the on-off ramp</li> <li>• The Millhaven Dam, while operated by the CRCA, is funded by the Township</li> <li>• There may be other land use planning implications for the Township dependant on the study</li> <li>• The project would have an impact on our residents who are represented by Township Council</li> <li>• There may be other impacts depending on the scope of the project that arise throughout the design process</li> </ul> | <p><b>Initial response issued to acknowledge receipt of comment</b></p> <p>Thank you for your email. We have added you as the primary contact for Loyalist Township as requested. Please note that the Project Team will review your comments below and make arrangements for further discussion, as required.</p> <p><b>Formal Response Issued to Address Comments</b></p> <p>Thank you for your email regarding the two Planning, Preliminary Design and Class EA studies currently being undertaken by the MTO to develop a plan of improvement to Highway 401 between Belleville and Kingston, Study #1 (GWP 4022-21-00) and Study #2 (GWP 4016-21-00).</p> <p>As indicated, we have updated our contact list to make you the primary contact for Loyalist Township. We recognize that key concerns of the municipality relate to potential impacts to current municipal roadways that terminate at Highway 401 as well as land use planning implications for the Township and the potential to generally impact area residents.</p> | A. Potter (AECOM) on behalf of Project Team | Nov. 29, 2024      | Ensure Contact List is updated with Luke's contact info. |
|             |               |                       |                                                                                                                                                                                        |                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | A. Potter (AECOM) on behalf of Project Team | Feb. 5, 2025       |                                                          |

| Reference # | Date          | To                    | From                                                                                                                                                                                                         | Topic                                 | Comment / Question/ Request                                                                                                                                                                     | Response                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Who Responded                               | Date Response Sent | Action                                                                               |
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|             |               |                       |                                                                                                                                                                                                              |                                       |                                                                                                                                                                                                 | <p>We also note that the Township is concerned with several specific locations within the Study #2 study area that include the Switzerville Road overpass; Sharpe Road that connects to the on-off ramp at the County Rd. 4 / Camden Rd. interchange; Mud Lake Road that connects to the on-off ramp at the County Rd 6 / Wilton Rd. interchange; and the Millhaven Dam.</p> <p>Please note that the Project Team will be scheduling a Municipal Technical Advisory Committee (MTAC) meeting in late March with affected municipalities, emergency services, and the local Conservation Authority. The purpose of the meeting will be to introduce the project, summarize existing conditions, confirm the municipality's future road network plans/widenings, and to generally discuss details pertinent to the early development of the Preliminary Design.</p> <p>An invitation to attend the planned MTAC #1 meeting will be forwarded in advance of the meeting. Should additional discussion be required following this initial meeting, the Project Team will be happy to meet with the municipality separately.</p> |                                             |                    |                                                                                      |
| NofC-07     | Dec. 5, 2024  | Andrea Potter (AECOM) | <p>██████████<br/> <b>Loyalist Township</b><br/> ██████████</p>                                                                                                                                              | Main contact for Loyalist Township    | Please send communications to Charles McDonald, Public Works Manager. His email is ██████████                                                                                                   | <p>Please note that we also received an email last week from Luke MacDonald, Engineering &amp; Environment Manager of Loyalist Township. We will update our contact list to include both Charles McDonald and Luke MacDonald as the two key contacts for Loyalist Township.</p> <p>We will continue to keep the municipality informed as the project progresses and make arrangements for further discussion, as required.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | A. Potter (AECOM) on behalf of Project Team | Dec. 9, 2024       | Ensure Charles McDonald is added to the Contact List and remove Kyle.                |
| NofC-08     | Nov. 28, 2024 | Andrea Potter (AECOM) | <p>██████████<br/> Deputy Chief of Operations<br/> <b>City of Kingston<br/> Kingston Fire &amp; Rescue</b><br/> Headquarters<br/> 500 O'Connor Drive Kingston, ON<br/> K7P 1N3<br/> ████████████████████</p> | Point of Contact and Project Impacts. | Thank you for reaching out. I will be the contact from Kingston Fire & Rescue. The study area does affect areas of the 401 that KFR and/or neighbouring Departments that we dispatch, do cover. | <p><b>Formal Response Issued to Address Comments</b></p> <p>Thank you for your email regarding the two Planning, Preliminary Design and Class EA studies currently being undertaken by the MTO to develop a plan of improvement to Highway 401 between Belleville and Kingston, Study #1 (GWP 4022-21-00) and Study #2 (GWP 4016-21-00).</p> <p>We have updated our contact list to make you the key contact for Kingston Fire &amp; Rescue. Please note that the Project Team will be scheduling a Municipal Technical Advisory Committee (MTAC) meeting in late March with affected municipalities, emergency services, and the local Conservation Authorities. The purpose of the meeting will be to introduce the project, summarize existing conditions, confirm the future road network plans/widenings of affected</p>                                                                                                                                                                                                                                                                                               | A. Potter (AECOM) on behalf of Project Team | Feb. 5, 2025       | Ensure Don Carter is added to Contact List as key contact for Kingston Fire & Rescue |

| Reference # | Date          | To                                                                                                       | From                                                                                                                                                              | Topic                                         | Comment / Question/ Request                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Response                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Who Responded                               | Date Response Sent | Action                                                      |
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|             |               |                                                                                                          |                                                                                                                                                                   |                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <p>municipalities, and to generally discuss details pertinent to the early development of the Preliminary Design.</p> <p>An invitation to attend the planned MTAC #1 meeting will be forwarded in advance of the meeting. In the meantime, if you have any questions or concerns, feel free to reach out to the Project Team or visit the project website at Hwy401BellevilletoKingston.ca</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                             |                    |                                                             |
| NofC-09     | Dec. 1, 2024  | <a href="mailto:ProjectTeam@Hwy401BellevilletoKingston.ca">ProjectTeam@Hwy401BellevilletoKingston.ca</a> | [REDACTED]                                                                                                                                                        | Project Question.                             | <p>In the "comments" section of your "Notice of Study Commencement" posted in the Nov 24, 2024 edition of The Community Press..... What does PIC materials mean?</p>                                                                                                                                                                                                                                                                                                                    | <p>Thank you for your recent comment submitted regarding the two Planning, Preliminary Design and Class EA studies currently being undertaken by the MTO to develop a plan of improvement to Highway 401 between Belleville and Kingston, Study #1 (GWP 4022-21-00) and Study #2 (GWP 4016-21-00).</p> <p>To answer your question, the "PIC materials" referenced in the "Comment" section of the notice refer to the Public Information Centre (PIC) presentation and associated drawings that will be presented at a future date. As indicated in "The Process" section of the notice, two Public Information Centres are planned for each study at key milestones to provide stakeholders with the opportunity to view project materials and provide comments. Advance notice of the Public Information Centres will be provided.</p> <p>We have added your name to the project contact list and you will receive advance notification of the PICs when they are formally scheduled. In the meantime, if you have any further questions or concerns, please feel free to reach out.</p> | A. Potter (AECOM) on behalf of Project Team | Dec. 9, 2024       | Add to contact list                                         |
| NofC-10     | Dec. 4, 2024  | Andrea Potter (AECOM)                                                                                    | [REDACTED]<br>Technologist, Water Resources<br><b>Cataraqui Region Conservation Authority (CRCA)</b><br>2069 Battersca Road, Glenburnie ON, K0H 1S0<br>[REDACTED] | Main Contact for CRCA & key areas of interest | <p>Thank you for notifying us of this project, I will be the main contact for Cataraqui Conservation.</p> <p>Please keep us informed as the project progresses. Our main areas of interest will be the proposed work at the interchanges on County Road 4 near Wilton Creek and County Road 6 near Millhaven Creek.</p>                                                                                                                                                                 | <p>Thanks for your email. We will update our contact list accordingly and continue to keep you informed as we move forward.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | A. Potter (AECOM) on behalf of Project Team | Dec. 9, 2024       | Ensure Mallory's contact info is added to the Contact List. |
| NofC-111    | Nov. 20, 2024 | Franca Sacchetti (MTO)                                                                                   | [REDACTED]<br><b>Council Member Kawartha Nishnawbe First Nation (KNFN)</b><br>[REDACTED]                                                                          | Expressi on of interest in project            | <p>KNFN appreciates you contacting us and we are interested to consult with you on this matter. We are available for virtual consultation bookings 2 weeks from now <u>between Mon-Friday 1-4pm</u>. KNFN is a non-funded First Nation and our council works voluntarily. We must schedule ahead and plan to take time from our full time jobs for consultations and require the funding to adequately engage. KNFN will provide an invoice for \$1000.00 for funding for a virtual</p> | <p>Thank you for your email. The Ministry of Transportation (MTO) would be pleased to arrange a virtual meeting to discuss the Preliminary Design and Class Environmental Assessments for Highway 401 Improvements between Belleville and Kingston, Planning Study #1 (GWP 4022-21-00) and Planning Study #2 (GWP 4016-21-00).</p> <p>While, at this time, MTO is unable to provide compensation for file fees, we remain committed to improving our current engagement and information sharing processes. To listen to</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Peter Copping (MTO)                         | Dec. 5, 2024       | Update contact list accordingly                             |

| Reference # | Date          | To                                                                                                       | From                                                                                                                              | Topic                          | Comment / Question/ Request                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Response                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Who Responded                               | Date Response Sent | Action                          |
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|             |               |                                                                                                          |                                                                                                                                   |                                | meeting. Please respond with a date(s) that works for you.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Kawartha Nishnawbe's interests, we welcome the opportunity to discuss the project via teleconference or virtual meeting. We acknowledge there may be time constraints and are open to discussing alternate scheduling, such as a later meeting timeslot, that is suitable for both parties. If there are other requests related to scheduling a meeting, please do let us know.<br><br>Please advise if there is an alternate time that would best accommodate your Community's commitments. The project team will continue to keep you up to date on the status of the project as it progresses. We welcome your input. |                                             |                    |                                 |
| NofC-12     | Nov. 21, 2024 | Franca Sacchetti (MTO)                                                                                   | ██████████<br>Lands/Resources Consultation<br><b>Hiawatha First Nation</b><br>██████████                                          | Response to NofC.              | Chi miigwech for the information. At this moment we have no questions or concerns regarding this project. If any should arise we will contact your office. Have a great week.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Response not required at this time.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                             |                    | Update contact list accordingly |
| NofC-13     | Dec. 6, 2024  | <a href="mailto:ProjectTeam@Hwy401BellevilletoKingston.ca">ProjectTeam@Hwy401BellevilletoKingston.ca</a> | ██████████<br>Planning Technician<br><b>Quinte Conservation</b><br>RR#2, 2061 Old Hwy #2,<br>Belleville, ON K8N 4Z2<br>██████████ | Key areas of Quinte CA concern | Further to the email received November 27, 2024, and attached Notice of Study Commencement for the above-noted projects, we would like to offer the following comments:<br>- Quinte Conservation's jurisdiction does not include the entire study area; as such, we recommend contacting Cataraqui Region Conservation Authority office for their potential input.<br>- Within the study area falling within Quinte Conservation's jurisdiction, this office maintains 1:100-year flood plain mapping for Bell Creek, Salmon River, Marysville Creek, Selby Creek, Napanee River. Flood hazard reports can be obtained through our website: <a href="https://www.quinteconservation.ca/en/watershed-management/reports-and-studies.aspx">https://www.quinteconservation.ca/en/watershed-management/reports-and-studies.aspx</a> . Flood plain mapping can be obtained by reaching out directly to staff at this office. Further information regarding flood flows and engineering should be addressed by contacting Christine Phillibert, Water Resources Manager at 613-968-3434 x 130 or <a href="mailto:cphillibert@quinteconservation.ca">cphillibert@quinteconservation.ca</a> .<br>- Please note, a portion of the study area lies within the Intake Protection Zone for the Town of Greater Napanee. Please contact our Source Water Protection Program staff for further information regarding this program.<br>- Quinte Conservation does not have any natural heritage reports, mapping or inventories for this study area. Further information regarding | Thank you for your email. We will update our contact list to make you the key contact for Quinte CA and we will also include the other contacts identified. Please note that we have also reached out to the Cataraqui Region Conservation Authority regarding this project.<br><br>Again, thank you for the information provided. We will continue to keep you informed as we move forward.                                                                                                                                                                                                                             | A. Potter (AECOM) on behalf of Project Team | Dec. 9, 2024       | Update Contact List.            |

| Reference # | Date         | To                    | From                                                                   | Topic                                     | Comment / Question/ Request                                                                                                                                                                                                                                                                                                                                                                                                                                       | Response                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Who Responded                               | Date Response Sent | Action                     |
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|             |              |                       |                                                                        |                                           | natural heritage values may be obtained from the Ministry of Natural Resources and Forestry.<br><br>Quinte Conservation would appreciate a copy of the final Environmental Assessment document for our records.                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                             |                    |                            |
| NofC-13.01  | Dec. 9, 2024 | Andrea Potter (AECOM) | ██████████<br>Planning Technician<br>Quinte Conservation<br>██████████ | Main contacts for Quinte CA               | If you could add <a href="mailto:pmccoy@quinteconservation.ca">pmccoy@quinteconservation.ca</a> and <a href="mailto:planning@quinteconservation.ca">planning@quinteconservation.ca</a> to the contact list, in addition to myself that would be wonderful.                                                                                                                                                                                                        | We will make that change to the contact list. No problem.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | A. Potter (AECOM) on behalf of Project Team | Dec. 9, 2024       | Update Contact List.       |
| NofC-14     | Dec. 9, 2024 | Andrea Potter (AECOM) | ██████████<br>██████████<br>██████████                                 | Questions why Hwy 401 needs to be widened | Please explain why the 401 between Belleville and Kingston needs to be 6 lanes (eventually 8!!!), given the known phenomena of 'induced traffic'? The 401 across the top of Toronto has 16 or so lanes and is still mostly jammed every day. Do you think adding more lanes to that traffic-choked highway will ease congestion? I would like to see the engineering study or studies that recommend increasing the number of traffic lanes, and for what reason. | <p><b>Initial response issued to acknowledge receipt of comment</b></p> <p>Thank you for your recent comment submitted regarding the two Planning, Preliminary Design and Class EA studies currently being undertaken by the MTO to develop a plan of improvement to Highway 401 between Belleville and Kingston, Study #1 (GWP 4022-21-00) and Study #2 (GWP 4016-21-00).</p> <p>Please note that the Project Team will review your comments and provide a formal response.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | A. Potter (AECOM) on behalf of Project Team | Dec. 9, 2024       | Provide a formal response. |
|             |              |                       |                                                                        |                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <p><b>Formal Response Issued to Address Comments</b></p> <p>Further to our previous email below, the Project Team provides the following response to your comments submitted for the two Planning, Preliminary Design and Class EA studies currently being undertaken by the MTO to develop a plan of improvement to Highway 401 between Belleville and Kingston, Study #1 (GWP 4022-21-00) and Study #2 (GWP 4016-21-00).</p> <p><b>Q#1 - Please explain why the 401 between Belleville and Kingston needs to be 6 lanes (eventually 8!!!), given the known phenomena of 'induced traffic'? The 401 across the top of Toronto has 16 or so lanes and is still mostly jammed every day. Do you think adding more lanes to that traffic-choked highway will ease congestion? I would like to see the engineering study or studies that recommend increasing the number of traffic lanes, and for what reason.</b></p> <p>Thank you for sharing your thoughts on Highway 401 congestion and your interest in these studies. We appreciate your input and would like to provide some additional information about the corridor that you might find helpful.</p> |                                             |                    |                            |



| Reference # | Date          | To                    | From                                                                                                                                                                  | Topic                                                                   | Comment / Question/ Request                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Response                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Who Responded                                                                                         | Date Response Sent                       | Action                                                    |
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|             |               |                       |                                                                                                                                                                       |                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <p>The primary focus of our studies is to develop a recommended plan for the replacement of bridges on Highway 401, as many are reaching the end of their service life and need to be replaced. The studies will also determine the long-term interchange configurations and will establish the future footprint of an interim six and ultimate eight lanes of Highway 401.</p> <p>Bridges have a service life of about 75-years, so it is crucial to account for how the highway will function both under and over these new bridges during this period. Current projected traffic volume growth indicates that widening of Highway 401 to an interim six and an ultimate eight lanes will be necessary over the life span of these bridges.</p> <p>Please note that as part of the current undertaking a Traffic Operational Analysis will be conducted to review existing traffic operations and projected future traffic growth and operations with and without a future widening of Highway 401 and improvements to the study area interchanges</p> <p>We have added you to the project contact list so that you will receive advance notification of the Public Information Centres.</p> <p>In the meantime, please visit the project website at Hwy401BellevilletoKingston.ca as updates regarding the project will be made at key milestones.</p> |                                                                                                       |                                          |                                                           |
| NofC-15     | Dec. 12, 2024 | Andrea Potter (AECOM) | <p>██████████<br/> Manager of Roads &amp; Fleet<br/> <b>Township of Tyendinaga</b><br/> 859 Melrose Road Shannonville,<br/> ON, K0K 3A0<br/> ████████████████████</p> | <p>Tyendinaga Township primary contact &amp; key municipal concerns</p> | <p>The Township of Tyendinaga has an interest in this project and looks forward to analyzing information collected from the studies. I will serve as the Township's primary contact. My contact details are in the signature of this email and my cell number is ██████████ should you need immediate assistance. Please include my name in the project mailing list as requested in the Notice of Study Commencement. I would also be interested in knowing if or when a physical location for viewing the information collected is determined after issuing the Notice of Completion.</p> <p>Will the information collected from these studies provide the Project Team with an estimated start-date for beginning construction on sections within Study #1 (GWP 4022-21-00)?</p> | <p><b>Initial response issued to acknowledge receipt of comment</b></p> <p>Thank you for your email.</p> <p>The Project Team will review your comments below and provide a formal response. We will also update our contact list to include you as the primary contact for the Township of Tyendinaga.</p> <p>Please note that we will continue to keep the municipality informed as the project progresses and make arrangements for further discussion, as required.</p> <p><b>Formal Response Issued to Address Comments</b></p> <p>Thank you for your email regarding the two Planning, Preliminary Design and Class EA studies currently being undertaken by the MTO to develop a plan of improvement</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <p>A. Potter (AECOM) on behalf of Project Team</p> <p>A. Potter (AECOM) on behalf of Project Team</p> | <p>Dec. 12, 2024</p> <p>Feb. 5, 2025</p> | <p>Provide a formal response and update Contact List.</p> |

| Reference # | Date | To | From | Topic | Comment / Question/ Request | Response                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Who Responded | Date Response Sent | Action |
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|             |      |    |      |       |                             | <p>to Highway 401 between Belleville and Kingston, Study #1 (GWP 4022-21-00) and Study #2 (GWP 4016-21-00).</p> <p>As noted, we have updated our contact list to make you the primary contact for Township of Tyendinaga.</p> <p>The Project Team provides the following response to your earlier comments:</p> <p><b>Q1-If or when a physical location for viewing the information collected is determined after issuing the Notice of Completion.</b></p> <p>Two in-person Public Information Centres are planned at key milestones during the Study to provide opportunity for interested individuals to learn more about the study process and to provide feedback directly to the Project Team. This information will also be made available digitally on the project website. In addition, the availability of the TESR for public comment will be announced through issue of the Notice of Completion. It will identify a physical location (yet to be determined) where a hard copy of the document can be viewed and it will also be made available digitally on the project website.</p> <p><b>Will the information collected from these studies provide the Project Team with an estimated start-date for beginning construction on sections within Study #1 (GWP 4022-21-00)?</b></p> <p>While this Planning and Preliminary Design Study will identify the Recommended Plan to provide improvements to Highway 401 within the study area, please note that there is currently no commitment for a construction timeline.</p> <p>The timing and duration of highway construction depends on numerous factors, including size and complexity of the project, funding availability, and timing of environmental clearances and permits. The current Preliminary Design Phase is anticipated to be completed in winter 2028.</p> <p>Currently there are no timelines confirmed for future studies and updates may be provided during the preliminary design stage.</p> <p>Please also note that the Project Team will be scheduling a Municipal Technical Advisory Committee (MTAC) meeting in late March with affected municipalities, emergency services, and the local Conservation Authorities. The purpose of the meeting will be to introduce the project,</p> |               |                    |        |

| Reference # | Date          | To                                                                                                         | From                                                                                | Topic            | Comment / Question/ Request                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Response                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Who Responded                                             | Date Response Sent | Action               |
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| NofC-16     | Dec. 12, 2024 | Andrea Potter (AECOM)                                                                                      | <p>██████████</p> <p><b>A2A Collaborative</b></p> <p>████████████████████</p>       | Main A2A contact | We do have an interest in this project and I will be the mail contact. Please see my contact details below.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Thank you for your email. We will update our contact list accordingly and continue to keep you informed as we move forward.                                                                                                                                                                                                                                                                                                                                    | A. Potter (AECOM) on behalf of Project Team               | Dec. 12, 2024      | Update Contact List. |
| NofC-17     | Dec. 14, 2024 | Franca Sacchetti<br>Regional Director,<br>East Region Operations<br>Division<br>Ministry of Transportation | <p>██████████</p> <p><b>Alderville First Nation</b></p> <p>████████████████████</p> | AFN key concerns | <p>I would like to acknowledge receipt of your correspondence, which was received November 20th, 2024, regarding the above noted project.</p> <p>As you may be aware, the area in which this project is proposed is situated within the Traditional Territory of Alderville First Nation. Our First Nation's Territory is incorporated within the Williams Treaties Territory and was the subject of a claim under Canada's Specific Claims Policy, which has now been settled. All 7 First Nations within the Williams Treaties have had their harvesting rights legally re-affirmed and recognized through this settlement (2018).</p> <p>In addition to Aboriginal title, Alderville First Nation rights in its Reserve and Traditional Territory and/or Treaty Territory include rights to hunt, fish and trap, to harvest plants for food and medicine, to protect and honour burial sites and other significant sites, to sustain and strengthen its spiritual and cultural connection to the land, to protect the Environment that supports its survival, to govern itself, sustain itself and prosper including deriving revenues from its lands and resources, and to participate in all governance and operational decisions about how the land and resources will be managed, used and protected.</p> <p>Alderville First Nation is requiring a File Fee for this project in the amount of \$300.00. This Fee includes administration, an initial meeting, project updates as well as review of standard material and project overviews. Depending on the number of</p> | <p>Click link below to view final response issued by MTO.</p> <p> 06b-Ministry of Transportation's Lette</p>                                                                                                                                                                                                                                                                | Franca Sacchetti<br>Regional Director,<br>MTO East Region | Jan. 21, 2025      | Update Contact List. |

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|             |      |    |      |       | <p>documents to be reviewed by the Consultation Department, additional fees may apply.</p> <p>Please make this payment to Alderville First Nation and please indicate the project name or number on the cheque. If you do not have a copy of Alderville First Nation's Consultation Protocol, it is available at: <a href="http://alderville.ca/wp-content/uploads/2017/02/AFNProtocol2.pdf">alderville.ca/wp-content/uploads/2017/02/AFNProtocol2.pdf</a>. Please note that the mapping in this document needs updating to reflect the Williams Treaties First Nations Settlement Agreement 2018.</p> <p>In order to assist us in providing you with timely input, please provide us with a Notice of Request to Consult containing relevant information and material facts in sufficient form and detail to assist Alderville First Nation to understand the matter in order to prepare a meaningful response. Guidance for giving notice can be found on pages 11-12 of our Consultation Protocol. Based on the information that you have provided us with respect to the notice of Ministry of Transportation's Notice of Study Commencement - GWP 4022-21-00 &amp; GWP 4016-21-00, Alderville First Nation may require a mutual agreement to establish a special consultation process for this project. After the information is reviewed it is expected that you or a representative will be in contact to discuss this matter in more detail and possibly set up a date and time to meet with Alderville First Nation in person or virtually.</p> <p>Although we have not conducted exhaustive research nor do we have the resources to do so, there may be the presence of burial or archaeological sites in your proposed project area. Please note, that we have particular concern for the remains of our ancestors. Should excavation unearth bones, remains, or other such evidence of a native burial site or any other archaeological findings, we must be notified without delay. In the case of a burial site, Council reminds you of your obligations under the Cemeteries Act to notify the nearest First Nation Government or other community of Aboriginal people which is willing to act as a representative and whose members have a close cultural affinity to the interred person. As I am sure you are aware, the</p> |          |               |                    |        |

| Reference # | Date          | To                                                                                                       | From                                                                                                                                                                                                                       | Topic                                             | Comment / Question/ Request                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Response                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Who Responded                               | Date Response Sent | Action                                                                                                                         |
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|             |               |                                                                                                          |                                                                                                                                                                                                                            |                                                   | <p>regulations further state that the representative is needed before the remains and associated artifacts can be removed. Should such a find occur, we request that you contact our First Nation immediately.</p> <p>Furthermore, Alderville First Nation also has available, trained Archaeological Liaisons who can actively participate in the archaeological assessment process as a member of a field crew, the cost of which shall be borne by the proponent. Alderville First Nation expects engagement at Stage 1 of an archaeological assessment, so that we may include Indigenous Knowledge of the land in the process. We insist that at least one of our Archaeological Liaisons be involved in any Stage 2-4 assessments, including test pitting, and/or pedestrian surveys, to full excavation.</p> <p>Although we may not always have representation at all stakeholders' and rights holders' meetings, it is our wish to be kept apprised throughout all phases of this project.</p> <p>Should you have further questions or if you wish to hire a Liaison for a project, please feel free to contact [REDACTED]</p> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                             |                    |                                                                                                                                |
| NofC-18     | Dec. 10, 2024 | <a href="mailto:ProjectTeam@Hwy401BellevilletoKingston.ca">ProjectTeam@Hwy401BellevilletoKingston.ca</a> | [REDACTED]<br>On behalf of<br>Secondary Land Use<br>Asset Optimization<br>Strategy & Integrated Planning<br><b>Hydro One Networks Inc.</b><br>483 Bay Street<br>8th Floor South Tower<br>Toronto, ON M5G 2P5<br>[REDACTED] | Potential conflicts with Hydro One Infrastructure | <p>Thank you for sending us notification regarding Highway 401 improvements between Belleville and Kingston. In our preliminary assessment, we have confirmed that Hydro One has existing distribution assets within your study area.</p> <p>At this time, we do not have sufficient information to comment on the potential resulting impacts that your project may have on our infrastructure. As such, we must stay informed as more information becomes available so that we can advise if any of the alternative solutions present actual conflicts with our assets, and if so; what resulting measures and costs could be incurred by the proponent. Note that this response does not constitute approval for your plans and is being sent to you as a courtesy to inform you that we must continue to be consulted on your project.</p>                                                                                                                                                                                                                                                                                         | <p><b>Initial Response to Acknowledge Receipt of Comment</b></p> <p>Thank you for providing the attached comments from Hydro One. The Project Team will review Hydro One's comments and provide a formal response. We will continue to keep Hydro One informed as the project progresses and make arrangements for further discussion, as required.</p> <p>As requested, all future correspondence regarding this project will be forwarded digitally to the email address [REDACTED]</p> | A. Potter (AECOM) on behalf of Project Team | Jan. 9, 2025       | Direct all future correspondence digitally to <a href="mailto:secondarylanduse@hydroone.com">secondarylanduse@hydroone.com</a> |
|             |               |                                                                                                          |                                                                                                                                                                                                                            |                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <p><b>Formal Response Issued to Address Comments</b></p> <p>Thank you for your email regarding the two Planning, Preliminary Design and Class EA studies currently being undertaken by the MTO to develop a plan of improvement to Highway 401 between Belleville and Kingston, Study #1 (GWP 4022-21-00) and Study #2 (GWP 4016-21-00).</p>                                                                                                                                              | A. Potter (AECOM) on behalf of Project Team | Feb. 6, 2025       |                                                                                                                                |

| Reference # | Date          | To                                                                                                       | From          | Topic                          | Comment / Question/ Request                                                                                                                                                                                                                                                                                                                                                                                                                                      | Response                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Who Responded                               | Date Response Sent | Action               |
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|             |               |                                                                                                          |               |                                | Hydro One must be consulted during all stages of your project. Please ensure that all future communications about this and future project(s) are sent to us electronically to [REDACTED]                                                                                                                                                                                                                                                                         | <p>It is recognized that Hydro One would like to be kept informed as the project progresses including providing input regarding the alternative solutions under consideration and their potential to impact Hydro One infrastructure so as to identify potential conflicts and resulting mitigation measures and costs.</p> <p>Please note that the Project Team will shortly be issuing a letter to affected utilities to obtain information regarding existing utility infrastructure to be used to inform the current Preliminary Design phase. Impacts to existing infrastructure will also be one of the criteria used to assess the advantages/disadvantages related to the alternative solutions.</p> <p>Two in-person Public Information Centres (PICs) are planned for Study #1 and Study #2 to provide opportunity for interested individuals to learn more about the study process and to provide feedback directly to the Project Team. This information will also be made available digitally on the project website. As Hydro One is currently on the Project Contact List advance notification will be provided.</p> <p>We will continue to keep Hydro One informed as the project progresses and make arrangements for further discussion, as required. Project correspondence will continue to be forwarded to [REDACTED]</p> <p>In the meantime, if you have any questions or concerns, feel free to reach out to the Project Team or visit the project website at Hwy401BellevilletoKingston.ca for any updates.</p> |                                             |                    |                      |
| NofC-19     | Jan. 16, 2025 | <a href="mailto:ProjectTeam@Hwy401BellevilletoKingston.ca">ProjectTeam@Hwy401BellevilletoKingston.ca</a> | [REDACTED]    | Would like to be kept informed | Please include my name for future updates to this important project. I am very interested in these much-needed projects for the replacement of the eastbound Collins Creek bridge on Highway 401, and the replacement of the Kingston Road 38/ Gardeners Road and Sydenham Road bridges. The MTO should also launch a study on the replacement of the Highway 15 bridge over Highway 401, as that 1950s rigid frame structure also will soon need a replacement. | <p><b>Initial Response to Acknowledge Receipt of Comment</b></p> <p>Thank you for your recent email and comment form submitted for the two Planning, Preliminary Design and Class EA studies currently being undertaken by the MTO to develop a plan of improvement to Highway 401 between Belleville and Kingston, Study #1 (GWP 4022-21-00) and Study #2 (GWP 4016-21-00).</p> <p>As requested, we have added you to our contact list and we will continue to keep you informed as we move forward.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | A. Potter (AECOM) on behalf of Project Team | Jan. 19, 2025      | Update Contact List. |
|             | Jan. 19, 2025 | Contact Form Submission                                                                                  | Same as above | Add to mailing list            | Please include me on the mailing list for any information and/or updates on these important projects.                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                             |                    |                      |

Highway 401 Improvements between Belleville and Kingston Preliminary Design and Class Environmental Assessment  
Study #1 (GWP 4022-21-00) and Study #2 (GWP 4016-21-00)

| Reference # | Date          | To                      | From       | Topic                    | Comment / Question/ Request                                               | Response                                                                                                                                                                                                                                                                                                                                                                                                                                        | Who Responded        | Date Response Sent | Action              |
|-------------|---------------|-------------------------|------------|--------------------------|---------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|--------------------|---------------------|
|             | Jan 20, 2025  | Toll-free phone no.     | [REDACTED] |                          | Would like to discuss the various Highway 401 projects in eastern region. | MTO spoke to Mr. Van Dommele about a variety of highway and bridge projects in east region, who expressed his support of the project.                                                                                                                                                                                                                                                                                                           | D. Brake             | March 13, 2025     | Add to Contact List |
| NofC-20     | Jan. 17, 2025 | Toll-free phone no.     | [REDACTED] | Request for a call back. | Left a voice message requesting that David Brake please call her back.    | [REDACTED]<br>She does not want to lose any property as it could impact her ability to keep her agricultural zoning.<br><br>She would support closing Beechwood Rd. for up to 2 years if it helped with her property concerns.<br><br>She asked to be added to the mailing list and to be kept informed as the study progresses.                                                                                                                | David Brake (MTO PM) | Jan. 20, 2025      | Add to Contact List |
| NofC-21     | Jan. 19, 2025 | Subscriber Form Sign-up | [REDACTED] |                          | n/a                                                                       | Thank you for subscribing to the mailing list for the two Planning, Preliminary Design and Class EA studies currently being undertaken by the MTO to develop a plan of improvement to Highway 401 between Belleville and Kingston, Study #1 (GWP 4022-21-00) and Study #2 (GWP 4016-21-00). Please note that we have added you to the project mailing list and you will be forwarded future notifications regarding the project as we progress. | A. Potter (AECOM)    | Feb. 3, 2025       | Add to Contact List |
| NofC-22     | Jan. 20, 2025 | Subscriber Form Sign-up | [REDACTED] |                          | n/a                                                                       | Thank you for subscribing to the mailing list for the two Planning, Preliminary Design and Class EA studies currently being undertaken by the MTO to develop a plan of improvement to Highway 401 between Belleville and Kingston, Study #1 (GWP 4022-21-00) and Study #2 (GWP 4016-21-00). Please note that we have added you to the project mailing list and you will be forwarded future notifications regarding the project as we progress. | A. Potter (AECOM)    | Feb. 3, 2025       | Add to Contact List |
| NofC-23     | Jan. 20, 2025 | Subscriber Form Sign-up | [REDACTED] |                          | n/a                                                                       | Thank you for subscribing to the mailing list for the two Planning, Preliminary Design and Class EA studies currently being undertaken by the MTO to develop a plan of improvement to Highway 401 between Belleville and Kingston, Study #1 (GWP 4022-21-00) and Study #2 (GWP 4016-21-00). Please note that we have added you to the project mailing list and you will be forwarded future notifications regarding the project as we progress. | A. Potter (AECOM)    | Feb. 3, 2025       | Add to Contact List |
| NofC-24     | Jan. 23, 2025 | Subscriber Form Sign-up | [REDACTED] |                          | n/a                                                                       | Thank you for subscribing to the mailing list for the two Planning, Preliminary Design and Class EA studies currently being undertaken by the MTO to develop a plan of improvement to Highway 401 between Belleville and Kingston, Study #1 (GWP 4022-21-00) and Study #2 (GWP 4016-21-00). Please note that we have added you to the project mailing list and you will be forwarded future notifications regarding the project as we progress. | A. Potter (AECOM)    | Feb. 3, 2025       | Add to Contact List |



Highway 401 Improvements between Belleville and Kingston Preliminary Design and Class Environmental Assessment  
Study #1 (GWP 4022-21-00) and Study #2 (GWP 4016-21-00)

| Reference # | Date          | To                                          | From                                                                                                                                                                                                                                                                                                                                                     | Topic | Comment / Question/ Request                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Response                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Who Responded     | Date Response Sent | Action                                                                                                                                |
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| NofC-25     | Jan. 27, 2025 | Subscriber Form Sign-up                     | [REDACTED]                                                                                                                                                                                                                                                                                                                                               |       | n/a                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Thank you for subscribing to the mailing list for the two Planning, Preliminary Design and Class EA studies currently being undertaken by the MTO to develop a plan of improvement to Highway 401 between Belleville and Kingston, Study #1 (GWP 4022-21-00) and Study #2 (GWP 4016-21-00). Please note that we have added you to the project mailing list and you will be forwarded future notifications regarding the project as we progress.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | A. Potter (AECOM) | Feb. 3, 2025       | Add to Contact List                                                                                                                   |
| NofC-26     | Jan. 29, 2025 | Att: Tim Sorochinsky via project team email | [REDACTED] <b>Heritage Planner</b><br>Heritage Planning Unit<br>Heritage Operations Branch<br>Citizenship, Inclusion and Heritage Division<br><b>Ministry of Citizenship and Multiculturalism</b><br>[REDACTED]<br>[REDACTED] <b>Team Lead – Heritage</b><br>Heritage Planning Unit<br><b>Ministry of Citizenship and Multiculturalism</b><br>[REDACTED] |       | <ul style="list-style-type: none"> <li>MCM standard letter outlining the agency's heritage interests in the project.</li> <li>Directed to send any notices, report and/or documentation to both [REDACTED]</li> <li>Questioned what heritage reviews will be completed as part of this undertaking and that copies of archaeological and heritage studies be provided to the MCM.</li> <li>Click link below to view MCM letter in its entirety....</li> </ul> <br>26b-2025-01-29<br>Hwy401Improvements | <p><b>Formal Response Issued to Address Comments</b></p> <p>Thank you for your email regarding the two Planning, Preliminary Design and Class EA studies currently being undertaken by the MTO to develop a plan of improvement to Highway 401 between Belleville and Kingston, Study #1 (GWP 4022-21-00) and Study #2 (GWP 4016-21-00). It is recognized that the Ministry of Citizenship and Multiculturalism (MCM) interest in this undertaking relates to conserving Ontario's cultural heritage, including archaeological resources, built heritage resources, and cultural heritage landscapes.</p> <p>Please note that as part of this undertaking a <b>Stage 1 Archaeological Assessment (AA)</b> will be prepared for each Study to meet the requirements of the MCM Standards and Guidelines for Consultant Archaeologists, and in accordance with the Ontario Heritage Act, R.S.O. 1990, c. 0.18 (Ontario Government 2011). A <b>Cultural Heritage Resource Assessment Report (CHRAR)</b> will also be prepared for each study in accordance with the Standards and Guidelines for Conservation of Provincial Heritage Properties (MCM, 2010), issued under the authority of section 25.2 of the Ontario Heritage Act, as well as MCM Information Bulletin 3: Heritage Impact Assessments for Provincial Heritage Properties (2017), and in reference to MTO's cultural heritage conservation guidance.</p> <p>As requested, both the Stage 1 Archaeological Assessments and the Cultural Heritage Resource Assessment Reports prepared for each study will be provided to the MCM when available. The findings of the cultural heritage studies will also be used to establish existing conditions, assess the potential for impact and in making recommendations for appropriate mitigation and future commitments. This information will be summarized in the Transportation Environmental Study Report (TESR) to be prepared at the conclusion of the Class EA process.</p> | A. Potter (AECOM) | March 21, 2025     | <p>Add both Erika Leclerc and Karla Barboza to Contact List</p> <p>Letter forwarded to Arch + Built Heritage Leads Jan. 31, 2025.</p> |

| Reference # | Date           | To                           | From                                                                                                                                                         | Topic | Comment / Question/ Request                                                                                                                        | Response                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Who Responded     | Date Response Sent | Action                                                                       |
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|             |                |                              |                                                                                                                                                              |       |                                                                                                                                                    | As requested, we have added both Erika Leclerc and Karla Barboza to project Contact List.                                                                                                                                                                                                                                                                                                                                                                            |                   |                    |                                                                              |
|             | Mar. 27, 2025  | Andrea Potter (AECOM)        | [REDACTED] Heritage Planner<br>Heritage Branch<br>Citizenship, Inclusion and Heritage Division<br>Ministry of Citizenship and Multiculturalism<br>[REDACTED] |       | Thank you for your response. We look forward to reviewing the CHRAR and Stage 1 AA for each study before the issuance of the Notice of Completion. | n/a                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                   |                    | Forward CHRAR and Stage 1 AA to MCM before issuance of Notice of Completion. |
| NofC-27     | Feb. 2, 2025   | Project Website Contact Form | Mary Joan Walsh<br>[REDACTED]                                                                                                                                |       | n/a                                                                                                                                                | Thank you for completing a project contact form for the two Planning, Preliminary Design and Class EA studies currently being undertaken by the MTO to develop a plan of improvement to Highway 401 between Belleville and Kingston, Study #1 (GWP 4022-21-00) and Study #2 (GWP 4016-21-00). Please note that we have added you to the project contact list and you will be forwarded future notifications regarding the project as we progress.                    | A. Potter (AECOM) | Feb. 3, 2025       | Add to Contact List                                                          |
| NofC-28     | Mar. 16, 2025  | Subscriber Form Sign-up      | [REDACTED]                                                                                                                                                   |       | n/a                                                                                                                                                | n/a                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | n/a               | n/a                | Add to Contact List                                                          |
| NofC-29     | April 22, 2025 | Subscriber Form Sign-up      | [REDACTED]                                                                                                                                                   |       | n/a                                                                                                                                                | Good morning,<br><br>Thank you for subscribing to the mailing list for the two Planning, Preliminary Design and Class EA studies currently being undertaken by the MTO to develop a plan of improvement to Highway 401 between Belleville and Kingston, Study #1 (GWP 4022-21-00) and Study #2 (GWP 4016-21-00). Please note that we have added you to the project mailing list and you will be forwarded future notifications regarding the project as we progress. | A. Potter         | May 14, 2025       | Add to the Contact List                                                      |
| NofC-30     | May 13, 2025   | Subscriber Form Sign-up      | [REDACTED]                                                                                                                                                   |       | n/a                                                                                                                                                | Good morning,<br><br>Thank you for subscribing to the mailing list for the two Planning, Preliminary Design and Class EA studies currently being undertaken by the MTO to develop a plan of improvement to Highway 401 between Belleville and Kingston, Study #1 (GWP 4022-21-00) and Study #2 (GWP 4016-21-00). Please note that we have added you to the project mailing list and you will be forwarded future notifications regarding the project as we progress. | A. Potter         | May 14, 2025       | Add to the Contact List                                                      |

| Reference # | Date            | To                      | From       | Topic | Comment / Question/ Request                                                                                                         | Response                                                                                                                                                                                                                                                                                                                                                                                                                                 | Who Responded | Date Response Sent | Action              |
|-------------|-----------------|-------------------------|------------|-------|-------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|--------------------|---------------------|
| NofC-31     | May 26, 2025    | Toll-free telephone no. | [REDACTED] | PTE   | The landowner was curious why we sent him a PTE letter when his property is not near Hwy 401.                                       | <ul style="list-style-type: none"> <li>138 Mud Lake Road - confirmed with environmental team that property is too far from 401.</li> <li>Noted not too many accidents along Highway 401 - have been driving the corridor via bus for over 20 years.</li> <li>No PTE required but wants to be kept in the contact list for project.</li> </ul>                                                                                            | F. Sapateiro  | May 29, 2025       | Add to Contact List |
| NofC-32     | August 19, 2025 | Toll-free telephone no. | [REDACTED] | PTE   | An individual requested a call back.                                                                                                | <ul style="list-style-type: none"> <li>Addressed through PTE process</li> </ul>                                                                                                                                                                                                                                                                                                                                                          | A. Potter     | May 23, 2025       | Add to Contact List |
| NofC-33     | May 26, 2025    | Toll-free telephone no. | [REDACTED] | PTE   | The landowner received a PTE letter and requested a call back.                                                                      | <ul style="list-style-type: none"> <li>Located at [REDACTED]</li> <li>360 acres</li> <li>Discussed PD scope, timelines, nature of fieldwork - didn't seem too concerned about access. PTE is likely but we should reach out before we go do fieldwork to flag timelines and scope.</li> </ul>                                                                                                                                            | F. Sapateiro  | May 29, 2025       | Add to Contact List |
| NofC-34     | June 4, 2025    | Toll-free telephone no. | Unknown    | PTE   | Individual called to discuss their property in Napanee.                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                          |               |                    |                     |
| NofC-35     | May 29, 2025    | Felipe Sapateiro        | [REDACTED] | PTE   | Individual called to discuss PTE letter.                                                                                            | <ul style="list-style-type: none"> <li>[REDACTED] Check if her contact information is correct. He sold the property to her to build a house and barn.</li> <li>[REDACTED] -mailing address is different from site address.</li> <li>Accidents in this section - congestion due to lane drops.</li> <li>Exits at interchanges to prince Edward county - heavy traffic and interchanges need to accommodate that in the future.</li> </ul> | F. Sapateiro  | May 29, 2025       | Add to Contact List |
| NofC-36     | May 29, 2025    | Felipe Sapateiro        | [REDACTED] | PTE   | Individual called to discuss PTE letter.                                                                                            | <ul style="list-style-type: none"> <li>PTE likely but notify owner one day in advance.</li> <li>Decommissioned quarry north end of parcel which is a pond - fish, water snakes</li> <li>Alot of truck traffic on 401 and train noise</li> <li>Construction backfill required if MTO [REDACTED]</li> </ul>                                                                                                                                | F. Sapateiro  | May 29, 2025       | Add to Contact List |
| NofC-37     | May 30, 2025    | Felipe Sapateiro        | [REDACTED] | PTE   | We are in receipt of the attached Notice and Request for Permission to Enter our property in connection with the above MTO Project. | <ul style="list-style-type: none"> <li>Addressed through PTE process</li> </ul>                                                                                                                                                                                                                                                                                                                                                          | A. Potter     | June 12, 2025      | Add to Contact List |

| Reference # | Date | To | From | Topic | Comment / Question/ Request                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Response | Who Responded | Date Response Sent | Action |
|-------------|------|----|------|-------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|---------------|--------------------|--------|
|             |      |    |      |       | <p>Prior to returning a signed copy of the Permission to Enter, could you kindly provide comment on the following:</p> <p>1. Are you in a position to confirm a specific month (or weeks) when Aecom will be on site at this particular location? As owners of the property, we may want to attend and/or meet you at site during the study period to provide some historical context prior to you completing your assessments.</p> <p>2. Please note that you will indeed have to access [REDACTED] but please be advised that this access entry point is on an adjacent landowners property so presume you will secure necessary PTE from that owner.</p> <p>3. Please confirm if Aecom is going to require access within the fenced perimeter of the existing solar farm. If so, we will first need to confirm approval from the solar company and stipulate any of their requirements as part of the PTE.</p> <p>4. Please note that [REDACTED] exist within designated wetlands. I trust that MTO/Aecom will hold the responsibility for acquiring and paying for necessary permits from CRCA and other agencies (where applicable) to undertake your activities, particularly in the wetland areas.</p> <p>5. During the EA and PPD, specific attention will be required to address the existing drainage issues on both sides of 401 in the immediate area of our property along the highway. The existing culverts are not providing appropriate catchment and delivery of runoff from our property downstream into Odessa is being impeded. Of consequence, our property ([REDACTED]) is being subjected to runoff "back up" and, unfortunately, expanding the limits of the existing wetland every year. Accordingly, we would like to be involved in discussions with you (when the time is right), to review these issues prior to your development of an MTO drainage plan.</p> <p>6. We would like to be on the Project mailing list. Please confirm if you can do this or</p> |          |               |                    |        |

| Reference # | Date         | To                      | From       | Topic             | Comment / Question/ Request                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Response                                                                                                                                                                                                                                                                                                                                                                                                                                               | Who Responded | Date Response Sent | Action              |
|-------------|--------------|-------------------------|------------|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|--------------------|---------------------|
|             |              |                         |            |                   | <p>should we contact Tim Soroichinsky directly to have our names put on the list.</p> <p>7. Finally, as part of the process of securing an EA approval for the widening of WB 401 adjacent our property, we would like to discuss with you, our potential desire for an access gravel road extending from west limit [REDACTED]</p> <p>We anticipate this gravel access rd could be located immediately north of the existing MTO north ROW limit. This discussion probably should occur sooner than later</p> <p>Following receipt of your comments we will proceed to sign the PTE asap and get it back to you. I have provided you with my mobile number below should you wish to contact me.</p> |                                                                                                                                                                                                                                                                                                                                                                                                                                                        |               |                    |                     |
| NofC-38     | May 21, 2025 | Project Team email      | [REDACTED] | Fence maintenance | <p>Good Morning,</p> <p>I am writing in regard to the fencing HWY 401 Westbound and Switzerville Rd. The fence has been cut between marker 586.5km &amp; 587km. This fence has been cut by people who ATV under and alongside the 401 then cut through my property. I was hoping this could be fixed. If so the safest place to access it would be from [REDACTED]. I am also unsure if posting no trespassing signs where they come out on Switzerville rd will deter this behaviour.</p> <p>Thanks in advance for your help or advice.</p>                                                                                                                                                         | <ul style="list-style-type: none"> <li>Not part of current project</li> </ul>                                                                                                                                                                                                                                                                                                                                                                          |               |                    |                     |
| NofC-39     | June 6, 2025 | Subscriber Form Sign-up | [REDACTED] | n/a               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <p>Thank you for subscribing to the mailing list for the two Planning, Preliminary Design and Class EA studies currently being undertaken by the MTO to develop a plan of improvement to Highway 401 between Belleville and Kingston, Study #1 (GWP 4022-21-00) and Study #2 (GWP 4016-21-00). Please note that we have added you to the project mailing list and you will be forwarded future notifications regarding the project as we progress.</p> | A. Potter     | June 12, 2025      | Add to Contact List |
| NofC-40     | July 2025    | Project Team            | [REDACTED] | PTE               | <ul style="list-style-type: none"> <li>Appears that she sent a response via email directly to Corinne Morden.</li> <li>Ms. Purvis advised that MTO would be unable to access her hay fields by car since they have been unable to do so for the last 7 years and she cites what appears to be an ongoing issue with the municipality relating to maintenance of Hegadorn Rd. and access to Ms. Purvis' property. While Ms. Purvis has provided a signed PTE she also included</li> </ul>                                                                                                                                                                                                             | <ul style="list-style-type: none"> <li>Addressed through PTE process</li> </ul>                                                                                                                                                                                                                                                                                                                                                                        | A. Potter     | July 8, 2025       | Add to Contact List |

| Reference # | Date          | To                  | From       | Topic | Comment / Question/ Request                                                                                                                                                                                                                                                                                                                                                                                         | Response                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Who Responded | Date Response Sent | Action              |
|-------------|---------------|---------------------|------------|-------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|--------------------|---------------------|
|             |               |                     |            |       | earlier correspondence with Loyalist Township regarding the ongoing access issue. Everything is attached if you want to take a look.                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |               |                    |                     |
| NofC-41     | July 2025     | Project Team        | [REDACTED] | PTE   | <ul style="list-style-type: none"> <li>Advised that Postal Code incorrect.</li> <li>Advised that received a 2<sup>nd</sup> notification letter addressed to “A Master Panels Inc.”</li> <li>He has concerns with this 2<sup>nd</sup> address and considers this suspicious citing previous fraudulent circumstances &amp; property issues in the Napancee area.</li> <li>He wants someone to contact him</li> </ul> | <ul style="list-style-type: none"> <li>Addressed through PTE process</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | A. Potter     | July 8, 2025       | Add to Contact List |
| NofC-42     | Jan. 27, 2026 | Toll-free phone no. | [REDACTED] |       | <ul style="list-style-type: none"> <li>Left voice mail indicating interest in Napancee to Kingston segment.</li> <li>Requested a call back.</li> </ul>                                                                                                                                                                                                                                                              | <p><b>Summary of call at 3:45pm on Tuesday January 27:</b></p> <p><b>Inquiry #1:</b> When will the project will be built and what is the scope of work. <b>Response:</b> Project involves Preliminary Design for structure rehab/replacement and widening to protect for 8 lanes. No timelines yet for the next phase of design/construction from MTO.</p> <p><b>Inquiry #2:</b> Rail corridor west of Palace Road in Napancee – will MTO would be cost sharing with the municipalities on a structure crossing of the highway for a trail. <b>Response:</b> There are currently no commitments made for cost sharing and the preliminary design would review opportunities to enhance connectivity to trails and active transportation at crossing roads/interchanges, as required, based on consultation with municipalities.</p> <p><b>Inquiry #3:</b> What other options are there for a trail crossing - bridge over the highway. <b>Response:</b> There could be other options such as a pedestrian culvert under the highway or connecting the trail network to adjacent crossing road with active transportation (saves the need to construct a standalone bridge).</p> | F. Sapateiro  | Jan. 27, 2026      | Add to Contact List |



## Appendix A.2

### **Public Information Centre #1 Summary and Materials**





# Public Information Centre Summary Report

**Highway 401 Improvements at Napanee River Bridge  
(WP 4039-19-01) Planning, Preliminary Design and  
Class Environmental Assessment Study**

Ontario Ministry of Transportation

Project reference: 60734357

March 31, 2026

Prepared for:

Ontario Ministry of Transportation

Prepared by:

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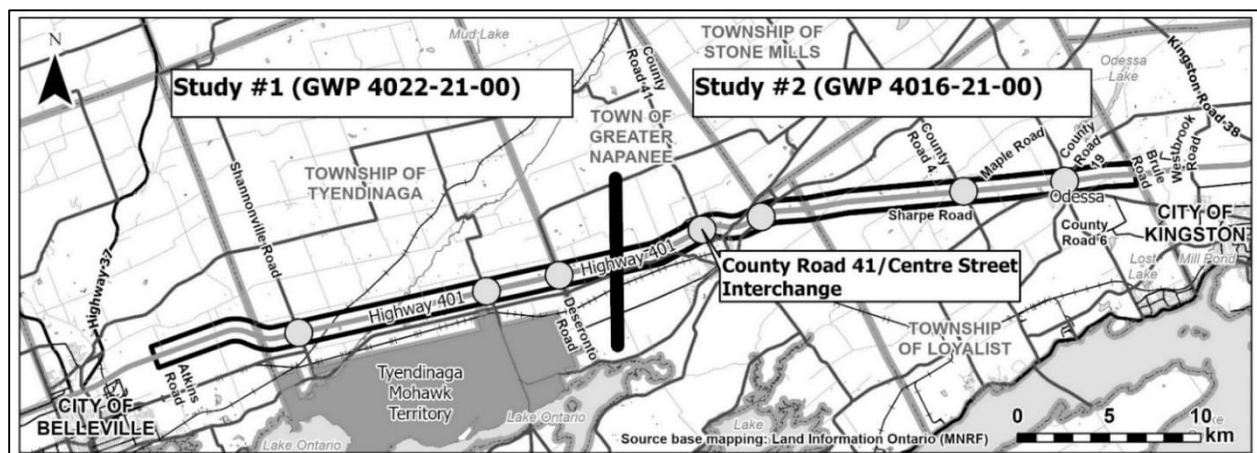
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# 1. Introduction and Purpose of Public Information Centre

In 2024, the Ministry of Transportation of Ontario initiated two Planning, Preliminary Design and Class Environmental Assessment Studies, Group B, to address current and future transportation needs by developing a plan for the rehabilitation and/or replacement of various bridges and culverts, determining the long-term interchange configuration at seven locations, and establishing the footprint for the interim six and ultimate eight lanes of Highway 401, between the City of Belleville and the City of Kingston. As illustrated in **Figure 1, Study #1 (GWP 4022-21-00)** includes Highway 401 from 4.3 kilometres east of Highway 37 to 5.0 kilometres west of County Road 41 / Centre Street for a total length of approximately 26 kilometres. **Study #2 (GWP 4016-21-00)** includes Highway 401 from 5.0 kilometres west of County Road 41 / Centre Street to 8.0 kilometres west of Kingston Road 38 for a total length of approximately 29 kilometres

**Figure 1: Study #1 and Study #2 Location Plan**



As part of the **Study #2** project, the previously approved Palace Road Interchange Recommended Plan, as documented in the *Highway 401 Interchange Improvements at Palace Road Class Environmental Assessment and Preliminary Design Study Transportation Environmental Study Report (March 2019)*, was revisited to assess compatibility with an interim and ultimate footprint of Highway 401, as well as to accommodate a potential 130 kilometre per hour design speed. Based on this review, no significant modifications to the previously approved configuration are recommended. However, as the Palace Road Interchange Recommended Plan will be moving forward to Detail Design, advancement of the Napanee River Bridge (Site 17X-0062/B0) improvements from the current Study #2 project is required due to its proximity to Palace Road. As such, the improvements to the Napanee River Bridge are being advanced as a separate Preliminary Design and Class Environmental Assessment Study (WP 4039-19-01).

Given the above, this PIC advised that moving forward the Napanee River Bridge Improvements would be proceeding as a separate Preliminary Design and Class Environmental Assessment Study (WP 4039-19-01). Relevant material specific to the Napanee River bridge improvements was presented in addition to Study #1 and Study #2 content.

The purpose of the PIC was to present and receive feedback on the study background, existing conditions, the screening of the long list of improvement alternatives, the evaluation process for the short list of improvement alternatives, and the next steps in the process. An informal drop-in centre format was utilized with MTO and consultant team representatives available to answer questions. The date, time and location of PIC was as follows:

**Tuesday, March 31, 2026, from 4:00 p.m. to 7:00 p.m.**  
**Best and Bash Arena (formerly Strathcona Paper Centre)**  
**16 McPherson Drive, Napanee, Ontario K7R 3L1**

In addition, the Project Team hosted a preview session for Indigenous Communities, area Municipalities and relevant agencies from 3:00 p.m. to 4:00 p.m. in advance of the main PIC.

## 2. Notification of Public Information Centre

The following engagement strategy was undertaken in advance to notify external agencies, the public, key stakeholders, municipalities, Indigenous communities and other interested parties of the planned PIC:

- Posting of the Ontario Government Notice (OGN) in English on the project website (Hwy401BellevilletoKingston.ca) on March 17, 2026 advising of the time, location and purpose of the PIC. The PIC display materials, comment form, and other updates were later added to the project website the day of the PIC (i.e. March 31, 2026).
- Publication of the OGN in the following newspapers:
  - o Napanee Beaver on March 27, 2026
  - o Community Press on March 26, 2026
  - o Kingston Whig-Standard on March 24, 2026
  - o Belleville Intelligencer on March 24, 2026
- Notification letter emailed to Members of Provincial Parliament (x2) by MTO Project Manager on March 17, 2026.
- Notification to Indigenous communities:
  - o Email issued March 4, 2026 by MTO Regional Director, Franca Sacchetti, to Alderville First Nation (AFN), Curve Lake First Nation (CLFN), Hiawatha First Nation (HFN), Kawartha Nishnawbe First Nation (KNFN), Mohawks of the Bay of Quinte First Nation (MBQ) Métis Nation of Ontario (MNO), and the Mississaugas of Scugog Island First Nation (MSIFN) advising of the date/time of the planned PIC along with an invitation to attend a preview session from 3-4pm in advance of the main PIC from 4-7pm.
  - o Email issued March 17, 2026 by MTO Indigenous Specialist, Peter Copping, that included a copy of the OGN to AFN, CLFN, HFN, KNFN, MNO, and MSFN.
- Notification Letters emailed March 23, 2026 and issued by regular mail March 25, 2026 to individuals on the Study Contact List (approximately 150 stakeholders) that included area municipalities, emergency services, external agencies, and members of the public as well as previously contacted Permission to Enter property owners (i.e. approximately 130 contacts).
- Property Impact letter & map issued by Registered Mail on March 30, 2026 to the 25 affected property owners affected by the Napanee River Bridge improvement design, which is being advanced from the current Study #2 project.



- Distribution of the OGN via Canada Post's unaddressed admail service to all postal routes within 0.5 km of the study area. A total of 5,662 pieces of mail were distributed through this admail service on March 17, 2026.

Please refer to **Appendix A** for copies of the OGN, notification letters and Study Contact List at the time of the mailout.

### 3. Attendance and Input

The following Project Team representatives attended PIC #1:

#### MTO

- Katie Surra, Area Manager
- Lucas Bilow, Project Engineer
- Amanda Dickson, Environmental Planner
- Hailey Esdon, Environmental Planner
- Olivia Ohori, Traffic Engineer
- Liz Lindensmith, Structural Engineer
- Kerry Dale, Real Estate Officer
- Allison Posthumus, Corridor Management Planner
- Tanya Hyatt, Real Estate Officer
- Patricia Moniz, Indigenous Liaison Specialist

#### AECOM

- Tim Sorochinsky, Project Manager
- Felipe Sapateiro, Deputy Project Manager
- Andrea Potter, Sr. Environmental Planner
- Jordan Witt, Environmental Planner
- Nelson Gonzalez Toledo, Environmental Planner

A total of 54 stakeholders chose to sign the visitor's register for PIC #1, including the following municipal and elected officials and stakeholders of interest:

- Greater Napanee Chief Administrative Officer
- Greater Napanee GM of Growth & Infrastructure
- Lennox & Addington Chamber of Commerce President
- Lennox & Addington Chamber of Commerce Director
- Lennox & Addington Chamber of Commerce Business Manager
- Lennox & Addington County Engineering Technician
- Tyendinaga Township Deputy Mayor
- Tyendinaga Township Councillor, and
- Hastings–Lennox & Addington MPP Constituency Assistant.

No known Indigenous community members attended the PIC.

No known representatives from the media attended the PIC.

In addition to verbal comments, the Project Team encouraged visitors to express in writing, all suggestions, comments or concerns that they had regarding the information presented and requested comments to be submitted at the event or through e-mail or mail by April 30<sup>th</sup>, 2026. Eighteen (18) written comments were received during this event, and 13 were subsequently received during the comment period, for a total of 31 written comments.

A full summary of the key verbal and written comments submitted to the Project Team regarding the material presented at PIC #1 is available in **Appendix C**. Comments generally included the following:

## **Key Themes**

### *Environmental and Natural Heritage Concerns*

- **Wildlife Movement:** Concerns regarding wildlife movement, deer migration and potential for wildlife corridors, particularly between Shannonville Road and Marysville Road.
- **Wetlands and Watercourses:** Concerns regarding drainage and hydrology within the study area, including potential impacts to ecologically sensitive waterbodies, existing flooding and ice-related issues at the Wilton Road (County Road 6) interchange, and drainage effects on adjacent properties, such as seasonal creeks and marshland.
- **Highway Runoff:** Environmental concerns regarding increased runoff and potential contamination from salt, construction, traffic, etc., resulting from the expanded highway surface.

### *Highway Operations, Traffic and Safety*

- **Traffic Management:** Residents expressed concern that Highway 401 closures could divert traffic onto local county roads, which may not be designed to accommodate increased volumes. Additional comments emphasized the need to maintain access at interchanges during construction, with an emphasis on impacts to farming operations.
- **Emergency Services:** Residents noted concern for insufficient emergency services to support increased traffic and crashes, with suggestions to improve the local road network to support Emergency Detour Routes (EDR).
- **Truck Traffic:** Stakeholders noted an increase in transport truck accidents, with suggestions for improvements to grading, signage, lighting, and other safety enhancements. Additionally, there were safety concerns with roundabout options being able to accommodate transport trucks, particularly in winter.
- **Interchange Alternatives:** A range of comments were received suggesting alternative interchange configurations and / or the consideration of new interchanges along the corridor within the study area. These considerations are included in the "*Location-Specific Comments*" section below.

### *Active Transportation and Connectivity*

- Active Transportation: Requests for pedestrian and cycling facilities at bridge crossings (e.g., County Road 1, Palace Road, Centre Street, etc.), as well as ensuring municipal and regional trail continuity throughout the corridor.
- Residents requested provisions for kayaks, snowmobiles, and other recreational uses at water crossings, including Millhaven Creek.

### *Community and Property Impacts*

- Noise: Stakeholders expressed concern for elevated noise levels as a result of increased highway capacity and proximity to adjacent properties.
- Property Impacts: Concerns were raised by landowners and businesses regarding property acquisition, including expropriation, partial takings, and land valuation, with some property owners also identifying preferred route options.
- Municipal and Local Planning: Comments and inquiries were received regarding planned and future municipal development, as well as input from local organizations, highlighting the need to consider how proposed highway improvements may align with or affect local growth plans.
  - Quinte Detention Centre: Advised of concern related to property impacts, noting that the facility is planning to do some work on the site that will be extending northward.
  - Loyalist Township: Requested clarification on whether the proposed alternatives would require property acquisition from Centennial Park in order to identify any potential impacts to municipal lands.
  - Napanee Active Transportation Allies: Requested removal details for the CN Railway bridge, including timeline and associated costs.
  - Town of Greater Napanee: Noted the need for the Project to avoid constraining future municipal utility servicing options and requested ongoing coordination with MTO to ensure long-term infrastructure alignment.
- Tile Drainage: Requests to protect tile drainage outlets connected to Highway 401 ditches and culverts.
- Agricultural Operations: Several stakeholders noted concerns for the potential loss of prime agricultural land from highway widening, salt impacts on crops, and construction and traffic effects on farm operations.

### **Location-Specific Comments**

#### *Mitchell Road Underpass*

- A resident inquired whether an off ramp is being considered for the Mitchell Road Underpass.

### *Highway 401 and Shannonville Road*

- An inquiry was received regarding the extent of Highway 401 expansion at Shannonville Road, particularly whether there would be impacts to Hinchey Road.
- An inquiry was received encouraging the Project Team to explore the inclusion of a wildlife corridor between Shannonville Road and Marysville Road.

### *Highway 401 and Marysville Road*

- An inquiry was received encouraging the Project Team to explore the inclusion of a wildlife corridor between Shannonville Road and Marysville Road.
- A landowner expressed concerns about impacts to agricultural operations, access across Highway 401 (including for over-width equipment), and potential lengthy detours during interchange or overpass construction.

### *Highway 401 and Deseronto Road*

- Similar concerns regarding impacts to agricultural operations were noted, consistent with those identified under the *Highway 401 and Marysville Road Interchange*.

### *Beechwood Road Underpass*

- Several residents along Drive-In Road (east of Beechwood Road) raised concerns about impacts to the viability of prime agricultural land; potential contamination from road salt, traffic, and construction; effects on seedlings planted through a government-funded program; impacts to livestock fencing and noise levels; and broader effects on farm livelihoods, including production to the local community.

### *Highway 401 and County Road 41 (Centre Street)*

- Requests for details on pedestrian and cycling corridors at Highway 401 crossings (e.g., County Road 1, Palace Road, Centre Street / County Road 41).
- The Quinte Detention Centre facility, located in the southeast quadrant of the Highway 401 and County Road 41 / Centre Street interchange, advised of concern related to property impacts, noting that the facility is planning to do some work on the site that will be extending northward.

### *Newburgh Road Underpass*

- Millspring Farms advised that the reconfiguration of Newburgh Road underpass bridge, if extended north, would impact their property, and indicated a preference for the south / west alignment option.

### *Highway 401 and Palace Road*

- Requests for details on pedestrian and cycling corridors at crossings (e.g., County Road 1, Palace Road, Centre Street / County Road 41).
- Inquiry regarding whether culvert modifications are planned along Palace Road in conjunction with the proposed new bridge.

#### *Highway 401 and Camden Road East (County Road 4)*

- Loyalist Township requested consideration of an additional alternative near Camden Road East (County Road 4) involving the construction of an overpass connecting Sharpe Road to Maple Road, which would eliminate approximately 1 km of Sharpes Road and remove the Wilton Creek crossing.
- Loyalist Township requested that the hydrology of Wilton Creek be considered as the Project Team evaluates alternatives at Camden Road East (County Road 4), with recommendations for hydrologic and hydraulic assessments.

#### *Old Wilton Road Underpass*

- Loyalist Township requested clarification on whether the proposed alternatives would require property acquisition from Centennial Park, adjacent to the Old Wilton Road Underpass, in order to identify potential impacts to municipal lands.

#### *Highway 401 and Wilton Road (County Road 6)*

- Loyalist Township opposed Alternative 5 (Parclo B2 / Parclo A2) for Wilton Road (County Road 6), noting that neither Scotland Road nor Old Wilton Road are designed to accommodate the increased traffic associated with a new Highway 401 access ramp.
- A stakeholder suggested an alternative interchange configuration at Wilton Road (County Road 6) that connects Mud Lake Road to Wilton Road (County Road 6) using buttonhook ramp connections to and from Highway 401 on the north side noting that this option would maintain all existing movements to and from Mud Lake Road.
- Concerns were noted regarding the ability to maintain farm equipment access to Odessa via Mud Lake Road and the Wilton Road (County Road 6) interchange, under the proposed interchange alternatives.
- Loyalist Township supported removing access from Mud Lake Road south of Highway 401 and instead incorporating a corner radius that can accommodate plows at Factory Street and Mud Lake Road south.
- Loyalist Township opposed the consideration for a cul-de-sac at County Road 19 (Mud Lake Road north of Highway 401), noting that the existing buttonhook ramp connection to Wilton Road (County Road 6) is a high-priority link for the community and may function as an Emergency Detour Route (EDR).
- Residents requested provisions for kayaks, snowmobiles, and other recreational uses at water crossings, including Millhaven Creek.

### *Highway Widening*

- Requests to minimize Highway 401 footprint by prioritizing expansion within the existing highway corridor or median, as to avoid impacts to adjacent properties.
- Stakeholders expressed opposition to widening Highway 401 to eight lanes through the study area, citing insufficient traffic volumes and environmental impacts.
- Some individuals expressed support for the proposed Highway 401 expansion within the study area.

## 4. How Information Collected At the Public Information Centre Will Be Used

Meaningful consultation with rights holders and stakeholders is essential to ensure that natural, socio-economic / land use, cultural environment, and transportation-related opportunities and impacts are appropriately considered, while also providing a forum to share the Project Team's findings.

Any key features identified by stakeholders at the PIC will be verified and incorporated into mapping that documents existing conditions within the study area.

While the short list of alternatives reflects those that the Project Team believes have the most merit to advance to the detailed evaluation stage, all feedback received at the PIC will be carefully reviewed. This input may lead the Project Team to revisit or refine alternatives, or introduce new ones, should new information warrant such changes.

Stakeholder and rights holder input will also help shape how evaluation criteria are weighted and how trade-offs are considered between alternatives during both the quantitative and qualitative stages of the evaluation process.

The Project Team will make every effort to respond to written comments and inquiries, and all information collected will be integrated into the project as appropriate.

At the close of the project, the Class EA process completed will be documented in a Transportation Environmental Study Report that will be made available for a 30-day comment period that will provide further opportunity to provide input regarding the project.





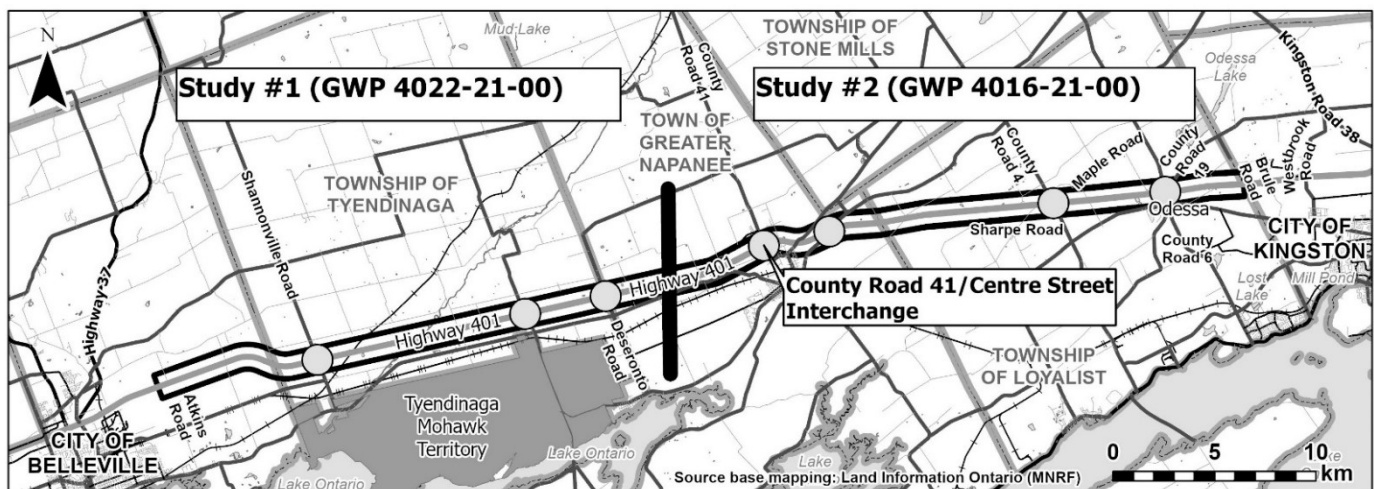
# Appendix A : Notification Material



**NOTICE OF PUBLIC INFORMATION CENTRE #1**  
**HIGHWAY 401 IMPROVEMENTS BETWEEN BELLEVILLE AND KINGSTON**  
**PLANNING, PRELIMINARY DESIGN AND CLASS ENVIRONMENTAL ASSESSMENT**  
**STUDY #1 (GWP 4022-21-00) AND STUDY #2 (GWP 4016-21-00)**

## The Study

The Ontario Ministry of Transportation (MTO) has retained AECOM Canada ULC to undertake two Planning, Preliminary Design and Class Environmental Assessment (Class EA) Studies to address current and future transportation needs by developing a plan for the rehabilitation and/or replacement of various bridges and culverts, determining the long-term interchange configuration at seven locations, and establishing the footprint for the interim six and ultimate eight lanes of Highway 401, between the City of Belleville and the City of Kingston. As illustrated, **Study #1 (GWP 4022-21-00)** includes Highway 401 from 4.3 km east of Highway 37 to 5 km west of County Road 41/Centre Street for a total length of approximately 26 km. **Study #2 (GWP 4016-21-00)** includes Highway 401 from 5 km west of County Road 41/Centre Street to 8 km west of Kingston Road 38 for a total length of approximately 29 km.



## The Process

Each study is following the approved planning process for a Group 'B' project under the *Class Environmental Assessment for Provincial Transportation Facilities and Municipal Expressways, 2024* (Class EA). At the end of each study, the project team will prepare a Transportation Environmental Study Report that describes how the requirements of the Class EA were met; how the project achieves the greatest overall transportation benefit while minimizing environmental impacts, and commitments for consultation and environmental protection. A Notice of Completion will be issued to advise of the start of the 30-day comment period and the opportunity to provide comments on the TESR.

Once a Technically Preferred Alternative has been identified, the Ministry of Transportation may designate lands as highway and acquire property prior to EA process completion. A designation enables the Ministry to provide route/corridor protection through the application of

development control measures along the corridor and in the vicinity of the designated lands. For more information about highway corridor management, please visit:  
<https://www.ontario.ca/page/highway-corridormanagement>

### **Public Information Centre (PIC) #1**

The first of two Public Information Centres is being held to present and receive feedback on each study's background, existing conditions, the preliminary list of improvement alternatives, the evaluation criteria which will be used to assess the alternatives, and the next steps in the Study process. A second PIC will be held later in the study to present the evaluation of alternatives, preferred plan, and associated potential impacts and preliminary proposed mitigation measures.

This public meeting will be an informal drop-in centre with MTO and consultant team representatives available to answer questions. The date, time and location are as follows:

**Tuesday, March 31, 2026, from 4:00 p.m. to 7:00 p.m.**  
**Best and Bash Arena (formerly Strathcona Paper Centre)**  
**16 McPherson Drive, Napanee, Ontario K7R 3L1**  
(Note: Facility is fully accessible).

### **Comments**

Please visit the project website at [Hwy401BellevilletoKingston.ca](https://Hwy401BellevilletoKingston.ca) for more information regarding the project and to access study notices, background information, PIC displays and the TESR that will be made available as each study progresses. You are encouraged to participate in the Study and to please provide any comments in writing to the project team by **April 30th, 2026**. If you wish to have your name added to the project mailing list or have questions about the study, please contact:

**Tim Sorochinsky, P.Eng.**  
**AECOM Project Manager**  
AECOM Canada ULC  
105 Commerce Valley Drive West  
8th Floor  
Markham, Ontario L3T 7W3

**Lucas Bilow, P.Eng.**  
**MTO Lead Engineer**  
Ministry of Transportation, Eastern Region  
Engineering Program Delivery East  
1355 John Counter Boulevard  
Kingston, Ontario K7L 5A3

**Toll-Free Telephone Number:** 1-866-753-2640  
**Email:** [ProjectTeam@Hwy401BellevilletoKingston.ca](mailto:ProjectTeam@Hwy401BellevilletoKingston.ca)

If you have any accessibility requirements in order to participate in this project, please contact one of the Project Team members listed above. Comments and information are being collected to assist the MTO in meeting the requirements of the *Ontario Environmental Assessment Act*. Information will be collected in accordance with the *Freedom of Information and Protection of Privacy Act*. All comments will be maintained on file for use during the study and, with the exception of personal information, may be included in Study documentation and become part of the public record.

| Group                  | Organization                               | Name / Title                                                               | Greeting                   | Address | Telephone | E-Mail |
|------------------------|--------------------------------------------|----------------------------------------------------------------------------|----------------------------|---------|-----------|--------|
| Indigenous Communities | Alderville First Nation                    | Chief Taynar Simpson                                                       | Chief Simpson              |         |           |        |
| Indigenous Communities | Alderville First Nation                    | Dave Simpson<br>Lands & Resource Coordinator                               | Dave Simpson               |         |           |        |
| Indigenous Communities | Alderville First Nation                    | Dr. Julie Kapyrka<br>Consultation Manager                                  | Dr. Kapyrka                |         |           |        |
| Indigenous Communities | Curve Lake First Nation                    | Chief Keith Knott                                                          | Chief Knott                |         |           |        |
| Indigenous Communities | Curve Lake First Nation                    | Kaitlin Hill<br>Lands Resource Consultation Liaison                        | Kaitlin Hill               |         |           |        |
| Indigenous Communities | Curve Lake First Nation                    | Paige Williams<br>Lands Resource Consultation Liaison                      | Paige Williams             |         |           |        |
| Indigenous Communities | Hiawatha First Nation                      | Chief Laurie Carr                                                          | Chief Carr                 |         |           |        |
| Indigenous Communities | Hiawatha First Nation                      | Sean Davison<br>Lands Resource Consultation Liaison                        | Sean Davison               |         |           |        |
| Indigenous Communities | Hiawatha First Nation                      | Tom Cowie<br>Lands Resource Consultation Liaison                           | Tom Cowie                  |         |           |        |
| Indigenous Communities | Mississaugas of Scugog Island First Nation | Chief Kelly LaRocca                                                        | Chief LaRocca              |         |           |        |
| Indigenous Communities | Mississaugas of Scugog Island First Nation | Consultation Department                                                    |                            |         |           |        |
| Indigenous Communities | Mississaugas of Scugog Island First Nation | Don Richardson<br>Consultation Staff                                       | Don Richardson             |         |           |        |
| Indigenous Communities | Mississaugas of Scugog Island First Nation | Sam Shrubsole<br>Consultation Staff                                        | Sam Shrubsole              |         |           |        |
| Indigenous Communities | Williams Treaties First Nations            | Karry Sandy-McKenzie<br>Williams Treaties First Nations Claims Coordinator | Karry Sandy-McKenzie       |         |           |        |
| Indigenous Communities | Mohawks of the Bay of Quinte               | Chief Donald Maracle                                                       | Chief Maracle              |         |           |        |
| Indigenous Communities | Mohawks of the Bay of Quinte               | Sherry Maracle<br>Chief Administrative Officer                             | Sherry Maracle             |         |           |        |
| Indigenous Communities | Mohawks of the Bay of Quinte               | Lisa Maracle<br>Director of Community Services                             | Lisa Maracle               |         |           |        |
| Indigenous Communities | Mohawks of the Bay of Quinte               | Cassie Thompson<br>Consultation Coordinator                                | Cassie Thompson            |         |           |        |
| Indigenous Communities | Kawartha Nishnawbe                         | Kawartha Nishnawbe Council                                                 | Kawartha Nishnawbe Council |         |           |        |

| Group                         | Organization                                                             | Name / Title                                                           | Greeting                 | Address | Telephone | E-Mail |
|-------------------------------|--------------------------------------------------------------------------|------------------------------------------------------------------------|--------------------------|---------|-----------|--------|
| <b>Indigenous Communities</b> | Métis Nation of Ontario                                                  | Consultation Coordinator<br>Consultation Unit                          | Consultation Coordinator |         |           |        |
| <b>Indigenous Agencies</b>    | Ministry of Indigenous Affairs and First Nations Economic Reconciliation | Director, Consultation Unit                                            | To Whom It May Concern   |         |           |        |
| <b>Indigenous Agencies</b>    | Ministry of Indigenous Affairs and First Nations Economic Reconciliation | Matthew Landry<br>Stakeholder and Partner Relations Manager            | Matthew Landry           |         |           |        |
| <b>MP and MPP</b>             | MPP - Hastings - Lennox and Addington                                    | Ric Bresee                                                             | Ric Bresee               |         |           |        |
| <b>MP and MPP</b>             | MPP - Bay of Quinte                                                      | Tyler Allsopp                                                          | Tyler Allsopp            |         |           |        |
| <b>Municipal</b>              | Hastings County                                                          | Connor Dorey<br>CAO                                                    | Connor Dorey             |         |           |        |
| <b>Municipal</b>              | Hastings County                                                          | Justin Harrow<br>Director, Planning and Development                    | Justin Harrow            |         |           |        |
| <b>Municipal</b>              | City of Belleville                                                       | Matt MacDonald<br>CAO                                                  | Matt MacDonald           |         |           |        |
| <b>Municipal</b>              | City of Belleville                                                       | Deanna O'Leary<br>Manager of Engineering                               | Deanna O'Leary           |         |           |        |
| <b>Municipal</b>              | City of Belleville                                                       | Joseph Reid<br>General Manager - Transportation & Operational Services | To Whom It May Concern   |         |           |        |
| <b>Municipal</b>              | City of Belleville                                                       | Steve van De Keere<br>Sr. Project Manager - Engineering                | Steve van De Keere       |         |           |        |
| <b>Municipal</b>              | Township of Tyendinaga                                                   | Carla Preston<br>CAO                                                   | Carla Preston            |         |           |        |
| <b>Municipal</b>              | Township of Tyendinaga                                                   | Dale Lockridge<br>Manager of Roads & Fleet                             | Dale Lockridge           |         |           |        |
| <b>Municipal</b>              | Lennox and Addington County                                              | Brenda Orchard<br>CAO                                                  | Brenda Orchard           |         |           |        |
| <b>Municipal</b>              | Lennox and Addington County                                              | Chris Wagar<br>Director, Infrastructure Services                       | Chris Wagar              |         |           |        |
| <b>Municipal</b>              | Lennox and Addington County                                              | Dan Baxter                                                             | Dan Baxter               |         |           |        |
| <b>Municipal</b>              | Lennox and Addington County                                              | Ethan Winter<br>Engineering Technologist Assistant                     | Ethan Winter             |         |           |        |
| <b>Municipal</b>              | Town of Greater Napanee                                                  | Matthew Grant<br>CAO                                                   | Matthew Grant            |         |           |        |
| <b>Municipal</b>              | Town of Greater Napanee                                                  | Michael Nobes<br>General Manager/CBO                                   | Michael Nobes            |         |           |        |
| <b>Municipal</b>              | Town of Greater Napanee                                                  | Diana Tyner<br>Data Management Administrator                           | Diana Tyner              |         |           |        |

| Group              | Organization                                                            | Name / Title                                                           | Greeting               | Address | Telephone | E-Mail |
|--------------------|-------------------------------------------------------------------------|------------------------------------------------------------------------|------------------------|---------|-----------|--------|
| Municipal          | Town of Greater Napanee                                                 | Sonia McLuckie                                                         | Sonia McLuckie         |         |           |        |
| Municipal          | Loyalist Township                                                       | Rebecca Murphy<br>CAO                                                  | Rebecca Murphy         |         |           |        |
| Municipal          | Loyalist Township                                                       | Luke MacDonald<br>Engineering & Environment Manager                    | Luke MacDonald         |         |           |        |
| Municipal          | Loyalist Township                                                       | Charles McDonald<br>Public Works Manager                               | Charles McDonald       |         |           |        |
| Municipal          | City of Kingston                                                        | Alex Mut<br>Manager of Engineering                                     | Alex Mut               |         |           |        |
| Municipal          | City of Kingston                                                        | Luke Follwell<br>Director of Engineering                               | Luke Follwell          |         |           |        |
| Municipal          | City of Kingston                                                        | Mark Dickson<br>Manager of Transportation                              | Mark Dickson           |         |           |        |
| Emergency Services | Ontario Provincial Police                                               | Serena Davidson<br>Administrative Assistant                            | Serena Davidson        |         |           |        |
| Emergency Services | Ontario Provincial Police                                               | Jennifer Chown                                                         | Jennifer Chown         |         |           |        |
| Emergency Services | Ontario Provincial Police – Lennox & Addington County Detachment        | Al O'Byrne<br>Operations Manager                                       | Al O'Byrne             |         |           |        |
| Emergency Services | Ontario Provincial Police – Lennox & Addington County Detachment        | Dave Tovell<br>Detachment Commander                                    | Dave Tovell            |         |           |        |
| Emergency Services | Ontario Provincial Police                                               | Kristy McNaughton<br>Inspector/Detachment Commander<br>Quinte West OPP | Kristy McNaughton      |         |           |        |
| Emergency Services | Belleville Police Service                                               | Mike Callaghan<br>Chief of Police                                      | Chief Callaghan        |         |           |        |
| Emergency Services | City of Belleville Fire & Emergency Services                            | Jim Young<br>Fire Chief                                                | Chief Young            |         |           |        |
| Emergency Services | Township of Tyendinaga Fire Department                                  | James Oliver<br>Fire Chief                                             | Chief Oliver           |         |           |        |
| Emergency Services | Town of Greater Napanee Fire and Emergency Services                     | Shawn Armstrong<br>Acting Fire Chief                                   | Acting Chief Armstrong |         |           |        |
| Emergency Services | Hastings County Emergency Services / Hastings-Quinte Paramedic Services | Carl Bowker<br>Chief of Emergency Services                             | Chief Bowker           |         |           |        |
| Emergency Services | Lennox and Addington County Paramedic Services                          | Paul Osborn<br>Deputy Chief                                            | Paul Osborn            |         |           |        |
| Emergency Services | Loyalist Township Emergency Services & Fire                             | Kent Readman<br>Director of Emergency Services/Fire Chief              | Chief Readman          |         |           |        |
| Emergency Services | Kingston Police                                                         | Chief of Police                                                        | Chief of Police        |         |           |        |



| Group              | Organization                                                                       | Name / Title                                                                                        | Greeting               | Address | Telephone | E-Mail |
|--------------------|------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|------------------------|---------|-----------|--------|
| Emergency Services | Kingston Police                                                                    | Steve Koopman<br>Traffic Safety Sergeant                                                            | Steve Koopman          |         |           |        |
| Emergency Services | Kingston Police                                                                    | Mhairi Hilliker<br>A/Inspector                                                                      | Mhairi Hilliker        |         |           |        |
| Emergency Services | Kingston Police                                                                    | Cam Gough<br>Staff Sergeant                                                                         | Cam Gough              |         |           |        |
| Emergency Services | City of Kingston Fire and Rescue                                                   | Brandi Timpson                                                                                      | Brandi Timpson         |         |           |        |
| Emergency Services | City of Kingston Fire and Rescue                                                   | Don Carter<br>Deputy Chief of Operations                                                            | To Whom It May Concern |         |           |        |
| External           | Ministry of the Environment,<br>Conservation and Parks, Eastern<br>Regional Office |                                                                                                     | To Whom It May Concern |         |           |        |
| External           | Ministry of the Environment,<br>Conservation and Parks                             | Roberto Sacilotto<br>Acting Supervisor - Eastern Region                                             | Roberto Sacilotto      |         |           |        |
| External           | Ministry of Natural Resources                                                      | Keith Johnston<br>Environmental Planning Team Lead                                                  | Keith Johnston         |         |           |        |
| External           | Ministry of Natural Resources                                                      | Southern Region<br>Attn: Jessica Post                                                               | Jessica Post           |         |           |        |
| External           | Ministry of Tourism, Culture and<br>Gaming and Ministry of Sport                   | James Antler<br>Policy Advisor                                                                      | James Antler           |         |           |        |
| External           | Ministry of Tourism, Culture and<br>Gaming and Ministry of Sport                   | Josh Wilson<br>Co-ordinator, Resource Based Tourism                                                 | Josh Wilson            |         |           |        |
| External           | Ministry of Tourism, Culture and<br>Gaming and Ministry of Sport                   | Laurie Brownlee                                                                                     | Laurie Brownlee        |         |           |        |
| External           | Ministry of Citizenship and<br>Multiculturalism                                    | Karla Barboza<br>Team Lead - Heritage                                                               | Karla Barboza          |         |           |        |
| External           | Ministry of Citizenship and<br>Multiculturalism                                    | Erika Leclerc<br>Heritage Planner                                                                   | Erika Leclerc          |         |           |        |
| External           | Ministry of Agriculture, Food and<br>Rural Affairs                                 | Nancy Rutherford<br>Rural Planner                                                                   | Nancy Rutherford       |         |           |        |
| External           | Ministry of Municipal Affairs and<br>Housing                                       | Michael Elms<br>Manager, Community Planning and Development                                         | Michael Elms           |         |           |        |
| External           | Ministry of the Solicitor General                                                  | Wagdy Guirgis<br>Manager, Capital Planning Facilities and Capital Planning<br>Branch                | Wagdy Guirgis          |         |           |        |
| External           | Ministry of the Solicitor General                                                  | Amorette Rodrigues<br>Manager, P3 Delivery and Operations Facilities and<br>Capital Planning Branch | Amorette Rodrigues     |         |           |        |
| External           | Fisheries and Oceans Canada                                                        |                                                                                                     | To Whom It May Concern |         |           |        |
| External           | Environment and Climate Change<br>Canada                                           | Rob Clavering<br>Manager - Environmental Assessment Section                                         | Rob Clavering          |         |           |        |

| Group    | Organization                                 | Name / Title                                                                           | Greeting               | Address | Telephone | E-Mail |
|----------|----------------------------------------------|----------------------------------------------------------------------------------------|------------------------|---------|-----------|--------|
| External | Natural Resources Canada                     |                                                                                        | To Whom It May Concern |         |           |        |
| External | Transport Canada                             | Environmental Assessment Coordinator - Kingston Ontario Region                         | To Whom It May Concern |         |           |        |
| External | Infrastructure Ontario                       | Katherine Hotrum<br>Director Environmental Projects                                    | Katherine Hotrum       |         |           |        |
| External | Infrastructure Ontario                       | Erica Anderson<br>Environmental Manager                                                | Erica Anderson         |         |           |        |
| External | Infrastructure Ontario                       | David Macey<br>Vice President, Portfolio Planning and Development                      | David Macey            |         |           |        |
| External | Infrastructure Ontario                       | Joanna Craig<br>Planner                                                                | Joanna Craig           |         |           |        |
| External | Ontario Federation of Agriculture            | Resi Wait<br>Hastings, Lennox & Addington, Northumberland, Prince Edward (Zone 12)     | Resi Wait              |         |           |        |
| External | Hastings Federation of Agriculture           | Harry Scanlan<br>President                                                             | Harry Scanlan          |         |           |        |
| External | Lennox & Addington Federation of Agriculture | Leonard Austin<br>President                                                            | Leonard Austin         |         |           |        |
| External | Ontario Trucking Association                 | Geoff Wood                                                                             | Geoff Wood             |         |           |        |
| External | CN Rail                                      | Umair Naveed<br>Project Officer- Public Works   Eastern Canada Division of Engineering | Umair Naveed           |         |           |        |
| External | CP Rail                                      | Tom Twigge<br>Director - Project and Public Works                                      | Tom Twigge             |         |           |        |
| External | VIA Rail Canada Inc.                         |                                                                                        | To Whom It May Concern |         |           |        |
| External | Cataraqui Region Conservation Authority      | Mallory Wright<br>Technologist, Water Resources                                        | Mallory Wright         |         |           |        |
| External | Cataraqui Region Conservation Authority      | Michael Dakin<br>Supervisor, Development Review                                        | Michael Dakin          |         |           |        |
| External | Quinte Conservation Authority                | Paul McCoy<br>Planning & Regulations Manager                                           | Paul McCoy             |         |           |        |
| External | Quinte Conservation Authority                | Christine Phillibert<br>Water Resources Manager                                        | Christine Phillibert   |         |           |        |
| External | Quinte Conservation Authority                | Sam Carney<br>Planning Technician                                                      | Sam Carney             |         |           |        |
| External | Quinte Conservation Authority                |                                                                                        | To Whom it May Concern |         |           |        |

| Group                    | Organization                                                                        | Name / Title                                                 | Greeting               | Address | Telephone | E-Mail |
|--------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------|------------------------|---------|-----------|--------|
| External                 | A2A Algonquin to Adirondacks Collaborative                                          | Nasha Choudhury<br>Executive Director                        | Nasha Choudhury        |         |           |        |
| External                 | A2A Algonquin to Adirondacks Collaborative                                          | Aleisha Pannozzo<br>Communications Lead                      | Aleisha Pannozzo       |         |           |        |
| External                 | A2A Algonquin to Adirondacks Collaborative                                          | Jess Lax                                                     | Jess Lax               |         |           |        |
| External                 | Limestone District School Board                                                     | Jane Douglas<br>Communications Consultant                    | Jane Douglas           |         |           |        |
| External                 | Hastings and Prince Edward District School Board                                    | Director's Office                                            | To Whom It May Concern |         |           |        |
| External                 | Algonquin and Lakeshore Catholic District Board                                     | Terry Shea<br>Chair of the Board                             | Terry Shea             |         |           |        |
| External                 | Conseil des ecoles publiques de l'Est de l'Ontario                                  | Samia Ouled Ali<br>School Board President                    | Samia Ouled Ali        |         |           |        |
| External                 | Tri-Board Student Transportation Services                                           | C. Young<br>President                                        | C. Young               |         |           |        |
| External                 | Hydro One Networks Inc.                                                             | Hydro One Networks Inc. Secondary Land Use                   | To Whom It May Concern |         |           |        |
| External                 | Metrolinx                                                                           | Pam Foster<br>Director Environmental Programs and Assessment | Pam Foster             |         |           |        |
| External                 | Bereavement Authority of Ontario                                                    | Selena Janssens                                              | Selena Janssens        |         |           |        |
| External                 | Bereavement Authority of Ontario                                                    | Jamie Traynor<br>Licensing Officer                           | Jamie Traynor          |         |           |        |
| <b>Legend</b>            |                                                                                     |                                                              |                        |         |           |        |
| Indigenous Communities   | Indigenous Letter, Notice of Study Commencement                                     |                                                              |                        |         |           |        |
| Indigenous Agencies      | Indigenous Agency Letter, Notice of Study Commencement                              |                                                              |                        |         |           |        |
| MP and MPP               | MPMPP Letter, Notice of Study Commencement                                          |                                                              |                        |         |           |        |
| Municipal                | External Letter, Stakeholder Contact Information Form, Notice of Study Commencement |                                                              |                        |         |           |        |
| Emergency Services       | External Letter, Stakeholder Contact Information Form, Notice of Study Commencement |                                                              |                        |         |           |        |
| External                 | External Letter, Stakeholder Contact Information Form, Notice of Study Commencement |                                                              |                        |         |           |        |
| Public                   | Public Letter, Notice of Study Commencement                                         |                                                              |                        |         |           |        |
| Impacted Property Owners | N/A for Study Commencement                                                          |                                                              |                        |         |           |        |
|                          | Email only                                                                          |                                                              |                        |         |           |        |

*Note: In accordance with the Freedom of Information and Protection of Privacy Act, personal information and public stakeholders have been removed.*

**Ministry of  
Transportation**

Capital Planning &  
Program Development East

1355 John Counter  
Boulevard  
Postal Bag 4000  
Kingston, Ontario K7L 5A3  
Tel.: 613-540-5106

**Ministère des Transports**

Planification des  
immobilisations et  
développement de  
programmes Est

1355, boulevard John  
Counter  
CP/Service de sacs 4000  
Kingston (Ontario) K7L 5A3  
Tél.: 613-540-5187



March 17, 2026

MPP LETTER

Hon. Tyler Allsopp  
MPP Bay of Quinte  
5503 Highway 62 South, Unit 8  
Belleville, ON K8N 0L5

Attn: Hon. Tyler Allsopp

**Ref: Notice of Public Information Centre #1  
Highway 401 Improvements between Belleville and Kingston  
Planning, Preliminary Design and Class Environmental Assessment  
Study #1 (GWP 4022-21-00) and Study #2 (GWP 4016-21-00)  
Ontario Ministry of Transportation**

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The Ontario Ministry of Transportation (MTO) has retained the services of AECOM Canada ULC to undertake the following two Planning, Preliminary Design and Class Environmental Assessment (Class EA) Studies to develop a plan of improvement to Highway 401 between the City of Belleville and the City of Kingston:

- **Study #1 (GWP 4022-21-00)** – includes Highway 401 from 4.3 km east of Highway 37 to 5 km west of County Road 41/Centre Street for a total length of approximately 26 km. The Study area is located within the City of Belleville, the Township of Tyendinaga, the Town of Greater Napanee, the County of Hastings, and the County of Lennox and Addington.
- **Study #2 (GWP 4016-21-00)** – includes Highway 401 from 5 km west of County Road 41/Centre Street to 8 km west of Kingston Road 38 for a total length of approximately 29 km. The Study area is located within the Town of Greater Napanee, the Township of Loyalist, and the County of Lennox and Addington.

These studies will address current and future transportation needs by developing a plan for the rehabilitation and/or replacement of various structures, determining the long-term interchange configuration at seven locations, and establishing the footprint for the interim six and ultimate eight lanes of Highway 401. Each study is following the approved planning process for a Group 'B' project in accordance with the MTO 2024 *Class EA for Provincial Transportation Facilities and Municipal Expressways*. Please refer to the enclosed Notice for additional details and to view the project study area.

**The purpose of this letter is to notify you that Public Information Centre (PIC) #1 has now been scheduled for this project.** The first of two PICs is being held to present and receive feedback on each study's background, existing conditions, the preliminary list of improvement alternatives, the evaluation criteria which will be used to assess the alternatives, and the next steps in the Study process. PIC #1 will be an informal drop-in centre with MTO and consultant team representatives available to answer questions. Letters notifying of PIC #1 will be provided to those on the project contact list by direct mail starting on **March 17, 2026** and a Notice of PIC #1 will be published in the following newspapers to address both study areas:

- *Napanee Beaver* on Monday, March 23, 2026;
- *Community Press* (Belleville & Region) on Thursday, March 26, 2026;
- *Kingston/Frontenac This Week* on Thursday, March 26, 2026; and
- *Belleville Intelligencer* on Saturday, March 28 2026;
- *Kingston Whig-Standard* on Saturday, March 28th, 2026.

There is an opportunity at any time during these studies for interested persons to provide input to the Project Team including comments and information regarding both studies. Information collected will be used in accordance with the *Freedom of Information and Protection of Privacy Act*. With the exception of personal information, all comments will become part of the public record. If you have any accessibility requirements in order to participate in these studies, please contact the undersigned.

Should you have any questions or concerns regarding this project, please visit the project website at [Hwy401BellevilletoKingston.ca](http://Hwy401BellevilletoKingston.ca) or contact the undersigned. In addition, if you are interested in meeting as a result of receiving this letter, please contact me at your earliest convenience to arrange a suitable date and time.

Sincerely,

**Lucas Bilow, P.Eng.**  
**MTO Lead Engineer**  
Tel: 613-483-5982  
Email: [lucas.bilow@ontario.ca](mailto:lucas.bilow@ontario.ca)

Encl. Notice of Public Information Centre #1

cc: A. Dickson, MTO, Environmental Planner  
T. Sorochinsky, AECOM, Project Manager  
F. Sapateiro, AECOM, Deputy Project Manager  
A. Potter, AECOM, Senior Environmental Planner



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Tél.: 613-540-5187



MPP LETTER

March 17, 2026

Hon. Ric Bresee  
MPP - Hastings - Lennox and Addington  
26A St. Lawrence St. W  
P.O. Box 70  
Madoc, ON K0K 2K0

Attn: Hon. Ric Bresee

**Ref: Notice of Public Information Centre #1  
Highway 401 Improvements between Belleville and Kingston  
Planning, Preliminary Design and Class Environmental Assessment  
Study #1 (GWP 4022-21-00) and Study #2 (GWP 4016-21-00)  
Ontario Ministry of Transportation**

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Sincerely,

**Lucas Bilow, P.Eng.**  
**MTO Lead Engineer**  
Tel: 613-483-5982  
Email: [lucas.bilow@ontario.ca](mailto:lucas.bilow@ontario.ca)

Encl. Notice of Public Information Centre #1

cc: A. Dickson, MTO, Environmental Planner  
T. Sorochinsky, AECOM, Project Manager  
F. Sapateiro, AECOM, Deputy Project Manager  
A. Potter, AECOM, Senior Environmental Planner



**Potter, Andrea**

---

**From:** Sacchetti, Franca (She/Her) (MTO) <Franca.Sacchetti@ontario.ca>  
**Sent:** March 4, 2026 9:20 AM  
**To:** tsimpson  
**Cc:** AldervilleFN Consultation Office; Julie Kapyrka; Jordon MacArthur; szilinski; Moniz, Patricia (MTO); Bilow, Lucas (MTO); Dickson, Amanda (MTO); Soroichinsky, Tim; Sapateiro, Felipe; Potter, Andrea  
**Subject:** Notice of Public Information Centre - Highway 401 Improvements between Belleville and Kingston (GWP 4022-21-00) (GWP 4016-21-00)  
**Attachments:** AFN\_Community INDIGENOUS Ltr\_NofPIC1\_BtoK\_Mar-04-2026\_FINAL.pdf

**This Message Is From an External Sender**

This message came from outside your organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

[Report Suspicious](#)

Good morning Chief Simpson,

Please find attached a letter advising of the Public Information Centre to be held in Napanee on March 31, 2026 for the above-mentioned project.

Should you have any questions or concerns, please feel free to reach out.

Sincerely,

**Franca Sacchetti**

Regional Director, East Region

Operations Division

Ministry of Transportation | Ontario Public Service

647-638-5359, [franca.sacchetti@ontario.ca](mailto:franca.sacchetti@ontario.ca)



*Taking pride in strengthening Ontario, its places and its people*

March 4, 2026

Chief Taynar Simpson  
Alderville First Nation  
P.O. Box 46, 11696 Second Line Rd.  
Alderville, ON K0K 2X0

Sent via email: [tsimpson@alderville.ca](mailto:tsimpson@alderville.ca)

**RE: Notice of Public Information Centre #1  
Highway 401 Improvements between Belleville and Kingston  
Planning, Preliminary Design and Class Environmental Assessment  
Study #1 (GWP 4022-21-00) and Study #2 (GWP 4016-21-00)  
Ontario Ministry of Transportation**

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Dear Chief Simpson:

The Ontario Ministry of Transportation (MTO) has retained the services of AECOM Canada ULC to undertake the following two Planning, Preliminary Design and Class Environmental Assessment (Class EA) Studies to develop a plan of improvement to Highway 401 between the City of Belleville and the City of Kingston:

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These studies are following the approved planning process for a Group 'B' Project in accordance with the MTO 2024 *Class EA for Provincial Transportation Facilities and Municipal Expressways*.

**The purpose of this letter is to notify you that the first of two rounds of Public Information Centres (PIC) for these studies has been scheduled.**

PIC #1 is being held to present and receive feedback on each study's background, existing conditions, the preliminary list of improvement alternatives, the evaluation criteria which will be used to assess the alternatives, and the next steps in the Study process. PIC #1 will be an informal drop-in session with MTO and consultant team representatives available to answer questions.

Your community is invited to attend a preview session of PIC #1 as follows:

**Tuesday, March 31, 2026, from 3:00 p.m. to 4:00 p.m.**  
**Best and Bash Arena (formerly Strathcona Paper Centre)**  
**16 McPherson Drive, Napanee, ON K7R 3L1**  
(Note: Facility is fully accessible).

**Members of the public are invited to attend the open house portion of PIC #1 from 4:00 p.m. to 7:00 p.m.**

Please note that the Project Team is also available to meet with your community to provide an overview of the material to be presented at PIC #1, respond to questions, and discuss strategies to incorporate your input into the studies and address concerns. To arrange this meeting, please contact me, Franca Sacchetti, Director of East Operations by email at [Franca.Sacchetti@ontario.ca](mailto:Franca.Sacchetti@ontario.ca), or Patricia Moniz, Indigenous Liaison Specialist by email at [Patricia.Moniz@ontario.ca](mailto:Patricia.Moniz@ontario.ca) or by phone at 613-483-7588.

Information collected during the Preliminary Design Studies and Class Environmental Assessments will be used in accordance with the *Freedom of Information and Protection of Privacy Act*. With the exception of personal information, all comments will become part of the public record. Please contact me if you have accessibility requirements in order to participate in this project.

Should you have any comments, questions or concerns on the proposed activities, or would like any additional information, please contact us as noted above.

Sincerely,



Franca Sacchetti  
Director, East Operations

cc: Alderville First Nation (AFN) Lands & Resource Coordinator ([consultation@alderville.ca](mailto:consultation@alderville.ca))  
J. Kapyrka, AFN Consultation Coordinator ([jkapyrka@alderville.ca](mailto:jkapyrka@alderville.ca))  
J. McArthur, AFN Archaeological Program Coordinator ([jmacarthur@alderville.ca](mailto:jmacarthur@alderville.ca))  
S. Zilinski, AFN Special Projects Consultants ([szilinski@alderville.ca](mailto:szilinski@alderville.ca))  
P Moniz MTO, Indigenous Liaison Specialist ([patricia.moniz@ontario.ca](mailto:patricia.moniz@ontario.ca))  
L. Bilow, MTO, Lead Engineer ([lucas.bilow@ontario.ca](mailto:lucas.bilow@ontario.ca))  
A. Dickson, MTO, Environmental Planner ([amanda.dickson@ontario.ca](mailto:amanda.dickson@ontario.ca))  
T. Soroichinsky, AECOM, Project Manager ([tim.soroichinsky@aecom.com](mailto:tim.soroichinsky@aecom.com))  
F. Sapateiro, AECOM, Deputy Project Manager ([felipe.sapateiro@aecom.com](mailto:felipe.sapateiro@aecom.com))  
A. Potter, AECOM, Senior Environmental Planner ([andrea.potter@aecom.com](mailto:andrea.potter@aecom.com))



## Potter, Andrea

---

**From:** Sacchetti, Franca (She/Her) (MTO) <Franca.Sacchetti@ontario.ca>  
**Sent:** March 4, 2026 9:24 AM  
**To:** laurieh@curvelake.ca  
**Cc:** Consultation Email; paigew; davidr@curvelake.ca; APAdmin; Francis M. Chua; Kayla Wright; Jaimi O'Hara; Moniz, Patricia (MTO); Bilow, Lucas (MTO); Dickson, Amanda (MTO); Sorochinsky, Tim; Sapateiro, Felipe; Potter, Andrea  
**Subject:** Notice of Public Information Centre - Highway 401 Improvements between Belleville and Kingston (GWP 4022-21-00) (GWP 4016-21-00)  
**Attachments:** CLFN\_Community INDIGENOUS Ltr\_NofPIC1\_BtoK\_Mar-04-2026\_FINAL.pdf

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Good morning Chief Hockaday,

Please find attached a letter advising of the Public Information Centre to be held in Napanee on March 31, 2026 for the above-mentioned project.

Should you have any questions or concerns, please feel free to reach out.

Sincerely,

**Franca Sacchetti**

Regional Director, East Region

Operations Division

Ministry of Transportation | Ontario Public Service

647-638-5359, [franca.sacchetti@ontario.ca](mailto:franca.sacchetti@ontario.ca)



*Taking pride in strengthening Ontario, its places and its people*



March 4, 2026

Chief Laurie Hockaday  
Curve Lake First Nation  
22 Winookeeda Road,  
Curve Lake, ON K0L 1R0

Sent via email: [laurieh@curvelake.ca](mailto:laurieh@curvelake.ca)

**RE: Notice of Public Information Centre #1  
Highway 401 Improvements between Belleville and Kingston  
Planning, Preliminary Design and Class Environmental Assessment  
Study #1 (GWP 4022-21-00) and Study #2 (GWP 4016-21-00)  
Ontario Ministry of Transportation**

---

Dear Chief Hockaday:

The Ontario Ministry of Transportation (MTO) has retained the services of AECOM Canada ULC to undertake the following two Planning, Preliminary Design and Class Environmental Assessment (Class EA) Studies to develop a plan of improvement to Highway 401 between the City of Belleville and the City of Kingston:

- **Study #1 (GWP 4022-21-00)** – includes Highway 401 from 4.3 km east of Highway 37 to 5 km west of County Road 41/Centre Street for a total length of approximately 26 km. The Study area is located within the City of Belleville, the Township of Tyendinaga, the Town of Greater Napanee, the County of Hastings, and the County of Lennox and Addington.
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These studies are following the approved planning process for a Group 'B' Project in accordance with the MTO 2024 *Class EA for Provincial Transportation Facilities and Municipal Expressways*.

**The purpose of this letter is to notify you that the first of two rounds of Public Information Centres (PIC) for these studies has been scheduled.**

PIC #1 is being held to present and receive feedback on each study's background, existing conditions, the preliminary list of improvement alternatives, the evaluation criteria which will be used to assess the alternatives, and the next steps in the Study process. PIC #1 will be an informal drop-in session with MTO and consultant team representatives available to answer questions.

Your community is invited to attend a preview session of PIC #1 as follows:

**Tuesday, March 31, 2026, from 3:00 p.m. to 4:00 p.m.**  
**Best and Bash Arena (formerly Strathcona Paper Centre)**  
**16 McPherson Drive, Napanee, ON K7R 3L1**  
(Note: Facility is fully accessible).

**Members of the public are invited to attend the open house portion of PIC #1 from 4:00 p.m. to 7:00 p.m.**

Please note that the Project Team is also available to meet with your community to provide an overview of the material to be presented at PIC #1, respond to questions, and discuss strategies to incorporate your input into the studies and address concerns. To arrange this meeting, please contact me, Franca Sacchetti, Director of East Operations by email at [Franca.Sacchetti@ontario.ca](mailto:Franca.Sacchetti@ontario.ca), or Patricia Moniz, Indigenous Liaison Specialist by email at [Patricia.Moniz@ontario.ca](mailto:Patricia.Moniz@ontario.ca) or by phone at 613-483-7588.

Information collected during the Preliminary Design Studies and Class Environmental Assessments will be used in accordance with the *Freedom of Information and Protection of Privacy Act*. With the exception of personal information, all comments will become part of the public record. Please contact me if you have accessibility requirements in order to participate in this project.

Should you have any comments, questions or concerns on the proposed activities, or would like any additional information, please contact us as noted above.

Sincerely,



Franca Sacchetti  
Director, East Operations

cc: Curve Lake First Nation (CLFN) Consultation Office ([consultation@curvelake.ca](mailto:consultation@curvelake.ca))  
P. Williams, CLFN Lands Resource Consultation Liaison ([paigew@curvelake.ca](mailto:paigew@curvelake.ca))  
D. Rawniak, CLFN Consultation Coordinator ([DavidR@CurveLake.ca](mailto:DavidR@CurveLake.ca))  
D. Paauw, CLFN Archaeological Program Administrator ([APAdmin@curvelake.ca](mailto:APAdmin@curvelake.ca))  
F. Chua, Consultant for Curve Lake ([francis@francischua.com](mailto:francis@francischua.com))  
K. Wright, Consultant for Curve Lake ([kayla@francischua.com](mailto:kayla@francischua.com))  
J. O'Hara, Consultant for Curve Lake ([jaimi@francischua.com](mailto:jaimi@francischua.com))  
P Moniz MTO, Indigenous Liaison Specialist ([patricia.moniz@ontario.ca](mailto:patricia.moniz@ontario.ca))

L. Bilow, MTO, Lead Engineer ([lucas.bilow@ontario.ca](mailto:lucas.bilow@ontario.ca))  
A. Dickson, MTO, Environmental Planner ([amanda.dickson@ontario.ca](mailto:amanda.dickson@ontario.ca))  
T. Sorochinsky, AECOM, Project Manager ([tim.sorochinsky@aecom.com](mailto:tim.sorochinsky@aecom.com))  
F. Sapateiro, AECOM, Deputy Project Manager ([felipe.sapateiro@aecom.com](mailto:felipe.sapateiro@aecom.com))  
A. Potter, AECOM, Senior Environmental Planner ([andrea.potter@aecom.com](mailto:andrea.potter@aecom.com))

## Potter, Andrea

---

**From:** Sacchetti, Franca (She/Her) (MTO) <Franca.Sacchetti@ontario.ca>  
**Sent:** March 4, 2026 9:28 AM  
**To:** Chief Laurie Carr  
**Cc:** Sean Davison; Tom Cowie; Mandy McGonigle; Ryan Gray-Brady; Moniz, Patricia (MTO); Bilow, Lucas (MTO); Dickson, Amanda (MTO); Soroichinsky, Tim; Sapateiro, Felipe; Potter, Andrea  
**Subject:** Notice of Public Information Centre - Highway 401 Improvements between Belleville and Kingston (GWP 4022-21-00) (GWP 4016-21-00)  
**Attachments:** HFN\_Community INDIGENOUS Ltr\_NofPIC1\_BtoK\_Mar-04-2026\_FINAL.pdf

### This Message Is From an External Sender

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Good morning Chief Carr,

Please find attached a letter advising of the Public Information Centre to be held in Napanee on March 31, 2026 for the above-mentioned project.

Should you have any questions or concerns, please feel free to reach out.

Sincerely,

**Franca Sacchetti**

Regional Director, East Region

Operations Division

Ministry of Transportation | Ontario Public Service

647-638-5359, [franca.sacchetti@ontario.ca](mailto:franca.sacchetti@ontario.ca)



*Taking pride in strengthening Ontario, its places and its people*

March 4, 2026

Chief Laurie Carr  
Hiawatha First Nation  
431 Hiawatha Line  
Hiawatha, ON K9J 0E6

Sent via email: [chiefcarr@hiawathafn.ca](mailto:chiefcarr@hiawathafn.ca)

**RE: Notice of Public Information Centre #1  
Highway 401 Improvements between Belleville and Kingston  
Planning, Preliminary Design and Class Environmental Assessment  
Study #1 (GWP 4022-21-00) and Study #2 (GWP 4016-21-00)  
Ontario Ministry of Transportation**

---

Dear Chief Carr:

The Ontario Ministry of Transportation (MTO) has retained the services of AECOM Canada ULC to undertake the following two Planning, Preliminary Design and Class Environmental Assessment (Class EA) Studies to develop a plan of improvement to Highway 401 between the City of Belleville and the City of Kingston:

- **Study #1 (GWP 4022-21-00)** – includes Highway 401 from 4.3 km east of Highway 37 to 5 km west of County Road 41/Centre Street for a total length of approximately 26 km. The Study area is located within the City of Belleville, the Township of Tyendinaga, the Town of Greater Napanee, the County of Hastings, and the County of Lennox and Addington.
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These studies are following the approved planning process for a Group 'B' Project in accordance with the MTO 2024 *Class EA for Provincial Transportation Facilities and Municipal Expressways*.

**The purpose of this letter is to notify you that the first of two rounds of Public Information Centres (PIC) for these studies has been scheduled.**

PIC #1 is being held to present and receive feedback on each study's background, existing conditions, the preliminary list of improvement alternatives, the evaluation criteria which will be

used to assess the alternatives, and the next steps in the Study process. PIC #1 will be an informal drop-in session with MTO and consultant team representatives available to answer questions.

Your community is invited to attend a preview session of PIC #1 as follows:

**Tuesday, March 31, 2026, from 3:00 p.m. to 4:00 p.m.**  
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**16 McPherson Drive, Napanee, ON K7R 3L1**  
(Note: Facility is fully accessible).

**Members of the public are invited to attend the open house portion of PIC #1 from 4:00 p.m. to 7:00 p.m.**

Please note that the Project Team is also available to meet with your community to provide an overview of the material to be presented at PIC #1, respond to questions, and discuss strategies to incorporate your input into the studies and address concerns. To arrange this meeting, please contact me, Franca Sacchetti, Director of East Operations by email at [Franca.Sacchetti@ontario.ca](mailto:Franca.Sacchetti@ontario.ca), or Patricia Moniz, Indigenous Liaison Specialist by email at [Patricia.Moniz@ontario.ca](mailto:Patricia.Moniz@ontario.ca) or by phone at 613-483-7588.

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Should you have any comments, questions or concerns on the proposed activities, or would like any additional information, please contact us as noted above.

Sincerely,



Franca Sacchetti  
Director, East Operations

cc: S. Davison, HFN Lands Resource Consultation Liaison ([sdavison@hiawathafn.ca](mailto:sdavison@hiawathafn.ca))  
T. Cowie, HFN Lands Resource Consultation Liaison ([tcowie@hiawathafn.ca](mailto:tcowie@hiawathafn.ca))  
M. McGonigle, HFN Archaeology Liaison ([mmcgonigle@hiawathafn.ca](mailto:mmcgonigle@hiawathafn.ca))  
R. Gray-Bradym HFN Lands Resource Consultation Liaison ([rgray-brady@hiawathafn.ca](mailto:rgray-brady@hiawathafn.ca))  
P Moniz MTO, Indigenous Liaison Specialist ([patricia.moniz@ontario.ca](mailto:patricia.moniz@ontario.ca))  
L. Bilow, MTO, Lead Engineer ([lucas.bilow@ontario.ca](mailto:lucas.bilow@ontario.ca))  
A. Dickson, MTO, Environmental Planner ([amanda.dickson@ontario.ca](mailto:amanda.dickson@ontario.ca))  
T. Sorochinsky, AECOM, Project Manager ([tim.sorochinsky@aecom.com](mailto:tim.sorochinsky@aecom.com))  
F. Sapateiro, AECOM, Deputy Project Manager ([felipe.sapateiro@aecom.com](mailto:felipe.sapateiro@aecom.com))  
A. Potter, AECOM, Senior Environmental Planner ([andrea.potter@aecom.com](mailto:andrea.potter@aecom.com))



## Potter, Andrea

---

**From:** Sacchetti, Franca (She/Her) (MTO) <Franca.Sacchetti@ontario.ca>  
**Sent:** March 4, 2026 9:32 AM  
**To:** kawarthanishnawbecouncil; nodin.webb; giiwednang; jessica-bfcc; dianeblunt1  
**Cc:** Moniz, Patricia (MTO); Bilow, Lucas (MTO); Flude, Amanda L (She/Her) (MTO); Sorochinsky, Tim; Sapateiro, Felipe; Potter, Andrea  
**Subject:** Notice of Public Information Centre - Highway 401 Improvements between Belleville and Kingston (GWP 4022-21-00) (GWP 4016-21-00)  
**Attachments:** KNFN\_Community INDIGENOUS Ltr\_NofPIC1\_BtoK\_Mar-04-2026\_FINAL.pdf

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Good morning Kawartha Nishnawbe Council,

Please find attached a letter advising of the Public Information Centre to be held in Napanee on March 31, 2026 for the above-mentioned project.

Should you have any questions or concerns, please feel free to reach out.

Sincerely,

**Franca Sacchetti**

Regional Director, East Region

Operations Division

Ministry of Transportation | Ontario Public Service

647-638-5359, [franca.sacchetti@ontario.ca](mailto:franca.sacchetti@ontario.ca)



*Taking pride in strengthening Ontario, its places and its people*



March 4, 2026

Kawartha Nishnawbe Council  
Kawartha Nishnawbe First Nation  
257 Big Cedar Lake Road  
Big Cedar, ON K0L 2H0

Sent via email:

[kawarthanishnawbecouncil@outlook.com](mailto:kawarthanishnawbecouncil@outlook.com);  
[nodin.webb@hotmail.com](mailto:nodin.webb@hotmail.com);  
[giiwednang@hotmail.com](mailto:giiwednang@hotmail.com);  
[jessica-bfcc@outlook.com](mailto:jessica-bfcc@outlook.com);  
[dianeblunt1@gmail.com](mailto:dianeblunt1@gmail.com)

**RE: Notice of Public Information Centre #1  
Highway 401 Improvements between Belleville and Kingston  
Planning, Preliminary Design and Class Environmental Assessment  
Study #1 (GWP 4022-21-00) and Study #2 (GWP 4016-21-00)  
Ontario Ministry of Transportation**

---

Dear Kawartha Nishnawbe Council:

The Ontario Ministry of Transportation (MTO) has retained the services of AECOM Canada ULC to undertake the following two Planning, Preliminary Design and Class Environmental Assessment (Class EA) Studies to develop a plan of improvement to Highway 401 between the City of Belleville and the City of Kingston:

- **Study #1 (GWP 4022-21-00)** – includes Highway 401 from 4.3 km east of Highway 37 to 5 km west of County Road 41/Centre Street for a total length of approximately 26 km. The Study area is located within the City of Belleville, the Township of Tyendinaga, the Town of Greater Napanee, the County of Hastings, and the County of Lennox and Addington.
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**The purpose of this letter is to notify you that the first of two rounds of Public Information Centres (PIC) for these studies has been scheduled.**

PIC #1 is being held to present and receive feedback on each study's background, existing conditions, the preliminary list of improvement alternatives, the evaluation criteria which will be used to assess the alternatives, and the next steps in the Study process. PIC #1 will be an informal drop-in session with MTO and consultant team representatives available to answer questions.

Your community is invited to attend a preview session of PIC #1 as follows:

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**Best and Bash Arena (formerly Strathcona Paper Centre)**  
**16 McPherson Drive, Napanee, ON K7R 3L1**  
(Note: Facility is fully accessible).

**Members of the public are invited to attend the open house portion of PIC #1 from 4:00 p.m. to 7:00 p.m.**

Please note that the Project Team is also available to meet with your community to provide an overview of the material to be presented at PIC #1, respond to questions, and discuss strategies to incorporate your input into the studies and address concerns. To arrange this meeting, please contact me, Franca Sacchetti, Director of East Operations by email at [Franca.Sacchetti@ontario.ca](mailto:Franca.Sacchetti@ontario.ca), or Patricia Moniz, Indigenous Liaison Specialist by email at [Patricia.Moniz@ontario.ca](mailto:Patricia.Moniz@ontario.ca) or by phone at 613-483-7588.

Information collected during the Preliminary Design Studies and Class Environmental Assessments will be used in accordance with the *Freedom of Information and Protection of Privacy Act*. With the exception of personal information, all comments will become part of the public record. Please contact me if you have accessibility requirements in order to participate in this project.

Should you have any comments, questions or concerns on the proposed activities, or would like any additional information, please contact us as noted above.

Sincerely,



Franca Sacchetti  
Director, East Operations

cc: P Moniz MTO, Indigenous Liaison Specialist ([patricia.moniz@ontario.ca](mailto:patricia.moniz@ontario.ca))  
L. Bilow, MTO, Lead Engineer ([lucas.bilow@ontario.ca](mailto:lucas.bilow@ontario.ca))  
A. Dickson, MTO, Environmental Planner ([amanda.dickson@ontario.ca](mailto:amanda.dickson@ontario.ca))  
T. Soroichinsky, AECOM, Project Manager ([tim.soroichinsky@aecom.com](mailto:tim.soroichinsky@aecom.com))  
F. Sapateiro, AECOM, Deputy Project Manager ([felipe.sapateiro@aecom.com](mailto:felipe.sapateiro@aecom.com))  
A. Potter, AECOM, Senior Environmental Planner ([andrea.potter@aecom.com](mailto:andrea.potter@aecom.com))



## Potter, Andrea

---

**From:** Sacchetti, Franca (She/Her) (MTO) <Franca.Sacchetti@ontario.ca>  
**Sent:** March 4, 2026 9:09 AM  
**To:** R. Donald Maracle  
**Cc:** Angela Maracle; Cassie Thompson; Moniz, Patricia (MTO); Bilow, Lucas (MTO); Dickson, Amanda (MTO); Sorochinsky, Tim; Sapateiro, Felipe; Potter, Andrea  
**Subject:** Notice of Public Information Centre - Highway 401 Improvements between Belleville and Kingston (GWP 4022-21-00) (GWP 4016-21-00)  
**Attachments:** Various projects to be discussed between MBQ and MTO- request for meeting dates; MBQ INDIGENOUS\_NofPIC1\_Belleville to Kingston\_Mar-04-2026\_FINAL.pdf

### This Message Is From an External Sender

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Good morning Chief Maracle,

Please find attached a letter advising of the Public Information Centre to be held in Napanee on March 31, 2026 for the above-mentioned project. As requested in my February 20, 2026 correspondence (attached), MTO would like to meet with you to discuss this project preferably the week of March 9.

Do these dates and times work for you?

**March 10:** 10 am-12 pm or 1-3 pm

**March 11:** 10 am -12 pm or 1-3 pm

Should you have any questions or concerns, please feel free to reach out.

Sincerely,

**Franca Sacchetti**

Regional Director, East Region

Operations Division

Ministry of Transportation | Ontario Public Service

647-638-5359, [franca.sacchetti@ontario.ca](mailto:franca.sacchetti@ontario.ca)



*Taking pride in strengthening Ontario, its places and its people*

March 4, 2026

Chief R. Donald Maracle  
Mohawks of the Bay of Quinte First Nation  
24 Meadow Dr.  
Tyendinaga Mohawk Territory, ON  
K0K 1X0

Sent via email: [rdonm@mbq-tmt.org](mailto:rdonm@mbq-tmt.org)

**RE: Notice of Public Information Centre #1  
Highway 401 Improvements between Belleville and Kingston  
Planning, Preliminary Design and Class Environmental Assessment  
Study #1 (GWP 4022-21-00) and Study #2 (GWP 4016-21-00)  
Ontario Ministry of Transportation**

---

Dear Chief Maracle:

The Ontario Ministry of Transportation (MTO) has retained the services of AECOM Canada ULC to undertake the following two Planning, Preliminary Design and Class Environmental Assessment (Class EA) Studies to develop a plan of improvement to Highway 401 between the City of Belleville and the City of Kingston:

- **Study #1 (GWP 4022-21-00)** – includes Highway 401 from 4.3 km east of Highway 37 to 5 km west of County Road 41/Centre Street for a total length of approximately 26 km. The Study area is located within the City of Belleville, the Township of Tyendinaga, the Town of Greater Napanee, the County of Hastings, and the County of Lennox and Addington.
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These studies are following the approved planning process for a Group 'B' Project in accordance with the MTO 2024 *Class EA for Provincial Transportation Facilities and Municipal Expressways*. Please refer to the enclosed notice for additional details and to view the project study area.

**The purpose of this letter is to notify you that the first of two rounds of Public Information Centres (PIC) for these studies has been scheduled.**

PIC #1 is being held to present and receive feedback on each study's background, existing conditions, the preliminary list of improvement alternatives, the evaluation criteria which will be used to assess the alternatives, and the next steps in the Study process. PIC #1 will be an informal drop-in session with MTO and consultant team representatives available to answer questions.

Your community is invited to attend a preview session of PIC #1 as follows:

**Tuesday, March 31, 2026, from 3:00 p.m. to 4:00 p.m.**  
**Best and Bash Arena (formerly Strathcona Paper Centre)**  
**16 McPherson Drive, Napanee, ON K7R 3L1**  
(Note: Facility is fully accessible).

**Members of the public are invited to attend the open house portion of PIC #1 from 4:00 p.m. to 7:00 p.m.**

As you are aware, MTO is confirming a meeting with you to provide an overview of the material presented at PIC #1, respond to questions, and discuss strategies to incorporate your input into the studies and address concerns. Should you have any questions or comments, please feel free to contact me at [Franca.Saccetti@ontario.ca](mailto:Franca.Saccetti@ontario.ca), or Patricia Moniz, Indigenous Liaison Specialist by email at [Patricia.Moniz@ontario.ca](mailto:Patricia.Moniz@ontario.ca) or by phone at 613-483-7588.

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Should you have any comments, questions or concerns on the proposed activities, or would like any additional information, please contact us as noted above.

Sincerely,



Franca Sacchetti  
Director, East Operations

cc: A. Maracle, MBQ Director of Community Services ([angelam@mbq-tmt.org](mailto:angelam@mbq-tmt.org))  
C. Thompson, MBQ Consultation Coordinator ([consultation@mbq-tmt.org](mailto:consultation@mbq-tmt.org))  
P Moniz MTO, Indigenous Liaison Specialist ([patricia.moniz@ontario.ca](mailto:patricia.moniz@ontario.ca))  
L. Bilow, MTO, Lead Engineer ([lucas.bilow@ontario.ca](mailto:lucas.bilow@ontario.ca))  
A. Dickson, MTO, Environmental Planner ([amanda.dickson@ontario.ca](mailto:amanda.dickson@ontario.ca))  
T. Soroichinsky, AECOM, Project Manager ([tim.soroichinsky@aecom.com](mailto:tim.soroichinsky@aecom.com))  
F. Sapateiro, AECOM, Deputy Project Manager ([felipe.sapateiro@aecom.com](mailto:felipe.sapateiro@aecom.com))  
A. Potter, AECOM, Senior Environmental Planner ([andrea.potter@aecom.com](mailto:andrea.potter@aecom.com))



## Potter, Andrea

---

**From:** Sacchetti, Franca (She/Her) (MTO) <Franca.Sacchetti@ontario.ca>  
**Sent:** March 4, 2026 9:35 AM  
**To:** Consultations  
**Cc:** Moniz, Patricia (MTO); Bilow, Lucas (MTO); Dickson, Amanda (MTO); Sorochinsky, Tim; Sapateiro, Felipe; Potter, Andrea  
**Subject:** Notice of Public Information Centre - Highway 401 Improvements between Belleville and Kingston (GWP 4022-21-00) (GWP 4016-21-00)  
**Attachments:** MNO\_Community INDIGENOUS Ltr\_NofPIC1\_BtoK\_Mar-04-2026\_FINAL.pdf

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Good morning Sir/Madam,

Please find attached a letter advising of the Public Information Centre to be held in Napanee on March 31, 2026 for the above-mentioned project.

Should you have any questions or concerns, please feel free to reach out.

Sincerely,

**Franca Sacchetti**

Regional Director, East Region

Operations Division

Ministry of Transportation | Ontario Public Service

647-638-5359, [franca.sacchetti@ontario.ca](mailto:franca.sacchetti@ontario.ca)



*Taking pride in strengthening Ontario, its places and its people*



March 4, 2026

Consultation Coordinator  
Consultation Unit  
Métis Nation of Ontario  
Suite 1100 - 66 Slater Street  
Ottawa, ON K1P 5H1

Sent via email: [consultations@metisnation.org](mailto:consultations@metisnation.org)

**RE: Notice of Public Information Centre #1  
Highway 401 Improvements between Belleville and Kingston  
Planning, Preliminary Design and Class Environmental Assessment  
Study #1 (GWP 4022-21-00) and Study #2 (GWP 4016-21-00)  
Ontario Ministry of Transportation**

---

Dear Sir/Madam:

The Ontario Ministry of Transportation (MTO) has retained the services of AECOM Canada ULC to undertake the following two Planning, Preliminary Design and Class Environmental Assessment (Class EA) Studies to develop a plan of improvement to Highway 401 between the City of Belleville and the City of Kingston:

- **Study #1 (GWP 4022-21-00)** – includes Highway 401 from 4.3 km east of Highway 37 to 5 km west of County Road 41/Centre Street for a total length of approximately 26 km. The Study area is located within the City of Belleville, the Township of Tyendinaga, the Town of Greater Napanee, the County of Hastings, and the County of Lennox and Addington.
- **Study #2 (GWP 4016-21-00)** – includes Highway 401 from 5 km west of County Road 41/Centre Street to 8 km west of Kingston Road 38 for a total length of approximately 29 km. The Study area is located within the Town of Greater Napanee, the Township of Loyalist, and the County of Lennox and Addington.

These studies are following the approved planning process for a Group 'B' Project in accordance with the MTO 2024 *Class EA for Provincial Transportation Facilities and Municipal Expressways*.

**The purpose of this letter is to notify you that the first of two rounds of Public Information Centres (PIC) for these studies has been scheduled.**

PIC #1 is being held to present and receive feedback on each study's background, existing conditions, the preliminary list of improvement alternatives, the evaluation criteria which will be used to assess the alternatives, and the next steps in the Study process. PIC #1 will be an informal drop-in session with MTO and consultant team representatives available to answer questions.

Your community is invited to attend a preview session of PIC #1 as follows:

**Tuesday, March 31, 2026, from 3:00 p.m. to 4:00 p.m.**  
**Best and Bash Arena (formerly Strathcona Paper Centre)**  
**16 McPherson Drive, Napanee, ON K7R 3L1**  
(Note: Facility is fully accessible).

**Members of the public are invited to attend the open house portion of PIC #1 from 4:00 p.m. to 7:00 p.m.**

Please note that the Project Team is also available to meet with your community to provide an overview of the material to be presented at PIC #1, respond to questions, and discuss strategies to incorporate your input into the studies and address concerns. To arrange this meeting, please contact me, Franca Sacchetti, Director of East Operations by email at [Franca.Sacchetti@ontario.ca](mailto:Franca.Sacchetti@ontario.ca), or Patricia Moniz, Indigenous Liaison Specialist by email at [Patricia.Moniz@ontario.ca](mailto:Patricia.Moniz@ontario.ca) or by phone at 613-483-7588.

Information collected during the Preliminary Design Studies and Class Environmental Assessments will be used in accordance with the *Freedom of Information and Protection of Privacy Act*. With the exception of personal information, all comments will become part of the public record. Please contact me if you have accessibility requirements in order to participate in this project.

Should you have any comments, questions or concerns on the proposed activities, or would like any additional information, please contact us as noted above.

Sincerely,



Franca Sacchetti  
Director, East Operations

cc: P Moniz MTO, Indigenous Liaison Specialist ([patricia.moniz@ontario.ca](mailto:patricia.moniz@ontario.ca))  
L. Bilow, MTO, Lead Engineer ([lucas.bilow@ontario.ca](mailto:lucas.bilow@ontario.ca))  
A. Dickson, MTO, Environmental Planner ([amanda.dickson@ontario.ca](mailto:amanda.dickson@ontario.ca))  
T. Soroichinsky, AECOM, Project Manager ([tim.soroichinsky@aecom.com](mailto:tim.soroichinsky@aecom.com))  
F. Sapateiro, AECOM, Deputy Project Manager ([felipe.sapateiro@aecom.com](mailto:felipe.sapateiro@aecom.com))  
A. Potter, AECOM, Senior Environmental Planner ([andrea.potter@aecom.com](mailto:andrea.potter@aecom.com))



## Potter, Andrea

---

**From:** Sacchetti, Franca (She/Her) (MTO) <Franca.Sacchetti@ontario.ca>  
**Sent:** March 4, 2026 9:16 AM  
**To:** Kelly LaRocca  
**Cc:** Consultation; Rob Lukacs; Ameer Idreis; Don Richardson; sshrubsole; Nicole Mastrangelo; Finn Komai; Moniz, Patricia (MTO); Bilow, Lucas (MTO); Dickson, Amanda (MTO); Sorochinsky, Tim; Sapateiro, Felipe; Potter, Andrea  
**Subject:** Notice of Public Information Centre - Highway 401 Improvements between Belleville and Kingston (GWP 4022-21-00) (GWP 4016-21-00)  
**Attachments:** MSIFN\_Community INDIGENOUS Ltr\_NofPIC1\_BtoK\_Mar-04-2026.pdf

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Good morning Chief LaRocca,

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Should you have any questions or concerns, please feel free to reach out.

Sincerely,

**Franca Sacchetti**

Regional Director, East Region

Operations Division

Ministry of Transportation | Ontario Public Service

647-638-5359, [franca.sacchetti@ontario.ca](mailto:franca.sacchetti@ontario.ca)



*Taking pride in strengthening Ontario, its places and its people*

March 4, 2026

Chief Kelly LaRocca  
Mississaugas of Scugog Island First Nation  
22521 Island Road  
Port Perry, ON L9L 1B6

Sent via email: [klarocca@scugogfirstnation.com](mailto:klarocca@scugogfirstnation.com)

**RE: Notice of Public Information Centre #1  
Highway 401 Improvements between Belleville and Kingston  
Planning, Preliminary Design and Class Environmental Assessment  
Study #1 (GWP 4022-21-00) and Study #2 (GWP 4016-21-00)  
Ontario Ministry of Transportation**

---

Dear Chief LaRocca:

The Ontario Ministry of Transportation (MTO) has retained the services of AECOM Canada ULC to undertake the following two Planning, Preliminary Design and Class Environmental Assessment (Class EA) Studies to develop a plan of improvement to Highway 401 between the City of Belleville and the City of Kingston:

- **Study #1 (GWP 4022-21-00)** – includes Highway 401 from 4.3 km east of Highway 37 to 5 km west of County Road 41/Centre Street for a total length of approximately 26 km. The Study area is located within the City of Belleville, the Township of Tyendinaga, the Town of Greater Napanee, the County of Hastings, and the County of Lennox and Addington.
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These studies are following the approved planning process for a Group 'B' Project in accordance with the MTO 2024 *Class EA for Provincial Transportation Facilities and Municipal Expressways*.

**The purpose of this letter is to notify you that the first of two rounds of Public Information Centres (PIC) for these studies has been scheduled.**

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informal drop-in session with MTO and consultant team representatives available to answer questions.

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(Note: Facility is fully accessible).

**Members of the public are invited to attend the open house portion of PIC #1 from 4:00 p.m. to 7:00 p.m.**

Please note that the Project Team is also available to meet with your community to provide an overview of the material to be presented at PIC #1, respond to questions, and discuss strategies to incorporate your input into the studies and address concerns. To arrange this meeting, please contact me, Franca Sacchetti, Director of East Operations by email at [Franca.Sacchetti@ontario.ca](mailto:Franca.Sacchetti@ontario.ca), or Patricia Moniz, Indigenous Liaison Specialist by email at [Patricia.Moniz@ontario.ca](mailto:Patricia.Moniz@ontario.ca) or by phone at 613-483-7588.

Information collected during the Preliminary Design Studies and Class Environmental Assessments will be used in accordance with the *Freedom of Information and Protection of Privacy Act*. With the exception of personal information, all comments will become part of the public record. Please contact me if you have accessibility requirements in order to participate in this project.

Should you have any comments, questions or concerns on the proposed activities, or would like any additional information, please contact us as noted above.

Sincerely,



Franca Sacchetti  
Director, East Operations

cc: MSIFN Consultation Dept ([consultation@scugogfirstnation.com](mailto:consultation@scugogfirstnation.com))  
R. Lukacs, MSIFN Consultation Staff ([rlukacs@scugogfirstnation.ca](mailto:rlukacs@scugogfirstnation.ca))  
A. Idreis, MSIFN Consultation Staff ([aidreis@scugogfirstnation.ca](mailto:aidreis@scugogfirstnation.ca))  
D. Richardson, MSIFN Consultation Staff ([drichardson@scugogfirstnation.ca](mailto:drichardson@scugogfirstnation.ca))  
S. Shrubsole, MSIFN Consultation Staff ([sshrubsole@scugogfirstnation.com](mailto:sshrubsole@scugogfirstnation.com))  
N. Mastrangelo, MSIFN Consultation Staff ([nmastrangelo@scugogfirstnation.ca](mailto:nmastrangelo@scugogfirstnation.ca))  
F. Komai, MSIFN Consultation Staff ([fkamai@scugogfirstnation.ca](mailto:fkamai@scugogfirstnation.ca))  
P Moniz MTO, Indigenous Liaison Specialist ([patricia.moniz@ontario.ca](mailto:patricia.moniz@ontario.ca))  
L. Bilow, MTO, Lead Engineer ([lucas.bilow@ontario.ca](mailto:lucas.bilow@ontario.ca))  
A. Dickson, MTO, Environmental Planner ([amanda.dickson@ontario.ca](mailto:amanda.dickson@ontario.ca))  
T. Soroichinsky, AECOM, Project Manager ([tim.soroichinsky@aecom.com](mailto:tim.soroichinsky@aecom.com))  
F. Sapateiro, AECOM, Deputy Project Manager ([felipe.sapateiro@aecom.com](mailto:felipe.sapateiro@aecom.com))  
A. Potter, AECOM, Senior Environmental Planner ([andrea.potter@aecom.com](mailto:andrea.potter@aecom.com))



Potter, Andrea

---

From: Copping, Peter A. (MTO) <Peter.A.Copping@ontario.ca>  
Sent: Tuesday, March 17, 2026 11:05 AM  
To: AldervilleFN Consultation Office; Julie Kapyrka; Jordon MacArthur; tsimpson  
Cc: Sacchetti, Franca (She/Her) (MTO); Moniz, Patricia (MTO); Bilow, Lucas (MTO); Dickson, Amanda (MTO); Soroichinsky, Tim; Sapateiro, Felipe; Potter, Andrea; Shrestha, Shreyasi (She/Her) (MTO)  
Subject: RE: Notice of Public Information Centre - Highway 401 Improvements between Belleville and Kingston (GWP 4022-21-00) (GWP 4016-21-00)  
Attachments: OGN\_Hwy 401\_PD\_Belleville to Kingston\_PIC1\_4022-21-00\_4016-21-00.pdf

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Good Morning Everyone,

I hope you are doing well. Following on Franca's email from March 4, 2026, the Ontario Government Notice (OGN) for the Public Information Centre (PIC) is attached. As a reminder, there is a pre-session open to Indigenous Communities from 3:00pm to 4:00pm on March 31, 2026. Details are found below.

**Tuesday, March 31, 2026, from 3:00 p.m. to 4:00 p.m.**  
**Best and Bash Arena (formerly Strathcona Paper Centre)**  
**16 McPherson Drive, Napanee, ON K7R 3L1**

Please let us know if you have any questions or comments. MTO will continue to consult with Alderville First Nation on this project going forward.

Thank you,

Peter Copping

**Peter Copping** (He/Him)  
Indigenous Liaison Specialist  
Regional Services and Relationships, East Operations  
Ministry of Transportation  
1355 John Counter Boulevard, Kingston ON, K7L 5A3  
Email: [Peter.A.Copping@Ontario.ca](mailto:Peter.A.Copping@Ontario.ca)  
Phone: 613-539-3148

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From: Sacchetti, Franca (She/Her) (MTO) <Franca.Sacchetti@ontario.ca>

Sent: March 4, 2026 9:20 AM

To: tsimpson <tsimpson@alderville.ca>

Cc: AldervilleFN Consultation Office <consultation@alderville.ca>; Julie Kapyrka <jkapyrka@alderville.ca>; Jordon MacArthur <jmacarthur@alderville.ca>; szilinski <szilinski@alderville.ca>; Moniz, Patricia (MTO) <Patricia.Moniz@ontario.ca>; Bilow, Lucas (MTO) <Lucas.Bilow@ontario.ca>; Dickson, Amanda (MTO) <Amanda.Dickson@Ontario.ca>; tim.sorochinsky@aecom.com; felipe.sapateiro@aecom.com; andrea.potter@aecom.com

Subject: Notice of Public Information Centre - Highway 401 Improvements between Belleville and Kingston (GWP 4022-21-00) (GWP 4016-21-00)

Good morning Chief Simpson,

Please find attached a letter advising of the Public Information Centre to be held in Napanee on March 31, 2026 for the above-mentioned project.

Should you have any questions or concerns, please feel free to reach out.

Sincerely,

**Franca Sacchetti**

Regional Director, East Region

Operations Division

Ministry of Transportation | Ontario Public Service

647-638-5359, [franca.sacchetti@ontario.ca](mailto:franca.sacchetti@ontario.ca)



*Taking pride in strengthening Ontario, its places and its people*

Potter, Andrea

---

From: Copping, Peter A. (MTO) <Peter.A.Copping@ontario.ca>  
Sent: Tuesday, March 17, 2026 11:05 AM  
To: Consultation Email; paigew; David Rewniak; APAdmin; Francis M. Chua; Kayla Wright; Jaimi O'Hara; Derek Paauw; laurieh@curvelake.ca  
Cc: Sacchetti, Franca (She/Her) (MTO); Moniz, Patricia (MTO); Bilow, Lucas (MTO); Dickson, Amanda (MTO); Sorochinsky, Tim; Sapateiro, Felipe; Potter, Andrea; Shrestha, Shreyasi (She/Her) (MTO)  
Subject: RE: Notice of Public Information Centre - Highway 401 Improvements between Belleville and Kingston (GWP 4022-21-00) (GWP 4016-21-00)  
Attachments: OGN\_Hwy 401\_PD\_Belleville to Kingston\_PIC1\_4022-21-00\_4016-21-00.pdf

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**16 McPherson Drive, Napanee, ON K7R 3L1**

Please let us know if you have any questions or comments. MTO will continue to consult with Curve Lake First Nation on this project going forward.

Thank you,

Peter Copping

**Peter Copping** (He/Him)  
Indigenous Liaison Specialist  
Regional Services and Relationships, East Operations  
Ministry of Transportation  
1355 John Counter Boulevard, Kingston ON, K7L 5A3  
Email: [Peter.A.Copping@Ontario.ca](mailto:Peter.A.Copping@Ontario.ca)  
Phone: 613-539-3148

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From: Sacchetti, Franca (She/Her) (MTO) <Franca.Sacchetti@ontario.ca>  
Sent: March 4, 2026 9:24 AM  
To: laurieh@curvelake.ca  
Cc: Consultation Email <consultation@curvelake.ca>; paigew <paigew@curvelake.ca>; David Rewniak <davidr@curvelake.ca>; APAdmin <APAdmin@curvelake.ca>; Francis M. Chua <francis@francischua.com>; Kayla Wright <kayla@francischua.com>; Jaimi O'Hara <jaimi@francischua.com>; Moniz, Patricia (MTO) <Patricia.Moniz@ontario.ca>; Bilow, Lucas (MTO) <Lucas.Bilow@ontario.ca>; Dickson, Amanda (MTO) <Amanda.Dickson@Ontario.ca>; tim.sorochinsky@aecom.com; felipe.sapateiro@aecom.com; andrea.potter@aecom.com  
Subject: Notice of Public Information Centre - Highway 401 Improvements between Belleville and Kingston (GWP 4022-21-00) (GWP 4016-21-00)

Good morning Chief Hockaday,

Please find attached a letter advising of the Public Information Centre to be held in Napanee on March 31, 2026 for the above-mentioned project.

Should you have any questions or concerns, please feel free to reach out.

Sincerely,

**Franca Sacchetti**

Regional Director, East Region

Operations Division

Ministry of Transportation | Ontario Public Service

647-638-5359, [franca.sacchetti@ontario.ca](mailto:franca.sacchetti@ontario.ca)



*Taking pride in strengthening Ontario, its places and its people*

Potter, Andrea

---

From: Copping, Peter A. (MTO) <Peter.A.Copping@ontario.ca>  
Sent: Tuesday, March 17, 2026 11:04 AM  
To: Sean Davison; Tom Cowie; Mandy McGonigle; Ryan Gray-Brady; Chief Laurie Carr  
Cc: Sacchetti, Franca (She/Her) (MTO); Moniz, Patricia (MTO); Bilow, Lucas (MTO); Dickson, Amanda (MTO); Soroichinsky, Tim; Sapateiro, Felipe; Potter, Andrea; Shrestha, Shreyasi (She/Her) (MTO)  
Subject: RE: Notice of Public Information Centre - Highway 401 Improvements between Belleville and Kingston (GWP 4022-21-00) (GWP 4016-21-00)  
Attachments: OGN\_Hwy 401\_PD\_Belleville to Kingston\_PIC1\_4022-21-00\_4016-21-00.pdf

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**Best and Bash Arena (formerly Strathcona Paper Centre)**  
**16 McPherson Drive, Napanee, ON K7R 3L1**

Please let us know if you have any questions or comments. MTO will continue to consult with Hiawatha First Nation on this project going forward.

Thank you,

Peter Copping

**Peter Copping** (He/Him)  
Indigenous Liaison Specialist  
Regional Services and Relationships, East Operations  
Ministry of Transportation  
1355 John Counter Boulevard, Kingston ON, K7L 5A3  
Email: [Peter.A.Copping@Ontario.ca](mailto:Peter.A.Copping@Ontario.ca)  
Phone: 613-539-3148

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From: Sacchetti, Franca (She/Her) (MTO) <Franca.Sacchetti@ontario.ca>

Sent: March 4, 2026 9:28 AM

To: Chief Laurie Carr <chiefcarr@hiawathafn.ca>

Cc: Sean Davison <sdavison@hiawathafn.ca>; Tom Cowie <tcowie@hiawathafn.ca>; Mandy McGonigle <mmcgonigle@hiawathafn.ca>; Ryan Gray-Brady <rgray-brady@hiawathafn.ca>; Moniz, Patricia (MTO) <Patricia.Moniz@ontario.ca>; Bilow, Lucas (MTO) <Lucas.Bilow@ontario.ca>; Dickson, Amanda (MTO) <Amanda.Dickson@Ontario.ca>; tim.sorochinsky@aecom.com; felipe.sapateiro@aecom.com; andrea.potter@aecom.com

Subject: Notice of Public Information Centre - Highway 401 Improvements between Belleville and Kingston (GWP 4022-21-00) (GWP 4016-21-00)

Good morning Chief Carr,

Please find attached a letter advising of the Public Information Centre to be held in Napanee on March 31, 2026 for the above-mentioned project.

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Sincerely,

**Franca Sacchetti**

Regional Director, East Region

Operations Division

Ministry of Transportation | Ontario Public Service

647-638-5359, [franca.sacchetti@ontario.ca](mailto:franca.sacchetti@ontario.ca)



*Taking pride in strengthening Ontario, its places and its people*

Potter, Andrea

---

From: Copping, Peter A. (MTO) <Peter.A.Copping@ontario.ca>  
Sent: Tuesday, March 17, 2026 11:05 AM  
To: kawarthanishnawbecouncil; nodin.webb; giwednang; jessica-bfcc; dianeblunt1  
Cc: Sacchetti, Franca (She/Her) (MTO); Moniz, Patricia (MTO); Bilow, Lucas (MTO); Dickson, Amanda (MTO); Soroichinsky, Tim; Sapateiro, Felipe; Potter, Andrea; Shrestha, Shreyasi (She/Her) (MTO)  
Subject: RE: Notice of Public Information Centre - Highway 401 Improvements between Belleville and Kingston (GWP 4022-21-00) (GWP 4016-21-00)  
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Please let us know if you have any questions or comments. MTO will continue to engage with Kawartha Nishnawbe on this project going forward.

Thank you,

Peter Copping

**Peter Copping** (He/Him)  
Indigenous Liaison Specialist  
Regional Services and Relationships, East Operations  
Ministry of Transportation  
1355 John Counter Boulevard, Kingston ON, K7L 5A3  
Email: [Peter.A.Copping@Ontario.ca](mailto:Peter.A.Copping@Ontario.ca)  
Phone: 613-539-3148

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---

From: Sacchetti, Franca (She/Her) (MTO) <Franca.Sacchetti@ontario.ca>  
Sent: March 4, 2026 9:32 AM  
To: kawarthanishnawbecouncil <kawarthanishnawbecouncil@outlook.com>; nodin.webb <nodin.webb@hotmail.com>; giiwednang <giiwednang@hotmail.com>; jessica-bfcc <jessica-bfcc@outlook.com>; dianeblunt1 <dianeblunt1@gmail.com>  
Cc: Moniz, Patricia (MTO) <Patricia.Moniz@ontario.ca>; Bilow, Lucas (MTO) <Lucas.Bilow@ontario.ca>; Flude, Amanda L (She/Her) (MTO) <Amanda.L.Flude@ontario.ca>; tim.sorochinsky@aecom.com; felipe.sapateiro@aecom.com; andrea.potter@aecom.com  
Subject: Notice of Public Information Centre - Highway 401 Improvements between Belleville and Kingston (GWP 4022-21-00) (GWP 4016-21-00)

Good morning Kawartha Nishnawbe Council,

Please find attached a letter advising of the Public Information Centre to be held in Napanee on March 31, 2026 for the above-mentioned project.

Should you have any questions or concerns, please feel free to reach out.

Sincerely,  
**Franca Sacchetti**  
Regional Director, East Region  
Operations Division  
Ministry of Transportation | Ontario Public Service  
647-638-5359, [franca.sacchetti@ontario.ca](mailto:franca.sacchetti@ontario.ca)



*Taking pride in strengthening Ontario, its places and its people*

Potter, Andrea

---

From: Copping, Peter A. (MTO) <Peter.A.Copping@ontario.ca>  
Sent: Tuesday, March 17, 2026 11:06 AM  
To: Consultations  
Cc: Sacchetti, Franca (She/Her) (MTO); Moniz, Patricia (MTO); Bilow, Lucas (MTO); Dickson, Amanda (MTO); Sorochinsky, Tim; Sapateiro, Felipe; Potter, Andrea; Shrestha, Shreyasi (She/Her) (MTO)  
Subject: RE: Notice of Public Information Centre - Highway 401 Improvements between Belleville and Kingston (GWP 4022-21-00) (GWP 4016-21-00)  
Attachments: OGN\_Hwy 401\_PD\_Belleville to Kingston\_PIC1\_4022-21-00\_4016-21-00.pdf

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Good Morning Consultation Coordinator,

Following on Franca's email from March 4, 2026, the Ontario Government Notice (OGN) for the Public Information Centre (PIC) is attached. As a reminder, there is a pre-session open to Indigenous Communities from 3:00pm to 4:00pm on March 31, 2026. Details are found below.

**Tuesday, March 31, 2026, from 3:00 p.m. to 4:00 p.m.**  
**Best and Bash Arena (formerly Strathcona Paper Centre)**  
**16 McPherson Drive, Napanee, ON K7R 3L1**

Please let us know if you have any questions or comments. MTO will continue to engage with the Metis Nation of Ontario on this project going forward.

Thank you,

Peter Copping

**Peter Copping** (He/Him)  
Indigenous Liaison Specialist  
Regional Services and Relationships, East Operations  
Ministry of Transportation  
1355 John Counter Boulevard, Kingston ON, K7L 5A3  
Email: [Peter.A.Copping@Ontario.ca](mailto:Peter.A.Copping@Ontario.ca)  
Phone: 613-539-3148

*Please Note: The government is committed to providing accessible customer service, if you have any accommodation needs, or require communication supports or alternate formats, please let me know.*



*This e-mail message and any attachments are intended only for the above-named recipient(s) and may contain information that is confidential and solicitor-client privileged. If you have received this message in error, please notify me immediately and delete this e-mail and any attachments without copying, distributing or disclosing their contents.*

---

From: Sacchetti, Franca (She/Her) (MTO) <Franca.Sacchetti@ontario.ca>

Sent: March 4, 2026 9:35 AM

To: Consultations <consultations@metisnation.org>

Cc: Moniz, Patricia (MTO) <Patricia.Moniz@ontario.ca>; Bilow, Lucas (MTO) <Lucas.Bilow@ontario.ca>; Dickson, Amanda (MTO) <Amanda.Dickson@Ontario.ca>; tim.sorochinsky@aecom.com; felipe.sapateiro@aecom.com; andrea.potter@aecom.com

Subject: Notice of Public Information Centre - Highway 401 Improvements between Belleville and Kingston (GWP 4022-21-00) (GWP 4016-21-00)

Good morning Sir/Madam,

Please find attached a letter advising of the Public Information Centre to be held in Napanee on March 31, 2026 for the above-mentioned project.

Should you have any questions or concerns, please feel free to reach out.

Sincerely,

**Franca Sacchetti**

Regional Director, East Region

Operations Division

Ministry of Transportation | Ontario Public Service

647-638-5359, [franca.sacchetti@ontario.ca](mailto:franca.sacchetti@ontario.ca)



*Taking pride in strengthening Ontario, its places and its people*

Potter, Andrea

---

From: Copping, Peter A. (MTO) <Peter.A.Copping@ontario.ca>  
Sent: Tuesday, March 17, 2026 11:04 AM  
To: Consultation; Rob Lukacs; Ameer Idreis; Don Richardson; sshrubsole; Nicole Mastrangelo; Finn Komai; Kelly LaRocca  
Cc: Sacchetti, Franca (She/Her) (MTO); Moniz, Patricia (MTO); Bilow, Lucas (MTO); Dickson, Amanda (MTO); Sorochinsky, Tim; Sapateiro, Felipe; Potter, Andrea; Shrestha, Shreyasi (She/Her) (MTO)  
Subject: RE: Notice of Public Information Centre - Highway 401 Improvements between Belleville and Kingston (GWP 4022-21-00) (GWP 4016-21-00)  
Attachments: OGN\_Hwy 401\_PD\_Belleville to Kingston\_PIC1\_4022-21-00\_4016-21-00.pdf

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Good Morning Everyone,

I hope you are doing well. Following on Franca's email from March 4, 2026, the Ontario Government Notice (OGN) for the Public Information Centre (PIC) is attached. As a reminder, there is a pre-session open to Indigenous Communities from 3:00pm to 4:00pm on March 31, 2026. Details are found below.

**Tuesday, March 31, 2026, from 3:00 p.m. to 4:00 p.m.**  
**Best and Bash Arena (formerly Strathcona Paper Centre)**  
**16 McPherson Drive, Napanee, ON K7R 3L1**

Please let us know if you have any questions or comments. MTO will continue to consult with Mississaugas of Scugog Island First Nation on this project going forward.

Thank you,

Peter Copping

**Peter Copping** (He/Him)  
Indigenous Liaison Specialist  
Regional Services and Relationships, East Operations  
Ministry of Transportation  
1355 John Counter Boulevard, Kingston ON, K7L 5A3  
Email: [Peter.A.Copping@Ontario.ca](mailto:Peter.A.Copping@Ontario.ca)  
Phone: 613-539-3148

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---

From: Sacchetti, Franca (She/Her) (MTO) <Franca.Sacchetti@ontario.ca>  
Sent: March 4, 2026 9:16 AM  
To: Kelly LaRocca <klarocca@scugogfirstnation.com>  
Cc: Consultation <consultation@scugogfirstnation.com>; Rob Lukacs <rlukacs@scugogfirstnation.ca>; Ameer Idreis <aidreis@scugogfirstnation.ca>; Don Richardson <drichardson@scugogfirstnation.ca>; sshrubsole <sshruubsole@scugogfirstnation.com>; Nicole Mastrangelo <nmastrangelo@scugogfirstnation.ca>; Finn Komai <finn.komai@minogi.ca>; Moniz, Patricia (MTO) <Patricia.Moniz@ontario.ca>; Bilow, Lucas (MTO) <Lucas.Bilow@ontario.ca>; Dickson, Amanda (MTO) <Amanda.Dickson@Ontario.ca>; tim.sorochinsky@aecom.com; felipe.sapateiro@aecom.com; andrea.potter@aecom.com  
Subject: Notice of Public Information Centre - Highway 401 Improvements between Belleville and Kingston (GWP 4022-21-00) (GWP 4016-21-00)

Good morning Chief LaRocca,

Please find attached a letter advising of the Public Information Centre to be held in Napanee on March 31, 2026 for the above-mentioned project.

Should you have any questions or concerns, please feel free to reach out.

Sincerely,

**Franca Sacchetti**

Regional Director, East Region

Operations Division

Ministry of Transportation | Ontario Public Service

647-638-5359, [franca.sacchetti@ontario.ca](mailto:franca.sacchetti@ontario.ca)



*Taking pride in strengthening Ontario, its places and its people*

Potter, Andrea

From: Sacchetti, Franca (She/Her) (MTO) <Franca.Sacchetti@ontario.ca>  
Sent: Tuesday, March 31, 2026 1:08 PM  
To: R. Donald Maracle  
Cc: Angela Maracle; Cassie Thompson; Moniz, Patricia (MTO); Bilow, Lucas (MTO); Dickson, Amanda (MTO); Soroichinsky, Tim; Sapateiro, Felipe; Potter, Andrea  
Subject: RE: Notice of Public Information Centre - Highway 401 Improvements between Belleville and Kingston (GWP 4022-21-00) (GWP 4016-21-00)  
Attachments: Hwy401Belleville\_Kingston\_PIC1Boards\_Study 1&2\_20260323.pdf

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Good afternoon Chief Maracle,

The Public Information Centre (PIC) for the Highway 401- Improvements between Belleville and Kingston project is taking place today at the Best and Bash Arena in Napanee. Your community is invited to attend a preview session from 3:00- 4:00pm. Attached is a copy of the presentation that will be displayed and/or discussed at the PIC.

Please let me know if you would like to have a meeting to discuss this project and if you have any questions/comments.

Sincerely,

**Franca Sacchetti**

Regional Director, East Region

Operations Division

Ministry of Transportation | Ontario Public Service

647-638-5359, [franca.sacchetti@ontario.ca](mailto:franca.sacchetti@ontario.ca)



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From: Sacchetti, Franca (She/Her) (MTO) <[Franca.Sacchetti@ontario.ca](mailto:Franca.Sacchetti@ontario.ca)>  
Sent: March 4, 2026 9:09 AM  
To: R. Donald Maracle <[rdonm@mbq-tmt.org](mailto:rdonm@mbq-tmt.org)>  
Cc: Angela Maracle <[angelam@mbq-tmt.org](mailto:angelam@mbq-tmt.org)>; Cassie Thompson <[consultation@mbq-tmt.org](mailto:consultation@mbq-tmt.org)>; Moniz, Patricia (MTO) <[Patricia.Moniz@ontario.ca](mailto:Patricia.Moniz@ontario.ca)>; Bilow, Lucas (MTO) <[Lucas.Bilow@ontario.ca](mailto:Lucas.Bilow@ontario.ca)>; Dickson, Amanda (MTO) <[Amanda.Dickson@Ontario.ca](mailto:Amanda.Dickson@Ontario.ca)>; [tim.soroichinsky@aecom.com](mailto:tim.soroichinsky@aecom.com); [felipe.sapateiro@aecom.com](mailto:felipe.sapateiro@aecom.com); [andrea.potter@aecom.com](mailto:andrea.potter@aecom.com)  
Subject: Notice of Public Information Centre - Highway 401 Improvements between Belleville and Kingston (GWP 4022-21-00) (GWP 4016-21-00)

Good morning Chief Maracle,

Please find attached a letter advising of the Public Information Centre to be held in Napanee on March 31, 2026 for the above-mentioned project. As requested in my February 20, 2026 correspondence (attached), MTO would like to meet with you to discuss this project preferably the week of March 9.

Do these dates and times work for you?

**March 10:** 10 am-12 pm or 1-3 pm

**March 11:** 10 am -12 pm or 1-3 pm

Should you have any questions or concerns, please feel free to reach out.

Sincerely,

**Franca Sacchetti**

Regional Director, East Region

Operations Division

Ministry of Transportation | Ontario Public Service

647-638-5359, [franca.sacchetti@ontario.ca](mailto:franca.sacchetti@ontario.ca)



*Taking pride in strengthening Ontario, its places and its people*

March 17, 2026

**EXTERNAL AGENCY LETTER**

«Name»  
«Position»  
«Organization»  
«Address»

«Dear\_»«Greeting»:

**RE: Notice of Public Information Centre #1  
Highway 401 Improvements between Belleville and Kingston  
Planning, Preliminary Design and Class Environmental Assessment  
Study #1 (GWP 4022-21-00) and Study #2 (GWP 4016-21-00)  
Ontario Ministry of Transportation**

---

The Ontario Ministry of Transportation (MTO) has retained the services of AECOM Canada ULC to undertake the following two Planning, Preliminary Design and Class Environmental Assessment (Class EA) Studies to develop a plan of improvement to Highway 401 between the City of Belleville and the City of Kingston:

- **Study #1 (GWP 4022-21-00)** – includes Highway 401 from 4.3 km east of Highway 37 to 5 km west of County Road 41/Centre Street for a total length of approximately 26 km. The Study area is located within the City of Belleville, the Township of Tyendinaga, the Town of Greater Napanee, the County of Hastings, and the County of Lennox and Addington.
- **Study #2 (GWP 4016-21-00)** – includes Highway 401 from 5 km west of County Road 41/Centre Street to 8 km west of Kingston Road 38 for a total length of approximately 29 km. The Study area is located within the Town of Greater Napanee, the Township of Loyalist, and the County of Lennox and Addington.

These studies will address current and future transportation needs by developing a plan for the rehabilitation and/or replacement of various structures, determining the long-term interchange configuration at seven locations, and establishing the footprint for the interim six and ultimate eight lanes of Highway 401. Each study is following the approved planning process for a Group 'B' project in accordance with the MTO 2024 *Class EA for Provincial Transportation Facilities and Municipal Expressways*. Please refer to the enclosed Notice for additional details and to view the project study area.

**The purpose of this letter is to notify you that Public Information Centre #1 has now been scheduled for this project.** As public consultation is important in shaping the outcome of this study we welcome you to attend this upcoming meeting to view the work currently in progress and to find out how you can get involved in the Study. **Please refer to the attached Notice for additional details regarding the location, date and time of the public meeting.** Your organization is invited to attend the PIC #1 preview session as follows:

**Tuesday, March 31, 2026 from 3:00 p.m. to 4:00 p.m.**  
**Best and Bash Arena (formerly Strathcona Paper Centre)**  
**16 McPherson Drive, Napanee, ON K7R 3L1**  
(Note: Facility is fully accessible).

Comments and information are being collected to assist the MTO in meeting the requirements of the Ontario *Environmental Assessment Act*. Information will be collected in accordance with the *Freedom of Information and Protection of Privacy Act*. All comments will be maintained on file for use during the studies and, with the exception of personal information, may be included in study documentation and become part of the public record. If you have any accessibility requirements in order to participate in this study, please contact the project team as listed in the enclosed Notice.

Sincerely,  
**AECOM Canada ULC**

Tim Sorochinsky, P.Eng.  
Project Manager

cc: L. Bilow, MTO, Lead Engineer  
A. Dickson, MTO, Environmental Planner  
F. Sapateiro, AECOM, Deputy Project Manager  
A. Potter, AECOM, Senior Environmental Planner

Encl. Notice of Public Information Centre #1

March 17, 2026

**PUBLIC LETTER**

«Name»  
«Position»  
«Organization»  
«Address»

«Dear\_»«Greeting»:

**RE: Notice of Public Information Centre #1  
Highway 401 Improvements between Belleville and Kingston  
Planning, Preliminary Design and Class Environmental Assessment  
Study #1 (GWP 4022-21-00) and Study #2 (GWP 4016-21-00)  
Ontario Ministry of Transportation**

---

The Ontario Ministry of Transportation (MTO) has retained the services of AECOM Canada ULC to undertake the following two Planning, Preliminary Design and Class Environmental Assessment (Class EA) Studies to develop a plan of improvement to Highway 401 between the City of Belleville and the City of Kingston:

- **Study #1 (GWP 4022-21-00)** – includes Highway 401 from 4.3 km east of Highway 37 to 5 km west of County Road 41/Centre Street for a total length of approximately 26 km. The Study area is located within the City of Belleville, the Township of Tyendinaga, the Town of Greater Napanee, the County of Hastings, and the County of Lennox and Addington.
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The first of two Public Information Centres is being held to present and receive feedback on each study's background, existing conditions, the preliminary list of improvement alternatives, the evaluation criteria which will be used to assess the alternatives, and the next steps in the Study process. A second PIC will be held later in the study to present the evaluation of alternatives, the preferred plan, and the associated potential impacts and preliminary proposed mitigation measures.

There is an opportunity at any time during this process for interested persons to provide input to the Project Team including comments and information regarding both studies. Information collected will be used in accordance with the *Freedom of Information and Protection of Privacy Act*. With the exception of personal information, all comments will become part of the public record. If you have any accessibility requirements in order to participate in these studies, please contact the undersigned.

Sincerely,  
**AECOM Canada ULC**

Tim Soroichinsky, P.Eng.  
Project Manager

cc: L. Bilow, MTO, Lead Engineer  
A. Dickson, MTO, Environmental Planner  
F. Sapateiro, AECOM, Deputy Project Manager  
A. Potter, AECOM, Senior Environmental Planner

Encl. Notice of Public Information Centre #1

---

**From:** Potter, Andrea  
**Sent:** March 23, 2026 2:01 PM  
**Subject:** March-23-2026 MTO Hwy 401 Improvements Between Belleville & Kingston PD & Class EA Study#1 (GWP 4022-21-00) & Study#2 (GWP 4016-21-00) EXTERNAL AGENCY Email  
**Attachments:** OGN\_Hwy 401\_Belleville to Kingston\_PIC1\_2026-03-12\_FINAL\_AODA.pdf

Hello,

The Ontario Ministry of Transportation (MTO) has retained the services of AECOM Canada ULC to undertake the following two Planning, Preliminary Design and Class Environmental Assessment (Class EA) Studies to develop a plan of improvement to Highway 401 between the City of Belleville and the City of Kingston:

- **Study #1 (GWP 4022-21-00)** – includes Highway 401 from 4.3 km east of Highway 37 to 5 km west of County Road 41/Centre Street for a total length of approximately 26 km. The Study area is located within the City of Belleville, the Township of Tyendinaga, the Town of Greater Napanee, the County of Hastings, and the County of Lennox and Addington.
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(Note: Facility is fully accessible).

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If you have any questions, please contact one of the team members as identified on the attached notice.

**(Sent on behalf of the Project Team)**

**Andrea Potter**, B.E.S.

Senior Environmental Planner, Planning and Permitting

C+1-705-790-1881

[andrea.potter@aecom.com](mailto:andrea.potter@aecom.com)

**AECOM**

92 Caplan Avenue, Suite 186

Barrie, ON L4N 9J2, Canada

[aecom.com](http://aecom.com)

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Potter, Andrea

---

**From:** Potter, Andrea  
**Sent:** March 23, 2026 2:00 PM  
**Subject:** MTO Hwy 401 Improvements Between Belleville & Kingston PD & Class EA Study#1 (GWP 4022-21-00) & Study#2 (GWP 4016-21-00) PUBLIC Email  
**Attachments:** OGN\_Hwy 401\_Belleville to Kingston\_PIC1\_2026-03-12\_FINAL\_AODA.pdf

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If you have any questions, please contact one of the team members as identified on the attached notice.

**(Sent on behalf of the Project Team)**

**Andrea Potter, B.E.S.**

Senior Environmental Planner, Planning and Permitting

C+1-705-790-1881

[andrea.potter@aecom.com](mailto:andrea.potter@aecom.com)

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### Prepare your mailing

Make sure you adhere to the following table and use all of your labels. Please also check your labels for any residual mail pieces that didn't form a full bundle.

| Type              | Total amount        | Preparation                | Requirement                                                                                                                                                        |
|-------------------|---------------------|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Mail Piece        | 5,662               | 100 mail pieces per bundle | <ul style="list-style-type: none"> <li>•Standard 1 (from 70 cm<sup>2</sup> ; to 15.24 x 30.50 cm, 0.018 to 2.54 cm thick)</li> <li>•Under 50g in weight</li> </ul> |
| Bundle            | See shipping labels | 20 bundles per container   | <ul style="list-style-type: none"> <li>•Each must be under 4 kg in weight</li> </ul>                                                                               |
| Customer-supplied | See shipping        | N/A                        | <ul style="list-style-type: none"> <li>•Each must be under 22.7 kg in</li> </ul>                                                                                   |

box

labels

weight

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Make sure to bring:

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- Sample mail piece
- Any residual mail pieces identified on your labels
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### Location(s)

STONEY CREEK RVU  
393 MILLEN ROAD  
STONEY CREEK ON L8E5A8

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**1**

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**9830228**  
Method of Payment Mode de paiement  
**Credit Card / Carte de crédit**  
Contract No. N° de la convention

Transmitted/Transmis: 2026/03/13 14:29 EDT

Mailed By Customer Number Expédié par N° du client: **9830228**

**AECOM**

**290-50 SPORTSWORLD CROSSING RD**

**KITCHENER ON N2P 0A4**

**(519) 897-3107**

Mailed on behalf of Expédié au nom de: **9830228 AECOM**

CIF ACMA: **No / Non**

Customer Reference Référence du client:

Pieces Size Format des articles: **Up to/Jusqu'à 30.5x15.24x1.9 cm (12x6x0.75 in)**

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**Location / Bureau:**

**STONEY CREEK RVU I047**

**393 MILLEN ROAD**

**STONEY CREEK ON L8E 5A8**

**Deposit Date / Date du dépôt:**

**2026/03/18**

(The Induction Date may be different. / La date de dépôt pourrait être différente.)



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|---------------------|--------------------------|--------------------|-----------------------------------|
| Neighb MI Std       | / C. de quartier st      | 5,662              | 30.00 g                           |
|                     |                          | <b>5,662</b>       | <b>169.860 kg</b>                 |

| Containers / Conteneurs<br>(Customer estimate / Evaluation du client) |   |
|-----------------------------------------------------------------------|---|
| Customer Supplied Containers /<br>Conteneurs fournis par le client    | 6 |

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| Product      | Cost Centre Reference     | Deposit Date  | Pieces       | Weight/Piece    | \$ / Piece   | Start Date de livr. | Transportation / Transport                 | Total Cost (\$)      |
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| Produit      | Référence centre de coûts | Date du dépôt | Articles     | Poids/article   | \$ / article | \$ / kg             | Pieces \$ / Piece<br>Articles \$ / article | Total des frais (\$) |
| 00005        |                           | 2026/03/18    | 5,662        | 30.00 g         | \$0.18400    |                     | 5,662 \$0.0130                             | \$1,115.42           |
| <b>TOTAL</b> |                           |               | <b>5,662</b> | <b>169.86 g</b> |              |                     |                                            | <b>\$1,115.42</b>    |

**Deposit Type / Type de dépôt**

Full Mailing - One Deposit / Dépôt entier - Un seul dépôt

|                                                          |                   |
|----------------------------------------------------------|-------------------|
| Base Charges frais de base                               | \$1,041.81        |
| SMB Savings Épargnes PME                                 | -\$52.09          |
| Option: Transport Fees Frais de transport                | \$73.61           |
| Sub-total Before Taxes Total partiel avant les taxes     | \$1,063.33        |
| GST/TPS \$0.00 HST/TVH \$138.23 PST/TVP \$0.00           | \$138.23          |
| <b>Total Amount Due to CPC Montant total dû à la SCP</b> | <b>\$1,201.56</b> |

The Customer warrants that the order details listed above are prepared in accordance with the terms and conditions specified in the Customer's Agreement and has been validated for accuracy of information contained within.

Le Client garantit que les détails de la commande ci-dessus ont été préparés en conformité avec les termes et conditions spécifiés dans l'accord du client et a été validé pour l'exactitude des renseignements qu'il contient.

Authorized Customer Signature / Signature autorisée du client:

**X**

CPC HST # N° SCP TVH 119321495

**This document must accompany your mailing to the Accepting Location.**  
**Ce document doit accompagner votre envoi au bureau de dépôt.**

Received by Initials / Employee No.:

Reçu par Initiales / N° de l'employé: \_\_\_\_\_

ESTO/OÉEL v2507.0.938  
SOM / DD 1/1 Page 1 of/de 1





**Neighbourhood Mail - Fully Featured**  
**Courrier de quartier - Haut de gamme**

**C179800171**  
**Customer Client**

**2**

Mailed By Customer Number Expédié par N° du client: **9830228**

**AECOM**

**290-50 SPORTSWORLD CROSSING RD**

**KITCHENER ON N2P 0A4**

**(519) 897-3107**

Mailed on behalf of Expédié au nom de: **9830228 AECOM**

CIF ACMA: **No / Non**

Customer Reference Référence du client:

Pieces Size Format des articles: **Up to/Jusqu'à 30.5x15.24x1.9 cm (12x6x0.75 in)**

Paid By Customer No. N° du client/compte

**9830228**

Method of Payment Mode de paiement

**Credit Card / Carte de crédit**

Contract No. N° de la convention

Transmitted/Transmis: 2026/03/13 14:29 EDT

**Deposit Summary / Sommaire du dépôt**

**Location / Bureau:**

**STONEY CREEK RVU I047**

**393 MILLEN ROAD**

**STONEY CREEK ON L8E 5A8**

**Deposit Date / Date du dépôt:**

**2026/03/18**

(The Induction Date may be different. / La date de dépôt pourrait être différente.)



**ZLEA 85803 17980 01710 00000 0000**

Acceptance and RTO Scans Required (CPC use only)

Balayage d'acceptation et RTO requis (À l'usage de SCP seulement)

| Service Description | / Description du service | Pieces<br>Articles | Weight / Piece<br>Poids / article |
|---------------------|--------------------------|--------------------|-----------------------------------|
| Neighb MI Std       | / C. de quartier st      | 5,662              | 30.00 g                           |
|                     |                          | <b>5,662</b>       | <b>169.860 kg</b>                 |

| Containers / Conteneurs<br>(Customer estimate / Evaluation du client) |   |
|-----------------------------------------------------------------------|---|
| Customer Supplied Containers /<br>Conteneurs fournis par le client    | 6 |

**Entire Mailing / Envoi complet**

| Product      | Cost Centre Reference     | Deposit Date  | Pieces       | Weight/Piece    | \$ / Piece   | Start Date de livr. | Transportation / Transport                 | Total Cost (\$)      |
|--------------|---------------------------|---------------|--------------|-----------------|--------------|---------------------|--------------------------------------------|----------------------|
| Produit      | Référence centre de coûts | Date du dépôt | Articles     | Poids/article   | \$ / article | \$ / kg             | Pieces \$ / Piece<br>Articles \$ / article | Total des frais (\$) |
| 00005        |                           | 2026/03/18    | 5,662        | 30.00 g         | \$0.18400    |                     | 5,662 \$0.0130                             | \$1,115.42           |
| <b>TOTAL</b> |                           |               | <b>5,662</b> | <b>169.86 g</b> |              |                     |                                            | <b>\$1,115.42</b>    |

**Deposit Type / Type de dépôt**

Full Mailing - One Deposit / Dépôt entier - Un seul dépôt

|                                                          |                   |
|----------------------------------------------------------|-------------------|
| Base Charges frais de base                               | \$1,041.81        |
| SMB Savings Épargnes PME                                 | -\$52.09          |
| Option: Transport Fees Frais de transport                | \$73.61           |
| Sub-total Before Taxes Total partiel avant les taxes     | \$1,063.33        |
| GST/TPS \$0.00 HST/TVH \$138.23 PST/TVP \$0.00           | \$138.23          |
| <b>Total Amount Due to CPC Montant total dû à la SCP</b> | <b>\$1,201.56</b> |

The Customer warrants that the order details listed above are prepared in accordance with the terms and conditions specified in the Customer's Agreement and has been validated for accuracy of information contained within.

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Authorized Customer Signature / Signature autorisée du client:

**X**

CPC HST # N° SCP TVH 119321495

**This document must accompany your mailing to the Accepting Location.**  
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Received by Initials / Employee No.:

Reçu par Initiales / N° de l'employé: \_\_\_\_\_

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SOM / DD 1/1 Page 1 of/de 1

# Appendix B : PIC Presentation Material



# Highway 401 Belleville to Kingston

Preliminary Design and Class Environmental Assessment:

- Study #1 (GWP 4022-21-00)
- Study #2 (GWP 4016-21-00)
- Napanee River Bridge Improvements (GWP 4040-20-00)

Public Information Centre #1

March 31, 2026



# Welcome to Public Information Centre #1

The purpose of this Public Information Centre (PIC) is to present:

- Project overview and the process being followed.
- The need for the improvements.
- Existing conditions.
- Alternatives being considered:
  - Bridge rehabilitations/replacements.
  - Interchanges.
  - Protecting for future Highway 401 improvements for six and eight lanes.
- Evaluation process and criteria.
- Next steps.

We are here to listen to your input and answer your questions about the study. Please let us know if you require accommodation to participate.



Sign in



Chat with the Project Team



Fill out a comment sheet



View the displays at [www.hwy401bellevilletokingston.ca](http://www.hwy401bellevilletokingston.ca)



Contact us any time at:  
[projectteam@hwy401bellevilletokingston.ca](mailto:projectteam@hwy401bellevilletokingston.ca)  
or 1-866-753-2640

# Project Overview

The Ontario Ministry of Transportation of (MTO) has retained AECOM to undertake two Planning, Preliminary Design and Class Environmental Assessment (EA) Studies to address current and future transportation needs by developing a plan for the rehabilitation and/or replacement of various bridges and culverts, interchange improvements, and establishing the footprint of Highway 401 for the interim six and ultimate eight lanes of Highway 401, between the City of Belleville and the City of Kingston.

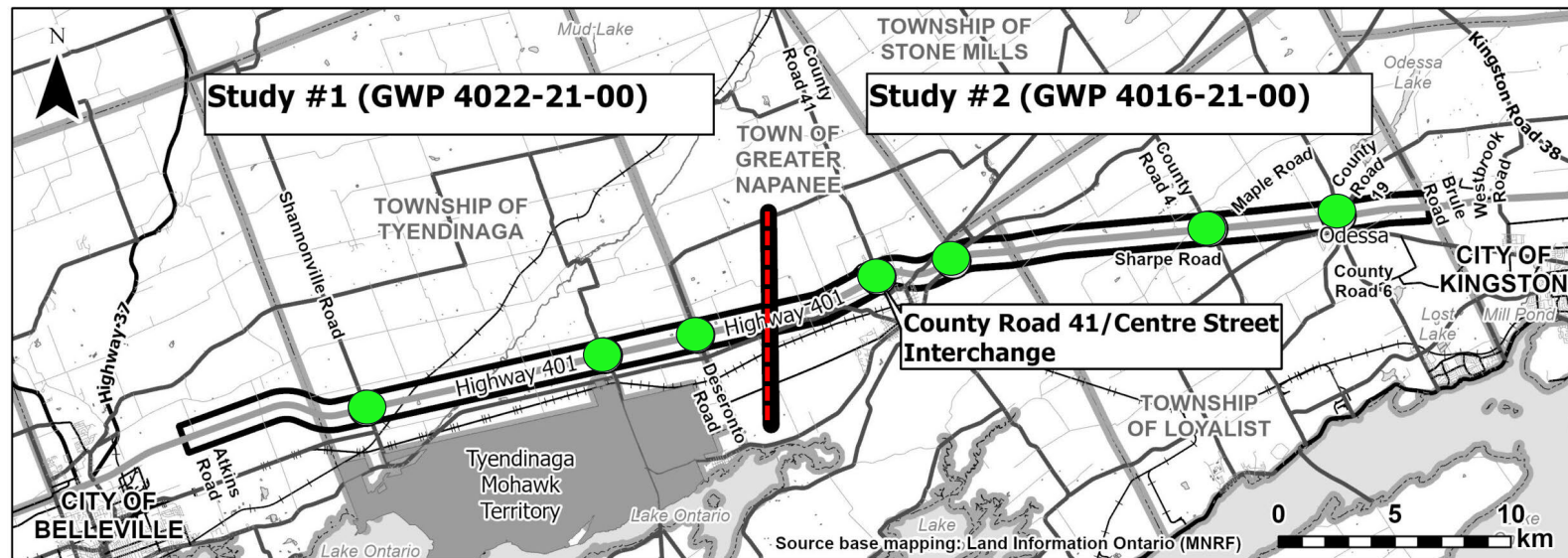
The Project is divided into two studies:

## Study #1 (GWP 4022-21-00)

- Includes Highway 401 from 4.3 km east of Highway 37 to 5 km west of County Road 41 / Centre Street

## Study #2 (GWP 4016-21-00)

- Includes Highway 401 from 5 km west of County Road 41 / Centre Street to 8 km west of Kingston Road 38.





# Key Study Components



Key study components include:

- Environmental studies to better understand the natural, socio-economic and cultural heritage aspects. This helps us identify existing conditions, potential impacts, and the best ways to avoid or reduce them.
- Analyzing traffic patterns to understand how the corridor is used today and how it might function in the future.
- Inspecting bridges and culverts to determine if they need to be rehabilitated or replaced to ensure safety and long-term durability.
- Reviewing drainage and stormwater systems to support the proposed improvements and solve existing water-related issues.
- Reviewing electrical systems, including illumination upgrades, modifications to traffic signals, and needs at commuter parking lots.
- Updating geotechnical work, like studying foundations and pavement, to help shape the early design.
- Exploring how construction might be sequenced and staged to keep things running as smoothly as possible during the work.

We are looking at ways to improve interchanges along the corridor so they can accommodate necessary bridge replacements, accommodate the future highway footprint, handle future traffic volumes and meet today's design standards. This includes improvements at the following interchange locations:

## Study #1:

- Highway 401 / Shannonville Road
- Highway 401 / Marysville Road
- Highway 401 / Deseronto Road

## Study #2:

- Highway 401 / County Road 41 and Palace Road (Interchange Designs per approved PD/EAs)
- Highway 401 / Camden East Road (County Road 4)
- Highway 401 / Wilton Road (County Road 6)

# Class Environmental Assessment Process

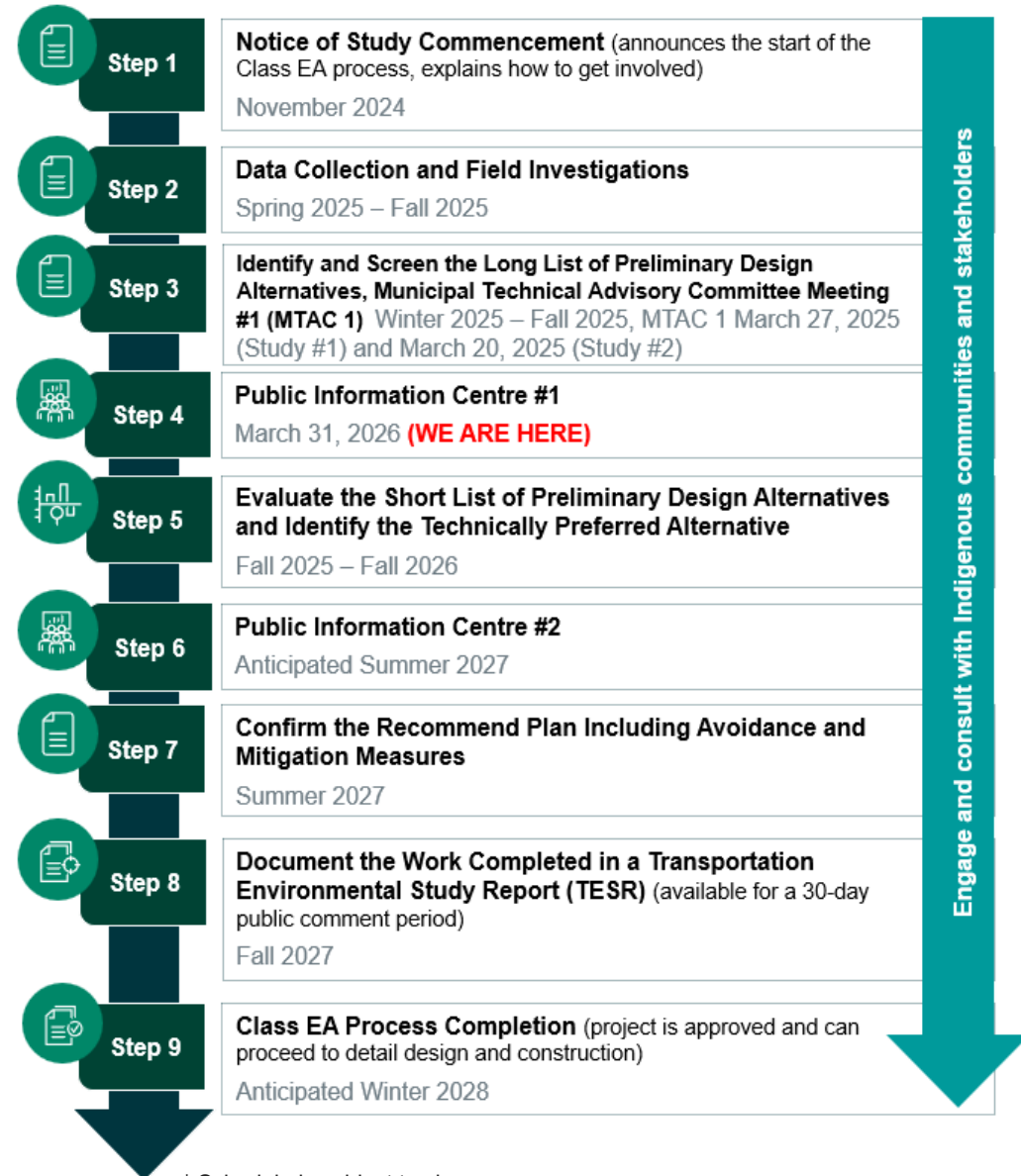
This study is being undertaken as a Group 'B' project under the 2024 Class Environmental Assessment (EA) for Provincial Transportation Facilities and Municipal Expressways, which is an approved process for highway planning, design and construction projects.

Group 'B' projects involve modifications to access or the addition of capacity to existing provincial transportation facilities or municipal expressways.

The consultation plan includes:

- Engagement with Indigenous communities, municipal staff and Council, emergency service providers, regulatory and review agencies, transit and rail operators, and the public (including directly impacted property owners).
- Outreach via mail, website, toll-free telephone line, email, flyers, newspaper notices, and meetings.

## Preliminary Design



\* Schedule is subject to change



# Class Environmental Assessment Process Updates

- In 2019, modernization of the MTO Class EA (2000) was initiated to optimize the Class EA process by removing redundancies and expediting planning to facilitate a more streamlined implementation process.
- Amendments to the Class EA were approved in December 2023 and February 2024, and the Class EA was renamed the ***Class EA for Provincial Transportation Facilities and Municipal Expressways (2024)***.
- As part of the amendments, the EA process is now complete at the end of Preliminary Design, following the 30-day comment period for the Notice of Completion.
- As part of the new MTO Class EA (2024), Preliminary Design is the primary opportunity to provide feedback on the project.
- After Preliminary Design, opportunities for public stakeholder engagement on this project will be limited. However, the ministry will continue to engage with Indigenous communities and remains committed to fulfilling its Duty to Consult.
- At the end of the Preliminary Design Study, a **Transportation Environmental Study Report (TESR)** will be prepared to document the work completed and will be available for a 30-day public comment period.

## Class Environmental Assessment for Provincial Transportation Facilities and Municipal Expressways

2024

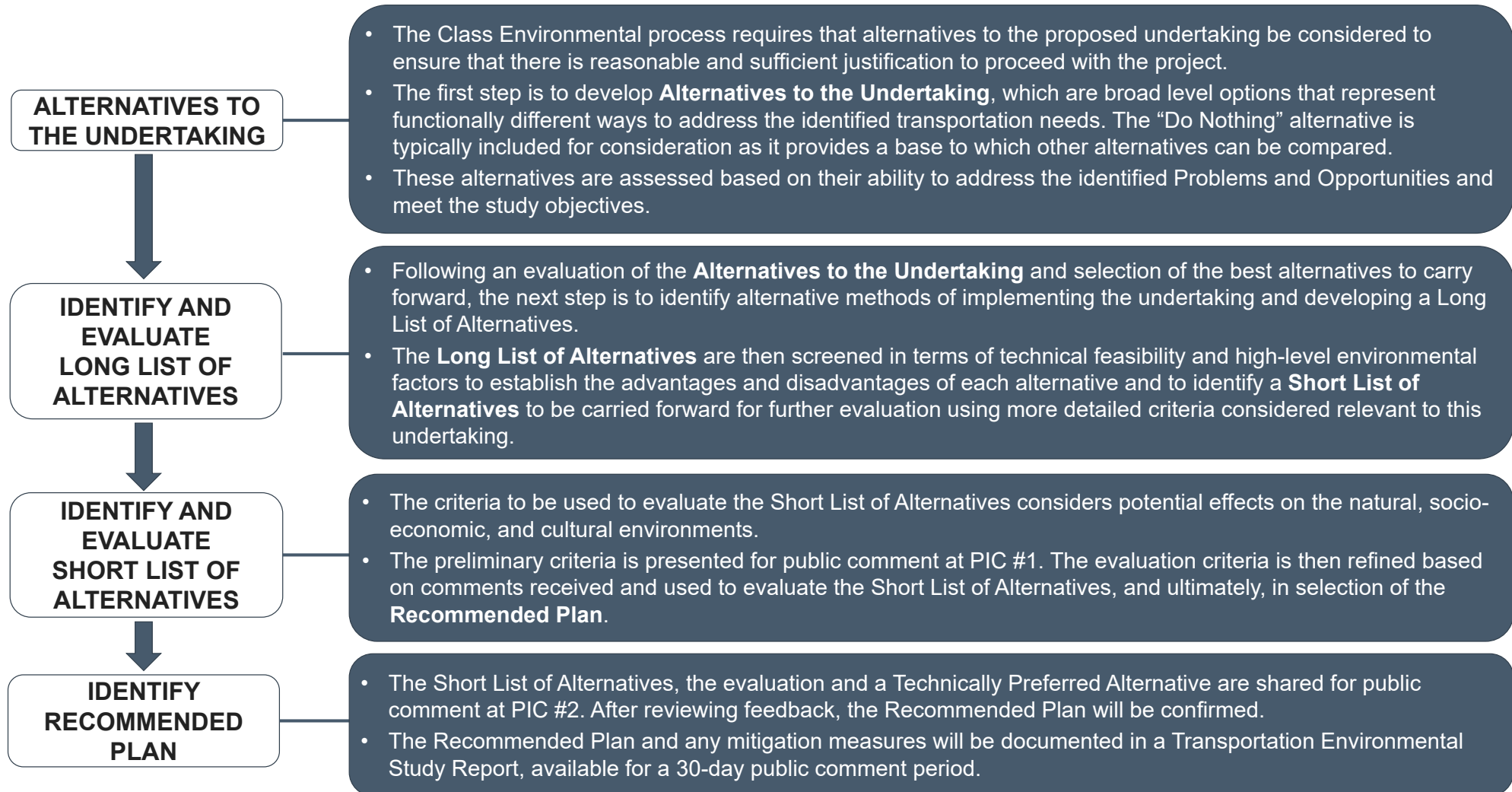
Ontario

# Problems and Opportunities

Below is a summary of the Problems and Opportunities identified with the Study Area.

| Problems                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Opportunities                                                                                                                                                                                                                                                                                                                                                                                                |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"><li>• Many of the bridges and culverts in the study area are nearing the end of their service life and will require rehabilitation or replacement in the foreseeable future.</li><li>• Construction staging along Highway 401 to facilitate rehabilitation or replacement of the structures while minimizing closures and impacts to the public.</li><li>• It is increasingly difficult to undertake routine maintenance of highway infrastructure without significant impacts to traffic.</li><li>• The existing interchanges require improvements to accommodate the structural rehabilitations or replacements, the ultimate footprint of Highway 401, and to address the current and future operational and geometric conditions.</li><li>• There is a need to identify the footprint of a widened Highway 401, particularly at the interchanges, to ensure that the bridge and interchange designs permit the network to continue operating efficiently into the future and to address commercial and residential development pressures along the corridor.</li></ul> | <ul style="list-style-type: none"><li>• Establishing the interim and ultimate footprint of Highway 401 now will allow the structural rehabilitations and replacements to be implemented efficiently and cost-effectively, while maintaining the safe operation of the highway.</li><li>• Identifying the future interchange configurations will allow MTO to manage future development and access.</li></ul> |

# Evaluation Process and Selection of the Recommended Plan



# Alternatives to the Undertaking

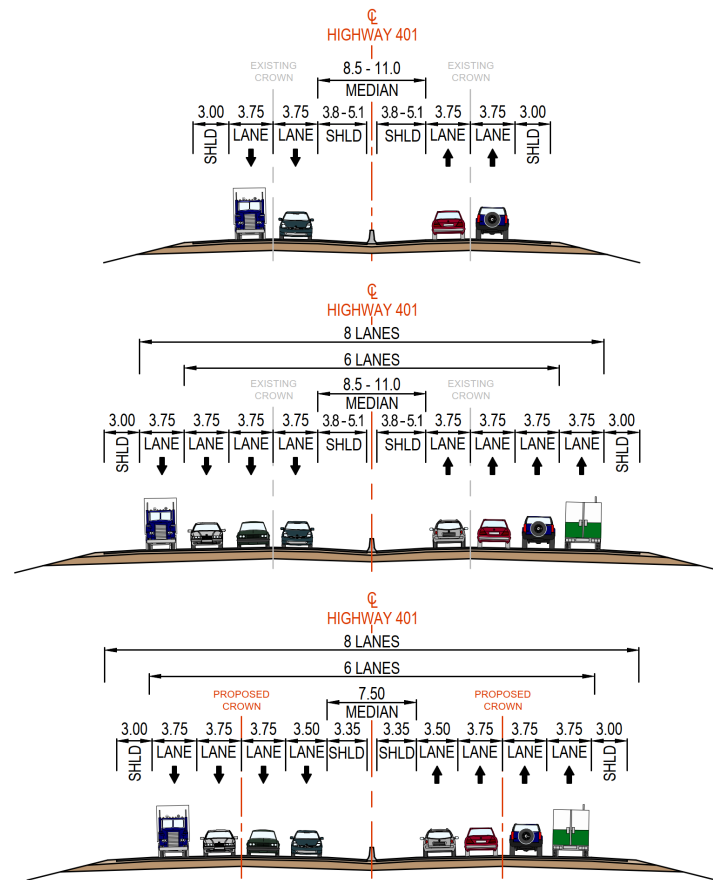
“Alternatives To” the project – which are functionally different ways of addressing the identified Problems and Opportunities – were developed and screened:

| “Alternatives To” The Project                                                                                                                                                                                                                                                                                                                                                   | Do They Address The Problems and Opportunities?                                                                                                                                                                                        |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Do Nothing</b> <ul style="list-style-type: none"> <li>The status quo, where improvements to Highway 401 are limited to maintenance of current infrastructure.</li> </ul>                                                                                                                                                                                                     | <ul style="list-style-type: none"> <li>Does not address the structural needs and anticipated future growth needs. Do not carry forward.</li> </ul>  |
| <b>Transportation Demand Management (TDM)</b> <ul style="list-style-type: none"> <li>TDM includes strategies that help reduce traffic congestion and aim to reduce the number of single-occupant vehicles on the road, encourage people to travel at less busy times, and promote alternative ways of getting around — such as public transit, cycling, and walking.</li> </ul> | <ul style="list-style-type: none"> <li>Does not address the structural needs. Do not carry forward.</li> </ul>                                      |
| <b>Improvements to Adjacent Road Systems</b> <ul style="list-style-type: none"> <li>Expansion of existing municipal and regional road networks.</li> </ul>                                                                                                                                                                                                                      | <ul style="list-style-type: none"> <li>Does not address the structural needs. Do not carry forward.</li> </ul>                                     |
| <b>Improvements to the Highway 401</b> <ul style="list-style-type: none"> <li>Establish an interim six lanes and ultimate eight lanes of Highway 401 and modify the configuration of existing interchanges to accommodate the rehabilitation and replacement of bridges and culverts.</li> </ul>                                                                                | <ul style="list-style-type: none"> <li>Addresses structural needs and anticipated future growth needs. Carry forward.</li> </ul>                  |
| <b>New Provincial Transportation Facility</b> <ul style="list-style-type: none"> <li>A new highway and/or transitway to accommodate capacity needs and potentially enhance the performance of the transportation network.</li> </ul>                                                                                                                                            | <ul style="list-style-type: none"> <li>Does not address the structural needs. Do not carry forward.</li> </ul>                                    |

# Improvements along Highway 401 and Footprint

- Proposed interchange improvements and structural replacements will be designed to accommodate both a six-lane and ultimate eight-lane footprint of Highway 401.
- Cross-section alternatives to accommodate the future footprint of Highway 401 have been developed as illustrated. The alternatives will be assessed in terms of property and environmental impacts, traffic staging and constructability.

## HIGHWAY 401 WIDENING ALTERNATIVES EXISTING URBAN SECTION WEST STUDY LIMITS TO WYMAN ROAD AND 0.5 KM WEST OF COUNTY ROAD 41 TO 0.5 KM EAST OF PALACE ROAD



EXISTING 4 LANES,  
8.5 - 11.0m URBAN MEDIAN

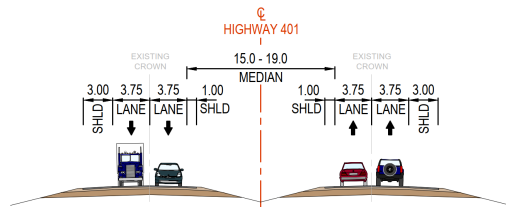
OPTION 1:  
WIDEN TO OUTSIDE,  
MAINTAIN EXISTING MEDIAN

OPTION 2:  
RECONSTRUCT TO  
7.5m URBAN MEDIAN

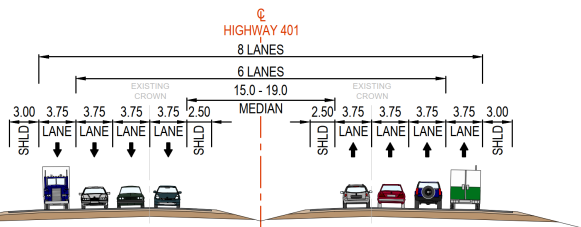
# Improvements along Highway 401 and Footprint

## HIGHWAY 401 WIDENING ALTERNATIVES EXISTING RURAL SECTION (1)

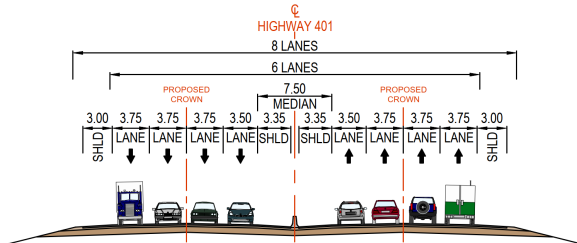
WYMAN ROAD TO 0.5 KM WEST OF COUNTY ROAD 41 AND  
0.5 KM EAST OF PALACE ROAD TO EAST PROJECT LIMITS



EXISTING 4 LANES,  
15.0 - 19.0m RURAL MEDIAN



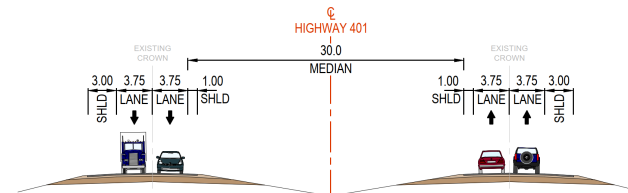
OPTION 1:  
WIDEN TO OUTSIDE, MAINTAIN  
15.0 - 19.0m RURAL MEDIAN



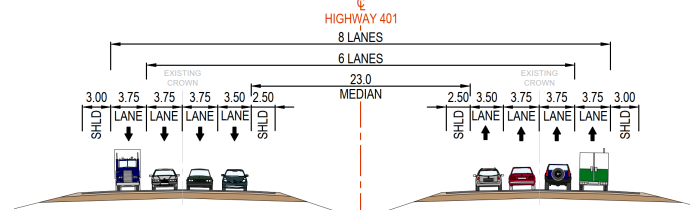
OPTION 2:  
RECONSTRUCT TO  
7.5m URBAN MEDIAN

## HIGHWAY 401 WIDENING ALTERNATIVES EXISTING RURAL SECTION (2)

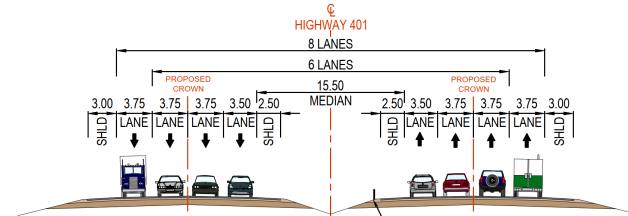
WYMAN ROAD TO 0.5 KM WEST OF COUNTY ROAD 41 AND  
0.5 KM EAST OF PALACE ROAD TO EAST PROJECT LIMITS



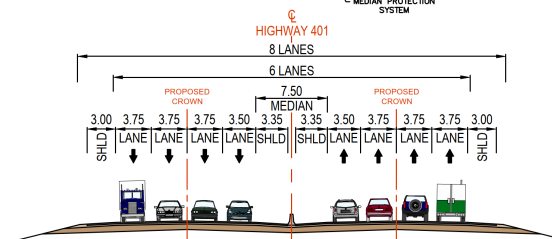
EXISTING 4 LANES,  
30.0m RURAL MEDIAN



OPTION 1:  
WIDEN 1 LANE TO INSIDE AND 1 LANE  
TO OUTSIDE, 23.0m RURAL MEDIAN



OPTION 2:  
WIDEN TO INSIDE,  
15.5m RURAL MEDIAN



OPTION 3:  
RECONSTRUCT TO  
7.5m URBAN MEDIAN



# Culvert Alternatives and Drainage Improvements

The following culvert improvement strategies will be reviewed with the preferred highway footprint alternative.

1. Replace the existing culvert with a new culvert. The new culvert length will accommodate the highway footprint.
2. Replace the existing culvert with a new bridge. The new bridge will accommodate the highway footprint.
3. Rehabilitate the existing culvert and construct culvert extensions at either end to accommodate the highway footprint.
4. Rehabilitate the existing culvert and construct retaining walls at each end to support the steeper embankments associated with the highway footprint.

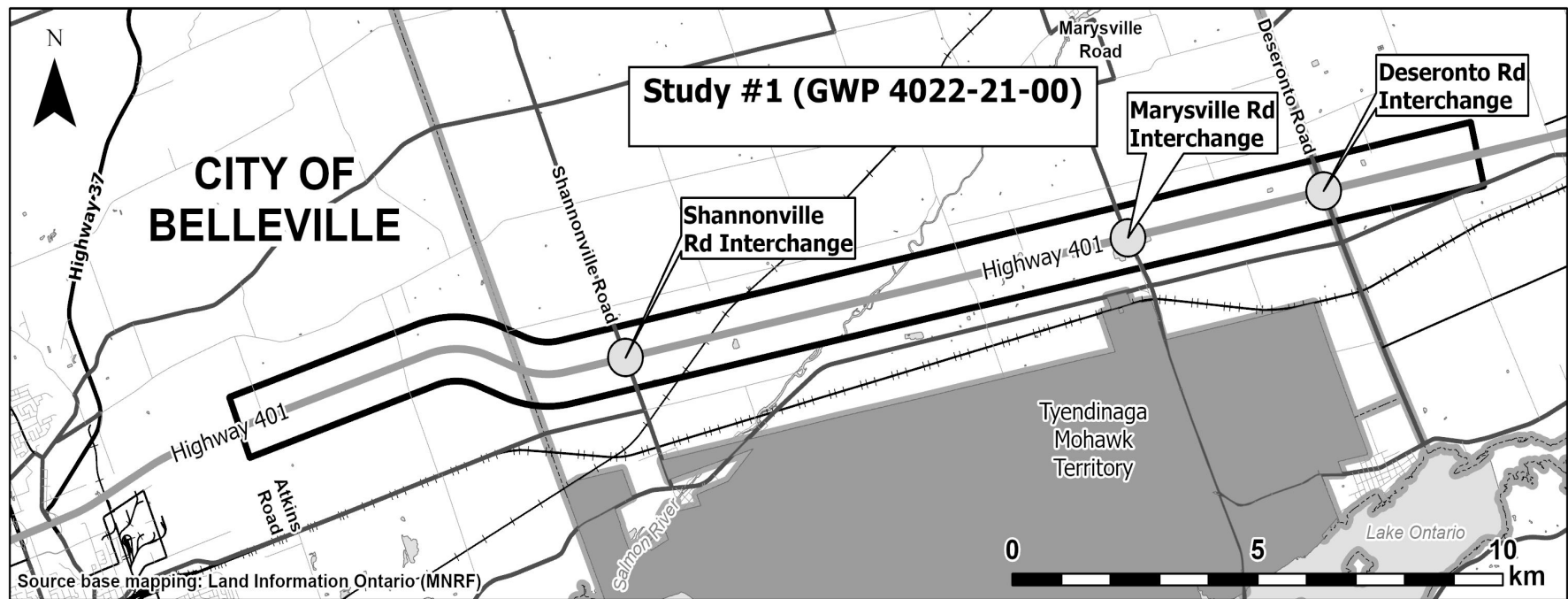


# Study #1 Existing Conditions and Long List Alternatives



# Study #1 (GWP 4022-21-00)

**Study #1**, as illustrated below, includes Highway 401 from 4.3 km east of Highway 37 to 5 km west of County Road 41 / Centre Street.



D:\Projects\60734357\900-CAD\_GIS\920-929 (GIS-Graphics)\920-ENV\Design\01\_Reports\ENV\Hwy401 Belleville to Kingston.aprx

## Adjacent active studies:

- Highway 401 Planning, Preliminary Design and Class EA Study in Quinte West (GWP 4027-18-00), [hwy401quintewest.ca](http://hwy401quintewest.ca)
- Highway 401 Planning, Preliminary Design and Class EA Study from Kingston to Gananoque (GWP 4049-22-00), [hwy401kingstontogananoque.ca](http://hwy401kingstontogananoque.ca)
- Highway 401 Planning, Preliminary Design and Class EA Study from Gananoque to Mallorytown (GWP 4050-22-00), [hwy401gananoquetomallorytown.ca](http://hwy401gananoquetomallorytown.ca)
- Highway 401 Planning, Preliminary Design and Class EA Study from Mallorytown to Brockville (GWP 4011-22-00), [hwy401mallorytowntobrockville.ca](http://hwy401mallorytowntobrockville.ca)

# Study Area and Existing Conditions

The Study Area for Study #1 including environmental features, existing bridges/culverts and notable geometric conditions are illustrated in the graphic below:



\*Hard copy full size drawings of above existing conditions roll plans are available for review at this PIC..



# Existing Bridge Conditions

## Study #1

| Structure Site                                                 | Photo                                                                                | Overview                                                                                                                                                                                                          |
|----------------------------------------------------------------|--------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Deseronto Road Underpass</b><br>17X-0051/B0<br>*Interchange |    | <ul style="list-style-type: none"> <li>• Four span prestressed concrete girder bridge.</li> <li>• Bridge is in fair condition.</li> <li>• Built in 1964.</li> <li>• Last major rehabilitation in 2004.</li> </ul> |
| <b>Marysville Creek Bridge</b><br>11X-0219/B0                  |    | <ul style="list-style-type: none"> <li>• Single span concrete rigid frame.</li> <li>• Bridge is in good condition.</li> <li>• Built in 1961.</li> <li>• Last major rehabilitation in 2018.</li> </ul>             |
| <b>Highway 49 Underpass</b><br>11X-0212/B0<br>*Interchange     |   | <ul style="list-style-type: none"> <li>• Four span concrete T-beam bridge.</li> <li>• Bridge is in good condition.</li> <li>• Built in 1961.</li> <li>• Last major rehabilitation in 2004.</li> </ul>             |
| <b>Wyman Road Underpass</b><br>11X-0208/B0                     |  | <ul style="list-style-type: none"> <li>• Four span prestressed concrete girder bridge.</li> <li>• Bridge is in good condition.</li> <li>• Built in 1964.</li> <li>• Last major rehabilitation in 2016.</li> </ul> |
| <b>Salmon River Bridge</b><br>11X-0207/B0                      |  | <ul style="list-style-type: none"> <li>• Five span steel plate girder bridge.</li> <li>• Bridge is in good condition.</li> <li>• Built in 1956.</li> <li>• Last major rehabilitation in 2005.</li> </ul>          |

# Existing Bridge Conditions

## Study #1

| Structure Site                                                    | Photo                                                                                | Overview                                                                                                                                                                                                                |
|-------------------------------------------------------------------|--------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>CPR Overhead</b><br>11X-0200/B0                                |    | <ul style="list-style-type: none"> <li>• Single span concrete T-beam rigid frame bridge.</li> <li>• Bridge is in fair condition.</li> <li>• Built in 1957.</li> <li>• Last major rehabilitation in 1991.</li> </ul>     |
| <b>Shannonville Road Underpass</b><br>11X-0175/B0<br>*Interchange |    | <ul style="list-style-type: none"> <li>• Single span prestressed concrete box girder bridge.</li> <li>• Bridge is in good condition.</li> <li>• Built in 1960.</li> <li>• Last major rehabilitation in 2004.</li> </ul> |
| <b>Blessington Creek Bridge</b><br>11X-0174/B0                    |   | <ul style="list-style-type: none"> <li>• Single span concrete T-beam bridge.</li> <li>• Bridge is in good condition.</li> <li>• Built in 1956.</li> <li>• Last major rehabilitation in 2015.</li> </ul>                 |
| <b>Mitchell's Road Underpass</b><br>11X-0173/B0                   |  | <ul style="list-style-type: none"> <li>• Four span prestressed concrete girder bridge.</li> <li>• Bridge is in good condition.</li> <li>• Built in 1968.</li> <li>• Last major rehabilitation in 2013.</li> </ul>       |



# Existing Culvert Conditions

## Study #1

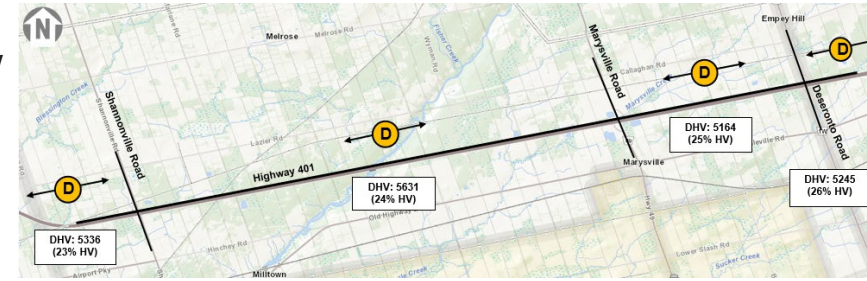
| Structure Site                                               | Photo                                                                                | Overview                                                                                                                                                                                                    |
|--------------------------------------------------------------|--------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Culvert 1 km East of Deseronto Road</b><br>17X-0155/C0    |    | <ul style="list-style-type: none"> <li>• Single span concrete rigid frame culvert.</li> <li>• Culvert is in fair condition.</li> <li>• Built in 1961.</li> <li>• Has not been rehabilitated.</li> </ul>     |
| <b>Culvert 1.7 km East of Marysville Road</b><br>11X-0321/C0 |    | <ul style="list-style-type: none"> <li>• Single span concrete non-rigid frame culvert.</li> <li>• Culvert is in good condition.</li> <li>• Built in 1965.</li> <li>• Has not been rehabilitated.</li> </ul> |
| <b>Marysville Creek Culvert</b><br>11X-0210/C0               |   | <ul style="list-style-type: none"> <li>• Single span arch concrete culvert.</li> <li>• Culvert is in fair condition.</li> <li>• Built in 1961.</li> <li>• Has not been rehabilitated.</li> </ul>            |
| <b>Marysville Creek Culvert</b><br>11X-0209/C0               |  | <ul style="list-style-type: none"> <li>• Single span arch concrete culvert.</li> <li>• Culvert is in fair condition.</li> <li>• Built in 1961.</li> <li>• Has not been rehabilitated.</li> </ul>            |

# Existing & Future Traffic Conditions (Mainline)

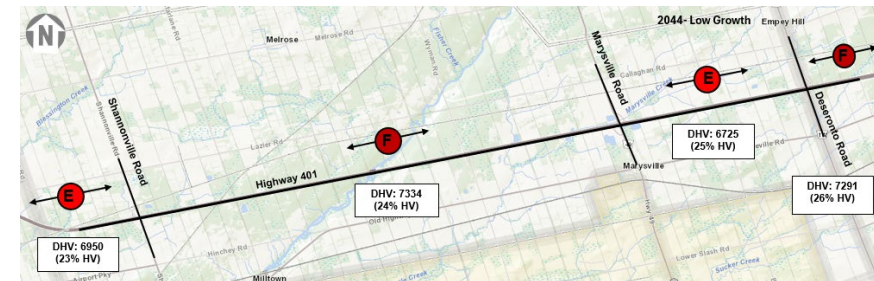
## – Study #1

- A Traffic Operational Analysis has been undertaken to understand how traffic moves today and how it may operate in the future. The study looked at traffic conditions with four lanes (existing) and six and eight lane footprints of Highway 401.
- Traffic operations have been measured based on the Level of Service, which describes how freely vehicles can move along the highway (refer to depictions in the below table).
- The analysis identified that current level of service is acceptable.
- By 2044, without improvements, congestion is expected to increase, which would slow traffic and extend travel times.

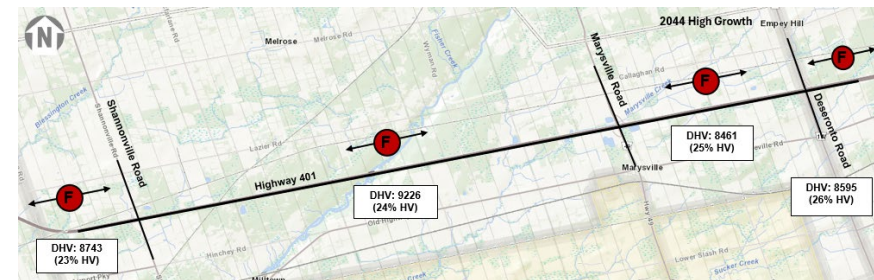
|       | Level of Service | Flow Conditions                                                                     | Descriptions       |
|-------|------------------|-------------------------------------------------------------------------------------|--------------------|
| Best  |                  |                                                                                     |                    |
|       | <b>A</b>         |   | No Delays          |
|       | <b>B</b>         |  | No Delays          |
|       | <b>C</b>         |  | Minimal Delays     |
|       | <b>D</b>         |  | Minimal Delays     |
|       | <b>E</b>         |  | Moderate Delays    |
| Worst | <b>F</b>         |  | Significant Delays |



Existing Conditions – LOS



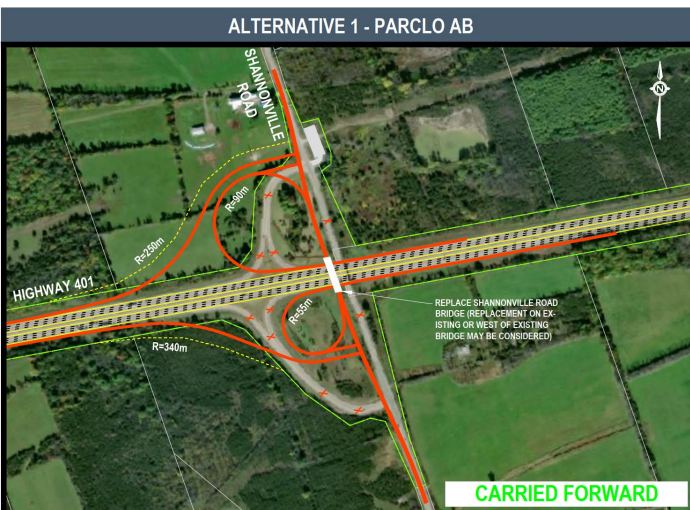
Future Conditions (2044) – Low Growth, Do Nothing Scenario – LOS



Future Conditions (2044) – High Growth, Do Nothing Scenario – LOS



# Study #1: Long List of Alternatives – Highway 401 / Shannonville Road Interchange



**DESCRIPTION:**

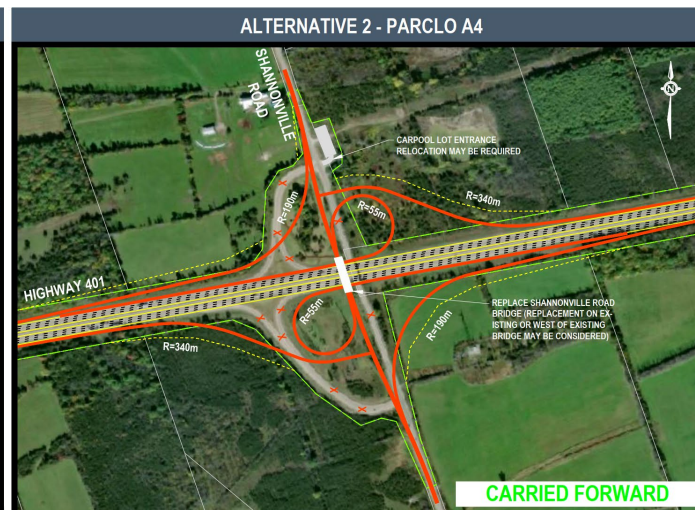
- Construct Parclo B2 with R-90m loop off ramp and R-250m entrance ramp on the north side
- Construct Parclo A2 with R-55m loop ramp and R-340m exit ramp on the south side
- Shannonville Road Bridge (11X-0175/B0) replaced adjacent to existing bridge or west of existing bridge

**ADVANTAGES:**

- Increased separation between Shannonville Road and Highway 401 westbound interchange ramps improves merging/weaving.
- No impacts to carpool lot entrance in northeast quadrant and lower impacts to natural environment.

**DISADVANTAGES:**

- B-loop configurations are typically less desirable than standard directional off ramps on high-speed freeways, due to quick change in speed, maneuverability and reduced capacity.
- Proposed B-loop configuration with R-90 does not meet minimum radius for required design speed
- Left turn movements at ramp terminal intersections are less desirable than directional ramps.



**DESCRIPTION:**

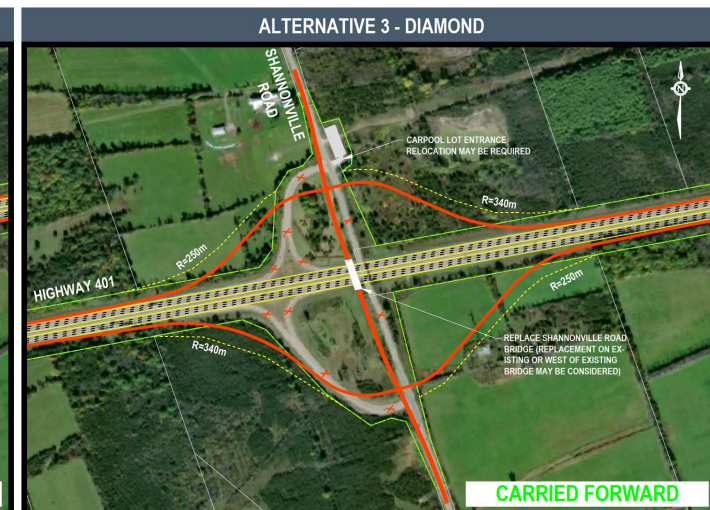
- Construct Parclo A4 with R-55m loop ramps, R-190m directional ramps and R-340m exit ramps.
- Shannonville Road Bridge (11X-0175/B0) replaced adjacent to existing bridge or west of existing bridge.
- Relocation of the carpool lot entrance in the northeast quadrant may be required.

**ADVANTAGES:**

- Parclo A4 is most desirable interchange in terms of traffic operations and ramp geometry.

**DISADVANTAGES:**

- Impacts to carpool lot entrance in northeast quadrant.
- Decreased separation between Shannonville Road and Highway 401 eastbound interchange ramps worsens merging/weaving.
- High construction cost due to the additional ramps and structures.
- Moderate impacts to carpool lot entrance in northeast quadrant.
- Increased potential for environmental impact in NE and SE quadrant of interchange.



**DESCRIPTION:**

- Reconstruct existing diamond interchange with R-340m ramps.
- Shannonville Road Bridge (11X-0175/B0) replaced adjacent to existing bridge or west of existing bridge.
- Relocation of the carpool lot entrance in the northeast quadrant may be required.

**ADVANTAGES:**

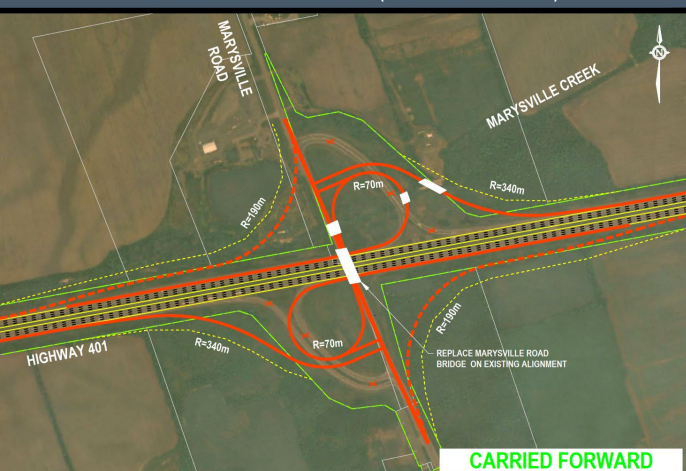
- Lower cost relative to other alternatives.

**DISADVANTAGES:**

- Impacts to carpool lot entrance in northeast quadrant.
- Diamond interchanges cannot accommodate high traffic volumes.
- Left turn movements at ramp terminal intersections are less desirable than directional ramps.
- Moderate impacts to carpool lot entrance in northeast quadrant.
- Increased potential for environmental impact in NE and SE quadrant of interchange.

# Study #1: Long List of Alternatives – Highway 401 / Marysville Road Interchange

ALTERNATIVE 1 - PARCLO A2 (FUTURE PARCLO A4)



## DESCRIPTION:

- Reconstruct existing Parclo A2 with R-70m loop ramps and R-340m exit ramps.
- Marysville Road Bridge (11X-0212/B0) replaced west or east of existing bridge. Marysville Creek Culvert (11X-0210/C0) replaced west or east of existing culvert. Marysville Creek Bridge (11X-0219/B0) replaced adjacent to existing bridge.
- Interchange type is Parclo A2 but can be phased to Parclo A4 by introducing N-W and S-W ramps. Additional impacts to those quadrants will be similar to Alternative 3.

## ADVANTAGES:

- No impacts to commercial land use in northwest quadrant.
- Lower encroachment and impacts to natural environment.

## DISADVANTAGES:

- Left turn movements at ramp terminal intersections are less desirable than directional ramps.

ALTERNATIVE 2 - DIAMOND / PARCLO A4



## DESCRIPTION:

- Construct diamond interchange with R-340m ramps on the north side.
- Construct Parclo A4 with R-70m loop on-ramp, R-130m directional on-ramp, R-340m exit ramp on the south side.
- Marysville Road Bridge(11X-0212/B0) replaced west or east of existing bridge. Marysville Creek Culvert(11X-0210/C0) replaced west or east of existing culvert. Marysville Creek Bridge(11X-0219/B0) replaced adjacent to existing bridge.

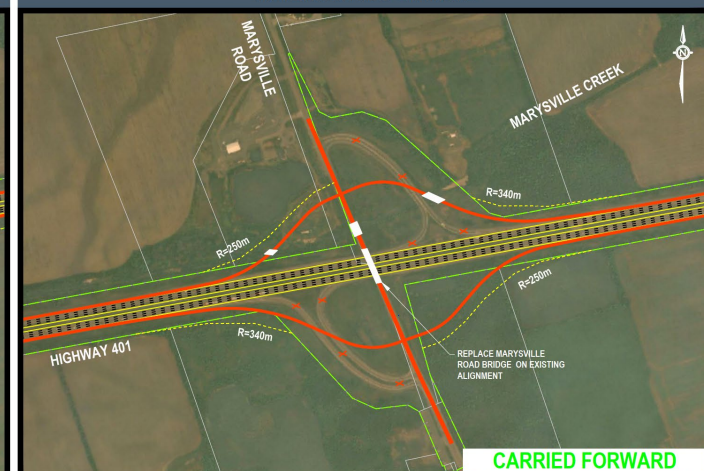
## ADVANTAGES:

- Improved traffic operations compared to existing condition.

## DISADVANTAGES:

- Decreased separation between Marysville Road and Highway 401 eastbound interchange ramps worsens merging/weaving.
- Impacts to commercial land use in northwest quadrant.
- Significant impact to natural environment in northwest quadrant.

ALTERNATIVE 3 - DIAMOND



## DESCRIPTION:

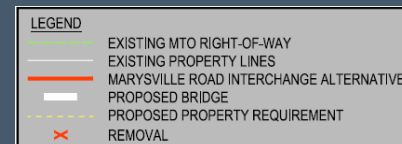
- Construct diamond interchange with R-340m ramps.
- Marysville Road Bridge(11X-0212/B0) replaced west or east of existing bridge. Marysville Creek Culvert(11X-0210/C0) replaced west or east of existing culvert. Marysville Creek Bridge(11X-0219/B0) replaced adjacent to existing bridge.

## ADVANTAGES:

- No impacts to commercial land use in northwest quadrant.
- Lower cost relative to other alternatives.

## DISADVANTAGES:

- Left turn movements at ramp terminal intersections are less desirable than directional ramps.





# Study #1: Long List of Alternatives – Highway 401 / Deseronto Road Interchange

ALTERNATIVE 1 - PARCLO A2 (FUTURE PARCLO A4)



## DESCRIPTION:

- Reconstruct existing Parclo A2 with R-70m loop ramps and R-340m exit ramps.
- Deseronto Road Bridge(17X-0051/B0) replaced adjacent to existing bridge or east of existing bridge.
- Interchange type is Parclo A2 but can be phased to Parclo A4 by introducing N-W and S-W ramps (190m radii).

## ADVANTAGES:

- Parclo A2 initially the lowest impacts to natural environment relative to other alternatives.
- No property impacts to residential land use.
- Opportunity to modify interchange in the future to Parclo A4 as it is most desirable interchange in terms of traffic operations and ramp geometry.

## DISADVANTAGES:

- As a Parclo A2, left turn movements at ramp terminal intersections are less desirable than directional ramps.
- As a Parclo A4, decreased separation between Deseronto Road and Highway 401 eastbound interchange ramps worsens merging/weaving. Also, higher construction cost due to the additional ramps and structures.

ALTERNATIVE 2 - DIAMOND



## DESCRIPTION:

- Construct diamond interchange with R-340m ramps.
- Deseronto Road Bridge(17X-0051/B0) replaced adjacent to existing bridge or east of existing bridge.

## ADVANTAGES:

- Lowest cost relative to other alternatives.

## DISADVANTAGES:

- Diamond interchanges cannot accommodate high traffic volumes.
- Left turn movements at ramp terminal intersections are less desirable than directional ramps.
- Significant impact to private property in northwest quadrant.
- Moderate impacts to natural environment in all quadrants.

ALTERNATIVE 3 - PARCLO A2 / DIAMOND



## DESCRIPTION:

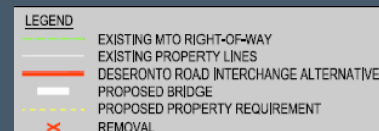
- Construct Parclo A2 with R-70m loop ramps and R-340m exit ramp on the north side.
- Construct diamond interchange with R-340m ramps on the south side.
- Deseronto Road Bridge(17X-0051/B0) replaced adjacent to existing bridge or east of existing bridge.

## ADVANTAGES:

- Lower cost relative to other alternatives.
- No property impacts to residential land use.

## DISADVANTAGES:

- Left turn movements at ramp terminal intersections are less desirable than directional ramps.
- Moderate impacts to natural environment in northeast, southwest and southeast quadrants.





# Study #1: Long List of Alternatives – Mitchell Road Underpass

ALTERNATIVE 1 - REPLACE ON EXISTING ALIGNMENT



## DESCRIPTION:

- Replacement of Mitchell Road bridge structure (11X-0173/B0) along the existing alignment.
- No realignment of Mitchell Road.

## ADVANTAGES:

- Maintains tangent alignment of Mitchell Road.
- No encroachment and impacts to natural environment.
- Lowest cost alternative.

## DISADVANTAGES:

- Mitchell Road closed for the duration of construction.
- 12.5 km detour required to support traffic travelling between Casey Road and Airport Parkway.

ALTERNATIVE 2 - REALIGNMENT TO THE EAST



## DESCRIPTION:

- Realign Mitchell Road towards the East.

## ADVANTAGES:

- Mitchell Road remains open during construction.

## DISADVANTAGES:

- Minor impacts to natural environment.
- Introduces horizontal curves to Mitchell Road.

ALTERNATIVE 3 - REALIGNMENT TO THE WEST



## DESCRIPTION:

- Realign Mitchell Road towards the West.

## ADVANTAGES:

- Mitchell Road remains open during construction.

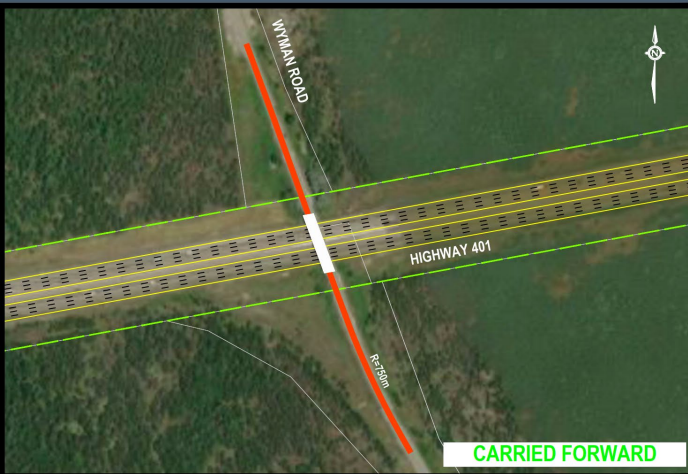
## DISADVANTAGES:

- Minor impacts to natural environment.
- Introduces horizontal curves to Mitchell Road.

| LEGEND |                                         |
|--------|-----------------------------------------|
|        | EXISTING MTO RIGHT-OF-WAY               |
|        | EXISTING PROPERTY LINES                 |
|        | MARYSVILLE ROAD INTERCHANGE ALTERNATIVE |
|        | PROPOSED BRIDGE                         |
|        | PROPOSED PROPERTY REQUIREMENT           |
|        | REMOVAL                                 |

# Study #1: Long List of Alternatives – Wyman Road Underpass

ALTERNATIVE 1 - REPLACE ON EXISTING ALIGNMENT



## DESCRIPTION:

- Replacement of Wyman Road bridge structure (11X-0208/B0) along the existing alignment.
- No realignment of Wyman Road.

## ADVANTAGES:

- Maintains tangent alignment of Wyman Road.
- No encroachment and impacts to natural environment.
- Lowest cost alternative.

## DISADVANTAGES:

- Wyman Road closed for the duration of construction.
- 8.8 km detour required to maintain traffic during construction.

ALTERNATIVE 2 - REALIGNMENT TO THE EAST



## DESCRIPTION:

- Realign Wyman Road towards the East.

## ADVANTAGES:

- Wyman Road remains open during construction.

## DISADVANTAGES:

- Minor impacts to natural environment.
- Introduces horizontal curves to Wyman Road.

ALTERNATIVE 3 - REALIGNMENT TO THE WEST



## DESCRIPTION:

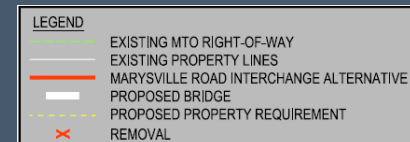
- Realign Wyman Road towards the West.

## ADVANTAGES:

- Wyman Road remains open during construction.

## DISADVANTAGES:

- Minor impacts to natural environment.
- Introduces horizontal curves to Wyman Road.

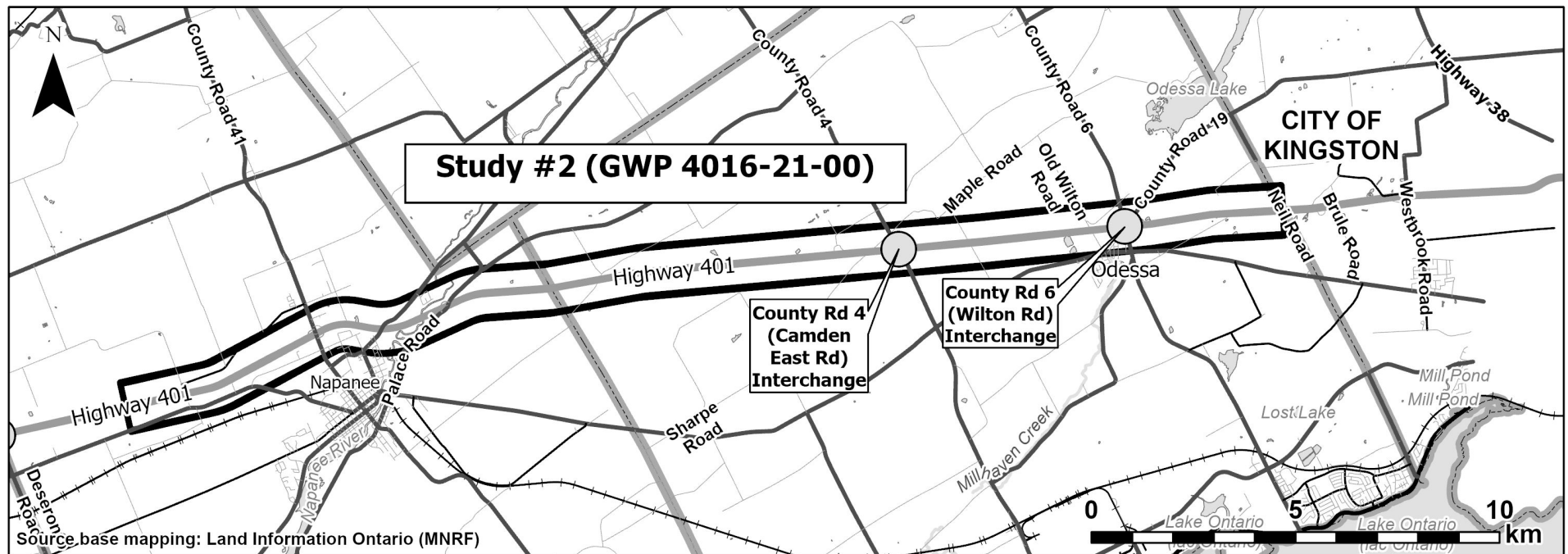


# Study #2 Existing Conditions and Long List Alternatives



# Study #2 (GWP 4016-21-00)

**Study #2**, as illustrated below, includes Highway 401 from 5 km west of County Road 41 / Centre Street to 8 km west of Kingston Road 38.



Z:\Kitchener-CAKCN1\DCS\GIS\Projects\60734357\900-CAD\_GIS\920-929 (GIS-Graphics)\920-ENV\Design\01\_Reports\ENV\Hwy401 Belleville to Kingston.aprx

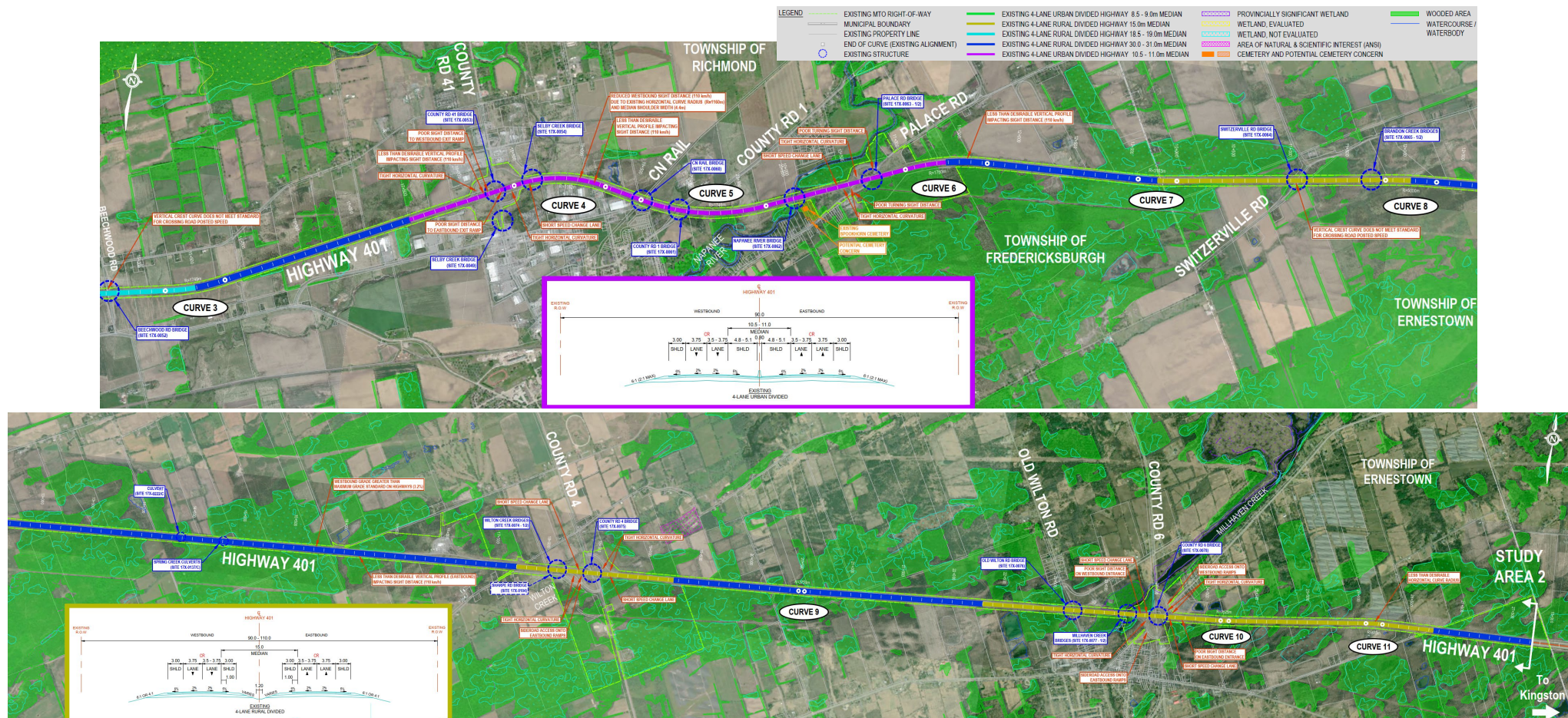
## Adjacent active studies:

- Highway 401 Planning, Preliminary Design and Class EA Study in Quinte West (GWP 4027-18-00), [hwy401quintewest.ca](http://hwy401quintewest.ca)
- Highway 401 Planning, Preliminary Design and Class EA Study from Kingston to Gananoque (GWP 4049-22-00), [hwy401kingstontogananoque.ca](http://hwy401kingstontogananoque.ca)
- Highway 401 Planning, Preliminary Design and Class EA Study from Gananoque to Mallorytown (GWP 4050-22-00), [hwy401gananoquetomallorytown.ca](http://hwy401gananoquetomallorytown.ca)
- Highway 401 Planning, Preliminary Design and Class EA Study from Mallorytown to Brockville (GWP 4011-22-00), [hwy401mallorytowntobrockville.ca](http://hwy401mallorytowntobrockville.ca)



# Study Area and Existing Conditions

The Study Area for Study #2 including environmental features, existing bridges/culverts and notable geometric conditions and concerns are illustrated in the graphic below:



\*Hard copy full size drawings of above existing conditions roll plans are available for review at this PIC..



# Existing Bridge Conditions

## Study #2

| Structure Site                                                         | Photo                                                                                | Overview                                                                                                                                                                                                                       |
|------------------------------------------------------------------------|--------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Wilton Road Underpass</b><br>17X-0078/B0<br><i>*Interchange</i>     |    | <ul style="list-style-type: none"> <li>• Four span reinforced cast-in-place concrete T-beam bridge.</li> <li>• Bridge is in good condition.</li> <li>• Built in 1962.</li> <li>• Last major rehabilitation in 2016.</li> </ul> |
| <b>Millhaven Creek Bridge East and Westbound</b><br>17X-0077/B1 and B2 |    | <ul style="list-style-type: none"> <li>• Single span concrete rigid frame.</li> <li>• Bridge is in good condition.</li> <li>• Built in 1959.</li> <li>• Last major rehabilitation in 1983 (EB) and 1988 (WB).</li> </ul>       |
| <b>Odessa Road Underpass</b><br>17X-0076/B0                            |    | <ul style="list-style-type: none"> <li>• Four span concrete T-beam bridge.</li> <li>• Bridge is in good condition.</li> <li>• Built in 1960.</li> <li>• Last major rehabilitation in 2016.</li> </ul>                          |
| <b>Camden East Underpass</b><br>17X-0075/B0<br><i>*Interchange</i>     |  | <ul style="list-style-type: none"> <li>• Four span concrete T-beam bridge.</li> <li>• Bridge is in good condition.</li> <li>• Built in 1961.</li> <li>• Last major rehabilitation in 2009.</li> </ul>                          |
| <b>Wilton Creek Service Road Bridge</b><br>17X-0104/B0                 |  | <ul style="list-style-type: none"> <li>• Single span concrete rigid frame.</li> <li>• Bridge is in good condition.</li> <li>• Built in 1960.</li> <li>• Last major rehabilitation in 2016.</li> </ul>                          |

# Existing Bridge Conditions

## Study #2

| Structure Site                                                       | Photo | Overview                                                                                                                                                                                                                   |
|----------------------------------------------------------------------|-------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Wilton Creek Bridge East and Westbound</b><br>17X-0074/B1 and B2  |       | <ul style="list-style-type: none"> <li>• Single span concrete rigid frame.</li> <li>• Bridge is in good condition.</li> <li>• Built in 1960.</li> <li>• Last major rehabilitation in 1983 (EB) and 1988 (WB).</li> </ul>   |
| <b>Brandon Creek Bridge East and Westbound</b><br>17X-0065/B1 and B2 |       | <ul style="list-style-type: none"> <li>• Single span concrete rigid frame.</li> <li>• Bridge is in good condition.</li> <li>• Built in 1961.</li> <li>• Last major rehabilitation in 1987.</li> </ul>                      |
| <b>Switzerville Road Underpass</b><br>17X-0064/B0                    |       | <ul style="list-style-type: none"> <li>• Four span reinforced cast-in-place concrete T-beam.</li> <li>• Bridge is in good condition.</li> <li>• Built in 1963.</li> <li>• Last major rehabilitation in 2016.</li> </ul>    |
| <b>Napanee River Bridge</b><br>17X-0062/B0                           |       | <ul style="list-style-type: none"> <li>• Three span concrete rigid frame.</li> <li>• Bridge is in good condition.</li> <li>• Built in 1960.</li> <li>• Last major rehabilitation in 1987.</li> </ul>                       |
| <b>Newburgh Underpass</b><br>17X-0061/B0                             |       | <ul style="list-style-type: none"> <li>• Single span concrete rigid frame, concrete box girder.</li> <li>• Bridge is in good condition.</li> <li>• Built in 1960.</li> <li>• Last major rehabilitation in 2008.</li> </ul> |



# Existing Bridge Conditions

## Study #2

| Structure Site                                                                                                                          | Photo                                                                                | Overview                                                                                                                                                                                                                                                                                    |
|-----------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>CNR Subway</b><br>17X-0060/B0                                                                                                        |    | <ul style="list-style-type: none"> <li>• Single span steel through plate girders with concrete deck.</li> <li>• Bridge is in good condition.</li> <li>• Built in 1959.</li> <li>• Last major rehabilitation unknown.</li> <li>• Currently not in-use – Deck fenced on both ends.</li> </ul> |
| <b>Selby Creek Bridge</b><br>17X-0054/B0                                                                                                |    | <ul style="list-style-type: none"> <li>• Single span concrete rigid frame.</li> <li>• Bridge is in good condition.</li> <li>• Built in 1960.</li> <li>• Last major rehabilitation in 2017.</li> </ul>                                                                                       |
| <b>County Road 41 Overpass</b><br>17X-0053/B0<br><i>*Interchange and Structure included based on previous Preliminary Design study.</i> |   | <ul style="list-style-type: none"> <li>• Single span concrete rigid frame.</li> <li>• Bridge is in good condition.</li> <li>• Built in 1961.</li> <li>• Last major rehabilitation in 1983.</li> </ul>                                                                                       |
| <b>Selby Creek Bridge</b><br>17X-0049/B0                                                                                                |  | <ul style="list-style-type: none"> <li>• Single span prestressed concrete box girder.</li> <li>• Bridge is in good condition.</li> <li>• Built in 2004.</li> <li>• Has not been rehabilitated.</li> </ul>                                                                                   |
| <b>Beechwood Road Underpass</b><br>17X-0052/B0                                                                                          |  | <ul style="list-style-type: none"> <li>• Four span prestressed concrete girder.</li> <li>• Bridge is in good condition.</li> <li>• Built in 1964.</li> <li>• Last major rehabilitation in 2012.</li> </ul>                                                                                  |

# Existing Culvert Conditions

## Study #2

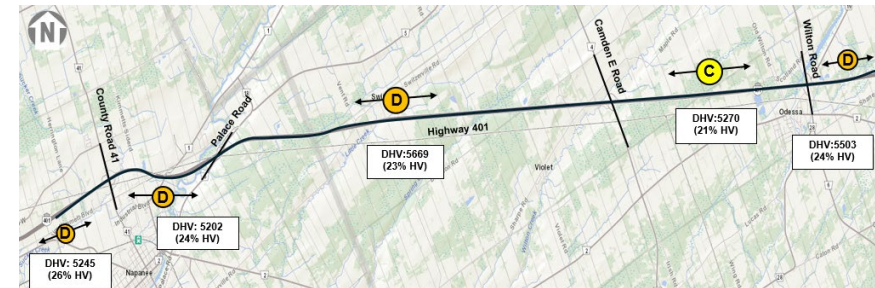
| Structure Site                                                       | Photo                                                                                | Overview                                                                                                                                                                                                      |
|----------------------------------------------------------------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Westbrook Creek Culvert</b><br>07X-0132/C0                        |    | <ul style="list-style-type: none"> <li>• Single span concrete rigid frame culvert.</li> <li>• Culvert is in fair condition.</li> <li>• Built in 1960.</li> <li>• Has not been rehabilitated.</li> </ul>       |
| <b>Spring Creek Culvert East and Westbound</b><br>17X-0137/C1 and C2 |   | <ul style="list-style-type: none"> <li>• Single span concrete rigid frame box culvert.</li> <li>• Culvert is in good condition.</li> <li>• Built in 1961.</li> <li>• Has not been rehabilitated.</li> </ul>   |
| <b>Culvert 2.7 km East of Brandon Creek Bridge</b><br>17X-0222/C0    |  | <ul style="list-style-type: none"> <li>• Two cell corrugated steel pipe ellipse culvert.</li> <li>• Culvert is in good condition.</li> <li>• Built in 1965.</li> <li>• Has not been rehabilitated.</li> </ul> |



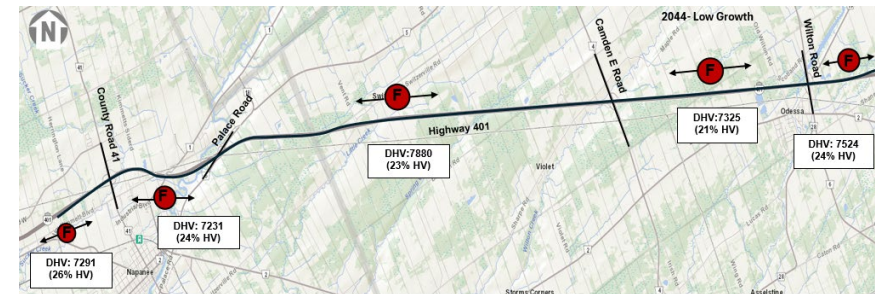
# Existing & Future Traffic Conditions (Mainline) – Study #2

- Consistent with Study #1, a Traffic Operational Analysis looked at traffic conditions with four lanes (existing) and six and eight lane footprints of Highway 401.
- The analysis identified that the current level of service is acceptable.
- By 2044, without improvements, congestion is expected to increase which would slow traffic and extend travel times.

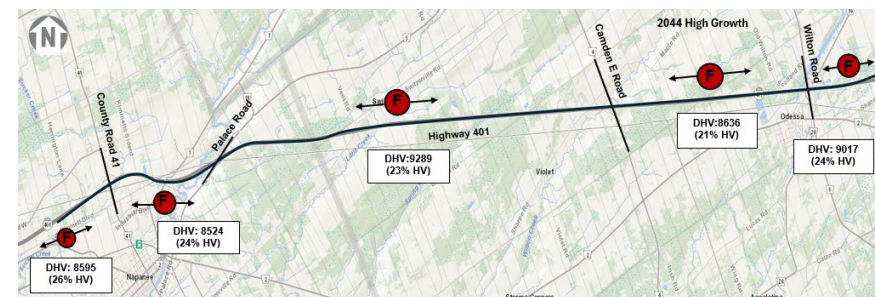
|       | Level of Service | Flow Conditions                                                                     | Descriptions       |
|-------|------------------|-------------------------------------------------------------------------------------|--------------------|
| Best  |                  |                                                                                     |                    |
|       | <b>A</b>         |   | No Delays          |
|       | <b>B</b>         |  | No Delays          |
|       | <b>C</b>         |  | Minimal Delays     |
|       | <b>D</b>         |  | Minimal Delays     |
|       | <b>E</b>         |  | Moderate Delays    |
| Worst | <b>F</b>         |  | Significant Delays |



Existing Conditions (2025) – LOS



Future Conditions (2044) – Low Growth, Do Nothing Scenario – LOS



Future Conditions (2044) – High Growth, Do Nothing Scenario – LOS



# Study #2: Long List of Alternatives – Highway 401 / Camden Road East (County Road 4) Interchange

ALTERNATIVE 1 - PARCLO A2 (FUTURE PARCLO A4)



## DESCRIPTION:

- Improve existing Parclo A2 configuration with new ramp geometry including 70 m radius for both the northbound to westbound and southbound to eastbound on-ramps.
- Country Road 4 realigned to the east or on existing alignment.
- Replacement of County Road 4 structure (17X-0075/B0) and Wilton Creek crossing (17X-0074/B1 EBL and 17X-0074/B2 WBL).
- Realignment of Sharpe Road to the south to remove interchange access/interference.
- Interchange type is Parclo A2 but can be phased to Parclo A4 by introducing N-W and S-W ramps (190m radii).

## ADVANTAGES:

- Opportunity to convert to Parclo A4 in the future which is the most desirable interchange configuration in terms of traffic operations.
- Sharpe Road realignment removes access to the interchange to improve commuter safety.

## DISADVANTAGES:

- Southbound and northbound left-turn to access Highway 401 less than desirable than directional on-ramp including collision risk.
- High construction cost due to the additional ramps and structures associated with Parclo A4 (deferred to future costs).
- Moderate impacts to natural environment in all quadrants.

ALTERNATIVE 2 - DIAMOND



## DESCRIPTION:

- Reconfigure the interchange to diamond interchange with improved ramp geometry.
- Country Road 4 realigned to the east or on existing alignment.
- Replacement of County Road 4 structure (17X-0075/B0) and Wilton Creek crossing (17X-0074/B1 EBL and 17X-0074/B2 WBL).
- Realignment of Sharpe Road to the south to remove interchange access/interference.

## ADVANTAGES:

- Lowest construction cost in comparison to other alternatives.
- Lowest property and natural environmental impacts in comparison to the other alternatives.
- Increased intersection spacing between the realigned Sharpe Road intersection and ramp terminal.

## DISADVANTAGES:

- Southbound and northbound left turn to access eastbound and westbound Highway 401 respectively is less than desirable than directional on-ramps, increasing collision risk.

### LEGEND

- EXISTING MTO RIGHT-OF-WAY
- EXISTING PROPERTY LINES
- COUNTY ROAD 4 INTERCHANGE ALTERNATIVE
- PROPOSED BRIDGE
- PROPOSED PROPERTY REQUIREMENT
- REMOVAL

ALTERNATIVE 3 - PARCLO A2 WITH ROUNDABOUTS



## DESCRIPTION:

- Improve interchange to Parclo A2 configuration with improved ramp geometry including 70 m radius for both the northbound to westbound and southbound to eastbound on-ramps.
- Construct roundabouts at ramp terminals south of the existing intersection to the north and at the existing intersection on the south of the interchange.
- Replacement of County Road 4 structure (17X-0075/B0) and Wilton Creek crossing (17X-0074/B1 EBL and 17X-0074/B2 WBL).
- Country Road 4 realigned to the east or on existing alignment.
- Realignment of Sharpe Road to the south to remove interchange access/interference.
- Construct roundabout at new Sharpe Road intersection.

## ADVANTAGES:

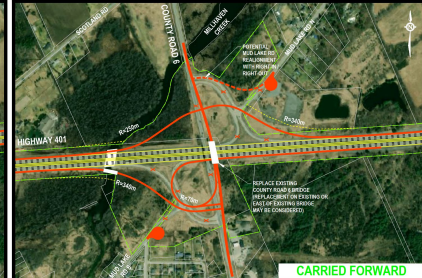
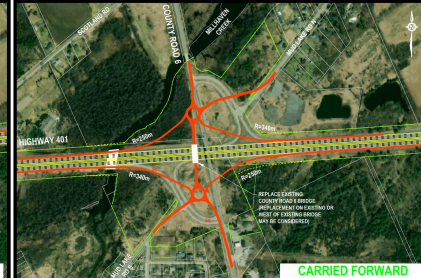
- Good traffic operations anticipated however there may be a learning curve for traffic using the roundabouts.
- Roundabouts generally reduce severity of collisions relative to signalized intersection.

## DISADVANTAGES:

- High construction cost due to the introduction of roundabouts.
- Undesirable intersection spacing between the realigned Sharpe Road intersection and south ramp terminal.



# Study #2: Long List of Alternatives – Highway 401 / Wilton Road (County Road 6) Interchange

| ALTERNATIVE 1 - PARCLO A2 (FUTURE PARCLO A4)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | ALTERNATIVE 2 - DIAMOND                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | ALTERNATIVE 3 - DIAMOND / PARCLO A2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | ALTERNATIVE 4 - DIAMOND WITH 5-LEG ROUNDABOUTS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | ALTERNATIVE 5 - PARCLO B2 / PARCLO A2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
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| <b>DESCRIPTION:</b> <ul style="list-style-type: none"> <li>Re-construct existing Parclo A2 configuration with new ramp geometry including 70 m radius for both the northbound to westbound and southbound to eastbound on-ramps.</li> <li>Cul-de-sac Mud Lake Road north and south of the interchange, removing access and interference to the interchange.</li> <li>Potential Mud Lake Road North realignment and right in/out moves.</li> <li>Replace existing County Road 6 structure (17X-0078/B0) either on existing alignment or to the east of existing.</li> <li>Replacement of Millhaven Creek twin bridges (17X-0077/B1 EB and 17X-0077/B2 WB) across Highway 401, new culvert for W-N/S ramp.</li> <li>Interchange type is Parclo A2 but can be phased to Parclo A4 by introducing N-W and S-W ramps (190m radii).</li> </ul> <b>ADVANTAGES:</b> <ul style="list-style-type: none"> <li>Flexibility to convert to Parclo A4 which is the most desirable interchange configuration in terms of traffic operations and ramp geometry.</li> <li>Mud Lake Road cul-de-sac removing access to the interchange to improve commuter safety.</li> </ul> <b>DISADVANTAGES:</b> <ul style="list-style-type: none"> <li>Left turn lane to access Highway 401 is less than desirable in comparison to directional on ramps but can be improved via Parclo A4 in the future.</li> <li>Higher construction cost in comparison to other alternatives (defer Parclo A4 costs).</li> <li>Moderate environmental impacts in comparison to other alternatives.</li> </ul> | <b>DESCRIPTION:</b> <ul style="list-style-type: none"> <li>Construct new diamond interchange with direct on and off ramps.</li> <li>Cul-de-sac Mud Lake Road north and south of the interchange, removing access and interference to the interchange.</li> <li>Potential Mud Lake Road North realignment, utilizing the existing north ramp terminal.</li> <li>Replace existing County Road 6 Bridge (17X-0078/B0) either on existing alignment or to the east of existing.</li> <li>Replacement of Millhaven Creek twin bridges (17X-0077/B1 EB and 17X-0077/B2 WB) across Highway 401, N/S-W and W-N/S ramps.</li> </ul> <b>ADVANTAGES:</b> <ul style="list-style-type: none"> <li>Lowest construction cost.</li> <li>Least environmental and residential impacts.</li> <li>Mud Lake Road cul-de-sac removing access to the interchange to improve commuter safety.</li> </ul> <b>DISADVANTAGES:</b> <ul style="list-style-type: none"> <li>Left turn lane to access Highway 401 is less than desirable in comparison to directional on ramps.</li> </ul> | <b>DESCRIPTION:</b> <ul style="list-style-type: none"> <li>Construct new diamond interchange configuration with direct on and off ramps North of Highway 401.</li> <li>Re-construct existing Parclo A2 configuration south of Highway 401 with new ramp geometry including 70 m radius.</li> <li>Cul-de-sac Mud Lake Road north and south of the interchange, removing access and interference to the interchange.</li> <li>Potential Mud Lake Road North realignment, utilizing the existing north ramp terminal.</li> <li>Replacement of Millhaven Creek Culvert across Highway 401, new culvert for W-N/S ramp.</li> <li>Replace existing County Road 6 Bridge (17X-0078/B0) either on existing alignment or to the east of existing.</li> </ul> <b>ADVANTAGES:</b> <ul style="list-style-type: none"> <li>Low residential and environmental impacts.</li> <li>Reduced interchange footprint from existing.</li> <li>Mud Lake Road cul-de-sac removing access to the interchange to improve commuter safety.</li> </ul> <b>DISADVANTAGES:</b> <ul style="list-style-type: none"> <li>Left turn lane to access Highway 401 is less than desirable in comparison to directional on ramps.</li> </ul> | <b>DESCRIPTION:</b> <ul style="list-style-type: none"> <li>Construct new diamond interchange configuration with direct on and off ramps North and South of Highway 401.</li> <li>Construct five leg roundabouts for north and south ramp terminals.</li> <li>Replacement of Millhaven Creek Culvert across Highway 401 and new N/S/E-W and W-N/S/E ramps.</li> <li>Realignment of County Road 6 structure (17X-0078/B0) on existing or to the east of existing.</li> <li>Maintains access to Highway 401 from Mud Lake Road north and south.</li> </ul> <b>ADVANTAGES:</b> <ul style="list-style-type: none"> <li>Roundabouts provide less collision risk than stop controlled intersections.</li> <li>Low environmental impacts outside of existing interchange footprint.</li> <li>Maintains access to/from Mud Lake Road.</li> </ul> <b>DISADVANTAGES:</b> <ul style="list-style-type: none"> <li>Higher construction cost in comparison to other alternatives.</li> <li>Will require traffic learning to operate multiple 5-leg, ramp terminal roundabouts.</li> </ul> | <b>DESCRIPTION:</b> <ul style="list-style-type: none"> <li>Re-construct existing Parclo A2 configuration South of Highway 401 with new ramp geometry including 55 m radius for the northbound to westbound on-ramp.</li> <li>Close the interchange ramps North of Highway 401.</li> <li>Realign Mud Lake Road North, utilizing the existing north ramp terminal.</li> <li>Construct new Parclo B2 interchange ramps to connect to Old Milton Road west of existing interchange.</li> <li>Replace existing County Road 6 underpass (17X-0078/B0) adjacent to existing structure.</li> <li>Cul-de-sac Mud Lake Road South of the interchange, removing access and interference to the interchange.</li> <li>Replacement of Millhaven Creek twin bridges (17X-0077/B1 EB and 17X-0077/B2 WB) across Highway 401, E-E/W and W-N/S ramps.</li> </ul> <b>ADVANTAGES:</b> <ul style="list-style-type: none"> <li>Least environmental impact to Millhaven Creek and existing interchange location.</li> <li>Maintains access to/from Mud Lake Road.</li> <li>Reduced potential to impact Millhaven Provincially Significant Wetland.</li> </ul> <b>DISADVANTAGES:</b> <ul style="list-style-type: none"> <li>Left turn to access Highway 401 less than desirable than directional on-ramp, potential increased collision risk.</li> <li>Additional commercial and residential impacts outside of existing interchange footprint.</li> </ul> |
| <b>LEGEND</b> <ul style="list-style-type: none"> <li>EXISTING MTO RIGHT-OF-WAY</li> <li>EXISTING PROPERTY LINES</li> <li>COUNTY ROAD 6 INTERCHANGE ALTERNATIVE</li> <li>PROPOSED BRIDGE</li> <li>PROPOSED PROPERTY REQUIREMENT</li> <li>REMOVAL</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             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# Study #2: Long List of Alternatives – Beechwood Road Underpass

ALTERNATIVE 1 - REPLACE ON EXISTING ALIGNMENT



## DESCRIPTION:

- Replacement of Beechwood Road bridge structure (17X-0052/B0) along the existing alignment.
- No realignment of Beechwood Road.

## ADVANTAGES:

- Maintains tangent alignment of Beechwood Road.
- No encroachment and impacts to natural environment.
- Lowest cost alternative.

## DISADVANTAGES:

- Beechwood Road closed for the duration of construction.
- 8.5 km detour required to support traffic during construction.

ALTERNATIVE 2 - REALIGNMENT TO THE EAST



## DESCRIPTION:

- Realign Beechwood Road towards the East.

## ADVANTAGES:

- Beechwood Road remains open during construction.

## DISADVANTAGES:

- Minor impacts to natural environment.
- Introduces horizontal curves to Beechwood Road.

ALTERNATIVE 3 - REALIGNMENT TO THE WEST



## DESCRIPTION:

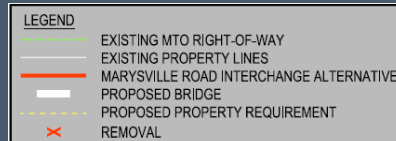
- Realign Beechwood Road towards the West.

## ADVANTAGES:

- Beechwood Road remains open during construction.

## DISADVANTAGES:

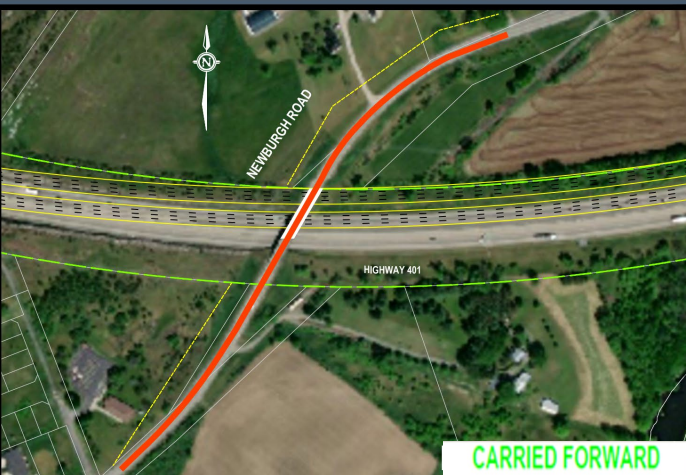
- Minor impacts to natural environment.
- Introduces horizontal curves to Beechwood Road.





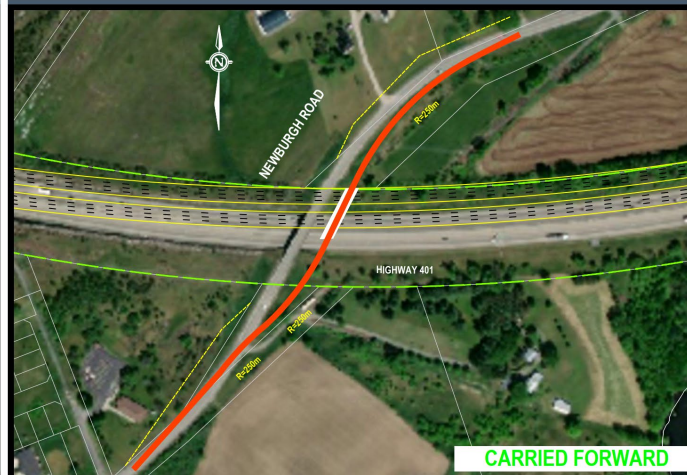
# Study #2: Long List of Alternatives – Newburgh Road Underpass

ALTERNATIVE 1 - REPLACE ON EXISTING ALIGNMENT



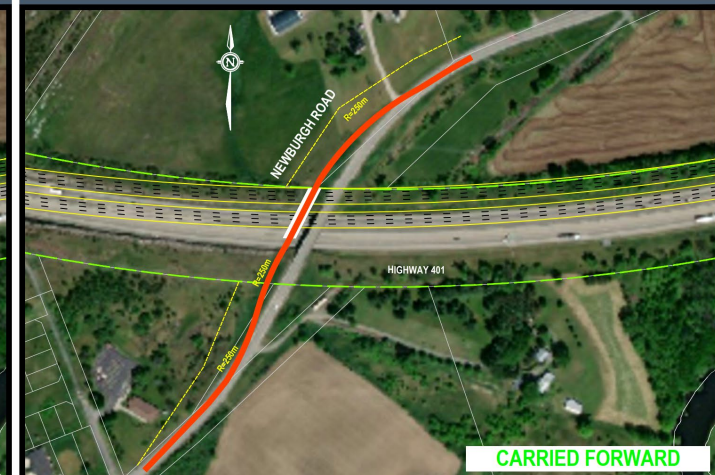
- DESCRIPTION:**
- Replacement of Newburgh Road bridge structure (17X-0061/B0) along the existing alignment.
  - No realignment of Newburgh Road.
- ADVANTAGES:**
- Maintains tangent alignment of Newburgh Road.
  - No encroachment and impacts to natural environment.
  - Lowest cost alternative.
  - Can remain open (one lane of traffic only) or can be closed.
- DISADVANTAGES:**
- 9 km detour required to support traffic during construction.

ALTERNATIVE 2 - REALIGNMENT TO THE EAST

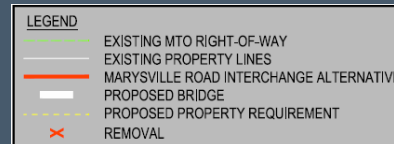


- DESCRIPTION:**
- Realign Newburgh Road towards the East.
- ADVANTAGES:**
- Newburgh Road remains open during construction.
- DISADVANTAGES:**
- Minor impacts to natural environment.

ALTERNATIVE 3 - REALIGNMENT TO THE WEST



- DESCRIPTION:**
- Realign Newburgh Road towards the West.
- ADVANTAGES:**
- Newburgh Road remains open during construction.
- DISADVANTAGES:**
- Minor impacts to the natural environment.





# Study #2: Long List of Alternatives – Switzerville Road Underpass

ALTERNATIVE 1 - REPLACE ON EXISTING ALIGNMENT



## DESCRIPTION:

- Replacement of Switzerville Road bridge structure (17X-0064/B0) along the existing alignment.
- No realignment of Switzerville Road.

## ADVANTAGES:

- Maintains tangent alignment of Switzerville Road.
- No encroachment and impacts to natural environment.
- Lowest cost alternative.

## DISADVANTAGES:

- Switzerville Road closed for the duration of construction.
- 13 km detour required to support traffic during construction

ALTERNATIVE 2 - REALIGNMENT TO THE EAST



## DESCRIPTION:

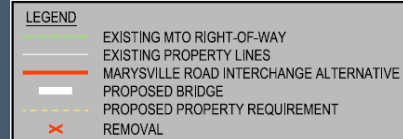
- Realign Switzerville Road towards the East.

## ADVANTAGES:

- Switzerville Road remains open during construction.

## DISADVANTAGES:

- Minor impacts to natural environment.



ALTERNATIVE 3 - REALIGNMENT TO THE WEST



## DESCRIPTION:

- Realign Switzerville Road towards the West.

## ADVANTAGES:

- Switzerville Road remains open during construction.

## DISADVANTAGES:

- Minor impacts to natural environment.

# Study #2: Long List of Alternatives – Old Wilton Road Underpass

ALTERNATIVE 1 - REPLACE ON EXISTING ALIGNMENT



## DESCRIPTION:

- Replacement of Old Wilton Road structure (17X-0076/B0).

## ADVANTAGES:

- Maintains tangent alignment of Old Wilton Road.
- No encroachment and impacts to natural environment.
- Lowest cost alternative.
- Can remain open (one lane of traffic only) or can be closed.

## DISADVANTAGES:

- 3 km detour required to support traffic during construction.

ALTERNATIVE 2 - REALIGNMENT TO THE EAST



## DESCRIPTION:

- Realign Old Wilton Road towards the East.

## ADVANTAGES:

- Old Wilton Road remains open during construction.

## DISADVANTAGES:

- Minor impacts to natural environment.
- Introduces horizontal curves to Old Wilton Road.

ALTERNATIVE 3 - REALIGNMENT TO THE WEST



## DESCRIPTION:

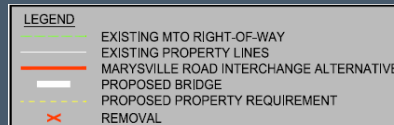
- Realign Old Wilton Road towards the West.

## ADVANTAGES:

- Old Wilton Road remains open during construction.

## DISADVANTAGES:

- Minor impacts to natural environment.
- Introduces horizontal curves to Old Wilton Road.



# **Napanee River Bridge Improvements Preliminary Design and Class Environmental Assessment**

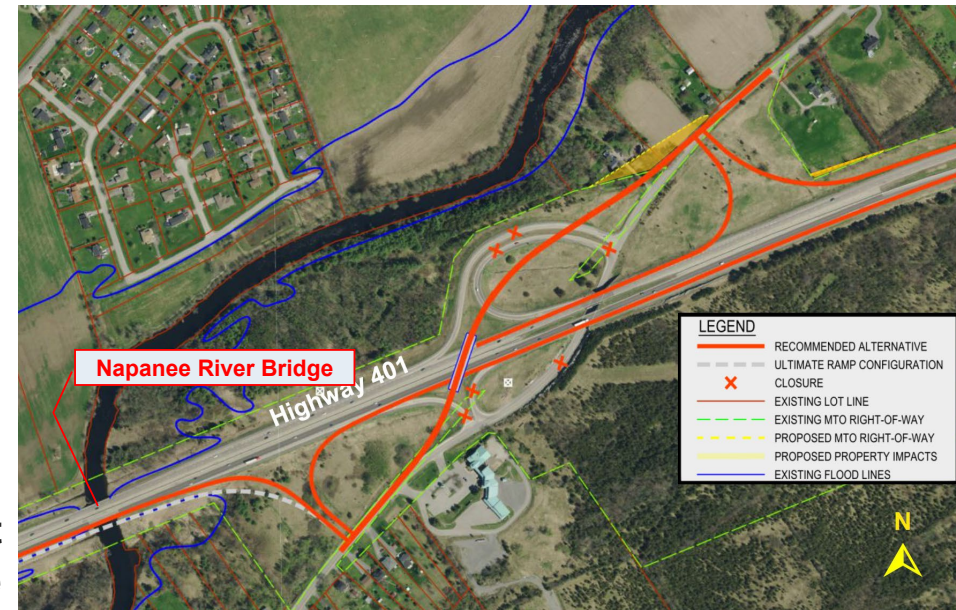


# Previous Study - Palace Road Interchange

## STUDY #2 PROJECT UPDATE

- The Ontario Ministry of Transportation completed a Group 'B' Class EA and Preliminary Design Study in 2019 to undertake improvements to the Highway 401 interchange at Palace Road (GWP 4197-13-00), located within the current Study #2 study area.
- The process was documented in the *Highway 401 Interchange Improvements at Palace Road Class Environmental Assessment and Preliminary Design Study Transportation Environmental Study Report* (March 2019).
- As the **Palace Road Interchange Technically Preferred Plan** advances to Detail Design, advancement of the **Napanee River Bridge (Site 17X-0062/B0)** from the current Study #2 project is required due to its proximity to Palace Road and thus, has been added to the scope of work as a separate Class EA and Preliminary Design study.

### Highway 401 / Palace Road Interchange Technically Preferred Plan



(Reference: *Highway 401 Interchange Improvements at Palace Road Class Environmental Assessment and Preliminary Design Study TESR March 2019*)

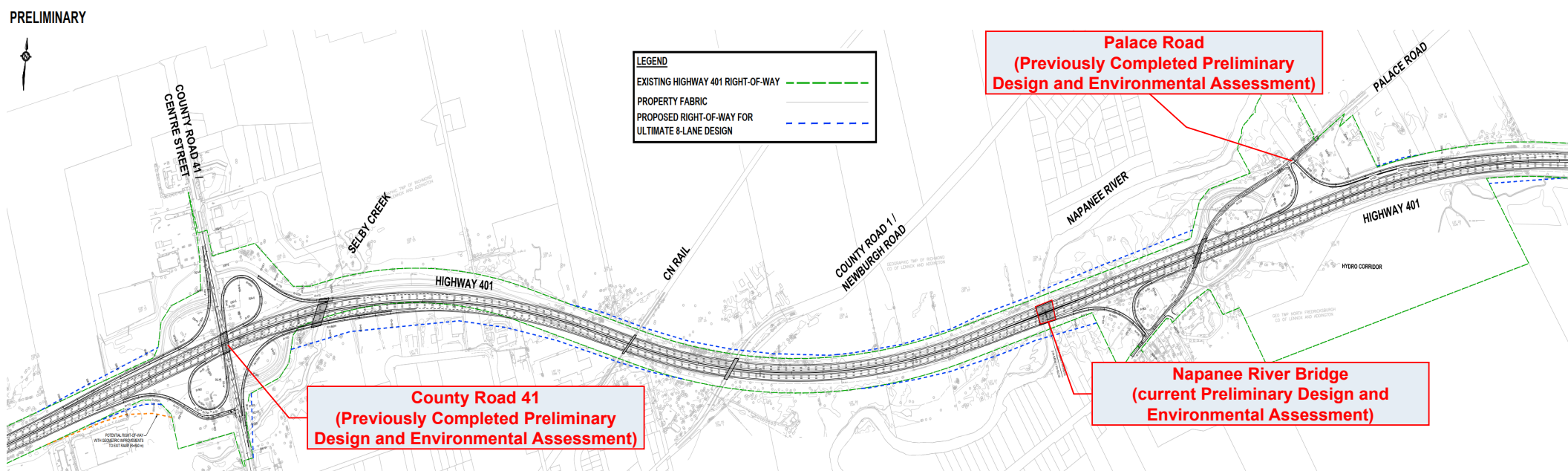
NOTE: As part of the current Study #2, the previously approved Palace Road Interchange Technically Preferred Plan was revisited to assess compatibility with an interim and ultimate footprint of Highway 401, as well as accommodation of a potential 130 km/h design speed of Highway 401. **Based on this review, no significant modifications to the previously approved configuration are recommended.**

# Napanee River Bridge Class EA and Preliminary Design Study

## STUDY AREA

The figure below shows the **Napanee River Bridge**, which the Project Team is advancing the Class EA and Preliminary Design Study.

In this area, other completed Preliminary Design and Class EA studies include; County Road 41 and Palace Road. The Highway 401 corridor through this segment considers protection for 8 lanes, which includes connections to the approved interchange designs for County Road 41 and Palace Road.



# Napanee River Bridge Class EA and Preliminary Design Study

## KEY PROJECT MILESTONES AND TIMELINES

| Key Tasks                                                                             | Anticipated Schedule |
|---------------------------------------------------------------------------------------|----------------------|
| Supplementary Investigations by Environmental and Drainage Teams                      | Spring 2026          |
| Draft / Final Environmental Specialist Studies & Technical Reports                    | Spring / Summer 2026 |
| Finalize <b>TESR</b> and Issue <b>Notice of Completion</b> with 30-day comment period | Summer / Fall 2026   |
| Recommended Plan                                                                      | Fall 2026            |

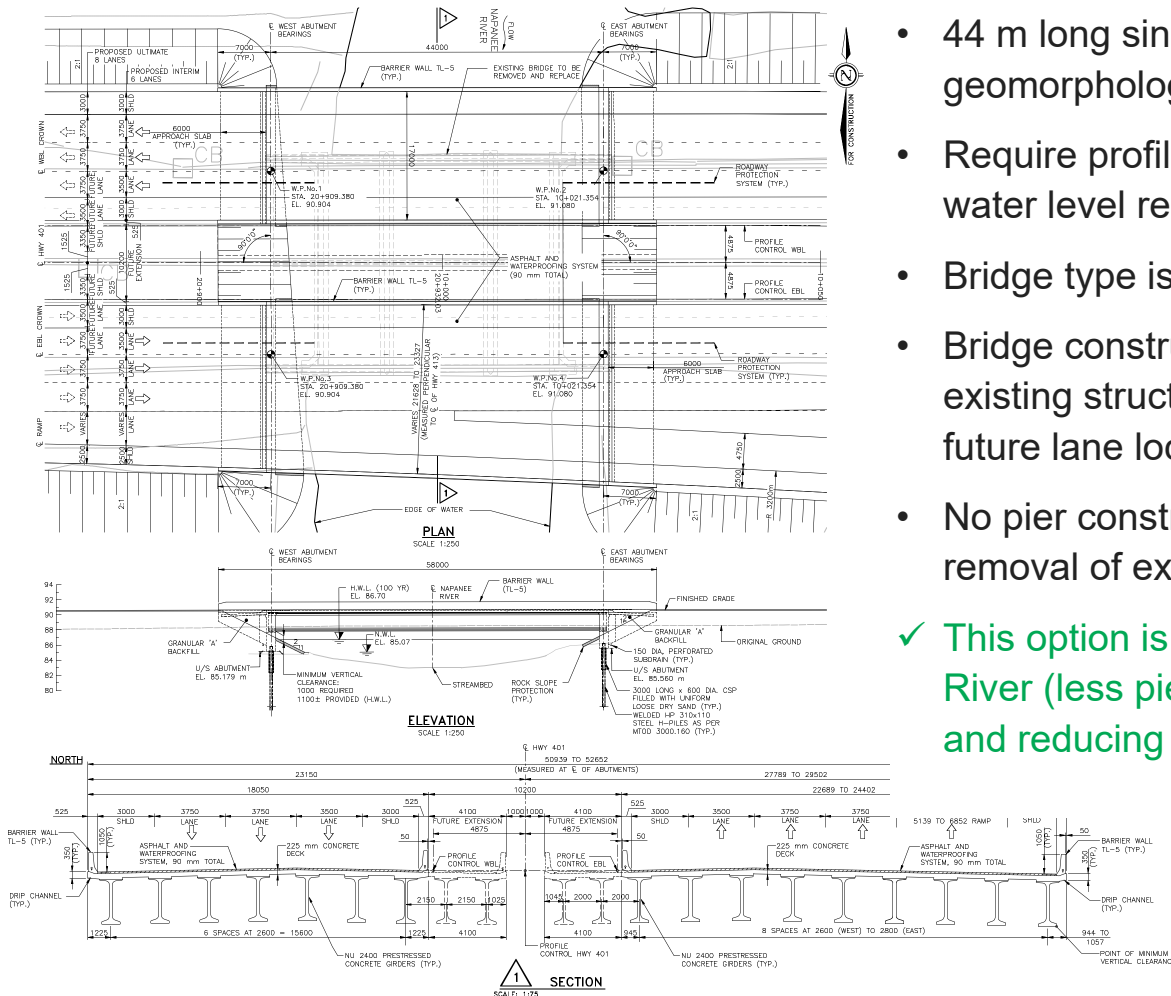


NOTE: Standalone environmental reports and a Transportation Environmental Study Report (TESR) will be prepared for the bridge's Preliminary Design. These are being prioritized ahead of the remaining Study #2 works.



# Napanee River Bridge Class EA and Preliminary Design Study

## BRIDGE ALTERNATIVE – SINGLE SPAN (RECOMMENDED)



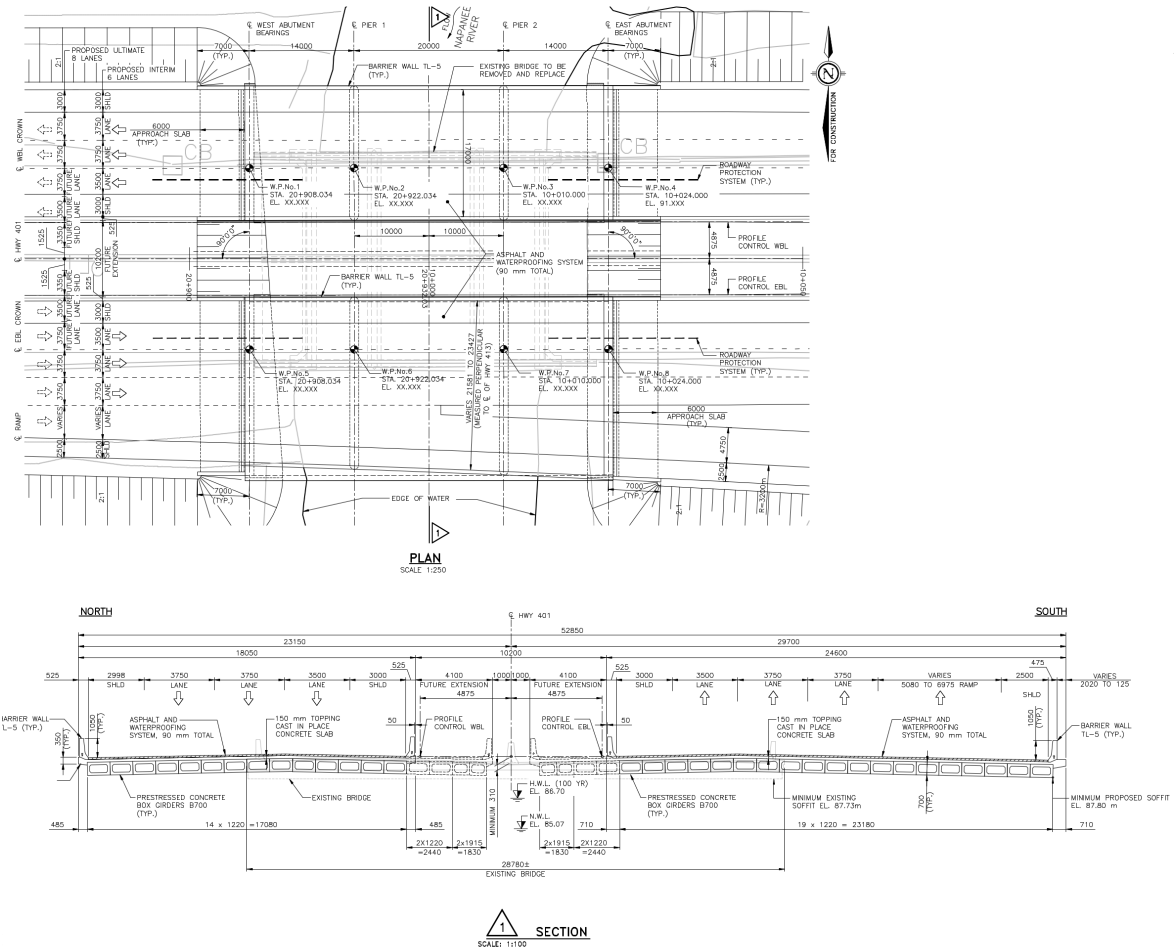
- 44 m long single span structure satisfies hydraulic and fluvial geomorphology requirements.
- Require profile raise along Highway 401 to meet freeboard water level requirements.
- Bridge type is Precast Concrete NU Girder.
- Bridge construction and staging to the north and south of the existing structure and Highway 401. Consideration for ultimate future lane locations.
- No pier construction required in the Napanee River and only removal of existing piers is required.
- ✓ This option is preferred as it minimizes impacts to the Napanee River (less piers in the water) while enhancing constructability and reducing cost.



# Napanee River Bridge Class EA and Preliminary Design Study

## BRIDGE ALTERNATIVE – THREE (3) SPAN

- 48 metres long multi-span structure satisfies hydraulic and fluvial geomorphology requirements. Minimizes profile raise along Highway 401 to meet freeboard water level requirements.
  - Bridge type is Precast Concrete Box Girder.
  - Pier construction required in the Napanee River which needs to be staged with removal of existing piers (higher construction complexity and potential disturbance to watercourse).
  - Bridge construction and staging to the north and south of the existing structure and Highway 401. Consideration for ultimate future lane locations.
- ✕ This option is least preferred as it impacts the Napanee River (requires piers to be built in the water) which increases construction complexity, cost and future maintenance.



# Next Steps in the Environmental Assessment Process

# Short List Evaluation Criteria

The following draft evaluation criteria have been identified by the Project Team to evaluate the Short List of Alternatives:



## Natural Environment

- Fish and Fish Habitat
- Wildlife and Wildlife Habitat
- Species at Risk
- Surface Water / Groundwater
- Designated Natural Areas / Wetlands & Vegetation Communities
- Contamination



## Socio-Economic Environment

- Community Impacts
- Existing & Planned Land Uses
- Noise & Air Quality
- Property Impacts
- Impacts to Emergency Services
- Recreational Trails / Active Transportation Networks
- Climate Change



## Cultural Environment

- Archaeological resources
- Built Heritage and Cultural Heritage Landscapes



## Transportation and Constructability

- Traffic Operations
- Geometrics
- Safety
- Constructability
- Potential to impact existing utility and servicing infrastructure



## Cost

- Construction Costs
- Property Acquisition Costs
- Operational / maintenance Costs

After this Public Information Centre, we'll create an Evaluation Matrix to compare all the alternatives based on the key factors you see.

This process will help us select a Technically Preferred Alternative that will address the issues affecting the corridor while aiming to minimize impacts.



Let us know what you think about the evaluation criteria

# Designation and MTO Permit Control Areas

- Once a **Recommended Plan** has been identified, the MTO may designate lands as highway and acquire property prior to completion of the Class Environmental Assessment process.
- A designation enables the Ministry to provide route/corridor protection through the application of development control measures along the corridor and in the vicinity of the designated lands.
- For more information about highway corridor management, please visit: <https://www.ontario.ca/page/highway-corridor-management>.
- Any work on private property that is within 45 metres of the highway property or 395 meters from the centre point of an intersection or interchange requires approval from the MTO.
- Any work on private property that is within 800 metres of the highway property and that may have a large impact on traffic, is also subject to approval from MTO.
- For more details on requirements for permits, please visit: <https://www.Ontario.ca/page/highway-corridor-management> or make an inquiry regarding a specific property: <https://www.hcms.mto.gov.on.ca/>



Example of MTO Permit Control Areas:  
Controlled-Access Highways (CAH)

# Next Steps

- We will review and respond to the feedback we receive about this Public Information Centre.
- Please submit any comments by **April 30, 2026**.
- We will complete a detailed evaluation of the Short List of Alternatives, taking into account potential impacts and ways to reduce them.
- A second Public Information Centre is tentatively scheduled for Summer 2027 to share the results of the Short List evaluation and to present a Technically Preferred Alternative for your review and comment.

Freedom of Information and Protection of Privacy Act. Comments and information regarding this study are being collected to satisfy the requirements of the Ontario Environmental Assessment Act, and in accordance with the Freedom of Information and Privacy Act. With the exception of personal information, all comments will become part of the public record.

## Ways to provide your comments:



Fill out a comment sheet and leave it in the box



Email: [ProjectTeam@Hwy401BellevilletoKingston.ca](mailto:ProjectTeam@Hwy401BellevilletoKingston.ca)



Phone: 1-866-753-2640



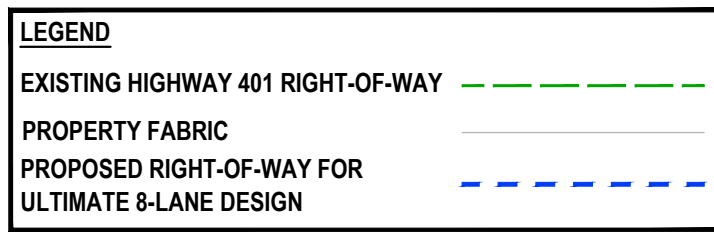
Mail:

**Lucas Bilow, P.Eng.**  
Lead Engineer  
Ministry of Transportation  
1355 John Counter Blvd.  
Kingston, ON K7L 5A3

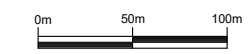
**Tim Soroichinsky, P.Eng.**  
Project Manager, AECOM  
105 Commerce Valley Drive  
West, 8<sup>th</sup> Floor  
Markham, ON L3T 7W3

## **Highway 401 from County Road 41 / Centre Street to Palace Road Roll Plan**





**Ontario**  **Ministry of  
Transportation**



FEBRUARY 2020





# Appendix C : Comment / Response Summary



| Applicable Study         | Date          | To                                     | From                                                      | Topic                                                                                | Comment / Question/ Request                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Response                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Who Responded     | Date Response Issued | Action                |
|--------------------------|---------------|----------------------------------------|-----------------------------------------------------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|----------------------|-----------------------|
| <b>Public Comments</b>   |               |                                        |                                                           |                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                   |                      |                       |
| STUDY 2 & NAPANEE BRIDGE | Mar. 31, 2026 | Project Team via Physical Comment Form | <b>Camilo Ceballos Arango</b><br>[REDACTED]<br>[REDACTED] | Property impacts; compensation; replacement fencing; noise impacts; drainage impacts | <p>With expansion of potentially 3-4 lanes (each side), how does that affect our property that borders 401?</p> <p>If expropriation of land is needed, how will we be compensated for our land?</p> <p>We fenced our whole property in 2025 due to livestock. If property of 401 is expropriated, will new same fence be replaced? Posts too?</p> <p>Road noise is already high (above regulations for decibels). Moving highway closer to our property the noise pollution will increase? How will noise pollution be managed? Any sound barriers in plan?</p> <p>We have runoff that crosses through our property that MTO forced previous owners to have. 401 runoff already causes issues on our property that we have to mitigate every year. With the expansion, more water run off will be caused. How will this be mitigated to avoid floods to my property and house?</p> <p>With new bridge on Palace Road, is there any plans on changes for culverts on the sides of Palace Road?</p> | <p>Thank you for your interest in the Highway 401 Belleville to Kingston Planning, Preliminary Design, and Class Environmental Assessment (EA) studies and for highlighting concerns related to potential impacts to your property.</p> <p>As part of these studies, the Ministry is carefully evaluating the benefits and impacts of a potential six and eight lane highway footprint and looking at ways to address the identified challenges/opportunities but to also minimize the potential for adverse effects. Through the Class EA process an assessment of the natural, socio-economic, cultural and built environmental factors is being completed to make certain that decisions are made with a full understanding of the potential for impact. This includes completing an inventory of existing conditions within the Study Area to identify any areas of environmental concern or constraint to assist in the evaluation of the alternatives and ultimately in the selection of the Technically Preferred Alternative.</p> <p>A long list of alternatives was presented at PIC #1 hosted by the Project Team on March 31, 2026. The PIC presented the evaluation of the long list alternatives that included an initial screening level assessment based on technical feasibility and high-level environmental factors to establish the advantages and disadvantages of each alternative. Following the screening of the long-list alternatives and identification of the short-list alternatives to be carried forward at each location, a more detailed set of evaluation criteria relevant to this study was presented for review and comment at Public Information Centre #1. The PIC #1 presentation is available for review at <a href="http://Hwy401BellevilletoKingston.ca">Hwy401BellevilletoKingston.ca</a></p> <p>The Project Team is currently evaluating the shortlisted alternatives from PIC #1 through a more detailed qualitative and quantitative analysis. Once this evaluation is complete, a Technically Preferred Alternative will be identified, which will provide a clearer understanding of the extent of potential property impacts. The Project Team anticipates presenting the results of the short-list evaluation and the Technically Preferred Plan for further public review and comment at the second Public Information Centre (PIC), tentatively scheduled for 2027. The goal in the selection of the Technically Preferred Plan is to strike a balance by addressing the identified challenges / opportunities and minimizing impacts to the technical, natural, socio-economic, and cultural environment. At the close of the project, the Class EA process completed will be documented in a Transportation Environmental Study Report that will be made available for a 30-day comment period that will provide further opportunity to provide input regarding the project.</p> | A. Potter (AECOM) | Oct. 26, 2026        | Added to Contact List |

| Applicable Study | Date | To | From | Topic | Comment / Question/ Request | Response                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Who Responded | Date Response Issued | Action |
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| I                |      |    |      |       |                             | <p>Please note also that the Ministry is considering various alternatives for the widening of Highway 401 along the project corridor, including widening towards the centre median where feasible. The existing Highway 401 right-of-way is already quite wide through most of this corridor, and additional property will generally not be required except in localized areas, particularly around interchanges. The Ministry's intent is to plan responsibly for the future while minimizing environmental and property impacts.</p> <p>Typically, once the Project Team has selected a Technically Preferred Alternative, meetings would be offered to all potentially impacted property owners to explain the study, the process undertaken to arrive at the Technically Preferred Alternative, and to discuss the potential impacts, mitigation measures and next steps. It is recognized that your property will be impacted by the works proposed.</p> <p>Once the Preliminary Design and EA Study is completed, MTO will begin discussions with impacted property owners on acquisition. Modifications to the existing Highway 401 fencing would consider the proposed right-of-way and occur after MTO has acquired the additional property for this project.</p> <p>A noise assessment is being completed as part of the current undertaking to carefully assess the potential impacts associated with the interim and ultimate footprint of Highway 401. The noise assessment will help the Ministry better understand how noise levels may change once the improvements are in place and in identifying any mitigation measures that may be appropriate, including more permanent noise mitigation (i.e. noise walls) in noise sensitive areas. The findings and recommendations of the Noise Assessment Report will be documented in the Transportation Environmental Study Report (TESR), upon study completion. It is recognized that noise can be a sensitive issue for residents, and we want to assure you that it is an important consideration as we develop and evaluate the improvement alternatives.</p> <p>In March 2019 a Preliminary Design and Class Environmental Assessment Study was completed for planned Highway 401 interchange improvements at Palace Road and documented in the Highway 401 Interchange Improvements at Palace Road Class Environmental Assessment and Preliminary Design Study Transportation Environmental Study Report. As part of that study, recommended drainage modifications in and around the Palace Road interchange were identified. These can be viewed in the Transportation Environmental Study Report (TESR) prepared for the project at <a href="http://Hwy401BellevilletoKingston.ca">Hwy401BellevilletoKingston.ca</a></p> |               |                      |        |

NOTICE OF PIC #1  
Comment Tracking Table

Highway 401 Napanee River Bridge Improvements Planning, Preliminary Design and Class EA Study (WP 4039-19-01)

| Applicable Study               | Date          | To                                           | From                     | Topic                                                   | Comment / Question/ Request                                                                                                                                       | Response                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Who Responded        | Date Response Issued | Action                      |
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|                                |               |                                              |                          |                                                         |                                                                                                                                                                   | <p>Based on a review of the previously approved Technically Preferred Plan for the Palace Road interchange, no significant modifications to the configuration are recommended. However, following the completion of the current Preliminary Design process the project will move forward to Detail Design where the Technically Preferred Plan will be further refined and impacts confirmed with mitigation measures updated to reflect any changes.</p> <p>We will add you to the project's contact list so you will be notified directly of any future updates related to the project. If you have any questions or need additional assistance, please do not hesitate to contact us.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                      |                      |                             |
| STUDY 2<br>NAPANEE<br>CLASS EA | Mar. 31, 2026 | Project Team via<br>Physical Comment<br>Form | [REDACTED]<br>[REDACTED] | Noise concerns as<br>a result of<br>Highway<br>widening | My property backs into the highway. I am concerned about the increased noise level from an expanded highway. What are you looking at in terms of noise reduction? | <p>Thank you for your interest in the Highway 401 Belleville to Kingston Planning, Preliminary Design and Class Environmental Assessment (EA) studies and for noting your concern about noise levels.</p> <p>A noise assessment is being completed as part of the current undertaking to carefully assess the potential impacts associated with the interim and ultimate footprint of Highway 401. The noise assessment will help the Ministry better understand how noise levels may change once the improvements are in place and in identifying any mitigation measures that may be appropriate, including more permanent noise mitigation (i.e. noise walls) in noise sensitive areas. The findings and recommendations of the Noise Assessment Report will be documented in the Transportation Environmental Study Report (TESR), upon study completion. It is recognized that noise can be a sensitive issue for residents, and we want to assure you that it is an important consideration as we develop and evaluate the improvement alternatives.</p> <p>We will add you to the project's contact list so you will be notified directly of any future updates related to the project. If you have any questions or need additional assistance, please do not hesitate to contact us.</p> | A. Potter<br>(AECOM) | Oct. 26, 2026        | Added to<br>Contact<br>List |



NOTICE OF PIC #1  
Comment Tracking Table

Highway 401 Napanee River Bridge Improvements Planning, Preliminary Design and Class EA Study (WP 4039-19-01)

| Applicable Study                                    | Date          | To                                           | From                                                                              | Topic                                                                                                  | Comment / Question/ Request                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Response                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Who Responded        | Date Response Issued | Action                                                                                                      |
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| STUDY 2<br>NAPANEE<br>CLASS EA<br>– in<br>proximity | Mar. 31, 2026 | Project Team via<br>Physical Comment<br>Form | [REDACTED]<br>[REDACTED]                                                          | Preference for<br>removal of CN<br>Rail bridge                                                         | As an impacted landowner I would love to see the CN Rail bridge removed.<br><br>The County Road 1 east bridge would impact our family and business if extended north. The southern route would be preferred for sure.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Thank you for your interest in the Highway 401 Belleville to Kingston Planning, Preliminary Design and Class Environmental Assessment (EA) studies.<br><br>The focus of this study is to plan for the long-term rehabilitation and replacement of bridges and culverts to accommodate for future widening of Highway 401. As part of this undertaking, MTO is identifying the future highway footprint to ensure that new bridges, culverts, and interchanges are designed to accommodate long-term needs. The Ministry is reviewing options associated with the CN Rail bridge internally and with the Town of Greater Napanee.<br><br>While the Project Team is developing alternatives for Newburgh Road (County Road 1 E.) underpass, these alternatives do not include shifting the bridge northward. The list of alternatives being evaluated for the Newburgh Road underpass includes replacing the structure on its existing alignment, realigning the structure directly to the east, or realigning it directly to the west of its current alignment.<br>We will add you to the project's contact list so you will be notified directly of any future updates related to the project. If you have any questions or need additional assistance, please do not hesitate to contact us.                                                         | A. Potter<br>(AECOM) | Oct. 26, 2026        | Added to<br>Contact<br>List                                                                                 |
| <b>Municipal / Agency Comments</b>                  |               |                                              |                                                                                   |                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                      |                      |                                                                                                             |
| STUDY 1,<br>STUDY 2 &<br>NAPANEE<br>BRIDGE          | Mar. 31, 2026 | Project Team via<br>Physical Comment<br>Form | [REDACTED]<br>Napanee Active<br>Transportation Allies<br>[REDACTED]<br>[REDACTED] | Provisions for<br>active<br>transportation;<br>kayak travel;<br>snowmobile trails;<br>property impacts | <b>Study Area #1:</b><br>Please investigate the possibility of a wildlife corridor between Shannonville and Marysville.<br>- Large Deer migration area – perhaps hastings county could provide “kill data” or wildlife patterns.<br>Even a widened-out bridge crossing would be good.<br><br><b>Study Area #2:</b><br>County Road #1 crossing, Palace Road crossing or Centre Street [County Road 41] crossing please include details on a pedestrian corridor – protected bike + walking lane provisions.<br><br>Water way culverts - Napanee River + Millhaven Creek - please include provision for kayak travel, very big in this area – as well as snowmobile travel in the winter as conditions allow.<br><br>CN Rail Bridge (surplus) please include removal detail + include a current timeline – no cost to the municipality.<br><br>The municipal trail system is contingent on alignment to the pedestrian corridors to be included in the widening.<br><br>8 lanes wow, what is the plan for local landowners? | Thank you for your interest in the Highway 401 Belleville to Kingston Planning, Preliminary Design, and Class Environmental Assessment (EA) studies and for your comment regarding active transportation provisions as part of this Project.<br><br>The Ministry recognizes the importance of wildlife connectivity and strives to support it, where feasible. While the primary focus of these studies is to address the rehabilitation or replacement needs of existing bridges and structural culverts, the studies will also explore opportunities to enhance wildlife passage. This may include, where appropriate, expanding existing openings by upsizing culverts or incorporating design features that help facilitate wildlife movement.<br><br>Where warranted and technically feasible, opportunities to improve pedestrian, snowmobile and cycling safety and continuity such as crossings, pathways, or connections to existing or planned local active transportation networks will be evaluated as part of the interchange improvement alternatives. These considerations are balanced alongside safety, operational, environmental, and constructability constraints specific to each location.<br><br>We also acknowledge the recreational importance of local rivers and watercourses, including the Napanee River. As part of the | A. Potter<br>(AECOM) | Oct. 26, 2026        | Added to<br>Contact<br>List<br><br>Confirm<br>Navigable<br>Water<br>Requireme<br>nts at<br>Napanee<br>River |

| Applicable Study         | Date           | To                                        | From                                                                                 | Topic                                                                                                         | Comment / Question/ Request                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Response                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Who Responded     | Date Response Issued | Action                |
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|                          |                |                                           |                                                                                      |                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <p>bridge replacement preliminary design, we are considering navigation and access requirements. Our goal is to ensure that the project accommodates river users safely during construction and that the final design supports continued use of the river in the future. We will continue to engage with local stakeholders to address any specific concerns as the design progresses. The Ministry is reviewing options associated with the CN Rail bridge internally.</p> <p>We will add you to the project's contact list so you will be notified directly of any future updates related to the project. If you have any questions or need additional assistance, please do not hesitate to contact us.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                   |                      |                       |
| STUDY 2 & NAPANEE BRIDGE | April 10, 2026 | ProjectTeam@Hwy401BellevilletoKingston.ca | <p>██████████<br/>General Manager/CBO<br/>Town of Greater Napanee<br/>██████████</p> | <p>Consideration for accommodating Active Transportation Crossings and municipal servicing infrastructure</p> | <p>On behalf of the Town of Greater Napanee, I am writing regarding the Highway 401 Expansion Environmental Assessment currently underway. The Town is seeking early and ongoing flexibility from the Ministry of Transportation (MTO) with respect to accommodating future municipal infrastructure and active transportation needs at existing and planned crossing locations.</p> <p><b>Active Transportation Crossings</b><br/>The Town is in the process of acquiring lands north of Highway 401 to facilitate an active transportation trail connection to the Strathcona section of the Cataraqui Trail. Our intended approach is to enable in-town residents to cross Highway 401 via the County Road 41/Centre Street underpass. Achieving a safe and functional active transportation corridor at this location may necessitate an increased span of the Highway 401 bridge over County Road 41/Centre Street to appropriately accommodate pedestrians and cyclists.</p> <p>In addition, while not proposing immediate construction, the Town wishes to confirm whether adequate width and structural flexibility can be maintained within the Palace Road overpass replacement project (currently in detailed design) to preserve the opportunity for a future trail crossing should it be warranted.</p> <p><b>Municipal Water and Wastewater Servicing</b><br/>Separately, the Town is undertaking a Utilities Master Plan to determine preferred future municipal water and wastewater servicing corridors. Some of these corridors may ultimately require crossings of Highway 401. At this stage, the Town is not seeking to fix locations, but rather to ensure the EA and subsequent design work retain sufficient flexibility to accommodate future servicing infrastructure once planning work is complete.<br/>Given the long-term horizon of both provincial and municipal infrastructure, the Town considers it prudent that the Highway</p> | <p>Thank you for your interest in the Highway 401 Belleville to Kingston Planning, Preliminary Design and Class Environmental Assessment (EA) studies and for your comments regarding planned active transportation crossings and municipal servicing infrastructure.</p> <p><b>Please see below for a response to your inquiries concerning active transportation crossings:</b></p> <p>The focus of these studies is to plan for the long-term rehabilitation and replacement of bridges and culverts to accommodate for future widening of Highway 401. As part of this work, MTO is identifying the future highway footprint to ensure that new bridges, culverts, and interchanges are designed to accommodate long-term needs. Where warranted and technically feasible, opportunities to improve pedestrian and cyclist safety and continuity—such as crossings, pathways, or connections to existing or planned local active transportation networks will be evaluated as part of the interchange improvement alternatives. These considerations are balanced alongside safety, operational needs, environmental, costs, and constructability constraints specific to each location.</p> <p>As the project progresses, the Project Team will continue to engage with municipalities and local stakeholders to address any specific concerns as the design progresses.</p> <p><b>Please see below for a response to your inquiries concerning municipal utilities:</b></p> <p>The Ministry recognizes the importance of long-term coordination between provincial and municipal infrastructure planning. As part of the Highway 401 Expansion Planning and Preliminary Design Studies, the Project Team is mindful of the need to maintain flexibility where practicable to accommodate reasonable future infrastructure requirements. As the Town's servicing planning</p> | A. Potter (AECOM) | Oct. 26, 2026        | Added to Contact List |

| Applicable Study                  | Date          | To                                        | From                                                                                                        | Topic                                                                                                                                                 | Comment / Question/ Request                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Response                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Who Responded     | Date Response Issued | Action                |
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|                                   |               |                                           |                                                                                                             |                                                                                                                                                       | <p>401 Expansion EA and associated structures avoid inadvertently precluding reasonable future options. We would welcome continued coordination with MTO staff to ensure alignment as planning progresses on both sides.</p> <p>Please do not hesitate to contact me should further discussion be helpful.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <p>advances, the Project Team welcomes continued information sharing and coordination with municipal staff. This collaboration will help inform future stages of the EA and subsequent design work, ensuring alignment to the extent feasible within the scope and objectives of the highway expansion project.</p> <p>The Ministry appreciates the Town's proactive engagement and looks forward to continued coordination as planning progresses on both initiatives.</p> <p>We will add you to the project's contact list so you will be notified directly of any future updates related to the project. If you have any questions or need additional assistance, please do not hesitate to contact us.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                   |                      |                       |
| STUDY 1, STUDY 2 & NAPANEE BRIDGE | Mar. 31, 2026 | ProjectTeam@Hwy401BellevilletoKingston.ca | <p>[REDACTED]</p> <p><b>County of Lennox and Addington</b><br/>97 Thomas St. E.<br/>Napanee, ON K7R 4B9</p> | <p>Inclusion of pedestrian and cyclist accommodations at County Road intersections; Consideration for Emergency Detour Routes in Highway closures</p> | <p>The following comments are for both study sections #1 (GWP-4022-21-00) and #2 (GWP 4016-21-00).</p> <p>We are requesting the inclusion of pedestrian and cycling accommodations at all County Road (CR) intersections. This includes CR10 (Deseronto Rd), CR41, CR1 (Newburgh Rd), CR5 (Palace Rd), CR4 (Camden East Rd), and CR6 (Wilton Rd). The proposed design for the CR6 intersection indicates the closure of CR19 (Mud Lake Rd). We wish to highlight that this section serves as an Emergency Detour Route (EDR) for Highway 401. Furthermore, its closure would force residents into a 25km detour to access CR6. Please note that there is no connection/access between CR19 and Scotland Rd, correcting a point raised during the presentation.</p> <p>Please take these considerations into account before finalizing the design. We would appreciate being kept informed of any further public meetings or updates regarding this project.</p> | <p>Thank you for your interest in the Highway 401 Belleville to Kingston Planning, Preliminary Design and Class Environmental Assessment (EA) studies and for your comment regarding the inclusion of pedestrian and cycling accommodations at County Road intersections.</p> <p>Where warranted and technically feasible, opportunities to improve pedestrian and cycling safety and continuity—such as crossings, pathways, or connections to existing or planned local active transportation networks—will be evaluated as part of the interchange improvement alternatives. These considerations are balanced alongside safety, operational, environmental, and constructability constraints specific to each location.</p> <p>We also appreciate your input in shedding light on the local conditions of Emergency Detour Routes (EDRs). Ensuring reliable emergency access during and after construction is a top priority for the Ministry of Transportation (MTO) and the Project Team. While some of the short-listed alternatives for the Highway 401 and Wilton Road (County Road 6) interchange include options that would introduce a cul-de-sac at Mud Lake Road, other alternatives maintain access to Mud Lake Road to improve safety and operational performance at the interchange. These studies are actively considering how proposed changes to Highway 401 and its interchanges along the project corridor may affect emergency response times for police, fire, and paramedic services.</p> <p>We will add you to the project's contact list so you will be notified directly of any future updates related to the project. If you have any questions or need additional assistance, please do not hesitate to contact us.</p> | A. Potter (AECOM) | Oct. 26, 2026        | Added to Contact List |

| Applicable Study                     | Date         | To                                                                                                                                                                                                                                                                                                                               | From                                                                                                                                  | Topic                                                | Comment / Question/ Request                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Response             | Who Responded | Date Response Issued | Action                                        |
|--------------------------------------|--------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|---------------|----------------------|-----------------------------------------------|
| <b>Indigenous Community Comments</b> |              |                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                       |                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                      |               |                      |                                               |
| STUDY 1 & STUDY 2                    | July 8, 2026 | <b>Alderville First Nation</b> <ul style="list-style-type: none"> <li>Julie Kapyrka<br/>Consultation Manager</li> <li>Dave Simpson<br/>Lands &amp; Resource Co-ordinator</li> <li>Amanda Phillips</li> <li>Jordan MacArthur</li> </ul>                                                                                           | <b>Patricia Moniz Indigenous Liaison Specialist</b><br>Regional Services and Relationships- East Region<br>Ministry of Transportation | Sharing Stage 1 Archaeological Assessment for Review | <b>Circulation of Stage 1 Archaeological Assessment by MTO Indigenous Liaison Specialist</b><br><br>For your review and consideration, the Stage 1 Archaeological Assessment for the Belleville-to-Kingston study area has been shared with you via the Sensitive Content Management Portal, as the file size exceeds standard email limits.<br><br>Should you have any comments or questions regarding the assessment, please provide them by August 10, 2026. You will receive a separate email with a link to this document.<br><br>Please note that targeted Stage 2 archaeological assessment work is planned for the Napanee bridges component of the study area in Fall 2026 and/or Spring 2027. I will share further details regarding Community Field Liaison opportunities as they become available.<br><br><b>Stage 1 Archaeological Assessment shared through Sensitive Content Management Portal.</b> | No Comments Received | N/A           | N/A                  | Added all recipients of email to Contact List |
| STUDY 1 & STUDY 2                    | July 8, 2026 | <b>Curve Lake First Nation</b> <ul style="list-style-type: none"> <li>Consultation Manager</li> <li>Paige Williams,<br/>Lands Resource Consultation Liaison</li> <li>David Rewniak,<br/>Consultation Coordinator</li> <li>Archaeological Program Admin</li> <li>Derek Paauw,<br/>Archaeological Program Administrator</li> </ul> | <b>Patricia Moniz Indigenous Liaison Specialist</b><br>Regional Services and Relationships- East Region<br>Ministry of Transportation | Sharing Stage 1 Archaeological Assessment for Review | <i>SAME AS ABOVE - See contents of outreach email above.</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | No Comments Received | N/A           | N/A                  | Added all recipients of email to Contact List |

**NOTICE OF PIC #1**  
**Comment Tracking Table**

**Highway 401 Napanee River Bridge Improvements Planning, Preliminary Design and Class EA Study (WP 4039-19-01)**

| Applicable Study  | Date         | To                                                                                                                                                                                                                                                                           | From                                                                                                                                  | Topic                                                | Comment / Question/ Request                                  | Response             | Who Responded | Date Response Issued | Action                                        |
|-------------------|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|--------------------------------------------------------------|----------------------|---------------|----------------------|-----------------------------------------------|
| STUDY 1 & STUDY 2 | July 8, 2026 | <b>Hiawatha First Nation</b> <ul style="list-style-type: none"> <li>▪ Tom Cowie, Lands Resource Consultation Liaison</li> <li>▪ Mandy McGonigle, Archaeology Liaison</li> <li>▪ Ryan Gray-Brady</li> <li>▪ Martina Desjardins</li> </ul>                                     | <b>Patricia Moniz Indigenous Liaison Specialist</b><br>Regional Services and Relationships- East Region<br>Ministry of Transportation | Sharing Stage 1 Archaeological Assessment for Review | <i>SAME AS ABOVE - See contents of outreach email above.</i> | No Comments Received | N/A           | N/A                  | Added all recipients of email to Contact List |
| STUDY 1 & STUDY 2 | July 8, 2026 | <b>Mohawks of the Bay of Quinte First Nation</b> <ul style="list-style-type: none"> <li>▪ Megan Murphy</li> <li>▪ Cassie Thompson, Consultation Coordinator</li> </ul>                                                                                                       | <b>Patricia Moniz Indigenous Liaison Specialist</b><br>Regional Services and Relationships- East Region<br>Ministry of Transportation | Sharing Stage 1 Archaeological Assessment for Review | <i>SAME AS ABOVE - See contents of outreach email above.</i> | No Comments Received | N/A           | N/A                  | Added all recipients of email to Contact List |
| STUDY 1 & STUDY 2 | July 8, 2026 | <b>Mississaugas of Scugog Island First Nation</b> <ul style="list-style-type: none"> <li>▪ Consultation Department</li> <li>▪ Rob Lukacs</li> <li>▪ Ameer Idreis</li> <li>▪ Sam Shrubsole, Consultation Staff</li> <li>▪ Nicole Mastrangelo</li> <li>▪ Finn Komai</li> </ul> | <b>Patricia Moniz Indigenous Liaison Specialist</b><br>Regional Services and Relationships- East Region<br>Ministry of Transportation | Sharing Stage 1 Archaeological Assessment for Review | <i>SAME AS ABOVE - See contents of outreach email above.</i> | No Comments Received | N/A           | N/A                  | Added all recipients of email to Contact List |

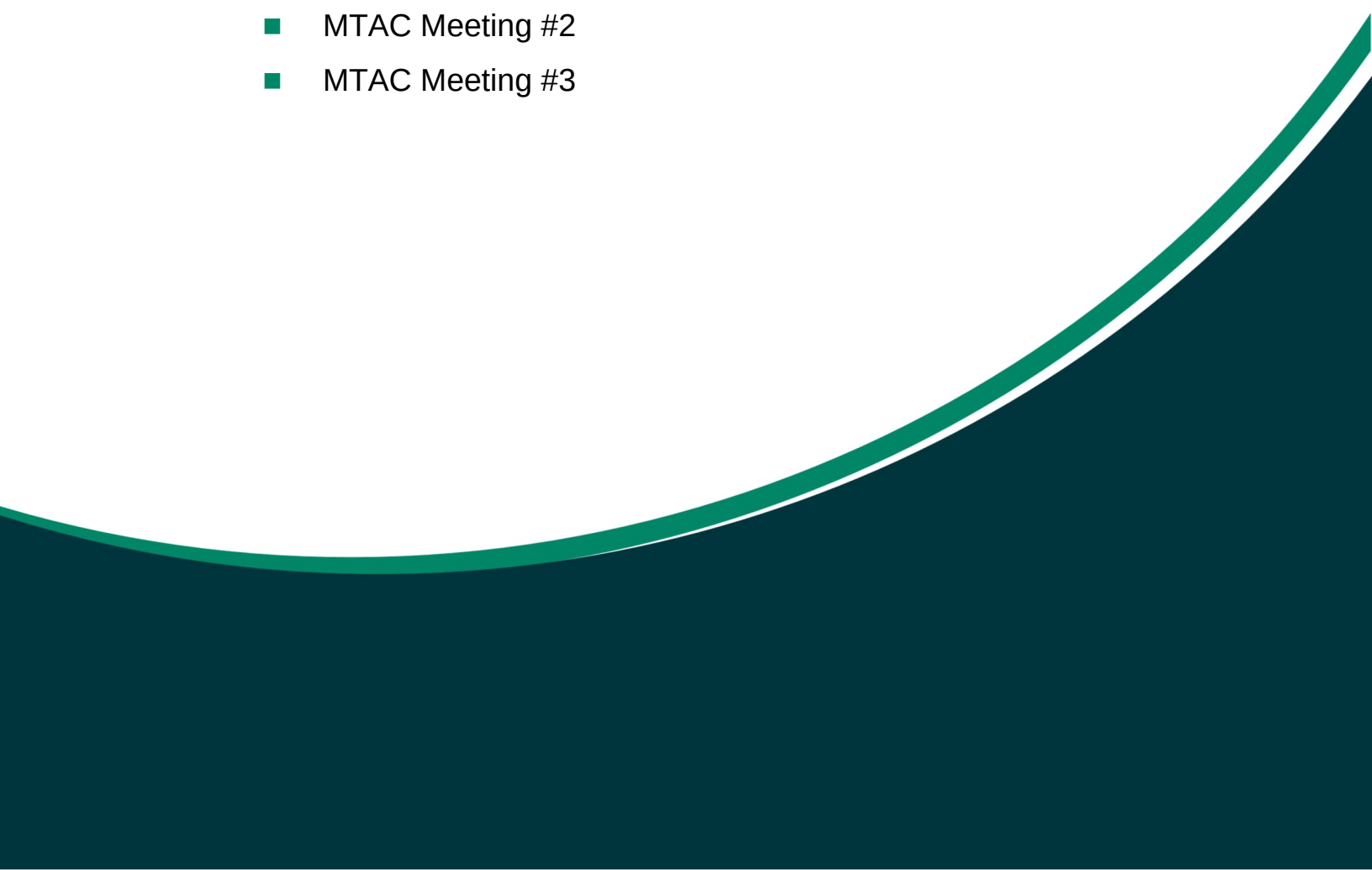






## Appendix A.3

### **Municipal Technical Advisory Committee Meetings**

- MTAC Meeting #1
  - MTAC Meeting #2
  - MTAC Meeting #3
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## MTAC Meeting #1





Assignment No. 4023-E-0028  
Highway 401 Planning, Preliminary Design and EA Studies  
(Belleville to Kingston)

|               |                                                                                     |          |                   |
|---------------|-------------------------------------------------------------------------------------|----------|-------------------|
| Client:       | MTO Eastern Region                                                                  | Meeting: | 1                 |
| Project Name: | Highway 401 Planning, Preliminary Design and EA Studies<br>(Belleville to Kingston) | Date:    | March 20, 2025    |
| Project No.   | 4023-E-0028                                                                         | Time:    | 3:00 pm – 5:00 pm |
| Location:     | Teleconference - Microsoft Teams Meeting ID: 258 997 237 33                         |          |                   |
| Purpose:      | MTAC Study #2 Meeting #1                                                            |          |                   |
| Attendees:    | <b><u>MTO</u></b>                                                                   |          |                   |

|                 |                 |
|-----------------|-----------------|
| Corinne Morden  | Project Manager |
| David Brake     | Project Manager |
| Amanda Dickson  | Environmental   |
| Muhammad Waseem | Highways        |

**AECOM**

|                  |                        |
|------------------|------------------------|
| Tim Sorochinsky  | Project Manager        |
| Felipe Sapateiro | Deputy Project Manager |
| Brian Barrett    | Highways               |
| Andrea Potter    | Environmental          |
| Jordan Witt      | Environmental          |

**City of Kingston**

|               |                                     |
|---------------|-------------------------------------|
| Luke Follwell | Director of Engineering Services    |
| Don Carter    | Deputy Fire Chief                   |
| Ian Semple    | Director of Transportation Services |
| Tarita Diczki | Project Manager                     |

**County of Lennox and****Addington**

|              |                                     |
|--------------|-------------------------------------|
| Chris Wager  | Director of Infrastructure Services |
| Ethan Winter | Engineering Technologist Assistant  |

**Kingston Police**

|                    |                           |
|--------------------|---------------------------|
| Srg. Steve Koopman | Traffic Safety Supervisor |
|--------------------|---------------------------|

**Loyalist Township**

|                |                     |
|----------------|---------------------|
| Luke Macdonald | Engineering Manager |
|----------------|---------------------|

**Loyalist Township Emergency****Services**

|              |                                           |
|--------------|-------------------------------------------|
| Kent Readman | Director of Emergency Services/Fire Chief |
|--------------|-------------------------------------------|

**Cataraqui Conservation****Authority**

|            |                               |
|------------|-------------------------------|
| Mike Dakin | Supervisor Development Review |
|------------|-------------------------------|



Mallory Wright

Technologist, Water Resources

**Bereavement Authority**

Crystal Forrest

Sr. Manager, Cemeteries Strategy and Operations

**Quinte Conservation**

Christine Philibert

Water Resources Manager

**Item:**

**Action By:**

***Safety Moment***

- F. Sapateiro provided a safety moment on increased sunlight and glare causing potential visibility issues when driving.

**Introductions**

- A quick round of introductions was done by the project team and the various municipal stakeholders in attendance.

**Project Overview**

- T. Sorochinsky gave an overview of the project which included the study area, purpose, scope and key study components.

**Consultation Process**

- A. Potter gave an overview of the MTO Class EA process and the consultation strategy for the timeline of the project.

**Existing Conditions Review**

- F. Sapateiro gave an overview of the existing conditions within the study area and opportunities to enhance the design geometry as it pertains to the cross-section, curvature and sight distance.

AECOM

**Open Discussion**

- L. Follwell (City of Kingston) noted the City inquired about future interchange near the study. He noted that this MTO project limit stops just west of the City of Kingston and then there is another MTO project that starts east of City of Kingston from Highway 16 to Gananoque. L. Follwell inquired about the gap between the two projects through Kingston. C. Morden (MTO) advised that the Highway 401 section through Kingston is not being reviewed at this time.
- L. Follwell noted that City of Kingston is completing an Official Plan Update and an Integrated Mobility Plan that they can share with the Project Team once complete. The Primary Contact for the City of Kingston will be Tarita Diczki, Project Manager, Engineering Infrastructure Engineering Services and all others (including Luke Follwell) be removed from the Project Contact List.

City of Kingston

- M. Dakin (CRCA) noted that Millhaven Creek is prone to flooding and ice jamming. CRCA owns a water control structure upstream of Highway 401.
- M. Dakin (CRCA) noted East of County Road 6 and North of Highway 401 gets numerous complaints from property owners about obstructions with culverts.
- M. Dakin acknowledged that AECOM has reached out to CRCA for data and that CRCA will share the requested information once the data sharing agreement has been finalized. [Post Meeting Note: M. Dakin directed that Janelle Treash and Holly Evans be removed from the Contact List and that he (Michael Dakin, Supervisor Development Review, mdakin@crca.ca) and Mallory Wright, Technologist Water Resources remain as the primary CRCA contacts.]
- C. Wager (County of Leeds and Grenville) noted the municipality is completing a Transportation Master Plan (TMP) update. He also noted there has been a public request for a new interchange between Napanee/Palace Road and County Road 4. M. Waseem (MTO) responded that a new interchange is not a part of the current EA's scope of work, but the EA also does not preclude it. If the municipality wants to move forward with a new interchange in the future it can be discussed separately with MTO.
- C. Wager (County of Leeds and Grenville) also noted the municipalities would like a crossing for active transportation to be considered at all interchanges within the County, especially at County Road 6 / Highway 41 as well as at County Road 10. This is currently included in the County's TMP and in the affected lower tier municipal TMPs.
- L. Macdonald (Loyalist Township) noted Mud Lake Road ties into the County Rd 6 interchange and is difficult from a maintenance perspective. Loyalist would like a discussion with MTO to close that connection. The municipality is also interested in providing Active Transportation near Community of Odessa. L. Macdonald inquired about what can be provided in terms of a north/south active transportation link at the County Road 6 (i.e. Wilton Road) crossing of Highway 401. C. Wager (County of Leeds and Grenville) noted they would look at that on all their interchanges throughout the corridor and will be included in TMP and even at the local level as well.
- C. Wager (County of Leeds and Grenville) noted that existing ramps at the Highway 401 / County Road 6 Interchange are approximately 200 m offset from the interchange. He noted that new interchanges closer to Toronto appear to have a shorter offset and a reduced interchange footprint. F. Sapateiro (AECOM) advised that interchange ramp terminal separation is based on MTO Standards and the focus of this project is to review opportunities to develop a design that achieves the Ministry's latest standards for highway design. M. Waseem (MTO) advised that an interchange footprint is a balance between design standards, safety standards and minimizing property impacts.
- M. Waseem (MTO) noted that a median crossover west of County Road 41 may or may not be widened through that area. F. Sapateiro (AECOM) said that we will be looking at that in terms of mainline review and the 130 km/hr design speed requirements.

AECOM/CRCA

- A. Potter (AECOM) asked both Loyalist Township (Luke MacDonald) and Town of Greater Napanee (Michael Nobes) about the availability of Municipal property information for assistance with Permission to Enter forms.
- L. MacDonald (Loyalist Township) advised that he would have to check to see what information they are permitted to release and suggested that A. Potter send an email identifying the affected properties and he will see what he can do. Since a representative from the Town of Greater Napanee was not in attendance A. Potter advised that she will follow up with Michael Nobes separately.

Loyalist  
Township/AECOM

Submitted By: Brian Barrett

Distribution: Attendees

# **Highway 401 Improvements between Belleville and Kingston**

Preliminary Design and Class Environmental Assessment  
Study #2 (GWP 4016-21-00)

**Municipal Technical Advisory Committee (MTAC) Meeting #1**

March 20, 2025

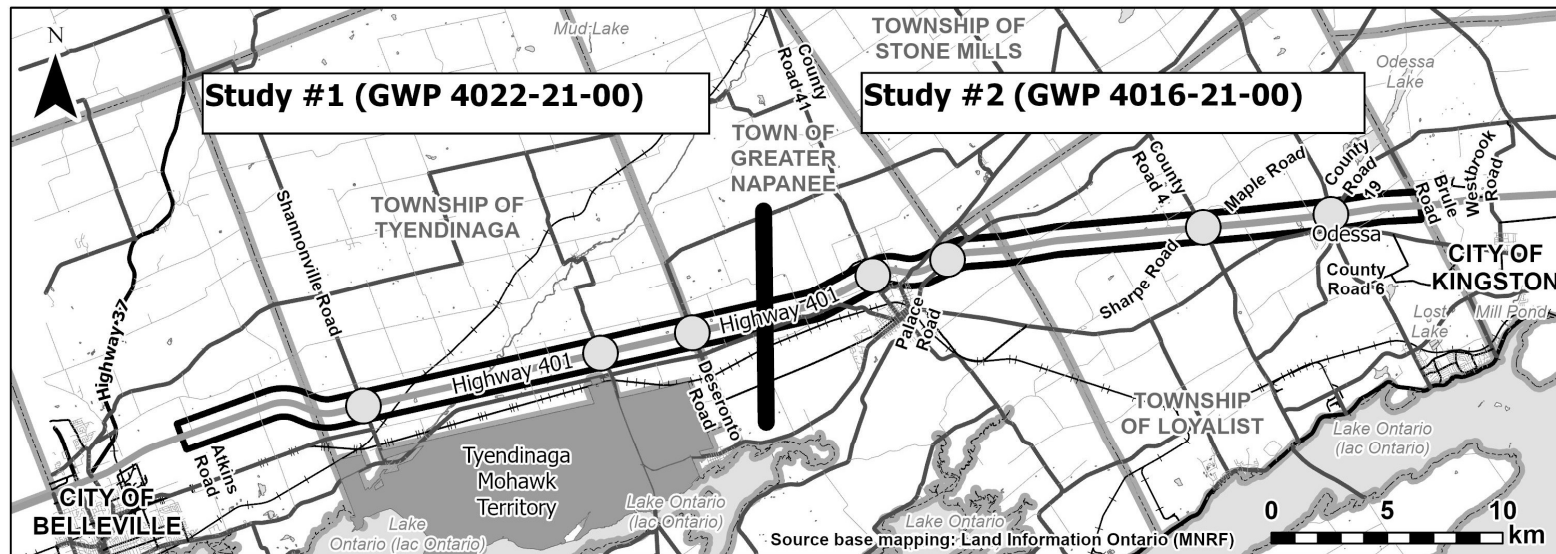
# Meeting Agenda

- Safety Moment
- Introductions
- Project Overview
- Key Study Components
- MTO Class EA Process and Consultation
- Overview of Highway 401 Interchanges & Bridges
- Project Schedule
- Open Discussion



# Project Overview

- The Ontario Ministry of Transportation (MTO) has retained the services of AECOM to undertake the following two Planning, Preliminary Design and Class Environmental Assessment (Class EA) Studies to develop a plan of improvement to Highway 401 between the City of Belleville and the City of Kingston:
  - Study #1 (GWP 4022-21-00)** – includes Highway 401 from 4.3 km east of Highway 37 to 5 km west of County Road 41 / Centre Street for a total length of approximately 26 km. The Study area is located within the City of Belleville, the Township of Tyendinaga, the Town of Greater Napanee, the County of Hastings, and the County of Lennox and Addington.
  - Study #2 (GWP 4016-21-00)** – includes Highway 401 from 5 km west of County Road 41 / Centre Street to 8 km west of Kingston Road 38 for a total length of approximately 29 km. The Study area is located within the Town of Greater Napanee, the Township of Loyalist, and the County of Lennox and Addington.
- These studies will address current and future transportation needs by developing a plan for the rehabilitation and / or replacement of various structures, determining the long-term interchange configuration at seven locations, and establishing the footprint for the interim six and ultimate eight lanes of Highway 401.



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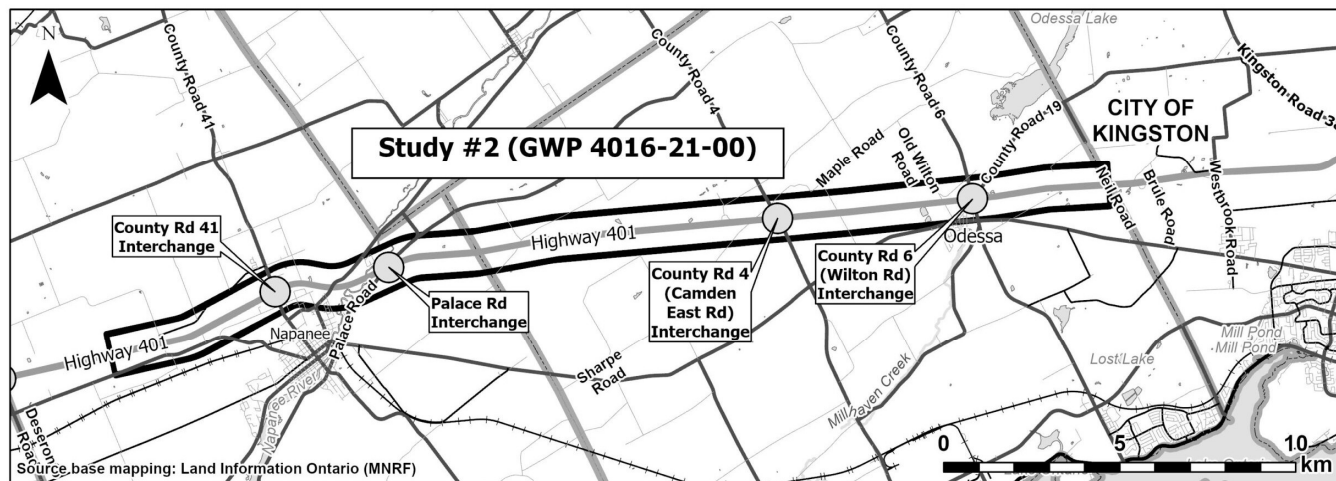


# Project Overview (Cont'd)

This MTAC meeting and presentation will focus on **Study #2**.

Study #2 includes the following:

- Rehabilitation and/or replacement of 18 bridges and three culverts.
- Determine the long-term interchange configuration for the following three Highway 401 locations:
  - County Road 41 Interchange
  - Camden East Road (County Road 4) Interchange
  - Wilton Road (County Road 6) Interchange
- Establish the footprint for the interim six and ultimate eight lanes of Highway 401.



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# Study Background & Purpose

The study has been initiated based on the following:

- Many of the structures within the study area are nearing the end of their service life and will require replacement in the coming years;
- Replacement and future rehabilitation of these structures cannot be accommodated based on the existing lane configurations of Highway 401 and interchanges without lane closures and significant traffic disruptions;
- Existing interchanges require improvements to accommodate the bridge replacements and address current and future transportation needs; and
- Identifying the future interchange configurations will help to manage adjacent development and access.

While the study will identify the future footprint along the corridor, the Ministry's focus at this time is on the requirements for the bridges, and to ensure a future improvements can be accommodated at these sites.

# Key Study Components

Key Study components include:

- Review of the existing conditions and deficiencies within the project limits;
- Investigate reasonable alternatives to address the needs of the corridor including rehabilitation requirements, highway widening needs, interchange improvements, safety and operational issues;
- Complete Environmental investigations, documentation and consultation in accordance with the MTO Class EA for Provincial Transportation Facilities and Municipal Expressways (2024) Group 'B' project;
- Preparation of a Group 'B' Transportation Environmental Study Report (TESR) and Preliminary Design Report;
- Traffic Analysis & Construction Staging:
  - Undertake traffic forecasting and analysis to review existing and projected traffic operations at interchanges and along Highway 401;
  - Review preliminary construction staging requirements to construct the recommended improvements.
- Other technical specialities to be considered include Electrical (illumination, traffic signals), Traffic, Pavement, Foundations and Drainage.

# Key Study Components (Cont'd)

- Consultation with Key stakeholders, such as:
  - Municipalities: Town of Greater Napanee, Loyalist Township, City of Kingston
  - Government regulatory agencies (MNRF, MECP, DFO, etc.), Cataraqui Conservation Authority, Quinte Conservation Authority
  - Indigenous communities
  - Emergency Management Services (Fire, Police, Paramedic)
  - Canadian National Railway (CN)
  - Other stakeholders: commercial and residential groups, school boards, etc.
  - Area residents and business owners
- Consideration of environmental features – Major waterbodies (Selby Creek, Napanee River, Brandon Creek, Spring Creek, Wilton Creek, Millhaven Creek), wetlands, woodlots, Navigable Waters, etc.
- Identify utility impacts and preliminary relocation requirements.

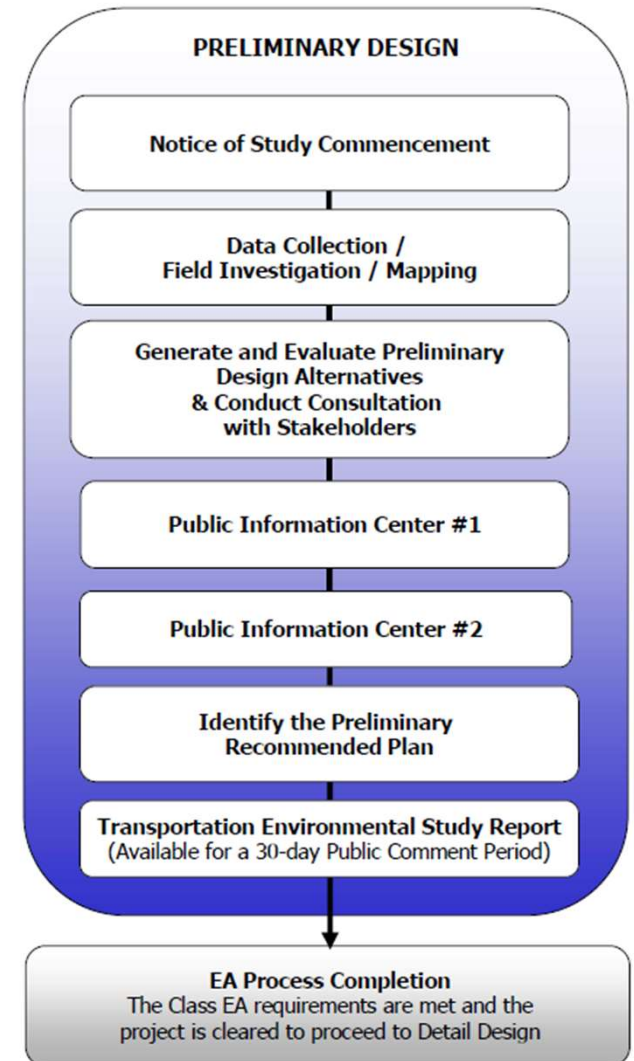
# MTO Class EA Process

## EA Process:

- This Preliminary Design and Class Environmental Assessment study is following the approved planning process for a Group 'B' project in accordance with the *MTO Class EA for Provincial Transportation Facilities and Municipal Expressways (2024)*.

## Environmental Studies & EA Documentation:

- Investigations pertaining to the natural, socio-economic, and cultural heritage environments will be undertaken to summarize existing conditions and to identify any areas of environmental concern or constraint. This information will be used to evaluate the alternatives, assess the potential for impact and in the development of appropriate mitigation.
- A **Transportation Environmental Study Report (TESR)** will be prepared to document the study process including:
  - Define the problem / opportunity;
  - Identify alternatives under consideration and associated evaluation;
  - Identify the Recommended Plan;
  - Potential environmental effects and proposed mitigation measures; and
  - Summarize consultation undertaken throughout the process.
- Upon completion of this study, the TESR will be placed on the public record for a 30-day comment period.
- During this Preliminary Design phase, AECOM / MTO will initiate discussions with relevant agencies to obtain input regarding any necessary approvals and permitting requirements to be obtained / finalized during the Detail Design process to follow.



# Consultation

This process will involve the issue of several formal Ontario Government Notices (OGN) as identified below:

| Notification                                                           | Anticipated Issue Date |
|------------------------------------------------------------------------|------------------------|
| Notice of Commencement                                                 | November 2024 (issued) |
| Notice of PIC No. 1<br>To present the alternatives under consideration | March 2026             |
| Notice of PIC No. 2<br>To present the Preliminary Recommended Plan     | June 2027              |
| Notice of Study Completion<br>TESR submission                          | October 2027           |

## Municipal Technical Advisory Meetings

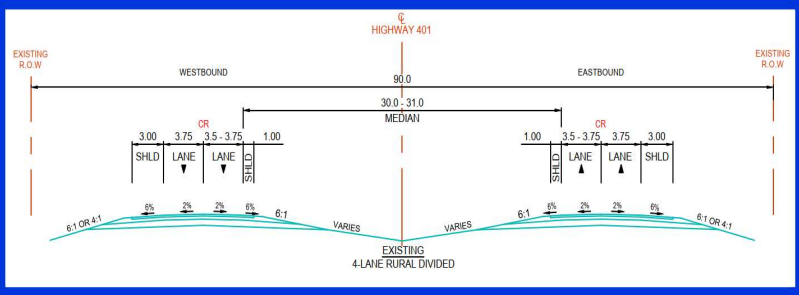
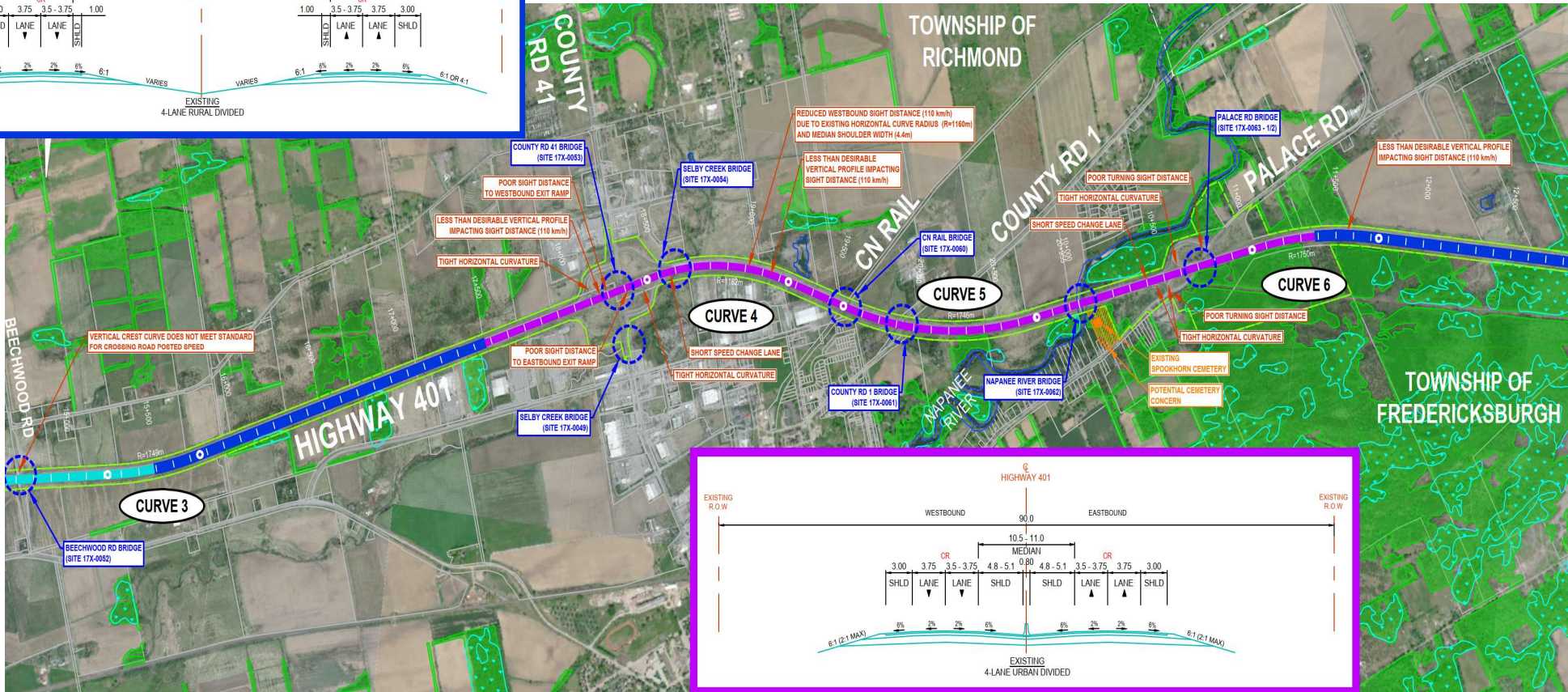
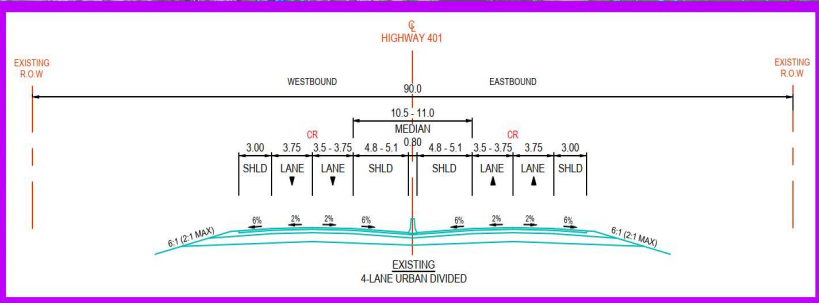
**(MTAC)** – will be scheduled at key milestones throughout the project to provide study updates, present the design alternatives being considered and to generally receive input and comments for consideration during the study.

Consultation for this undertaking will also include:

- **Direct Mail Letters** to those on Project Contact List (i.e., municipalities, agencies, key stakeholders, etc.)
- **Project Website**  
<https://hwy401bellevilletokingston.ca/>
- **Indigenous Consultation**
- **Public Mail-out** – letter / OGN mailed to adjacent property owners and delivery of OGN to residences / businesses within 0.5 km of study area via Canada Post Admail.
- OGNs published in 3 **Newspapers** (1 day each) – Napanee Beaver, Kingston / Frontenac This Week and Kingston Whig-Standard



# Roll Plan – Existing Conditions and Anticipated Scope of Work



| LEGEND |                                   |  |                                                           |
|--------|-----------------------------------|--|-----------------------------------------------------------|
|        | EXISTING PROPERTY LINE            |  | WOODED AREA                                               |
|        | EXISTING MTO RIGHT-OF-WAY         |  | WETLAND, NOT EVALUATED                                    |
|        | MUNICIPAL BOUNDARY                |  | WATERCOURSE / WATERBODY                                   |
|        | END OF CURVE (EXISTING ALIGNMENT) |  |                                                           |
|        | EXISTING STRUCTURE                |  |                                                           |
|        |                                   |  | EXISTING 4-LANE URBAN DIVIDED HIGHWAY 8.5 - 9.0m MEDIAN   |
|        |                                   |  | EXISTING 4-LANE RURAL DIVIDED HIGHWAY 15.0m MEDIAN        |
|        |                                   |  | EXISTING 4-LANE RURAL DIVIDED HIGHWAY 18.5 - 19.0m MEDIAN |
|        |                                   |  | EXISTING 4-LANE RURAL DIVIDED HIGHWAY 30.0 - 31.0m MEDIAN |
|        |                                   |  | EXISTING 4-LANE URBAN DIVIDED HIGHWAY 10.5 - 11.0m MEDIAN |

# Existing Conditions and Future Conditions

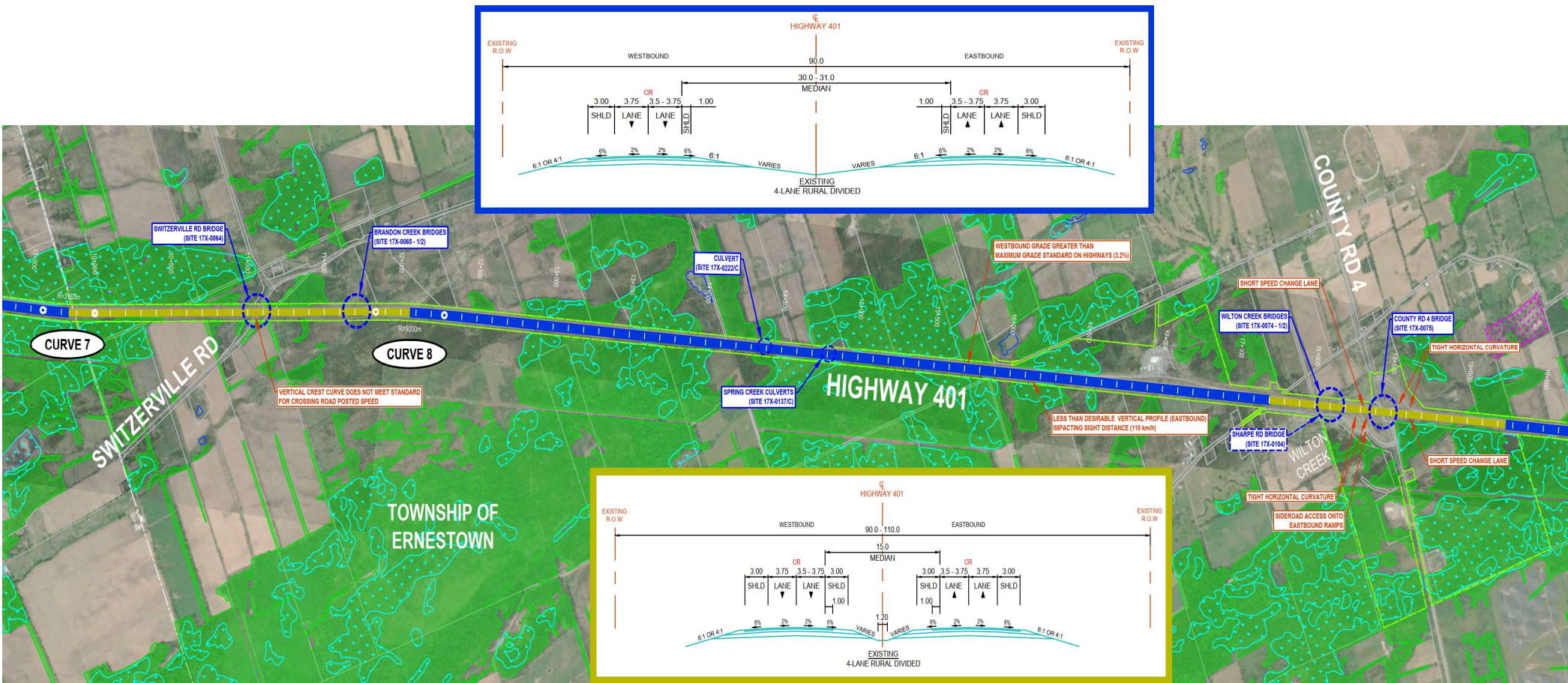
|                              |              |              | Existing Conditions |           |                       | Future Conditions     |                                                                                   |           |                                                                                                     |
|------------------------------|--------------|--------------|---------------------|-----------|-----------------------|-----------------------|-----------------------------------------------------------------------------------|-----------|-----------------------------------------------------------------------------------------------------|
| Road Name                    | Posted Speed | Design Speed | # of lanes          | Shoulders | Active Transportation | Potential Replacement | # of lanes                                                                        | Shoulders | Active Transportation                                                                               |
| Beechwood Road               | 60 km/h      | 80 km/h      | 2 x 3.5             | 1.0       | None                  | 2030-2040             | 2 x 3.5                                                                           | 1.0       | None                                                                                                |
| County Road 41/Centre Street | 60 km/h      | 70 km/h      | 4 x 3.5             | 1.0 – 2.0 | None                  | 2030                  | 2 x 3.5<br>Additional lanes on County Rd. 41 Between Highway 401 and Goodyear Rd. | 1.0 – 2.0 | Eastern side of County Road 41, from Advance Avenue to Richmond Boulevard, identified for sidewalk. |
| County Road 1/Newburgh Road  | 80 km/h      | 80 km/h      | 2 x 3.5             | 1.0 – 2.5 | None                  | 2030                  | 2 x 3.5                                                                           | 1.0 – 2.5 | None                                                                                                |
| Palace Road                  | 60 km/h      | 80 km/h      | 2 x 3.5             | 1.0 – 1.5 | None                  | 2030                  | 2 x 3.75                                                                          | 2.5       | None                                                                                                |

## TMP and Study References:

- County of Lennox and Addington / 2014
- Loyalist Township Infrastructure Master Plan - 2024
- Town of Greater Napanee Official Plan - May 2024
- County of Lennox and Addington - 2014
- TESR Highway 401 Improvements – September 2019
- TESR Highway 401 Improvements – March 2019



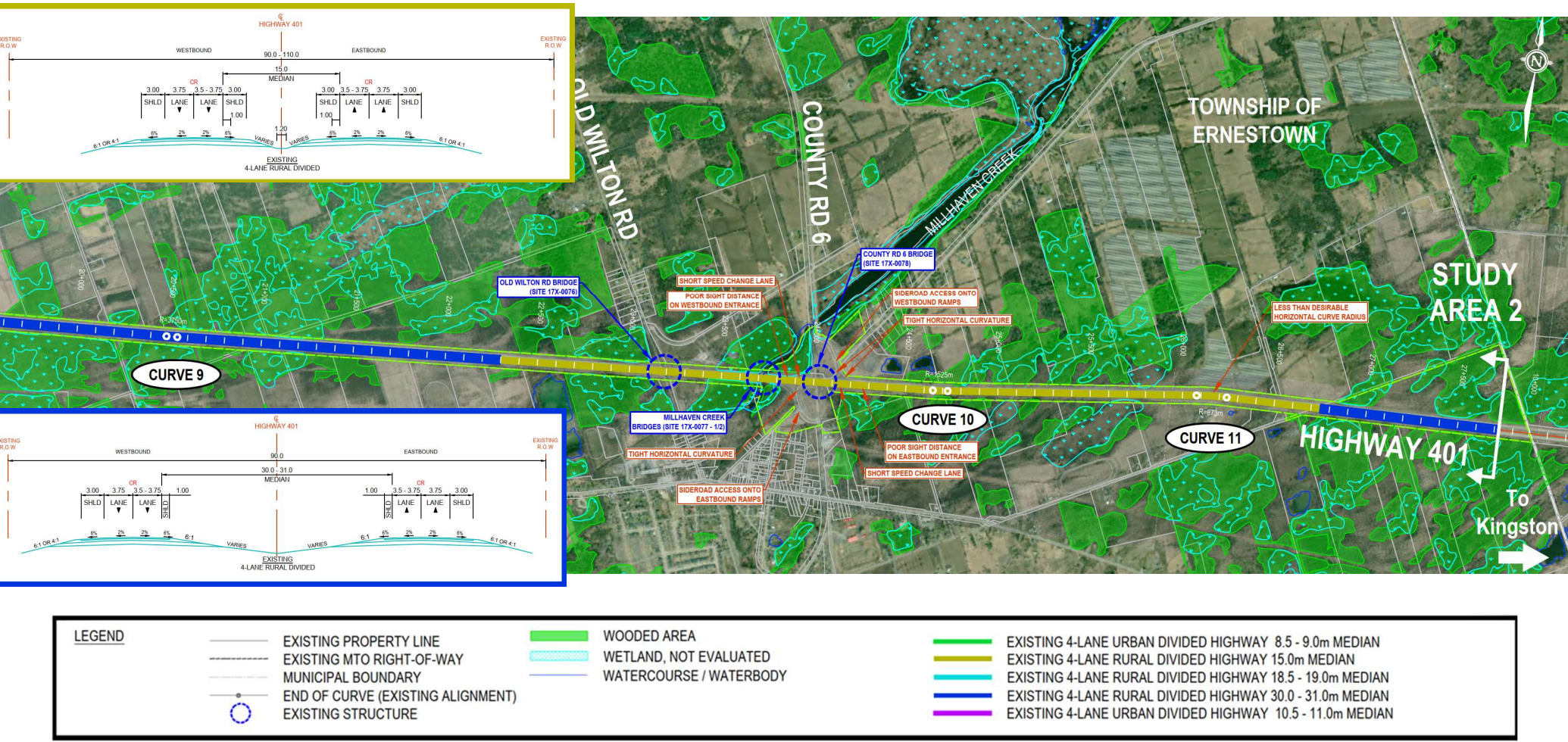
# Roll Plan – Existing Conditions and Anticipated Scope of Work (Cont'd)



| LEGEND                                                                              |                                   |                                                                                     |                         |                                                                                       |                                                           |
|-------------------------------------------------------------------------------------|-----------------------------------|-------------------------------------------------------------------------------------|-------------------------|---------------------------------------------------------------------------------------|-----------------------------------------------------------|
|  | EXISTING PROPERTY LINE            |  | WOODED AREA             |  | EXISTING 4-LANE URBAN DIVIDED HIGHWAY 8.5 - 9.0m MEDIAN   |
|  | EXISTING MTO RIGHT-OF-WAY         |  | WETLAND, NOT EVALUATED  |  | EXISTING 4-LANE RURAL DIVIDED HIGHWAY 15.0m MEDIAN        |
|  | MUNICIPAL BOUNDARY                |  | WATERCOURSE / WATERBODY |  | EXISTING 4-LANE RURAL DIVIDED HIGHWAY 18.5 - 19.0m MEDIAN |
|  | END OF CURVE (EXISTING ALIGNMENT) |                                                                                     |                         |  | EXISTING 4-LANE RURAL DIVIDED HIGHWAY 30.0 - 31.0m MEDIAN |
|  | EXISTING STRUCTURE                |                                                                                     |                         |  | EXISTING 4-LANE URBAN DIVIDED HIGHWAY 10.5 - 11.0m MEDIAN |



# Roll Plan – Existing Conditions and Anticipated Scope of Work (Cont'd)



# Existing Conditions and Future Conditions (Cont'd)

|                                  |              |              | Existing Conditions |           |                       | Future Conditions          |            |           |                                                                               |
|----------------------------------|--------------|--------------|---------------------|-----------|-----------------------|----------------------------|------------|-----------|-------------------------------------------------------------------------------|
| Road Name                        | Posted Speed | Design Speed | # of lanes          | Shoulders | Active Transportation | Potential Replacement Year | # of lanes | Shoulders | Active Transportation                                                         |
| Switzerville Road                | 60 km/h      | 80 km/h      | 2 x 3.5             | 1.0       | None                  | 2040                       | 2 x 3.5    | 1.0       | None                                                                          |
| County Road 4 / Camden East Road | 60 km/h      | 80 km/h      | 2 x 3.5             | 1.0 – 1.5 | None                  | 2035                       | 2 x 3.5    | 1.0 – 1.5 | Pedestrian facilities such as a sidewalks or paved boulevard to be considered |
| Old Wilton Road                  | 50 km/h      | 80 km/h      | 2 x 3.5             | 1.0       | None                  | 2040-2050                  | 2 x 3.5    | 1.0       | None                                                                          |
| County Road 6 / Wilton Road      | 60 km/h      | 80 km/h      | 2 x 3.5             | 1.0       | None                  | 2040                       | 2 x 3.5    | 1.0       | None                                                                          |

## TMP References:

- County of Lennox and Addington / 2014
- Loyalist Township Infrastructure Master Plan - 2024
- Town of Greater Napanee Official Plan - May 2024
- County of Lennox and Addington - 2014
- TESR Highway 401 Improvements – September 2019
- TESR Highway 401 Improvements – March 2019

# Project Schedule

| Milestone                                                                                    | Date                 |
|----------------------------------------------------------------------------------------------|----------------------|
| Project Start-up                                                                             | August 2024          |
| Notice of Study Commencement                                                                 | November 2024        |
| Field Investigations / Generate & Assess Alternatives                                        | Spring / Summer 2025 |
| MTAC Meeting #2 (prior to PIC #1)                                                            | March 2026           |
| Public Information Centre (PIC) #1 (present existing conditions, alternatives, etc.)         | March 2026           |
| MTAC Meeting #3 (prior to PIC #2)                                                            | May 2027             |
| PIC #2 (present preliminary recommended plan, impact assessment, potential mitigation, etc.) | June 2027            |
| Transportation Environmental Study Report (TESR) Publication                                 | October 2027         |
| TESR & EA Process Completion                                                                 | January 2028         |
| Final Preliminary Design Report (PDR) Submission                                             | Early 2028           |

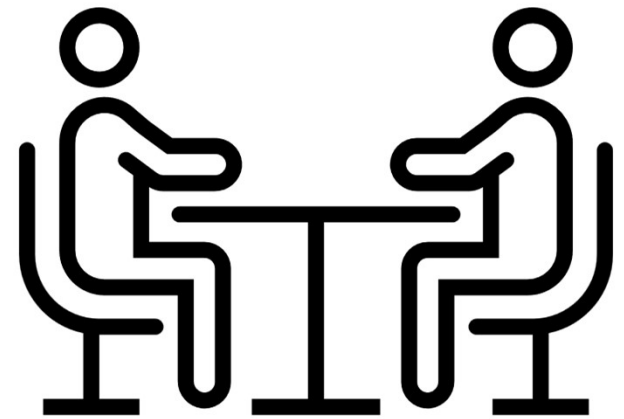
*\*Schedule is subject to change*

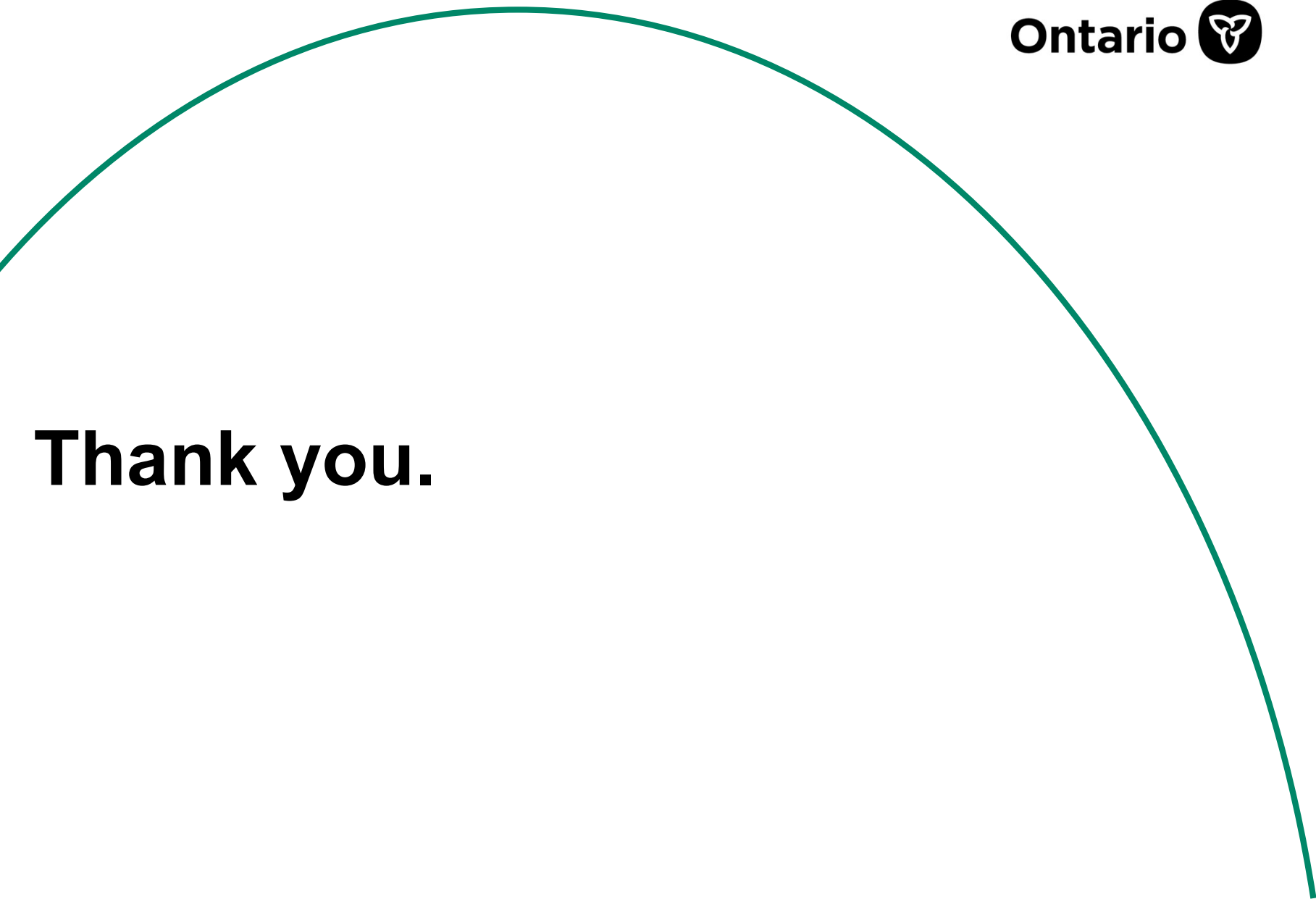
The next Municipal Technical Advisory Committee meeting will be scheduled in advance of the first Public Information Centre (PIC), which is anticipated for March 2026.



# Open Discussion

- Other Business
- Adjacent Proposed Developments
- Key Contacts
- Utilities & Municipal Servicing





**Thank you.**





## **MTAC Meeting #2**





Assignment No. 4023-E-0028  
Highway 401 Planning, Preliminary Design and EA Studies  
(Belleville to Kingston)

|               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                        |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|
| Client:       | MTO Eastern Region                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Meeting: 2             |
| Project Name: | Highway 401 Planning, Preliminary Design and EA Studies<br>(Belleville to Kingston) <b>STUDY 2 (GWP 4016-21-00)</b><br>Highway 401 from 5 km west of County Road 41/Centre<br>Street to 8 km west of Kingston Road 38                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Date: March 26, 2026   |
| Project No.:  | 4023-E-0028                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Time: 10:00 – 11:30 am |
| Location:     | Teleconference - Microsoft Teams Meeting ID: 286 751 037 927 54                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                        |
| Purpose:      | MTAC Study #2 Meeting #2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                        |
| Attendees:    | <b><u>MTO</u></b><br>Lucas Billow                      Project Manager<br>Amanda Dickson                Environmental<br><br><b><u>AECOM</u></b><br>Tim Sorochinsky                Project Manager<br>Felipe Sapateiro                Deputy Project Manager<br>Brian Barrett                   Highways<br>Andrea Potter                   Sr. Environmental Planner<br><br><b><u>Town of Greater Napanee</u></b><br>Sonia Mclukie                   Administrative Clerk<br><br><b><u>Loyalist Township</u></b><br>Charles McDonald               Public Works Manager<br><br><b><u>County of Lennox and<br/>Addington</u></b><br>Dan Baxter                      Manager of Roads and Bridges<br>Chris McTaggart                Engineering Technologist<br><br><b><u>City of Kingston</u></b><br>Mark Dickson                   Project Manager, Transportation<br>Alex Mut                          Supervisor, Development Review<br><br><b><u>Cataraqui Region<br/>Conservation Authority</u></b><br>Mike Dakin                      Supervisor, Development Review<br><br><b><u>Quinte Conservation<br/>Authority</u></b><br>Christine Philibert               Water Resources Manager<br><br><b><u>Bereavement Authority</u></b> |                        |



Jamie Traynor

Licensing Officer

**Kingston Police**

Mhairi Hilliker

Acting Inspector

**Kingston Fire & Rescue**

Don Carter

Deputy Chief of Operations

**Item:**

**Action By:**

**MTO Initial Greetings**

- L. Billow provided a brief overview of the project, followed by a quick round of introductions by the project team and the various municipal stakeholders in attendance. The purpose of the meeting is to go over the PIC slide deck.

**Project Overview**

T. Sorochinsky gave an overview of the project, including the study area, purpose, scope, and key study components.

**PIC Introduction and Class EA Overview**

- T. Sorochinsky noted that the first Public Information Centre (PIC) is scheduled for March 31, 2026, and that the presentation materials to be displayed will be reviewed by F. Sapateiro.
- F. Sapateiro provided an overview of the Class Environmental Assessment (EA) process, including recent updates.
- F. Sapateiro summarized corridor-wide problems and outlined opportunities for corridor upgrades and described the evaluation methodology used to identify the recommended plan.
- F. Sapateiro reviewed the alternatives considered, including how each option addresses corridor needs, future growth, structural requirements, and Highway 401 mainline widening concepts.
- F. Sapateiro also reviewed culvert alternatives and drainage improvements, including the classification approach used for culvert assessments.

**Study Area Review**

**Study #1**

- F. Sapateiro reviewed existing conditions and cross sections throughout the Study #1 area, identifying locations with potential improvement opportunities.
- F. Sapateiro briefly summarized structural site considerations.
- F. Sapateiro noted that existing and future traffic conditions indicate a need to improve the Level of Service (LOS) along Highway 401 under both low- and high-growth forecasts through 2044.
- F. Sapateiro reviewed the long list of interchange alternatives and their integration with the planned widening of Highway 401 to eight lanes.

Conceptual designs were presented to illustrate improvement footprints, and it was noted that a preferred alternative will be identified for PIC#2.

- F. Sapateiro also reviewed the long list of crossing road alternatives.

### **Study #2**

- F. Sapateiro provided a high-level review of Study #2, maintaining consistency with the structure used in Study #1.
- F. Sapateiro completed a detailed review of the alternatives at County Road 4 and County Road 6, outlining how each option relates to corridor needs, access, hydrologic considerations, and regional connectivity.
- F. Sapateiro noted that any proposed development applications submitted to municipalities for lands in proximity to MTO property should be coordinated/reviewed through MTO Corridor Office department.

### **Napanee River Bridge**

- F. Sapateiro noted that County Road 41 to Palace Road is being advanced to align with previously established Preliminary Design recommendations.
- F. Sapateiro reviewed the project timeline and two bridge alternatives considered during preliminary design and noted that the preferred bridge alternative (single span) was selected due to reduced impact on the Napanee River, through fewer in-water piers, and superior constructability.

### **Next Steps, Short-List Evaluation, and MTO Permit Control**

- F. Sapateiro reviewed the short-list evaluation criteria and described how each evaluation category considers impacts to elements such as safety and active transportation.
- F. Sapateiro provided an overview of designation boundaries and MTO Permit Control areas at interchange locations.

### **Questions & Answers**

- S. McLuckie, noted the Town of Napanee's interest in providing comments regarding accessibility, linkages, and service extension opportunities, and emphasized the importance of ensuring that crossings and overpasses support appropriate connections early in project planning.
- D. Baxter raised concerns about potential closures at County Road 6 and Mud Lake Road, noting these routes form the only internal connection within the county. A closure would result in significant detours exceeding 20 km, and a cul-de-sac configuration would create additional challenges for residents.
- M. Dickson echoed similar concerns regarding Mud Lake Road. F. Sapateiro confirmed that all options will be evaluated from both a traffic operations and technical/engineering perspective.

AECOM

- M. Dakin outlined ongoing issues along County Road 6, including dam-related flooding, fluctuating water levels, and beaver activity. He emphasized the need to maintain or improve hydrologic flow through the corridor.
- L. Bilow noted that PIC boards will be posted on the project website on the day of the PIC.

Submitted By: Brian Barrett

Distribution: Attendees



## MTAC Meeting #3





Assignment No. 4023-E-0028  
Highway 401 Planning, Preliminary Design and EA Studies  
(Belleville to Kingston)

|               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                             |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|
| Client:       | MTO Eastern Region                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Meeting: 3                  |
| Project Name: | Highway 401 Planning, Preliminary Design and EA Studies<br>(Belleville to Kingston) <b>STUDY 2 (GWP 4016-21-00)</b><br>Highway 401 from 5 km west of County Road 41/Centre<br>Street to 8 km west of Kingston Road 38                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Date: September 23,<br>2026 |
| Project No.:  | 4023-E-0028                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Time: 10:00 – 11:30 am      |
| Location:     | Teleconference - Microsoft Teams Meeting ID: 286 751 037 927 54                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                             |
| Purpose:      | MTAC Study #2 Meeting #3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                             |
| Attendees:    | <b><u>MTO</u></b><br>Lucas Billow                      Project Manager<br>Daniel Coolican                Engineering Associate<br>Erin Pipe                         Senior Environmental Planner<br>Owen Skinner                  Engineering Associate<br><br><b><u>AECOM</u></b><br>Felipe Sapateiro                Deputy Project Manager<br>Brian Barrett                  Highways<br>Andrea Potter                  Sr. Environmental Planner<br>Jordan Witt                      Environmental Planner<br>Nelson Gonzalez Toledo      Environmental Planner<br><br><b><u>Town of Greater Napanee</u></b><br>Michael Nobes                  Infrastructure Manager<br><br><b><u>County of Lennox and<br/>Addington</u></b><br>Dan Baxter                      Manager of Roads and Bridges<br>Ethan Winter                    Engineering Technologist<br><br><b><u>City of Kingston</u></b><br>Matt Kussin                      Manager, Transportation<br>Brandi Timpson                 Emergency Preparedness Manager<br><br><b><u>Quinte Conservation<br/>Authority</u></b><br>Sharlene Richardson          Regulations Manager<br>Catherine Sinclair              Regulations Officer |                             |



**Kingston Fire & Rescue**

Don Carter

Deputy Chief of Operations

**Item:****Action By:****Project Overview**

- F. Sapateiro provided an overview of the project, including the study purpose, scope, and key findings from Studies 1 and 2.

**MTO Class EA Process**

- F. Sapateiro provided a summary of the MTO Class Environmental Assessment process was presented, including key milestones and approvals.

**Napanee River Bridge Improvements**

- F. Sapateiro provided an overview of the expedited EA and Preliminary Design process for the Napanee River Bridge Improvements project was reviewed, including its relationship to the Palace Road Detail Design project.

**Existing Conditions**

- A. Potter gave an overview of the existing environmental conditions were reviewed, including natural heritage features, archaeology, and built heritage considerations.

**Design Alternatives and Evaluation**

- F. Sapateiro presented the bridge alternatives and the evaluation process based on technical, environmental, and operational considerations.
- The rationale for the preferred alternative was discussed.

**Recommended Plan**

- A single-span bridge was identified as the recommended alternative.
- Although this option requires a higher profile raise to satisfy hydraulic and fluvial requirements, it minimizes impacts to the Napanee River by maintaining abutments outside the watercourse.

**Impacts and Mitigation**

- Key potential environmental impacts and associated mitigation measures were summarized.

**Next Steps, Project Timeline & Questions**

- The Stage 2 Archaeological Assessment is anticipated to begin in late October.
- Proposed construction staging and project timelines were reviewed.
- In response to a question from S. Richardson regarding floodplain limits, F. Sapateiro confirmed that the recommended design satisfies the applicable floodplain and footprint requirements.

**Submitted By:** Brian Barrett**Distribution:** Attendees

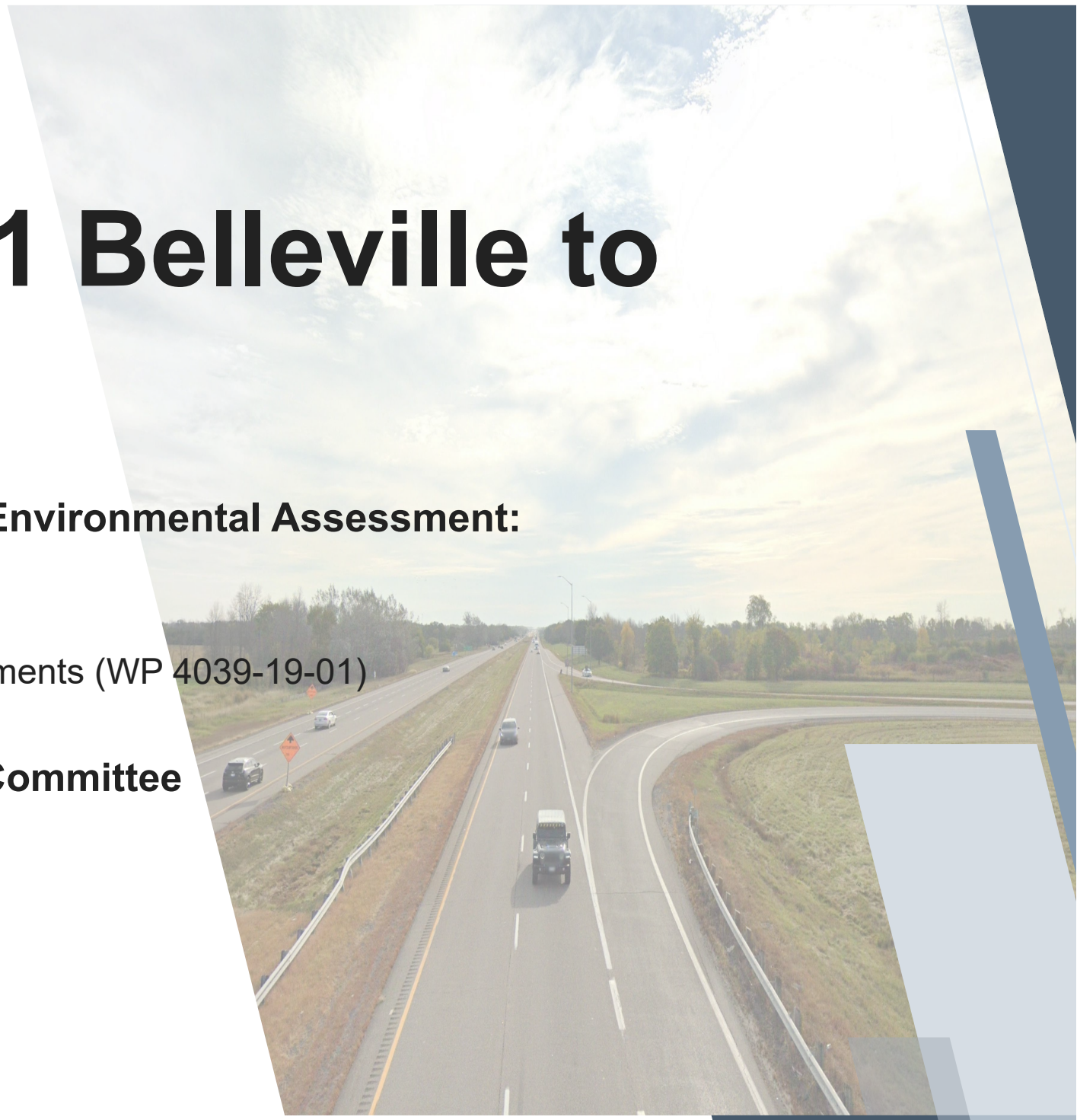
# Highway 401 Belleville to Kingston

## Preliminary Design and Class Environmental Assessment:

- Study #1 (GWP 4022-21-00)
- Study #2 (GWP 4016-21-00)
  - Napanee River Bridge Improvements (WP 4039-19-01)

## Municipal Technical Advisory Committee (MTAC) Meeting #3

September 23, 2026



# Agenda

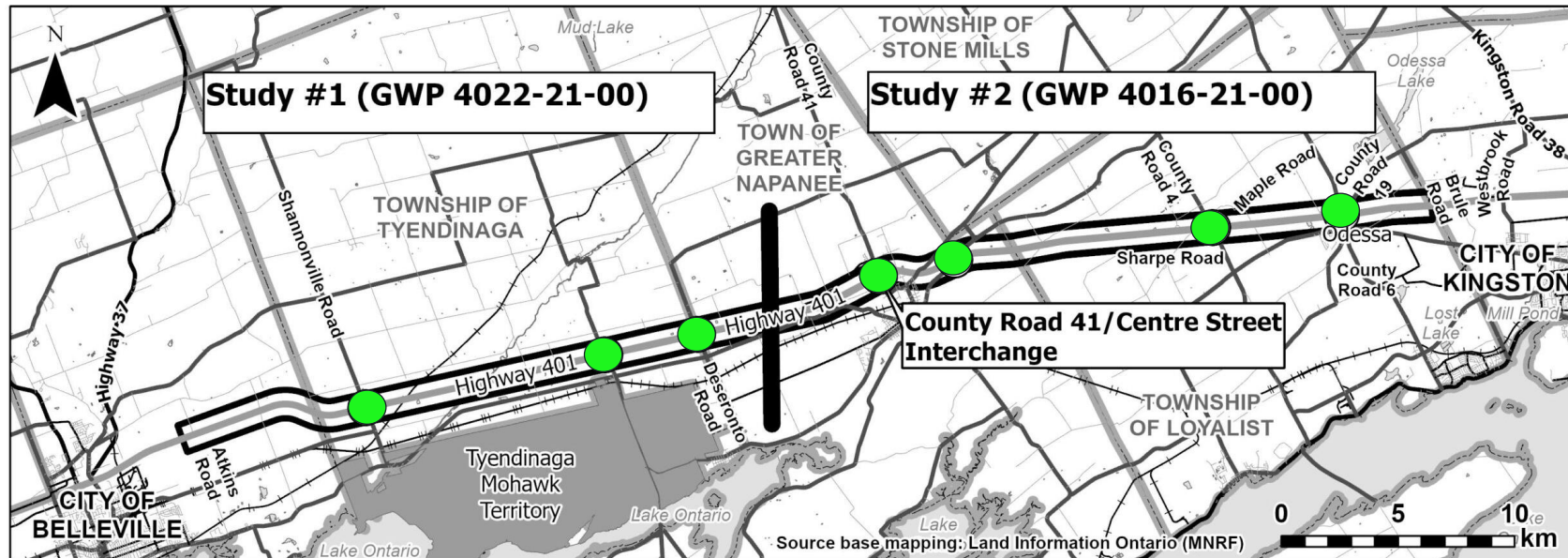
1. Project Overview
2. MTO Class EA Process
3. Focus on the Napanee River Bridge Improvements & relation to Palace Road Detail Design
4. Existing Conditions
5. Design Alternatives and Evaluation
6. Recommended Plan
7. Impacts and Mitigation
8. Next Steps, Project Timeline & Questions

# Project Overview

The Ontario Ministry of Transportation (MTO) has retained AECOM to undertake two Planning, Preliminary Design and Class Environmental Assessment (EA) Studies to address current and future transportation needs by developing a plan for the rehabilitation and/or replacement of various bridges and culverts, interchange improvements, and establishing the footprint of Highway 401 for the interim six and ultimate eight lanes of Highway 401, between the City of Belleville and the City of Kingston. The Project is divided into two studies:

**Study #1 (GWP 4022-21-00)**

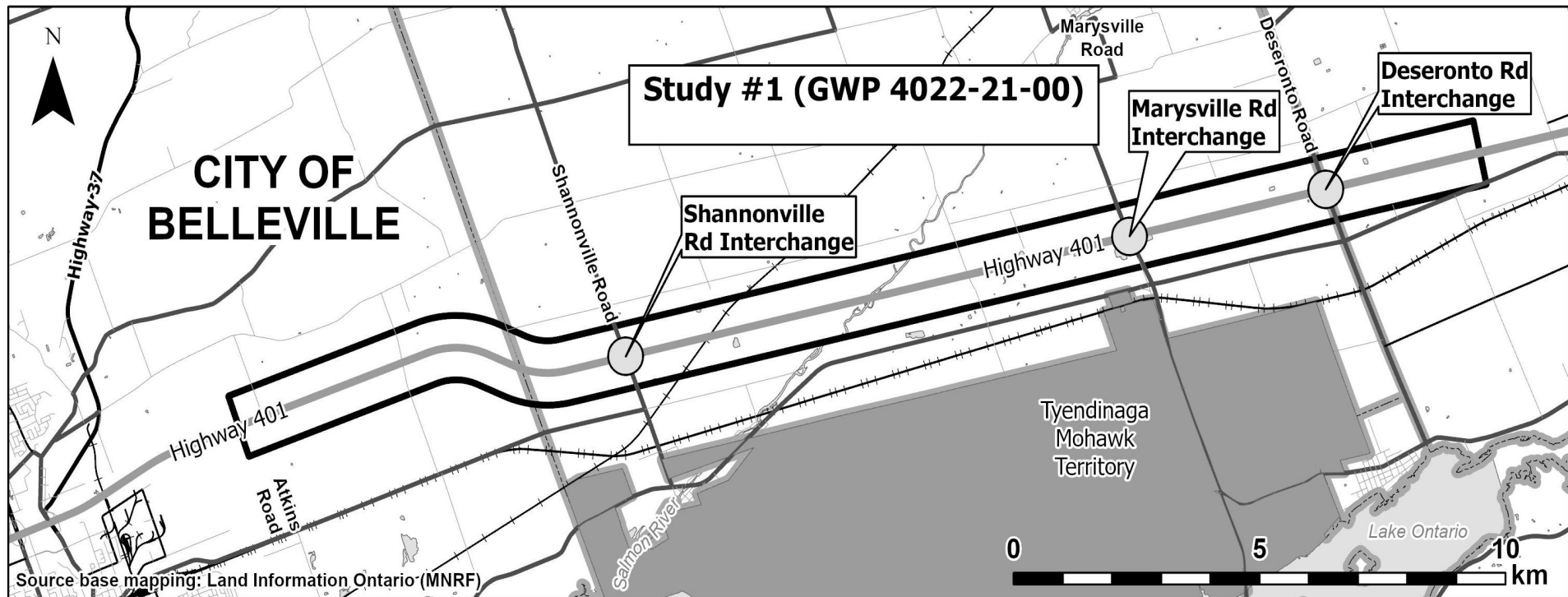
**Study #2 (GWP 4016-21-00)**





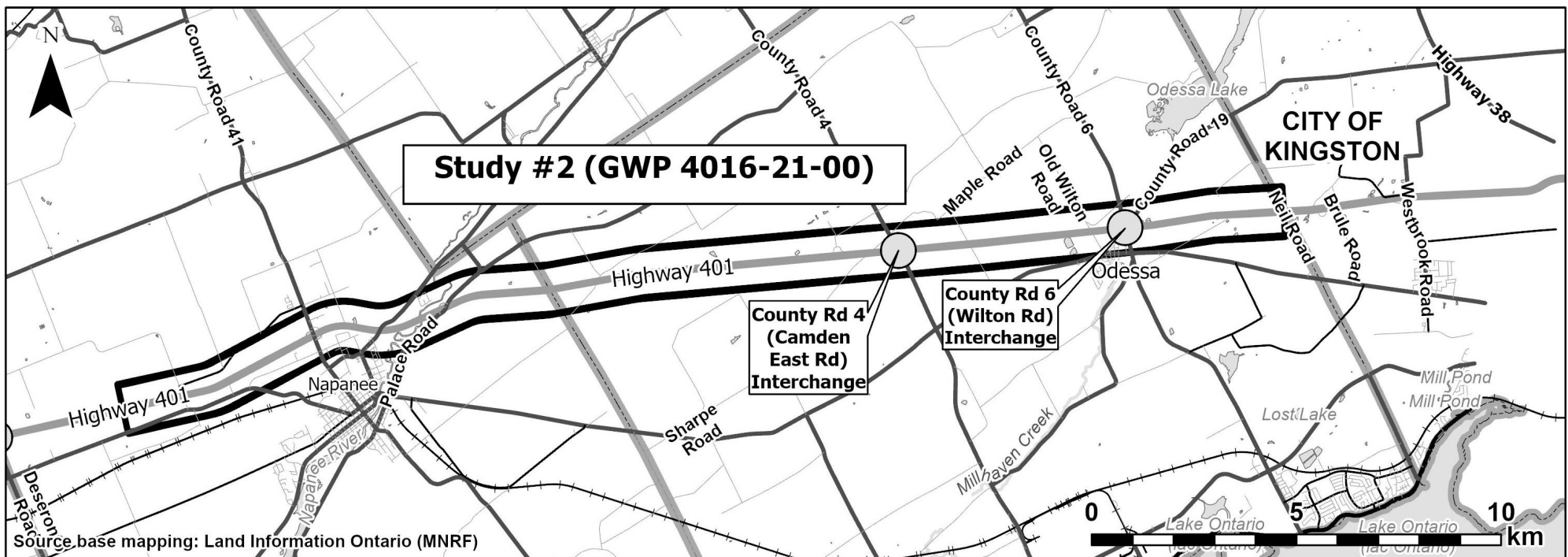
# Project Overview – Belleville to Kingston Study 1

- Study 1, as illustrated below, includes Highway 401 from 4.3 km east of Highway 37 to 5 km west of County Road 41 / Centre Street, for a total length of approximately 26 km.
- This Study is located within the City of Belleville, Tyendinaga Township, the Town of Greater Napanee, and Hastings County.
- This Study includes the rehabilitation and/or replacement of 9 bridges and 3 culverts.



# Project Overview – Belleville to Kingston Study 2

- Study 2, as illustrated below, includes Highway 401 from 5 km west of County Road 41 / Centre Street to 8 km west of Kingston Road 38, for a total length of approximately 29 km.
- This Study is located within the Town of Greater Napanee, the Township of Loyalist, and the County of Lennox and Addington.
- This study includes the rehabilitation and/or replacement of 18 bridges and 3 culverts.





# MTO Class EA Process (2024)

- This study is being undertaken as a Group ‘B’ project under the *2024 Class Environmental Assessment (EA) for Provincial Transportation Facilities and Municipal Expressways*, which is an approved process for highway planning, design and construction projects.
- Group ‘B’ projects involve modifications to access or the addition of capacity to existing provincial transportation facilities or municipal expressways.
- The consultation plan includes:
  - Engagement with Indigenous communities, municipal staff and Council, emergency service providers, regulatory and review agencies, transit and rail operators, and the public (including directly impacted property owners).
  - Outreach via mail, website, toll-free telephone line, email, flyers, newspaper notices, and meetings.

Summary of Indigenous Consultation to Date

| Consultation Activity                                       | Date              |
|-------------------------------------------------------------|-------------------|
| Notice of Study Commencement                                | November 20, 2024 |
| Invitation for Environmental CFL Participation              | Summer 2025       |
| Notice of Public Information Centre #1                      | March 4, 2026     |
| Circulation of Stage 1 AA                                   | July 8, 2026      |
| Invitation for Participation in Stage 2 AA Field Work (CFL) | August 26, 2026   |

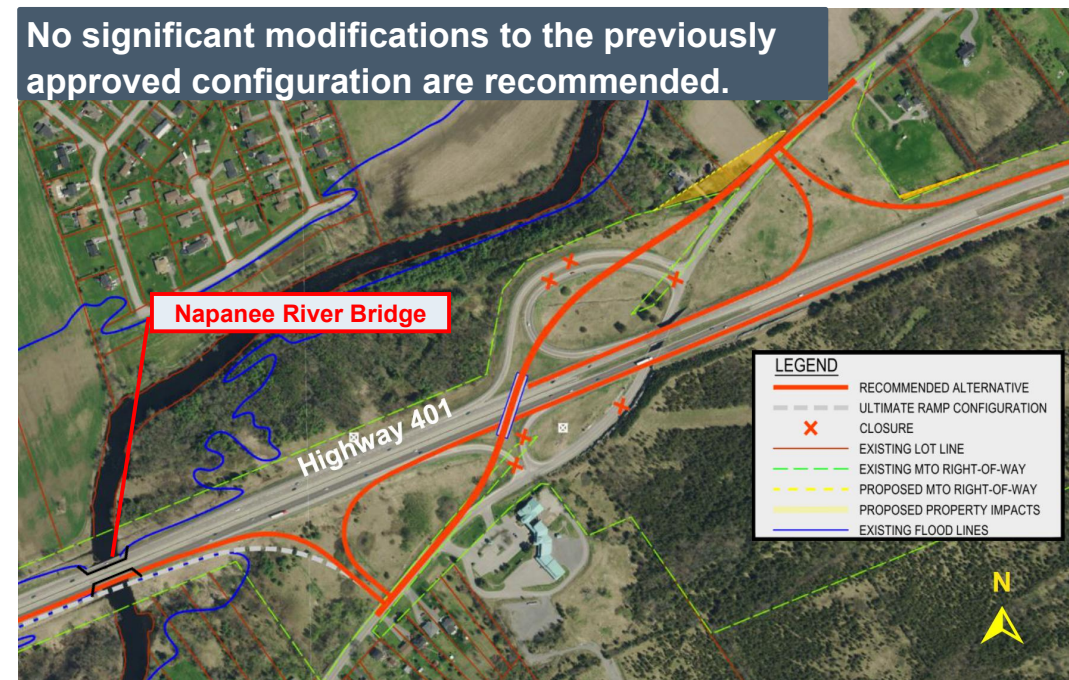
# Napanee River Bridge Class EA and Preliminary Design Study

## PALACE ROAD INTERCHANGE

- As part of the **Study #2** project, the previously approved **Palace Road Interchange Technically Preferred Plan** was revisited to assess compatibility with an interim and ultimate footprint of Highway 401, as well as to accommodate a potential 130 km/h design speed.
- **Based on this review, no significant modifications to the previously approved configuration are recommended.**
- Since the Palace Road Interchange is now moving forward to Detail Design, the improvements to the Napanee River Bridge are being advanced as a separate Preliminary Design and Class EA Study (GWP 4040-20-00) that will include standalone environmental reports and ultimately, documentation in a separate Transportation Environmental Study Report (TESR).

### Highway 401 / Palace Road Interchange Technically Preferred Plan

No significant modifications to the previously approved configuration are recommended.



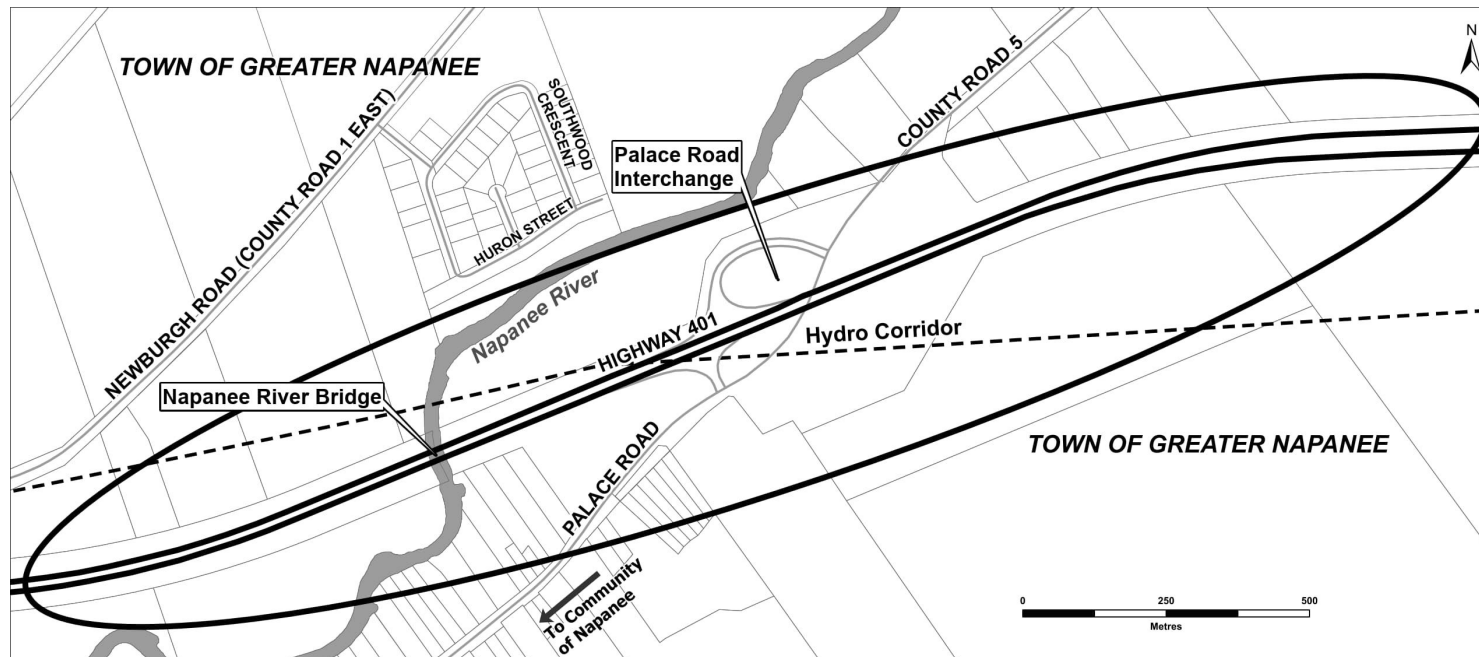
(Reference: Highway 401 Interchange Improvements at Palace Road Class Environmental Assessment and Preliminary Design Study TESR March 2019)

# Napanee River Bridge Class EA and Preliminary Design Study

## STUDY AREA

- The Napanee River bridge will accommodate a future 8 lanes along Highway 401 and consider profile refinements to meet environmental, drainage and fluvial geomorphological requirements.
- There is no timing for this widening improvement and therefore the bridge construction will consider interim tie-in to existing Highway 401 with consideration for 6 lanes in the future.

**Napanee River Bridge Class EA and Preliminary Design Study Area**





# Napanee River Bridge Class EA and Preliminary Design Study

## EXISTING ENVIRONMENTAL STUDIES

As part of this undertaking, the following environmental studies are being undertaken to review existing environmental conditions and to identify mitigation measures to minimize and/or address potential impacts associated with the proposed works:

- Fish and Fish Habitat and Terrestrial Ecosystems
- Contamination Overview Study
- Earth Management
- Designated Substance Survey
- Groundwater Assessment
- Landscape Opportunities Plan
- Noise Assessment
- Air Quality Assessment
- Fluvial Assessment
- Land Use Review
- Cultural Heritage Resource Assessment
- Stage 1 Archaeological Assessment

Existing Napanee River Bridge

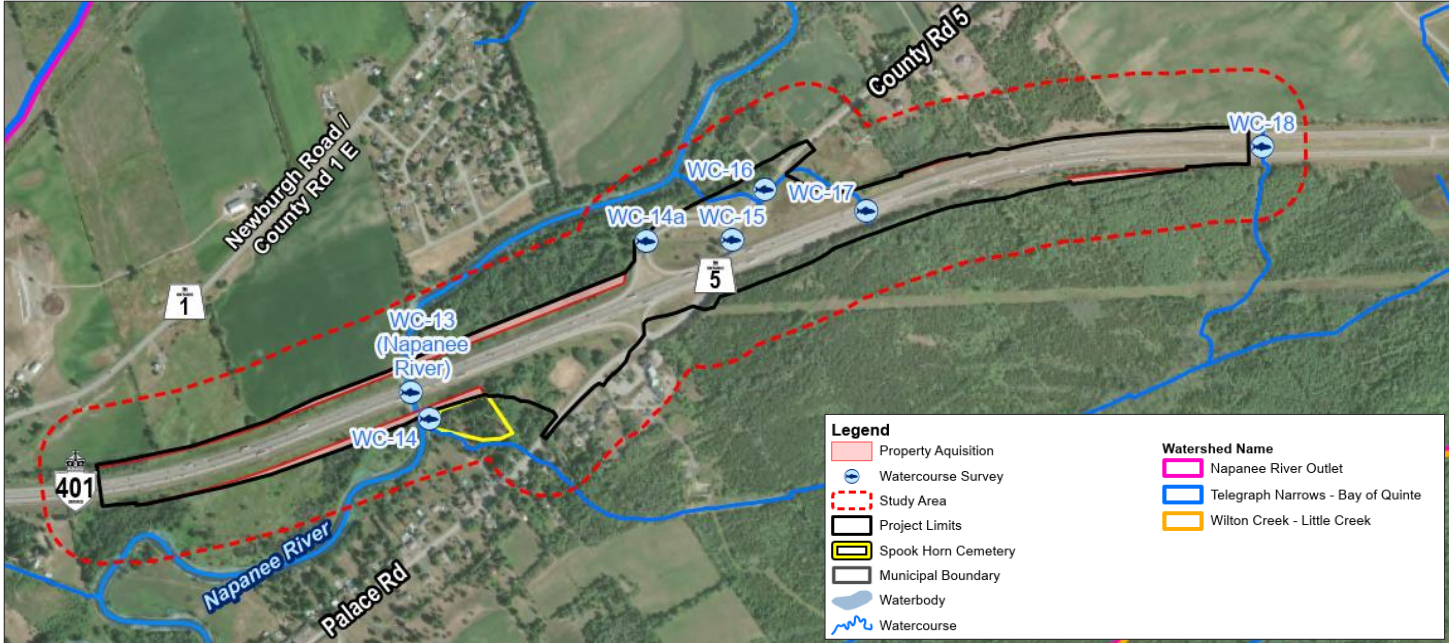


### Field Work

- The majority of field work was completed in summer 2025.
- An invitation was extended to Indigenous communities at that time to participate as an Environmental Community Field Liaison (E-CFL).
- Several communities participated.

# Napanee River Bridge Class EA and Preliminary Design Study

## EXISTING CONDITIONS AND AREAS OF ENVIRONMENTAL CONCERN/CONSTRAINT

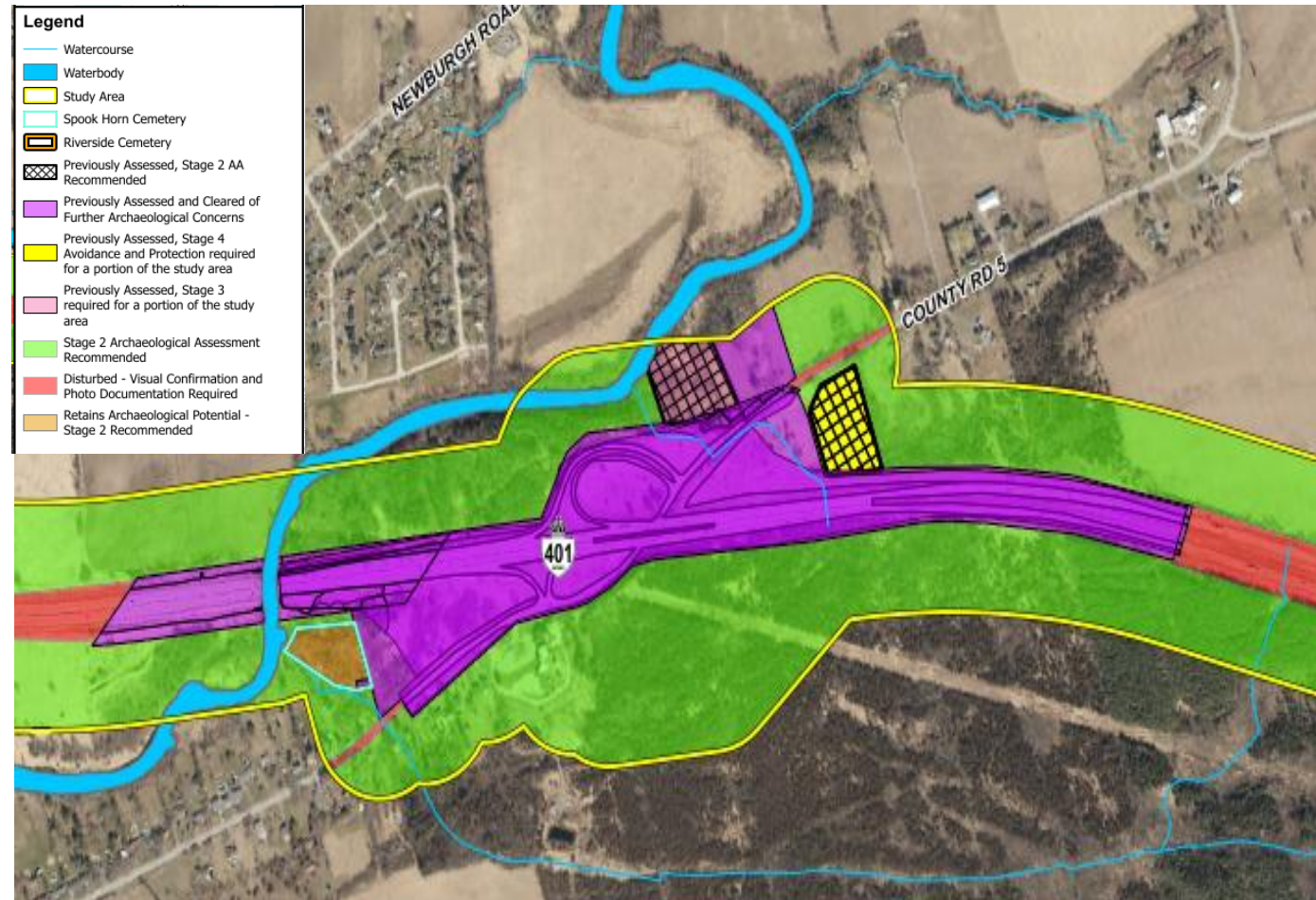
- The Study Area is located within the Quinte Source Protection Area (SPA).
  - Land use is largely rural and agricultural with some rural residential lots along Palace Road.
  - The Spook Horn Cemetery abuts the Highway 401 corridor to the south between the Napanee River and the Palace Road interchange.
- 
- Legend**
- |                      |                                   |
|----------------------|-----------------------------------|
| Property Acquisition | Watershed Name                    |
| Watercourse Survey   | Napanee River Outlet              |
| Study Area           | Telegraph Narrows - Bay of Quinte |
| Project Limits       | Wilton Creek - Little Creek       |
| Spook Horn Cemetery  |                                   |
| Municipal Boundary   |                                   |
| Waterbody            |                                   |
| Watercourse          |                                   |
- Environmental features within the Study Area include forested habitat, unevaluated wetlands, woodlands and environmentally significant areas. Wildlife and Species at Risk have the potential or are known to inhabit the Study Area.
  - The Napanee River is a permanent warmwater watercourse that provides direct fish habitat. Several other identified watercourses are relatively small with permanent, intermittent, and ephemeral reaches/branches.



# Napanee River Bridge Class EA and Preliminary Design Study

## Existing Conditions – Archaeology & Built Heritage

- A Stage 1 Archaeological Assessment (AA) was undertaken which recommended that a future Stage 2 AA be completed.
- The Town of Greater Napanee also completed a Stage 1-3 AA related to the Spook Horn Cemetery.
- A **Cultural Heritage Resource Assessment Report** identified the following Cultural Heritage Landscapes:
  - **Spook Horn Cemetery (CHL 6)** – no direct adverse impacts anticipated as proposed works are outside cemetery boundaries.
  - **Napanee River (CHL 5)** - minimal direct adverse impacts. Mitigation measures will focus on minimizing disturbance and maintaining vegetation continuity.

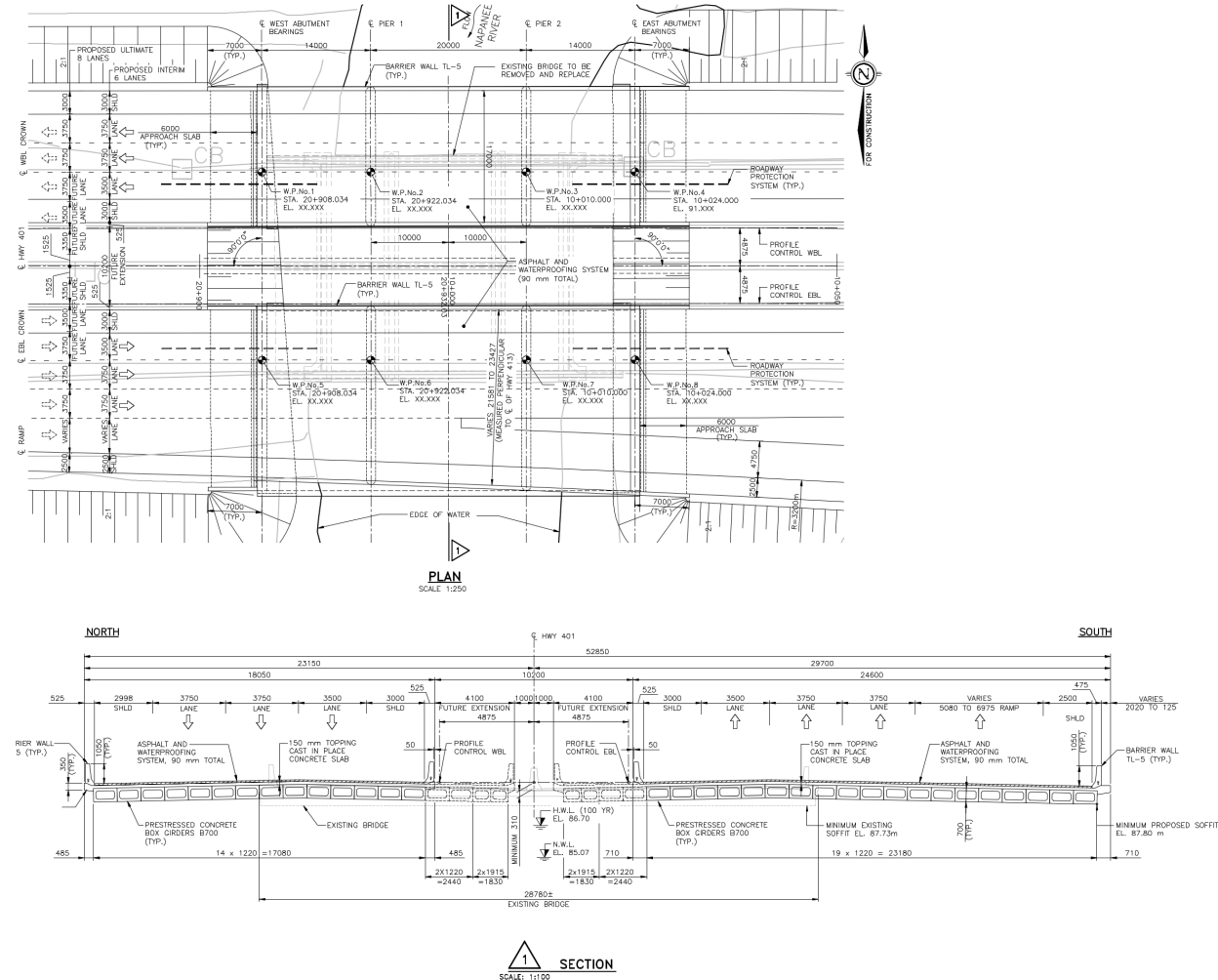




# Napanee River Bridge Class EA and Preliminary Design Study

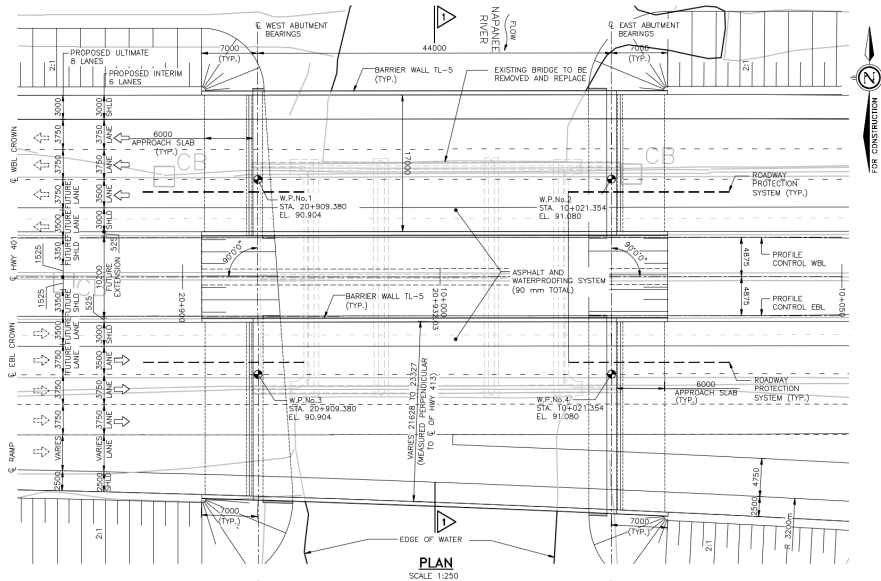
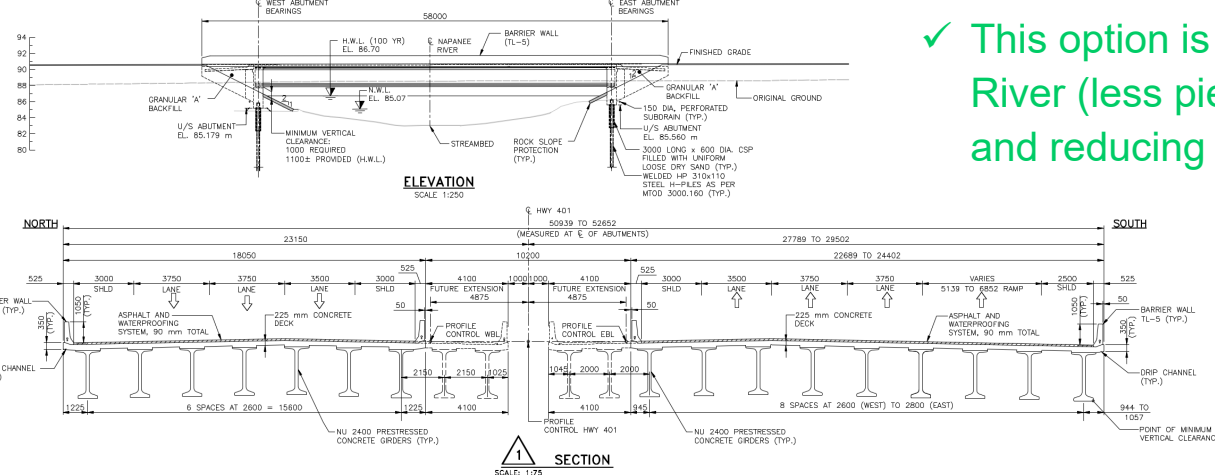
## BRIDGE ALTERNATIVE – THREE (3) SPAN

- 48m long multi-span Precast Concrete Box Girder structure satisfies hydraulic and fluvial geomorphology requirements. Minimizes profile raise along Highway 401 to meet freeboard requirements.
- Pier construction required in the Napanee River which needs to be staged with removal of existing piers (higher construction complexity and potential disturbance to watercourse).
- Bridge construction and staging to the north and south of the existing structure.
- New pier construction and removal of existing piers increases potential for temporary and long-term impacts to fish and their habitat.
- Piers in water constricts flow as the piers do not span the bankfull channel which can disrupt sediment movement, alter erosion and deposition patterns, interfering with the channel's natural self-maintenance.
- ✗ This option is least preferred as it impacts the Napanee River (requires piers to be built in the water) which increases construction complexity, cost and future maintenance.



# Napanee River Bridge Class EA and Preliminary Design Study

## BRIDGE ALTERNATIVE – SINGLE SPAN (RECOMMENDED)



- 44m long single span structure satisfies hydraulic and fluvial geomorphology requirements.
  - Requires profile raise along Highway 401 to meet freeboard requirements.
  - Bridge type is Precast Concrete NU Girder.
  - Bridge construction and staging to the north and south of the existing structure.
  - No pier construction required in the Napanee River and only removal of existing piers is required.
- ✓ This option is preferred as it minimizes impacts to the Napanee River (less piers in the water) while enhancing constructability and reducing cost.

# Napanee River Bridge Class EA and Preliminary Design Study

## POTENTIAL IMPACTS AND PROPOSED MITIGATION

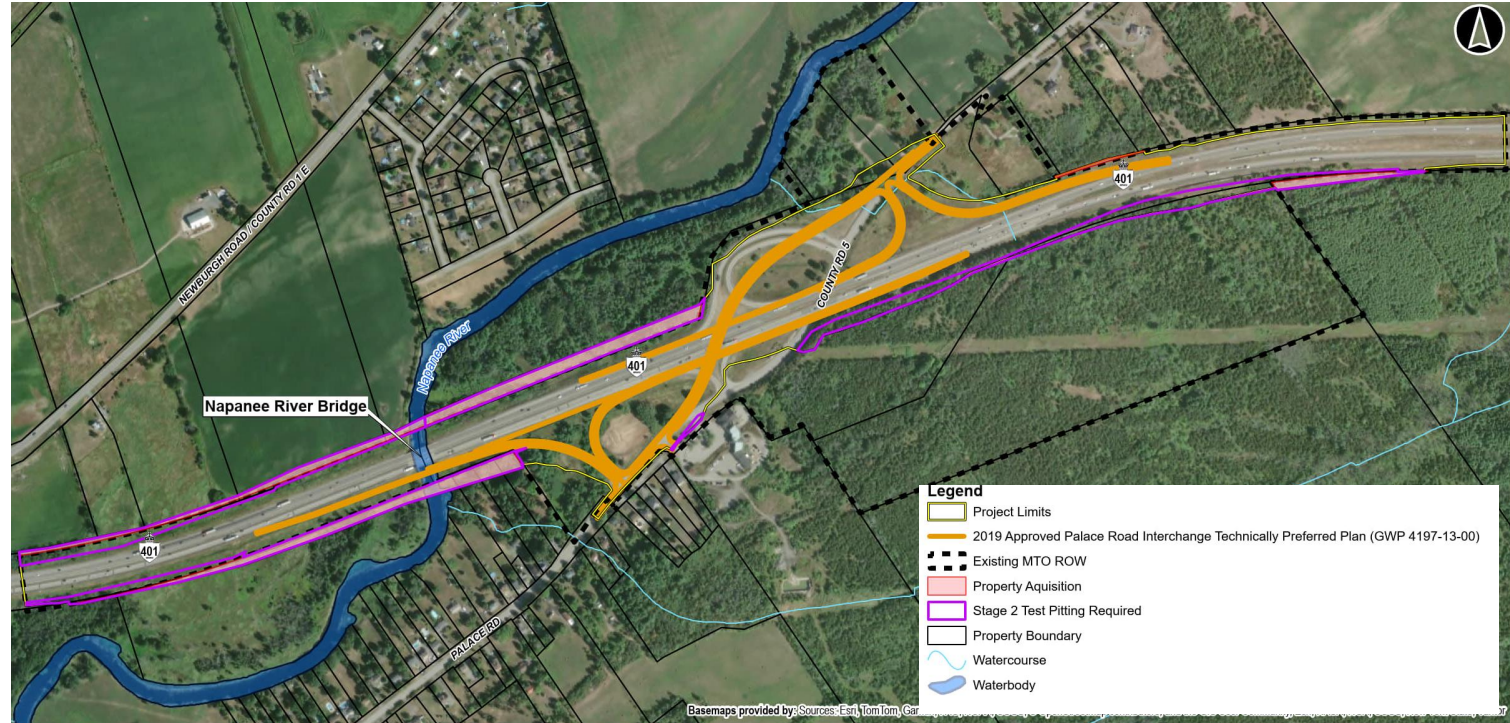
| Environmental Factors                             | Summary of Key Mitigation Measures / Commitments to Future Work                                                                                                                                                                                                                                                                                                                        |
|---------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Fish &amp; Fish Habitat</b>                    | <ul style="list-style-type: none"> <li>Adherence to in-water timing windows (i.e., in-water work permitted between July 16<sup>th</sup> to September 14<sup>th</sup>).</li> <li>Standard erosion and sediment control measures and Best Management Practices to be implemented during construction.</li> </ul>                                                                         |
| <b>Terrestrial Wildlife &amp; Species at Risk</b> | <ul style="list-style-type: none"> <li>Vegetation removal to avoid the active season for breeding birds and Species at Risk bats.</li> <li>Conduct targeted, seasonally appropriate surveys to confirm the presence of species at risk, significant habitats, and seasonal use areas within and adjacent to the work limits. Confirm the need for any permits or approvals.</li> </ul> |
| <b>Vegetation</b>                                 | <ul style="list-style-type: none"> <li>Vegetation removal to be minimized to the extent possible,</li> <li>Include measures to limit the spread and introduction of invasive and noxious vegetation during construction.</li> <li>A landscaping plan will be prepared to provide landscape enhancement and tree planting opportunities.</li> </ul>                                     |
| <b>Groundwater</b>                                | <ul style="list-style-type: none"> <li>Groundwater taking requirements will be determined during detail design and the need for an MECP approval confirmed.</li> <li>A spill prevention plan will be prepared and Best Management Practices (BMPs) implemented in the application of commercial fertilizer and road salt.</li> </ul>                                                   |
| <b>Air Quality</b>                                | <ul style="list-style-type: none"> <li>Implement standard Best Management Practices during construction to minimize impacts to air quality (i.e. dust suppressants, periodic watering as required, keeping stockpiled material covered, and making certain that all equipment pollution control devices are operational).</li> </ul>                                                   |
| <b>Noise</b>                                      | <ul style="list-style-type: none"> <li>Implement standard noise mitigation measures (i.e., engine maintenance, mufflers, etc.) during construction and adhere to municipal noise control by-law requirements</li> </ul>                                                                                                                                                                |
| <b>Climate Change</b>                             | <ul style="list-style-type: none"> <li>Minimize removal of vegetation and replant where possible and incorporate Low Impact Development features and other design options to make infrastructure more resilient.</li> </ul>                                                                                                                                                            |
| <b>Waste Management and Contamination</b>         | <ul style="list-style-type: none"> <li>Further assess soil quality in areas with moderate to high potential for contamination. Manage excess soil during construction in accordance with Ontario regulations and BMPs.</li> </ul>                                                                                                                                                      |



# Napanee River Bridge Class EA and Preliminary Design Study

## Upcoming Stage 2 Archaeological Assessment

- The Stage 1 Archaeological Assessment Report was issued to Indigenous Communities for review and comment July 8, 2026.
- Stage 2 AA is planned for late September / Early October in support of Detail Design to clear any remaining locations of archaeological potential prior to construction.
- The Stage 2 field investigation will consist of test pit survey at 5 m intervals for the locations as identified.
- An invitation was extended to Indigenous Communities August 25, 2026, to participate in the upcoming Stage 2 field work.
- A response by Sept. 8, 2026, is appreciated so that CFL agreements and associated coordination can be coordinated in advance.



# Construction Staging

- Construction will be staged north and south of the existing structure, with no new piers; existing piers will be removed below the high-water level mark.
- Staging strategies will be confirmed during future design stages, and notification will be provided to stakeholders at that time. It is expected that:
  - Existing lanes will be maintained along Highway 401 in both directions during peak traffic periods (off-peak night-time lane reductions may be required);
  - Night-time / weekend closures of existing ramps are anticipated to complete tie-ins between the existing road / ramps and newly constructed road / ramps;
  - Advance notification including a detour plan will be developed in consultation with municipalities.

# Project Timelines & Next Steps

## Next Steps

- CFL participants will be confirmed and agreements implemented to advance the Stage 2 AA.
- Stage 2 AA to be documented as part of Detail Design will be circulated to Indigenous Communities for review and comment.
- Napanee River Bridge Preliminary Design and Class EA Study will be documented in a TESR and made available for a 30 day review period.
- Two separate TESRs will be prepared at a later date to document Study #1 and Study #2 Preliminary Design Class EA processes.

| Key Tasks                                                                 | Timelines                    |
|---------------------------------------------------------------------------|------------------------------|
| Napanee Stage 2 Arch Assessment Field Work                                | Late Sept. / Early Oct. 2026 |
| Napanee Stage 2 Arch Assessment Report to Williams Treaties First Nations | Late Fall 2026               |
| Napanee TESR for public review                                            | Fall 2026                    |
| Study #1 (GWP 4022-21-00) TESR for public review                          | Fall 2027                    |
| Study #2 (GWP 4016-21-00) TESR for public review                          | Fall 2027                    |



# Thank you!

## Appendix A.4

### Notice of Study Completion

- Ontario Government Notice
  - Contact List
  - MPP Letter
  - Indigenous Community Letter
  - External and Public Letter
  - Newspapers
  - Canada Post Admail
- 

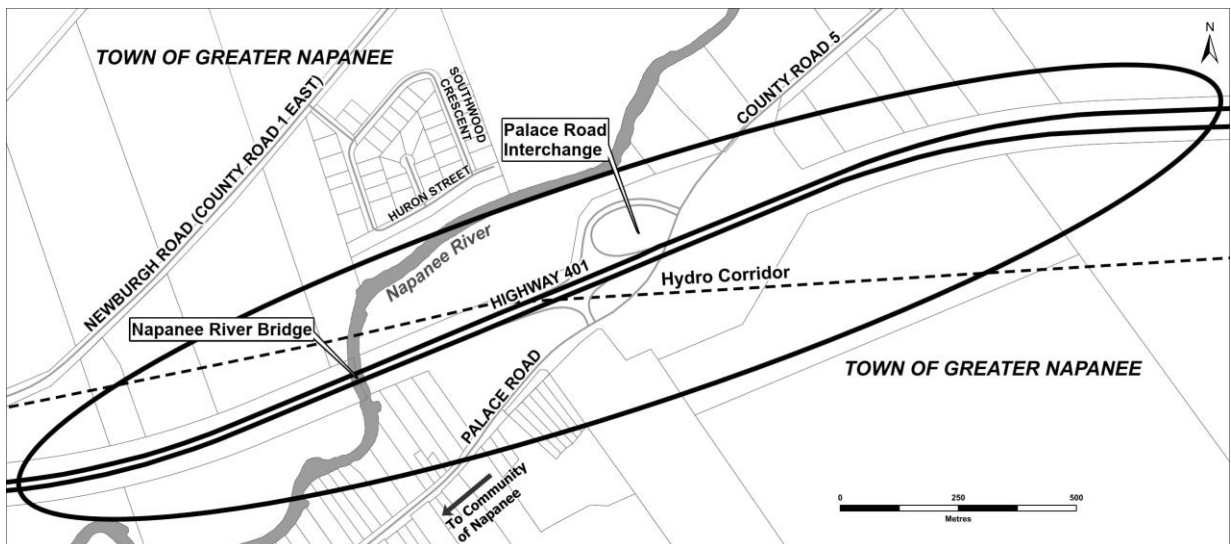


**NOTICE OF STUDY COMPLETION**  
**HIGHWAY 401 IMPROVEMENTS AT NAPANEE RIVER BRIDGE (WP 4039-19-01)**  
**PLANNING, PRELIMINARY DESIGN AND CLASS ENVIRONMENTAL ASSESSMENT STUDY**

### **The Study**

The Ministry of Transportation of Ontario (MTO) has retained AECOM Canada ULC to undertake a Planning, Preliminary Design and Class Environmental Assessment (Class EA) Study for the replacement of the Napanee River Bridge at Highway 401 to accommodate an interim six lane and ultimate eight lane future footprint of Highway 401, located within the Town of Greater Napanee and the County of Lennox and Addington.

This project is being advanced separately from the current project MTO Highway 401 Improvements Between the City of Belleville and City of Kingston Preliminary Design and Class EA Study #2 (GWP 4016-21-00) because of its proximity to Palace Road. The ministry is proceeding with Detail Design of the Palace Road Interchange based on the previously approved Recommended Plan. That plan was documented in the preceding Highway 401 Interchange Improvements at Palace Road Class Environmental Assessment and Preliminary Design Study Transportation Environmental Study Report (March 2019). The Detail Design of the Palace Road Interchange will include the Napanee River Bridge.



### **The Process**

The Study is following the approved planning process for a Group 'B' Project in accordance with the *Class EA for Provincial Transportation Facilities and Municipal Expressways, 2024*. Following the development and evaluation of several alternatives, a Recommended Plan has been identified and developed to a preliminary design level of detail. The purpose of this notice is to inform the public that a Transportation Environmental Study Report (TESR) has been prepared to document the Class EA process, the Recommended Plan, the environmental impacts and proposed mitigation measures, as well as the technical findings of the Study.

The TESR is available for a 30-day comment period from **October 29, 2026, to November 30, 2026**, and is available on the Project website at [Hwy401BellevilletoKingston.ca](http://Hwy401BellevilletoKingston.ca) and in-person at the following locations:

**County of Lennox & Addington Public Library**  
25 River Road, Napanee, Ontario K7R 3S6

Monday to Thursday: 10 a.m. to 8 p.m.  
Friday: 10 a.m. to 5 p.m.  
Saturday: 10 a.m. to 5 p.m.

**Town of Greater Napanee – Town Hall**  
99 Advance Avenue, Napanee, Ontario K7R 3Y5

Monday to Friday: 9 a.m. to 4 p.m.

## Comments

You are encouraged to participate in the Project and to please provide comments in writing to the Project Team. To obtain additional information or provide comments, please visit the project website at [Hwy401BellevilletoKingston.ca](http://Hwy401BellevilletoKingston.ca) or contact one of the Project Team members as follows:

**Tim Sorochinsky, P.Eng.**  
**AECOM Project Manager**  
AECOM Canada ULC  
105 Commerce Valley Drive West  
8th Floor  
Markham, Ontario L3T 7W3

**Lucas Bilow, P.Eng.**  
**MTO Lead Engineer**  
Ministry of Transportation, Eastern Region  
Engineering Program Delivery East  
1355 John Counter Boulevard  
Kingston, Ontario K7L 5A3

**Toll-Free Telephone Number:** 1-866-753-2640  
**Email:** [ProjectTeam@Hwy401BellevilletoKingston.ca](mailto:ProjectTeam@Hwy401BellevilletoKingston.ca)

## Requests to the Minister of the Environment, Conservation and Parks

In addition, a request may be made to the Ministry of the Environment, Conservation and Parks for an order requiring a higher level of study (i.e., requiring a comprehensive EA approval before being able to proceed), or that conditions be imposed (e.g., require further studies), only on the grounds that the requested order may prevent, mitigate or remedy adverse impacts on constitutionally protected Aboriginal and treaty rights. Requests on other grounds will not be considered. Requests should include the requester contact information and full name for the ministry.

Requests should specify what kind of order is being requested (request for additional conditions or a request for a comprehensive environmental assessment), how an order may prevent, mitigate or remedy those potential adverse impacts, and any information in support of the statements in the request. This will ensure that the ministry is able to efficiently begin reviewing the request. The request should be sent in writing or by email to the following, with a copy to the MTO Project Manager as listed above:

**Minister of the Environment,  
Conservation and Parks**  
Ministry of Environment,  
Conservation and Parks  
777 Bay Street, 5<sup>th</sup> Floor  
Toronto, Ontario M7A 2J3  
[minister.mecp@ontario.ca](mailto:minister.mecp@ontario.ca)

**Director, Environmental  
Assessment Branch**  
Ministry of Environment,  
Conservation and Parks  
135 St. Clair Avenue West, 1<sup>st</sup> Floor  
Toronto, Ontario M4V 1P5  
[EABDirector@ontario.ca](mailto:EABDirector@ontario.ca)

If you have any accessibility requirements in order to participate in this project, please contact one of the Project Team members listed above. Comments and information are being collected to assist the MTO in meeting the requirements of the *Ontario Environmental Assessment Act*. All comments and information will be collected in accordance with the *Freedom of Information and Protection of Privacy Act* (FOIPPA). With the exception of personal information, all comments will become part of the public record.

**Highway 401 / Napanee River Bridge Improvements Preliminary Design and Class Environmental Assessment Study (WP 4039-19-01)**  
**Master Contact List - NOTICE OF STUDY COMPLETION**

| Group                  | Organization            | Name / Title                                             | Dear  | Greeting               | Address | Telephone | E-Mail | Email Only | Notes |
|------------------------|-------------------------|----------------------------------------------------------|-------|------------------------|---------|-----------|--------|------------|-------|
| Indigenous Communities | Alderville First Nation | Chief Taynar Simpson                                     | Dear  | Chief Simpson          |         |           |        |            |       |
| Indigenous Communities | Alderville First Nation | Lands & Resource Coordinator                             |       | To Whom It May Concern |         |           |        |            |       |
| Indigenous Communities | Alderville First Nation | Dr. Julie Kapyrka<br>Consultation Coordinator            | Dear  | Dr. Kapyrka            |         |           |        |            |       |
| Indigenous Communities | Alderville First Nation | Jordon McArthur<br>Archaeological Program Coordinator    | Dear  | Jordon McArthur        |         |           |        |            |       |
| Indigenous Communities | Alderville First Nation | Stephanie Zilinski<br>Special Projects Consultant        | Dear  | Stephanie Zilinski     |         |           |        |            |       |
| Indigenous Communities | Curve Lake First Nation | Chief Laurie Hockaday                                    | Dear  | Chief Hockaday         |         |           |        |            |       |
| Indigenous Communities | Curve Lake First Nation | Kaitlin Hill<br>Consultation Office                      | Dear  | Kaitlin Hill           |         |           |        |            |       |
| Indigenous Communities | Curve Lake First Nation | Paige Williams<br>Lands Resource Consultation<br>Liaison | Dear  | Paige Williams         |         |           |        |            |       |
| Indigenous Communities | Curve Lake First Nation | David Rewniak<br>Consultation Co-ordinator               | David | David Rewniak          |         |           |        |            |       |
| Indigenous Communities | Curve Lake First Nation | Derek Paauw<br>Archaeological Program<br>Administrator   | Dear  | Derek Paauw            |         |           |        |            |       |
| Indigenous Communities | Curve Lake First Nation | Francis Chua<br>Consultant for Curve Lake                | Dear  | Francis Chua           |         |           |        |            |       |
| Indigenous Communities | Curve Lake First Nation | Kayla Wright<br>Consultant for Curve Lake                | Dear  | Kayla Wright           |         |           |        |            |       |
| Indigenous Communities | Curve Lake First Nation | Jaimi O'Hara<br>Consultant for Curve Lake                | Dear  | Jaimi O'Hara           |         |           |        |            |       |
| Indigenous Communities | Hiawatha First Nation   | Chief Laurie Carr                                        | Dear  | Chief Carr             |         |           |        |            |       |
| Indigenous Communities | Hiawatha First Nation   | Sean Davison<br>Lands Resource Consultation<br>Liaison   | Dear  | Sean Davison           |         |           |        |            |       |
| Indigenous Communities | Hiawatha First Nation   | Tom Cowie<br>Lands Resource Consultation<br>Liaison      | Dear  | Tom Cowie              |         |           |        |            |       |



| Group                  | Organization                                                                | Name / Title                                                | Dear | Greeting                   | Address | Telephone | E-Mail | Email Only | Notes |
|------------------------|-----------------------------------------------------------------------------|-------------------------------------------------------------|------|----------------------------|---------|-----------|--------|------------|-------|
| Indigenous Communities | Hiawatha First Nation                                                       | Mandy McGonigle<br>Archaeology Liaison                      | Dear | Mandy McGonigle            |         |           |        |            |       |
| Indigenous Communities | Hiawatha First Nation                                                       | Ryan Gray-Brady<br>Lands Resource Consultation Liaison      | Dear | Ryan Gray-Brady            |         |           |        |            |       |
| Indigenous Communities | Mississaugas of Scugog Island First Nation                                  | Chief Kelly LaRocca                                         | Dear | Chief LaRocca              |         |           |        |            |       |
| Indigenous Communities | Mississaugas of Scugog Island First Nation                                  | Consultation Department                                     |      | To Whom It May Concern     |         |           |        |            |       |
| Indigenous Communities | Mississaugas of Scugog Island First Nation                                  | Don Richardson<br>Consultation Staff                        | Dear | Don Richardson             |         |           |        |            |       |
| Indigenous Communities | Mississaugas of Scugog Island First Nation                                  | Sam Shrubsole<br>Consultation Staff                         | Dear | Sam Shrubsole              |         |           |        |            |       |
| Indigenous Communities | Mississaugas of Scugog Island First Nation                                  | Rob Lukacs<br>Consultation Staff                            | Dear | Rob Lukacs                 |         |           |        |            |       |
| Indigenous Communities | Mississaugas of Scugog Island First Nation                                  | Ameer Idreis<br>Consultation Staff                          | Dear | Ameer Idreis               |         |           |        |            |       |
| Indigenous Communities | Mississaugas of Scugog Island First Nation                                  | Nicole Mastrangelo<br>Consultation Staff                    | Dear | Nicole Mastrangelo         |         |           |        |            |       |
| Indigenous Communities | Mississaugas of Scugog Island First Nation                                  | Finn Komai<br>Consultation Staff                            | Dear | Finn Komai                 |         |           |        |            |       |
| Indigenous Communities | Mohawks of the Bay of Quinte                                                | Chief Donald Maracle                                        | Dear | Chief Maracle              |         |           |        |            |       |
| Indigenous Communities | Mohawks of the Bay of Quinte                                                | Angela Maracle<br>Director of Community Services            | Dear | Angela Maracle             |         |           |        |            |       |
| Indigenous Communities | Mohawks of the Bay of Quinte                                                | Cassie Thompson<br>Consultation Coordinator                 | Dear | Cassie Thompson            |         |           |        |            |       |
| Indigenous Communities | Kawartha Nishnawbe                                                          | Kawartha Nishnawbe Council                                  | Dear | Kawartha Nishnawbe Council |         |           |        |            |       |
| Indigenous Communities | Métis Nation of Ontario                                                     | Consultation Coordinator<br>Consultation Unit               |      | Consultation Coordinator   |         |           |        |            |       |
| Indigenous Agencies    | Ministry of Indigenous Affairs and First Nations<br>Economic Reconciliation | Director, Consultation Unit                                 |      | To Whom It May Concern     |         |           |        |            |       |
| Indigenous Agencies    | Ministry of Indigenous Affairs and First Nations<br>Economic Reconciliation | Matthew Landry<br>Stakeholder and Partner Relations Manager | Dear | Matthew Landry             |         |           |        |            |       |

| Group              | Organization                                                                 | Name / Title                                            | Dear | Greeting               | Address | Telephone | E-Mail | Email Only | Notes |
|--------------------|------------------------------------------------------------------------------|---------------------------------------------------------|------|------------------------|---------|-----------|--------|------------|-------|
| MP and MPP         | MPP - Hastings - Lennox and Addington                                        | Ric Bresee                                              | Dear | Ric Bresee             |         |           |        |            |       |
| Municipal          | Lennox and Addington County                                                  | Brenda Orchard<br>CAO                                   | Dear | Brenda Orchard         |         |           |        |            |       |
| Municipal          | Lennox and Addington County                                                  | Chris Wagar<br>Director, Infrastructure Services        | Dear | Chris Wagar            |         |           |        |            |       |
| Municipal          | Lennox and Addington County                                                  | Dan Baxter                                              | Dear | Dan Baxter             |         |           |        |            |       |
| Municipal          | Lennox and Addington County                                                  | Ethan Winter<br>Engineering Technologist Assistant      | Dear | Ethan Winter           |         |           |        |            |       |
| Municipal          | County of Lenox & Addington                                                  | Chris McTaggart<br>Engineering Technician               | Dear | Chris McTaggart        |         |           |        |            |       |
| Municipal          | Town of Greater Napanee                                                      | Matthew Grant<br>CAO                                    | Dear | Matthew Grant          |         |           |        |            |       |
| Municipal          | Town of Greater Napanee                                                      | Michael Nobes<br>General Manager/CBO                    | Dear | Michael Nobes          |         |           |        |            |       |
| Municipal          | Town of Greater Napanee                                                      | Diana Tyner<br>Data Management Administrator            | Dear | Diana Tyner            |         |           |        |            |       |
| Municipal          | Town of Greater Napanee                                                      | Sonia Mcluckie                                          | Dear | Sonia Mcluckie         |         |           |        |            |       |
| Emergency Services | Ontario Provincial Police                                                    | Serena Davidson<br>Administrative Assistant             | Dear | Serena Davidson        |         |           |        |            |       |
| Emergency Services | Ontario Provincial Police                                                    | Jennifer Chown                                          | Dear | Jennifer Chown         |         |           |        |            |       |
| Emergency Services | Ontario Provincial Police – Lennox & Addington County Detachment             | Al O'Byrne<br>Operations Manager                        | Dear | Al O'Byrne             |         |           |        |            |       |
| Emergency Services | Ontario Provincial Police – Lennox & Addington County Detachment             | Dave Tovell<br>Detachment Commander                     | Dear | Dave Tovell            |         |           |        |            |       |
| Emergency Services | Town of Greater Napanee Fire and Emergency Services                          | Shawn Armstrong<br>Acting Fire Chief                    | Dear | Acting Chief Armstrong |         |           |        |            |       |
| Emergency Services | Lennox and Addington County Paramedic Services                               | Paul Osborn<br>Deputy Chief                             | Dear | Paul Osborn            |         |           |        |            |       |
| External           | Ministry of the Environment, Conservation and Parks, Eastern Regional Office |                                                         |      | To Whom It May Concern |         |           |        |            |       |
| External           | Ministry of the Environment, Conservation and Parks                          | Roberto Sacilotto<br>Acting Supervisor - Eastern Region | Dear | Roberto Sacilotto      |         |           |        |            |       |
| External           | Ministry of Natural Resources                                                | Keith Johnston<br>Environmental Planning Team Lead      | Dear | Keith Johnston         |         |           |        |            |       |
| External           | Ministry of Natural Resources                                                | Southern Region<br>Attn: Jessica Post                   | Dear | Jessica Post           |         |           |        |            |       |

| Group    | Organization                                                  | Name / Title                                                                                     | Dear | Greeting               | Address | Telephone | E-Mail | Email Only | Notes |
|----------|---------------------------------------------------------------|--------------------------------------------------------------------------------------------------|------|------------------------|---------|-----------|--------|------------|-------|
|          |                                                               |                                                                                                  |      |                        |         |           |        |            |       |
| External | Ministry of Tourism, Culture and Gaming and Ministry of Sport | James Antler<br>Policy Advisor                                                                   | Dear | James Antler           |         |           |        |            |       |
| External | Ministry of Tourism, Culture and Gaming and Ministry of Sport | Josh Wilson<br>Co-ordinator, Resource Based Tourism                                              | Dear | Josh Wilson            |         |           |        |            |       |
| External | Ministry of Tourism, Culture and Gaming and Ministry of Sport | Laurie Brownlee                                                                                  | Dear | Laurie Brownlee        |         |           |        |            |       |
| External | Ministry of Citizenship and Multiculturalism                  | Karla Barboza<br>Team Lead - Heritage                                                            | Dear | Karla Barboza          |         |           |        |            |       |
| External | Ministry of Citizenship and Multiculturalism                  | Erika Leclerc<br>Heritage Planner                                                                | Dear | Erika Leclerc          |         |           |        |            |       |
| External | Ministry of Agriculture, Food and Rural Affairs               | Nancy Rutherford<br>Rural Planner                                                                | Dear | Nancy Rutherford       |         |           |        |            |       |
| External | Ministry of Municipal Affairs and Housing                     | Michael Elms<br>Manager, Community Planning and Development                                      | Dear | Michael Elms           |         |           |        |            |       |
| External | Ministry of the Solicitor General                             | Wagdy Guirgis<br>Manager, Capital Planning Facilities and Capital Planning Branch                | Dear | Wagdy Guirgis          |         |           |        |            |       |
| External | Ministry of the Solicitor General                             | Amorette Rodrigues<br>Manager, P3 Delivery and Operations Facilities and Capital Planning Branch | Dear | Amorette Rodrigues     |         |           |        |            |       |
| External | Fisheries and Oceans Canada                                   | Burlington (Canada Centre for Inland Waters)                                                     |      | To Whom It May Concern |         |           |        |            |       |
| External | Environment and Climate Change Canada                         | Rob Clavering<br>Manager - Environmental Assessment Section                                      | Dear | Rob Clavering          |         |           |        |            |       |
| External | Natural Resources Canada                                      |                                                                                                  |      | To Whom It May Concern |         |           |        |            |       |
| External | Transport Canada                                              | Environmental Assessment Coordinator - Kingston Ontario Region                                   | Dear | To Whom It May Concern |         |           |        |            |       |
| External | Infrastructure Ontario                                        | Katherine Hotrum<br>Director Environmental Projects                                              | Dear | Katherine Hotrum       |         |           |        |            |       |
| External | Infrastructure Ontario                                        | Erica Anderson<br>Environmental Manager                                                          | Dear | Erica Anderson         |         |           |        |            |       |
| External | Infrastructure Ontario                                        | David Macey<br>Vice President, Portfolio Planning and Development                                | Dear | David Macey            |         |           |        |            |       |

| Group    | Organization                                    | Name / Title                                                                                                               | Dear | Greeting                  | Address | Telephone | E-Mail | Email Only | Notes |
|----------|-------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|------|---------------------------|---------|-----------|--------|------------|-------|
| External | Infrastructure Ontario                          | Joanna Craig<br>Planner                                                                                                    | Dear | Joanna Craig              |         |           |        |            |       |
| External | Ontario Federation of<br>Agriculture            | Ian Nokes<br>Senior Policy Analyst                                                                                         | Dear | Ian Nokes                 |         |           |        |            |       |
| External | Ontario Federation of<br>Agriculture            | Janine Lunn<br>Manager, Member Services                                                                                    | Dear | Janine Lunn               |         |           |        |            |       |
| External | Ontario Federation of<br>Agriculture            | Sonia Dignard<br>Member Services Representative<br>Glengarry, Prescott, Russell,<br>Stormont                               | Dear | Sonia Dignard             |         |           |        |            |       |
| External | Ontario Federation of<br>Agriculture            | Mikayla Kelly<br>Member Services Representative<br>(Zone 11 - Dundas, Frontenac,<br>Grenville, Leeds)                      | Dear | Mikayla Kelly             |         |           |        |            |       |
| External | Ontario Federation of<br>Agriculture            | Resi Walt<br>Member Services Representative<br>Hastings, Lennox & Addington,<br>Northumberland, Prince Edward<br>(Zone 12) | Dear | Resi Walt                 |         |           |        |            |       |
| External | Lennox & Addington<br>Federation of Agriculture | Leonard Austin<br>President                                                                                                | Dear | Leonard Austin            |         |           |        |            |       |
| External | Lennox & Addington<br>Federation of Agriculture | Max Kaiser<br>Member Services Representative                                                                               | Dear | Max Kaiser                |         |           |        |            |       |
| External | Lennox & Addington<br>Federation of Agriculture | Herb Hart<br>Member Services Representative                                                                                | Dear | Herb Hart                 |         |           |        |            |       |
| External | Ontario Trucking<br>Association                 | Geoff Wood                                                                                                                 | Dear | Geoff Wood                |         |           |        |            |       |
| External | CN Rail                                         | Umair Naveed<br>Project Officer- Public Works  <br>Eastern Canada Division of<br>Engineering                               | Dear | Umair Naveed              |         |           |        |            |       |
| External | CP Rail                                         | Tom Twigge<br>Director - Project and Public Works                                                                          | Dear | Tom Twigge                |         |           |        |            |       |
| External | VIA Rail Canada Inc.                            |                                                                                                                            |      | To Whom It May<br>Concern |         |           |        |            |       |
| External | Quinte Conservation<br>Authority                | Sharlene Richardson                                                                                                        | Dear | Sharlene<br>Richardson    |         |           |        |            |       |
| External | Quinte Conservation<br>Authority                | Christine Phillibert<br>Water Resources Manager                                                                            | Dear | Christine<br>Phillibert   |         |           |        |            |       |
| External | Quinte Conservation<br>Authority                | Sam Carney<br>Planning Technician                                                                                          | Dear | Sam Carney                |         |           |        |            |       |

| Group    | Organization                                       | Name / Title                                                       | Dear | Greeting               | Address | Telephone | E-Mail | Email Only | Notes |
|----------|----------------------------------------------------|--------------------------------------------------------------------|------|------------------------|---------|-----------|--------|------------|-------|
| External | Quinte Conservation Authority                      | Catherine Sinclair                                                 | Dear | Catherine Sinclair     |         |           |        |            |       |
| External | Quinte Conservation Authority                      |                                                                    |      | To Whom it May Concern |         |           |        |            |       |
| External | A2A Algonquin to Adirondacks Collaborative         | Nasha Choudhury<br>Executive Director                              | Dear | Nasha Choudhury        |         |           |        |            |       |
| External | A2A Algonquin to Adirondacks Collaborative         | Aleisha Pannozzo<br>Communications Lead                            | Dear | Aleisha Pannozzo       |         |           |        |            |       |
| External | A2A Algonquin to Adirondacks Collaborative         | Jess Lax                                                           | Dear | Jess Lax               |         |           |        |            |       |
| External | Limestone District School Board                    | Jane Douglas<br>Communications Consultant                          | Dear | Jane Douglas           |         |           |        |            |       |
| External | Algonquin and Lakeshore Catholic District Board    | Terry Shea<br>Chair of the Board                                   | Dear | Terry Shea             |         |           |        |            |       |
| External | Conseil des ecoles publiques de l'Est de l'Ontario | Samia Ouled Ali<br>School Board President                          | Dear | Samia Ouled Ali        |         |           |        |            |       |
| External | Tri-Board Student Transportation Services          | C. Young<br>President                                              | Dear | C. Young               |         |           |        |            |       |
| External | Hydro One Networks Inc.                            | Hydro One Networks Inc. Secondary Land Use                         |      | To Whom It May Concern |         |           |        |            |       |
| External | Metrolinx                                          | Pam Foster<br>Director Environmental Programs and Assessment       | Dear | Pam Foster             |         |           |        |            |       |
| External | Bereavement Authority of Ontario                   | Crystal Forrest<br>Sr. Manager, Cemeteries Strategy and Operations | Dear | Crystal Forrest        |         |           |        |            |       |
| External | Bereavement Authority of Ontario                   | Jamie Traynor<br>Licensing Officer                                 | Dear | Jamie Traynor          |         |           |        |            |       |
| External | Bereavement Authority of Ontario                   | Selena Janssens                                                    | Dear | Selena Janssens        |         |           |        |            |       |
| External | Hydro One Networks Inc                             | Assessment & Taxation Real Estate Service & Security               |      | To Whom It May Concern |         |           |        |            |       |

Note: In accordance with the Freedom of Information and Protection of Privacy Act, personal information and public stakeholders have been removed.

From: Bilow, Lucas (MTO) <Lucas.Bilow@ontario.ca>  
Sent: Thursday, October 22, 2026 2:48 PM  
To: tyler.allsopp@pc.ola.org  
Cc: Pipe, Erin (MTO); Sorochinsky, Tim; Sapateiro, Felipe; Potter, Andrea  
Subject: Notice of Study Completion - TESR Posting - Highway 401 - Napanee River Bridge Replacement  
Attachments: MPP Tyler Allsopp - Highway 401 - Napanee River Bridge - Notice of Study Completion.pdf; OGN - Notice of Study Completion - Highway 401 - Napanee River Bridge Replacement.pdf

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Report Suspicious

Hello Tyler,

Please see the attached letter for the Notice of Study Completion (TESR Publication) for the Planning, Preliminary Design and Class Environmental Assessment (Class EA) for the Napanee River Bridge Replacement on Highway 401 (WP 4039-19-01).

If you have any questions, please free to contact the project team.

Thank you,

**Lucas Bilow, P. Eng.**

Lead Engineer, Projects | Design and Engineering Branch  
Ministry of Transportation | Ontario Public Service  
613-483-5982 | [Lucas.Bilow@ontario.ca](mailto:Lucas.Bilow@ontario.ca)



*Taking pride in strengthening Ontario, its places and its people*





**Ministry of Transportation**

**Ministère des Transports**



Project Delivery East

Mise en œuvre des  
projets - Est

Engineering Program  
Delivery East

Mise en œuvre du  
programme relatif à  
l'ingénierie - Est

1355 John Counter  
Boulevard  
Postal Bag 4000  
Kingston ON K7L 5A3

1355, boulevard John  
Counter  
C.P./Service de sacs 4000  
Kingston ON K7L 5A3

October 22, 2026

Tyler Allsopp, MPP  
Bay of Quinte  
5503 Highway 62 South, Unit 8  
Belleville, ON K8N 0L5

**RE: Notice of Study Completion  
Highway 401 / Napanee River Bridge Improvements  
Preliminary Design and Class Environmental Assessment Study (WP 4039-19-01)  
Ministry of Transportation of Ontario**

Dear MPP Tyler Allsopp,

The Ministry of Transportation of Ontario (MTO) has retained AECOM Canada ULC to undertake a Planning, Preliminary Design and Class Environmental Assessment (Class EA) Study for the replacement of the Napanee River Bridge at Highway 401 to accommodate an interim six lane and ultimate eight lane future footprint of Highway 401, located within the Town of Greater Napanee and the County of Lennox and Addington.

This project is being advanced separately from the current project *MTO Highway 401 Improvements Between the City of Belleville and City of Kingston Preliminary Design and Class EA Study #2* (GWP 4016-21-00) because of its proximity to Palace Road.

The ministry is proceeding with Detail Design of the Palace Road Interchange based on the previously approved Recommended Plan. That plan was documented in the preceding *Highway 401 Interchange Improvements at Palace Road Class Environmental Assessment and Preliminary Design Study Transportation Environmental Study Report (March 2019)*. The Detail Design of the Palace Road Interchange will include the Napanee River Bridge.

This Study is following the approved planning process for a Group 'B' Project in accordance with the MTO 2024 *Class EA for Provincial Transportation Facilities and Municipal Expressways*. Please refer to the enclosed notice for additional details and to view the Project Study Area.

**The purpose of this notice is to inform you that a Transportation Environmental Study Report (TESR) has been prepared to document the process, the Recommended Plan, the environmental impacts and proposed mitigation measures, as well as the technical findings of the Study. The TESR is available for a 30-day comment period from October 29, 2026, to November 30, 2026, and is available on the Project website at [hwy401bellevilletokingston.ca](http://hwy401bellevilletokingston.ca) and in-person at the locations listed on the attached notice.**

The enclosed "Notice of Study Completion" will be published in the *Kingston Whig-Standard* newspaper, in English, on Thursday, October 29, 2026, and in the *Napanee Beaver* on Friday, October 30, 2026.

Opportunity was provided throughout this Study for interested persons to provide input to the Project Team regarding the study. All comments and information are collected in accordance with the *Freedom of Information and Protection of Privacy Act* (FOIPPA). With the exception of personal information, all comments will become part of the public record. If you have any accessibility requirements in order to participate in these studies, please contact the undersigned.

Should you have any questions or concerns regarding this Study or would like to arrange a meeting, please contact the undersigned at 1-866-753-2640. Information on the Study is also available from the Project website at [hwy401bellevilletokingston.ca](http://hwy401bellevilletokingston.ca).

Sincerely,

Lucas Bilow, P.Eng.  
MTO Lead Engineer

Encl. OGN - Notice of Study Completion - Highway 401 - Napanee River Bridge Replacement

c: E. Pipe, MTO, Environmental Planner  
T. Sorochinsky, AECOM, Project Manager  
F. Sapateiro, AECOM, Deputy Project Manager  
A. Potter, AECOM, Senior Environmental Planner

From: Bilow, Lucas (MTO) <Lucas.Bilow@ontario.ca>  
Sent: Thursday, October 22, 2026 2:45 PM  
To: Bresee, Ric  
Cc: Pipe, Erin (MTO); Sorochinsky, Tim; Sapateiro, Felipe; Potter, Andrea  
Subject: Notice of Study Completion - TESR Posting - Highway 401 - Napanee River Bridge Replacement  
Attachments: MPP Ric Bresee - Highway 401 - Napanee River Bridge - Notice of Study Completion.pdf; OGN - Notice of Study Completion - Highway 401 - Napanee River Bridge Replacement.pdf

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Report Suspicious

Hello Ric,

Please see the attached letter for the Notice of Study Completion (TESR Publication) for the Planning, Preliminary Design and Class Environmental Assessment (Class EA) for the Napanee River Bridge Replacement on Highway 401 (WP 4039-19-01).

If you have any questions, please free to contact the project team.

Thank you,

**Lucas Bilow, P. Eng.**

Lead Engineer, Projects | Design and Engineering Branch  
Ministry of Transportation | Ontario Public Service  
613-483-5982 | [Lucas.Bilow@ontario.ca](mailto:Lucas.Bilow@ontario.ca)



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**Ministry of Transportation**

**Ministère des Transports**



Project Delivery East

Mise en œuvre des  
projets - Est

Engineering Program  
Delivery East

Mise en œuvre du  
programme relatif à  
l'ingénierie - Est

1355 John Counter  
Boulevard  
Postal Bag 4000  
Kingston ON K7L 5A3

1355, boulevard John  
Counter  
C.P./Service de sacs 4000  
Kingston ON K7L 5A3

October 22, 2026

Ric Bresee, MPP  
Hastings – Lennox and Addington  
26A St. Lawrence St. W  
P.O. Box 70  
Madoc, ON K0K 2K0

**RE: Notice of Study Completion  
Highway 401 / Napanee River Bridge Improvements  
Preliminary Design and Class Environmental Assessment Study (WP 4039-19-01)  
Ministry of Transportation of Ontario**

Dear MPP Ric Bresee,

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and Preliminary Design Study Transportation Environmental Study Report (March 2019). The Detail Design of the Palace Road Interchange will include the Napanee River Bridge.

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Sincerely,

Lucas Bilow, P.Eng.  
MTO Lead Engineer

Encl. OGN - Notice of Study Completion - Highway 401 - Napanee River Bridge Replacement

c: E. Pipe, MTO, Environmental Planner  
T. Soroichinsky, AECOM, Project Manager  
F. Sapateiro, AECOM, Deputy Project Manager  
A. Potter, AECOM, Senior Environmental Planner

October 22, 2026

INDIGENOUS COMMUNITY

Chief «Name»  
«Position»  
«Organization»  
«Address»

Sent via email to: «email address»

**RE: Notice of Study Completion**  
**Highway 401 / Napanee River Bridge Improvements**  
**Preliminary Design and Class Environmental Assessment Study (WP 4039-19-01)**  
**Ministry of Transportation of Ontario**

---

Dear Chief «Name»,

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You are encouraged to participate in the Study and to provide comments in writing to the Project Team. To obtain additional information or provide comments, please contact me, Charlene Millett, Director of East Operations at [Charlene.Millett@ontario.ca](mailto:Charlene.Millett@ontario.ca), or Patricia Moniz, Indigenous Liaison Specialist by email at [Patricia.Moniz@ontario.ca](mailto:Patricia.Moniz@ontario.ca) or by phone at 613-483-7588.

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|                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Minister of the Environment, Conservation and Parks<br>Ministry of the Environment, Conservation and Parks<br>777 Bay Street, 5th Floor<br>Toronto ON M7A 2J3<br><a href="mailto:minister.mecp@ontario.ca">minister.mecp@ontario.ca</a> | Director, Environmental Assessment Branch<br>Ministry of the Environment, Conservation and Parks<br>135 St. Clair Ave. W, 1st Floor<br>Toronto ON, M4V 1P5<br><a href="mailto:EABDirector@ontario.ca">EABDirector@ontario.ca</a> |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

All comments and information will be collected in accordance with the *Freedom of Information and Protection of Privacy Act* (FOIPPA). With the exception of personal information, all comments will become part of the public record. Please contact me if you have accessibility requirements in order to participate in this project.

Sincerely,

Charlene Millett  
A/Director, East Operations

cc: D. Simpson, Lands & Resource Co-ordinator ([consultation@alderville.ca](mailto:consultation@alderville.ca))  
J. Kapyrka, Consultation Manager ([jkapyrka@alderville.ca](mailto:jkapyrka@alderville.ca))  
P. Moniz MTO, Indigenous Liaison Specialist ([patricia.moniz@ontario.ca](mailto:patricia.moniz@ontario.ca))  
L. Bilow, MTO, Lead Engineer ([lucas.bilow@ontario.ca](mailto:lucas.bilow@ontario.ca))  
E. Pipe, MTO, Environmental Planner ([erin.pipe@ontario.ca](mailto:erin.pipe@ontario.ca))  
T. Sorochinsky, AECOM, Project Manager ([tim.sorochinsky@aecom.com](mailto:tim.sorochinsky@aecom.com))  
F. Sapateiro, AECOM, Deputy Project Manager ([felipe.sapateiro@aecom.com](mailto:felipe.sapateiro@aecom.com))  
A. Potter, AECOM, Senior Environmental Planner ([andrea.potter@aecom.com](mailto:andrea.potter@aecom.com))

October 26, 2026

EXTERNAL / PUBLIC

«Name»  
«Position»  
«Organization»  
«Address»

Dear «Greeting»:

**RE: Notice of Study Completion  
Highway 401 / Napanee River Bridges Improvements  
Preliminary Design and Class Environmental Assessment Study (WP 4039-19-01)  
Ministry of Transportation of Ontario**

---

The Ministry of Transportation of Ontario (MTO) has retained AECOM Canada ULC to undertake a Planning, Preliminary Design and Class Environmental Assessment (Class EA) Study for the replacement of the Napanee River Bridge at Highway 401 to accommodate an interim six lane and ultimate eight lane future footprint of Highway 401, located within the Town of Greater Napanee and the County of Lennox and Addington.

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There is an opportunity at any time during this process for interested persons to provide input to the Project Team including comments and information regarding the Study. All comments and information will be collected in accordance with the *Freedom of Information and Protection of Privacy Act* (FOIPPA). With the exception of personal information, all comments will become part of the public record. If you have any accessibility requirements in order to participate in this Project, please contact the undersigned.

Sincerely,  
**AECOM Canada ULC**

Tim Sorochinsky, P.Eng.  
Project Manager

cc: L. Bilow, MTO, Lead Engineer  
E. Pipe, MTO, Environmental Planner  
F. Sapateiro, AECOM, Deputy Project Manager  
A. Potter, AECOM, Senior Environmental Planner

Encl. Notice of Study Completion

# Your Targeting Report

## Mailing Campaign Details

10-23-2026

AECOM

Mailing ID 820FS133642229340809



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      | 920                                                                                                                                                  |
| Urban / Rural              | All                                                                                                                                                  |
| Estimated Delivery Cost    | \$207.92                                                                                                                                             |
| 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    | 26-10-16 To 26-11-12                                                                                                                                 |
| 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 can help identify highest-potential customers and prospects through penetration analysis, location intelligence, segmentation, modeling and profiling. |

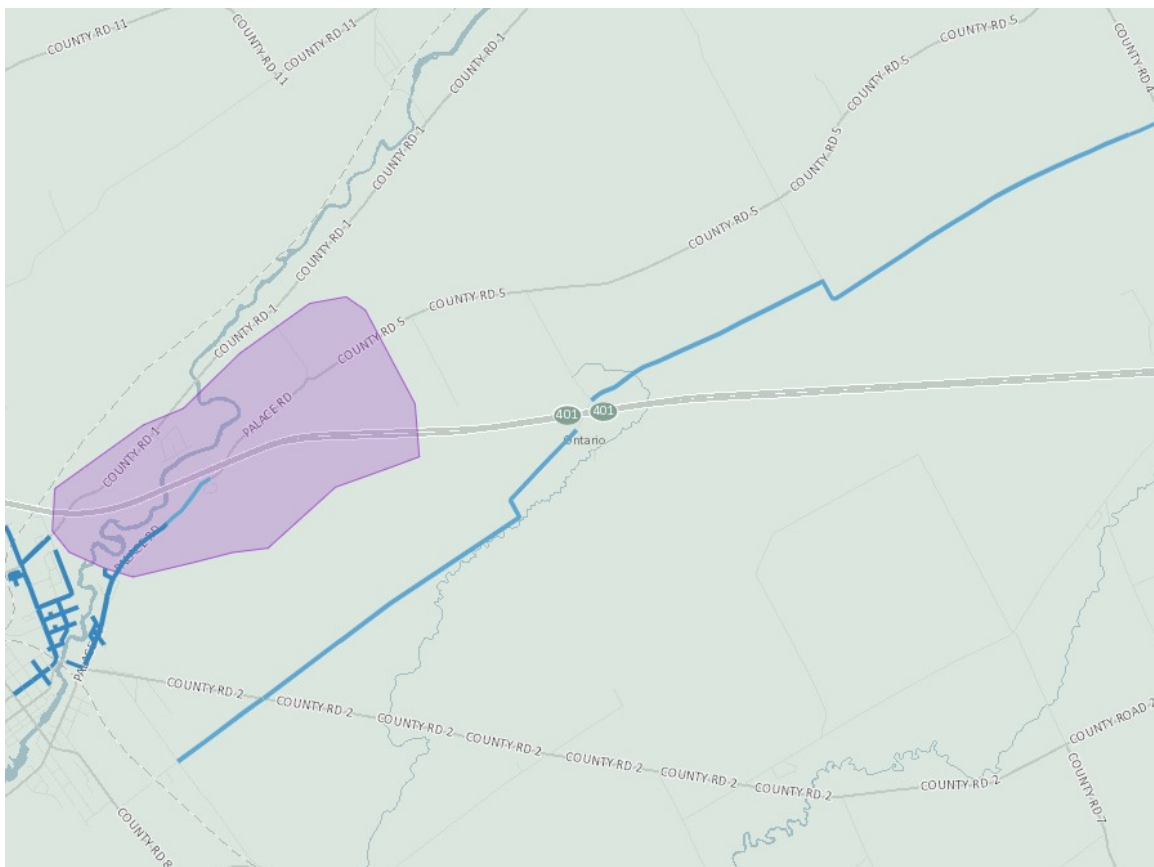
Questions? Contact your Canada Post Sales Representative or our Commercial Service Network at 1-866-757-5480.



# 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

## 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 |
|--------|------------|-------|------------|----------------------|
|--------|------------|-------|------------|----------------------|

NAPANEE LCD MAIN124 CENTRE ST N NAPANEE ON K7R 1N0

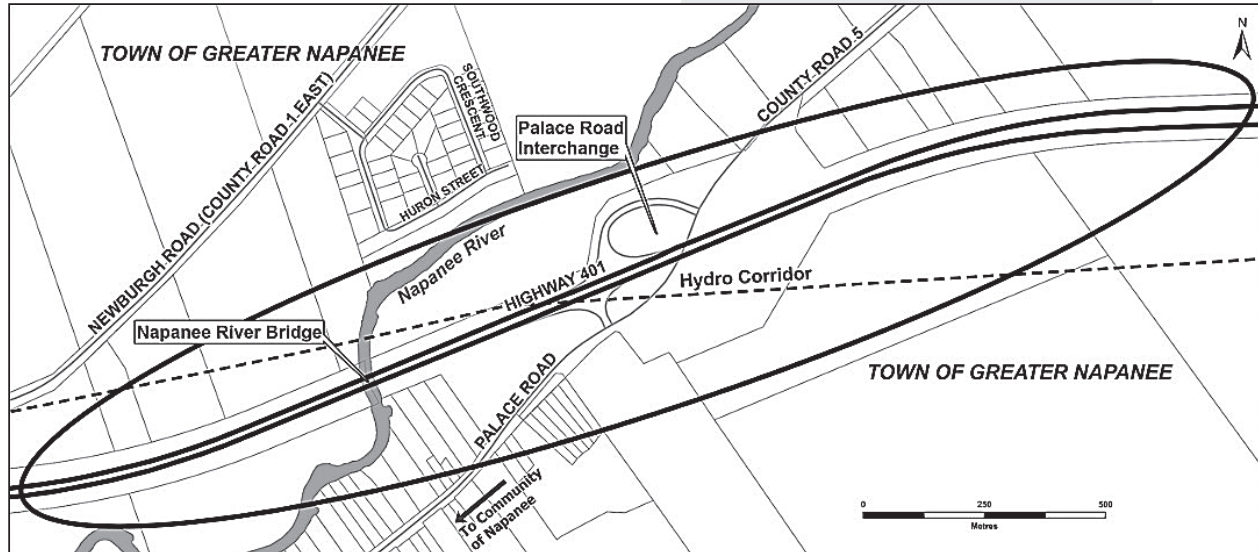
|       |     |     |    |    |     |
|-------|-----|-----|----|----|-----|
| TOTAL | 707 | 172 | 25 | 16 | 920 |
|-------|-----|-----|----|----|-----|

|             |     |     |    |    |     |
|-------------|-----|-----|----|----|-----|
| GRAND TOTAL | 707 | 172 | 25 | 16 | 920 |
|-------------|-----|-----|----|----|-----|



## Notice of Study Completion

Highway 401 Improvements at Napanee River Bridge (WP 4039-19-01)  
Planning, Preliminary Design and Class Environmental Assessment Study



### The Study

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Saturday: 10 a.m. to 5 p.m.

**Town of Greater Napanee – Town Hall**  
99 Advance Avenue  
Napanee, ON K7R 3Y5  
Monday to Friday: 9 a.m. to 4 p.m.

### Comments

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**AECOM Project Manager**  
AECOM Canada ULC  
105 Commerce Valley Drive West  
8th Floor  
Markham, ON L3T 7W3

**Toll-Free Telephone Number:** 1-866-753-2640  
**e-mail:** [ProjectTeam@Hwy401BellevilletoKingston.ca](mailto:ProjectTeam@Hwy401BellevilletoKingston.ca)

**Lucas Bilow, P.Eng.**  
**MTO Lead Engineer**  
Ministry of Transportation, Eastern Region  
Engineering Program Delivery East  
1355 John Counter Boulevard  
Kingston, ON K7L 5A3

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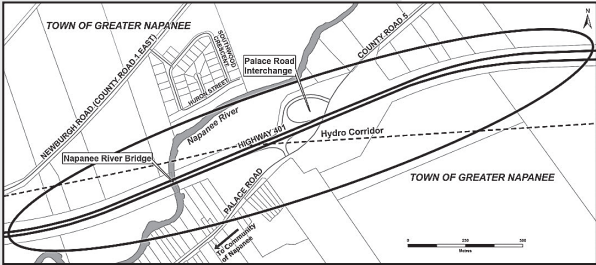
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# Appendix B

## Fisheries Existing Conditions and Impact Assessment







# Fish and Fish Habitat Existing Conditions and Impact Assessment Report

Highway 401 / Napanee River Bridge Improvements Preliminary Design and Class  
Environmental Assessment Study (WP 4039-19-01)

Ontario Ministry of Transportation

Project Number: 60734357

September 2026

## Statement of Qualifications and Limitations

The attached Report (the "Report") has been prepared by AECOM Canada ULC ("AECOM") for the benefit of the Client ("Client") in accordance with the agreement between AECOM and Client, including the scope of work detailed therein (the "Agreement").

The information, data, recommendations and conclusions contained in the Report (collectively, the "Information"):

- is subject to the scope, schedule, and other constraints and limitations in the Agreement and the qualifications contained in the Report (the "Limitations");
- represents AECOM's professional judgement in light of the Limitations and industry standards for the preparation of similar reports;
- may be based on information provided to AECOM which has not been independently verified;
- has not been updated since the date of issuance of the Report and its accuracy is limited to the time period and circumstances in which it was collected, processed, made or issued;
- must be read as a whole and sections thereof should not be read out of such context;
- was prepared for the specific purposes described in the Report and the Agreement; and
- in the case of subsurface, environmental or geotechnical conditions, may be based on limited testing and on the assumption that such conditions are uniform and not variable either geographically or over time.

AECOM shall be entitled to rely upon the accuracy and completeness of information that was provided to it and has no obligation to update such information. AECOM accepts no responsibility for any events or circumstances that may have occurred since the date on which the Report was prepared and, in the case of subsurface, environmental or geotechnical conditions, is not responsible for any variability in such conditions, geographically or over time.

AECOM agrees that the Report represents its professional judgement as described above and that the Information has been prepared for the specific purpose and use described in the Report and the Agreement, but AECOM makes no other representations, or any guarantees or warranties whatsoever, whether express or implied, with respect to the Report, the Information or any part thereof.

Without in any way limiting the generality of the foregoing, any estimates or opinions regarding probable construction costs or construction schedule provided by AECOM represent AECOM's professional judgement in light of its experience and the knowledge and information available to it at the time of preparation. Since AECOM has no control over market or economic conditions, prices for construction labour, equipment or materials or bidding procedures, AECOM, its directors, officers and employees are not able to, nor do they, make any representations, warranties or guarantees whatsoever, whether express or implied, with respect to such estimates or opinions, or their variance from actual construction costs or schedules, and accept no responsibility for any loss or damage arising therefrom or in any way related thereto. Persons relying on such estimates or opinions do so at their own risk.

Except (1) as agreed to in writing by AECOM and Client; (2) as required by-law; or (3) to the extent used by governmental reviewing agencies for the purpose of obtaining permits or approvals, the Report and the Information may be used and relied upon only by Client.

AECOM accepts no responsibility, and denies any liability whatsoever, to parties other than Client who may obtain access to the Report or the Information for any injury, loss or damage suffered by such parties arising from their use of, reliance upon, or decisions or actions based on the Report or any of the Information ("improper use of the Report"), except to the extent those parties have obtained the prior written consent of AECOM to use and rely upon the Report and the Information. Any injury, loss or damages arising from improper use of the Report shall be borne by the party making such use.

This Statement of Qualifications and Limitations is attached to and forms part of the Report and any use of the Report is subject to the terms hereof.

AECOM: 2024-12-21

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**Fish and Fish Habitat Existing Conditions and Impact Assessment Report**

Highway 401 / Napanee River Bridge Improvements Preliminary Design and Class Environmental Assessment Study (WP 4039-19-01)

## Quality Information

### Prepared by



Andrea Court, B. Sc.  
Aquatic Ecologist

### Reviewed by



Kate Crawford, M. Sc.  
Aquatic Ecologist

### Checked by



Zach Wells, M. Sc, CAN-CISEC  
Senior Aquatic Ecologist

### Verified by



Katie Easterling, H. B. Sc.  
Senior Aquatic Ecologist

## Revision History

| Rev # | Revision Date | Revised By:  | Revision Description |
|-------|---------------|--------------|----------------------|
| 1     | June 6, 2026  | Andrea Court | Address MTO comments |
|       |               |              |                      |

## Distribution List

| # Hard Copies | PDF Required | Association / Company Name         |
|---------------|--------------|------------------------------------|
|               | ✓            | Ontario Ministry of Transportation |
|               | ✓            | AECOM Canada ULC                   |

## Prepared for:

Ontario Ministry of Transportation

## Prepared by:

Andrea Court, Aquatic Ecologist

AECOM Canada ULC  
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Hamilton, ON L8E 4W8  
Canada

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[aecom.com](http://aecom.com)

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# 1. Introduction

In 2024 the Ontario Ministry of Transportation of (MTO) initiated two Planning, Preliminary Design and Class Environmental Assessment (Class EA) Studies, Group B, to address current and future transportation needs by developing a plan for the rehabilitation and/or replacement of various bridges and culverts, determining the long-term interchange configuration at seven locations, and establishing the footprint for the interim six and ultimate eight lanes of Highway 401, between the City of Belleville and the City of Kingston. Study #1 (GWP 4022-21-00) includes Highway 401 from 4.3 kilometres (km) east of Highway 37 to 5 km west of County Road 41/Centre Street for a total length of approximately 26 km. Study #2 (GWP 4016-21-00) includes Highway 401 from 5 km west of County Road 41/Centre Street to 8 km west of Kingston Road 38 for a total length of approximately 29 km.

As part of the Study #2 project, the previously approved Palace Road Interchange Technically Preferred Plan, as documented in the *Highway 401 Interchange Improvements at Palace Road Class Environmental Assessment and Preliminary Design Study Transportation Environmental Study Report (March 2019)*, was revisited to assess compatibility with an interim and ultimate footprint of Highway 401, as well as to accommodate a potential 130 km/h design speed. Based on this review, no significant modifications to the previously approved configuration are recommended. However, as the Palace Road Interchange Technically Preferred Plan is now moving forward to Detail Design, advancement of the Napanee River Bridge (Site 17X-0062/B0) improvements from the current Study #2 project is required due to its proximity to Palace Road. As such, the improvements to the Napanee River Bridge are being advanced as a separate Preliminary Design and Class EA Study (WP 4039-19-01) that will include standalone environmental reports and ultimately, documentation in a separate Transportation Environmental Study Report (TESR). The key plan for the subject Napanee River Bridge Improvements Preliminary Design and Class EA Study, Group B, (WP 4039-19-01) is illustrated in **Figure 1** below.

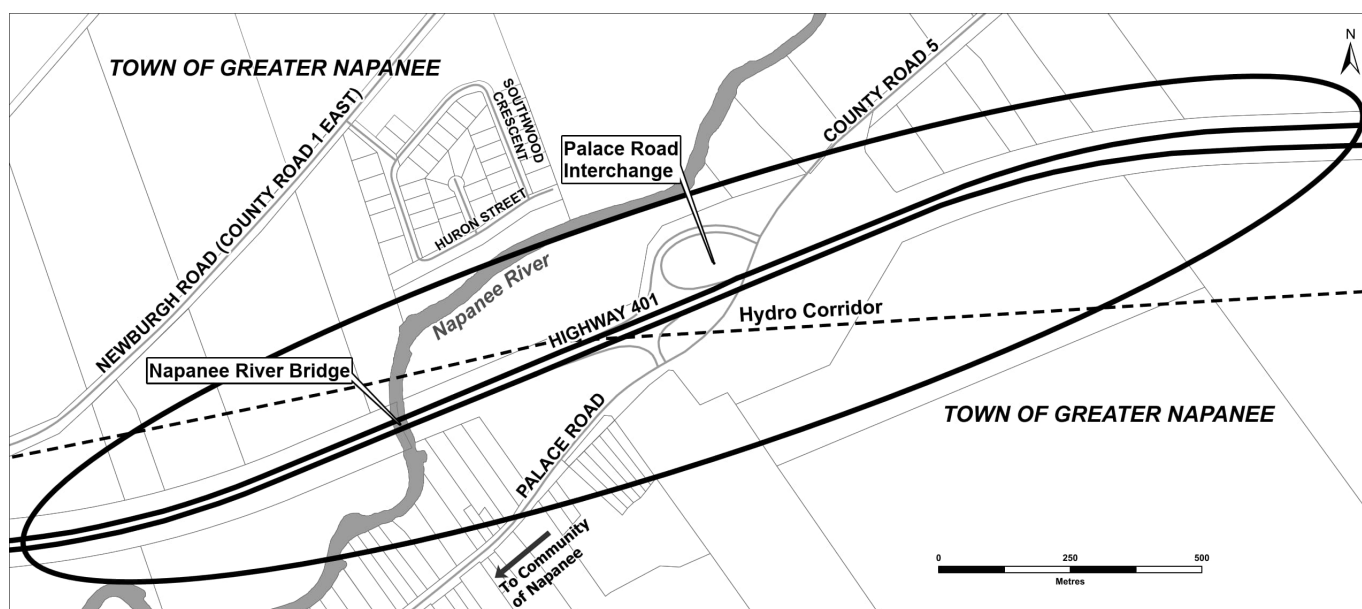


**Figure 1: Project Key Plan**

This report has been prepared to identify the aquatic existing conditions and impacts associated with the Napanee River Bridge Improvements Preliminary Design and Class EA Study (4039-19-01) in accordance with the *Environmental Reference for Highway Design* (ERHD; MTO, 2013). A separate report has been prepared to address the improvements associated with the larger Study #2 study area (AECOM, 2026a). The terrestrial existing conditions and impact assessment are documented in the *Draft Terrestrial Ecosystems Existing Conditions and Impact Assessment Report* (AECOM, 2026b).

The advancement of the current Napanee River Bridge Improvements Preliminary Design and Class EA Study is intended to accommodate 8 lanes along Highway 401 and consider profile refinements to meet environmental, drainage, and fluvial geomorphological requirements. While the bridge will accommodate the future 8 lanes along Highway 401 there is no timing for this widening improvement and therefore the bridge construction will consider an interim tie-in to the existing Highway 401 with consideration for 6 lanes in the future for the section stretching from west of the Napanee River Bridge to east of Palace Road.

Included in this assignment is the comprehensive assessment of the fish and fish habitat in or near the limits of the Project that will potentially be impacted by future construction or operation. This *Draft Fish and Fish Habitat Existing Conditions and Impact Assessment Report* (the Report) presents the results of the background review of the fish and fish habitat existing conditions within 120 metres (m) of the Right-of-Way (ROW) (the Study Area), as well as a preliminary assessment of the potential impacts of the Project on fish habitat features in the Study Area. The assessment of the aquatic features described herein was conducted in accordance with the *Environmental Guide for Fisheries* (Fish Guide) (MTO, 2025a). The assessment involved a step-by-step process to identify regulatory review and/or notification requirements, including:

- Identification of the potential for the Project to cause the death of fish or harmful alteration, disruption or destruction (HADD) of fish habitat, in contravention of the *Fisheries Act* (1985);
- Gathering of existing fish and fish habitat data, and supplementing through field investigations in accordance with the Fish Guide;
- Determination of the presence of aquatic Species at Risk (SAR);
- Identification of potential MTO Best Management Practices from the *Environmental Guide for Fisheries – Best Management Practices* (MTO, 2025b).
- Provide mitigation measures in accordance with the *Environmental Reference for Highway Design* (ERHD; MTO, 2013) and application of MTO Best Management Practices (BMPs), where possible, from the *Environmental Guide for Fisheries – Best Management Practices* (MTO, 2025b); and,
- Assessment of the impacts to fish and fish habitat, the likelihood of these impacts resulting in the death of fish or HADD to fish habitat in contravention of the *Fisheries Act* and agency review or Authorization recommendations for the Project.

The purpose of this Report is to fulfill the requirements under the Fish Guide and the Protocol, and to provide mitigation measures in accordance with the ERHD (MTO, 2013).

## 1.1 Project Location and Site Map

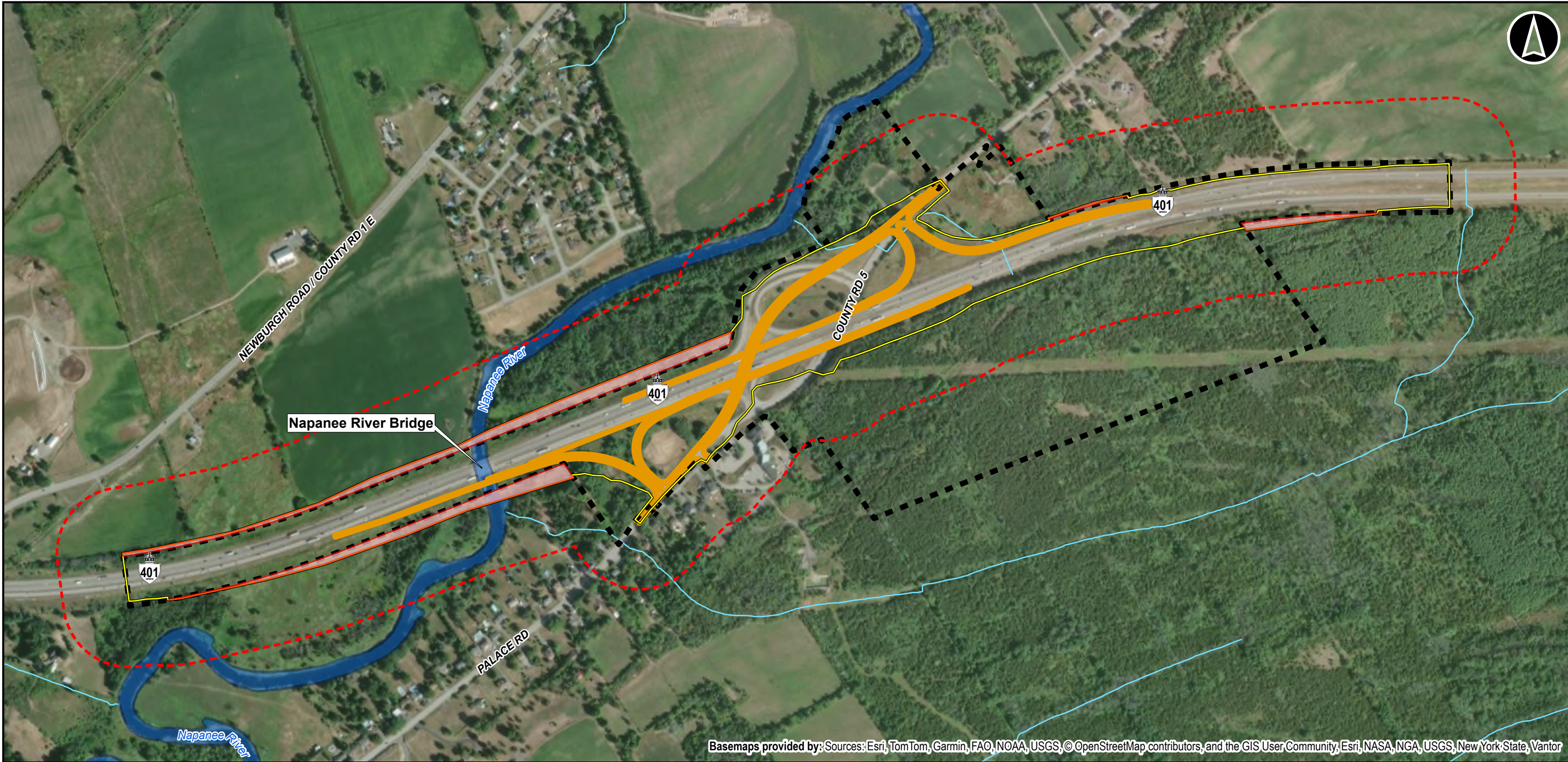
The Napanee River Bridge is located along Highway 401 within the Town of Greater Napanee and County of Lennox and Addington (**Figure 2**). The proposed work area extends along Highway 401 from 350 m east of Newburgh Road/County Road 1 East to 1 km east of Palace Road (County Road 5) for a total length of approximately 2.5 km.

For the purposes of the fisheries assessment, the Study Area includes water features identified through a background information review and field investigations within 120 m of the ROW. **Table 1-1** provides the coordinates for each watercourse assessed as per the Fish Guide within the Study Area. It should be noted that each of the water features within 120 m of the Project were assigned unique identifying crossing ID numbers to differentiate one another (e.g., WC-01) (**Figure 3**). Crossing IDs are provided in **Table 1-1**, as these were the known structure locations along each watercourse at the time of producing this report.

**Fish and Fish Habitat Existing Conditions and Impact Assessment Report***Highway 401 / Napanee River Bridge Improvements Preliminary Design and Class Environmental Assessment Study (WP 4039-19-01)***Table 1-1: Location of Works (Template D1)**

| Watercourse Crossing ID         | Structure ID                       | Highway / Road                                 | Municipality            | Latitude    | Longitude    |
|---------------------------------|------------------------------------|------------------------------------------------|-------------------------|-------------|--------------|
| <b>WC-13</b><br>(Napanee River) | 17X-0062/B0                        | Highway 401                                    | Town of Greater Napanee | 44.26756339 | -76.93242016 |
| <b>WC-14</b>                    | No Crossing                        | Palace Road /<br>Highway 401<br>Westbound Ramp | Town of Greater Napanee | 44.26707228 | -76.93191468 |
| <b>WC-14a</b>                   | CV-0401-000398                     | Palace Road /<br>Highway 401<br>Eastbound Ramp | Town of Greater Napanee | 44.270463°  | -76.926325°  |
| <b>WC-15</b>                    | CV-0401-000394                     | Palace Road<br>(County Road 5)                 | Town of Greater Napanee | 44.27057178 | -76.92406167 |
| <b>WC-16</b>                    | N/A                                | Palace Road /<br>County Road 5                 | Town of Greater Napanee | 44.27154871 | -76.92323589 |
| <b>WC-17</b>                    | CV-0401-000061                     | Highway 401                                    | Town of Greater Napanee | 44.27117615 | -76.92055312 |
| <b>WC-18</b>                    | CV-0401-000060 /<br>CV-0401-000348 | Highway 401                                    | Town of Greater Napanee | 44.27256999 | -76.91017555 |

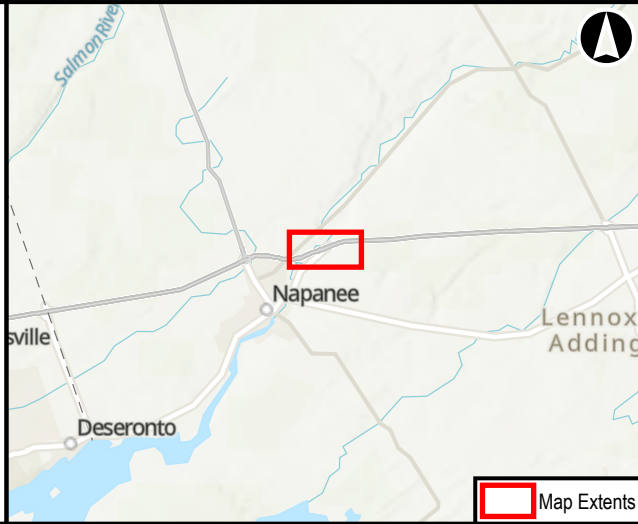




Basemaps provided by: Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community, Esri, NASA, NGA, USGS, New York State, Vantor

**Legend**

- Project Limits
- 2019 Approved Palace Road Interchange Technically Preferred Plan (GWP 4197-13-00)
- Existing MTO ROW
- Property Aquisition
- Waterbody
- Watercourse



**Hwy 401 / Napanee River Bridge Improvements PD and Class EA (WP 4039-19-01)**

**Study Area**

0 100 200 300 400 500 Meters

NAD 1983 UTM Zone 18N

**Data Sources:**  
Contains Information licensed under the Open Government License Ontario.

**AECOM**

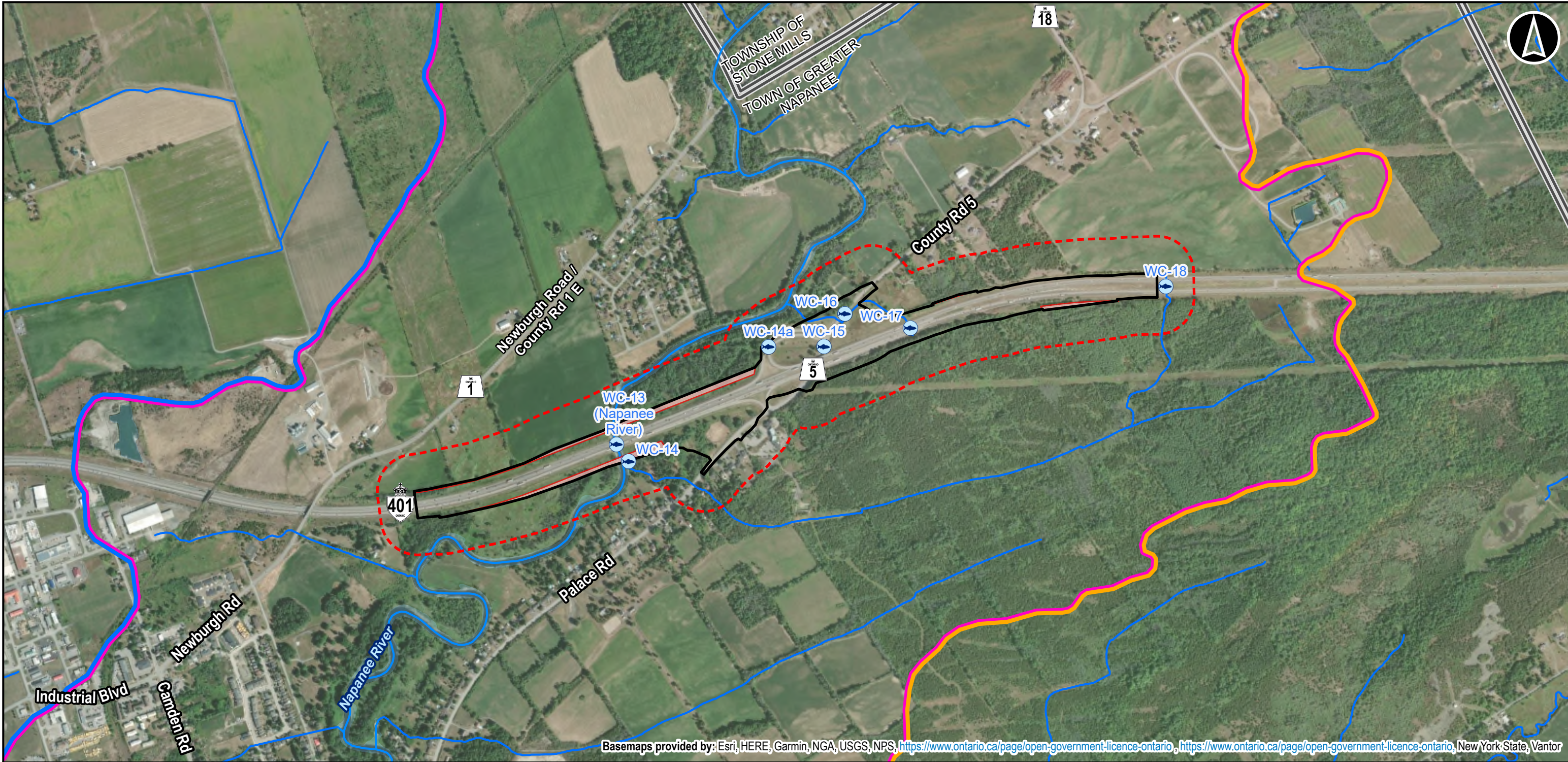
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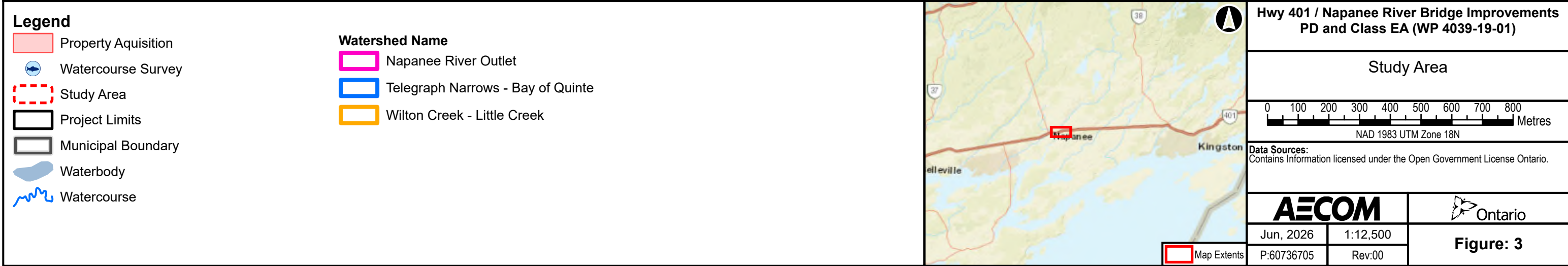
**Figure: 2**

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Basemaps provided by: Esri, HERE, Garmin, NGA, USGS, NPS, <https://www.ontario.ca/page/open-government-licence-ontario>, <https://www.ontario.ca/page/open-government-licence-ontario>, New York State, Vantor



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## 2. Background Data Collection

As noted above, this review was completed in accordance with the Fish Guide (MTO, 2025a). A desktop review of all relevant and available documents was completed to obtain information on fish and fish habitat within the Study Area.

A review of available background information was completed using several online sources, topographic maps, aerial imagery, and other sources of natural heritage information provided by the Ministry of Natural Resources (MNR), as well previously completed reports. These resources were reviewed to obtain existing fishery data, such as species composition, records of aquatic SAR, fish sanctuaries, migration barriers, watershed and drainage systems and associated wetlands. These resources include:

- MNR's Make-a-Map: Natural Heritage Areas application and Natural Heritage Information Centre (NHIC) records (MNR, 2026a);
- MNR's Geospatial Ontario (GEO) GeoHub database (MNR; 2026b);
- MNR's Fish ON-Line (MNR, 2026c);
- SAR in Ontario List online (Ministry of Environment, Conservation and Parks [MECP], 2026);
- Fisheries and Oceans Canada (DFO) Aquatic SAR Mapping (DFO, 2025a);
- Quinte Conservation (QC) Watershed report card and maps (QC, 2023); and
- *Highway 401 Interchange Improvements at Palace Road Class Environmental Assessment and Preliminary Design Study Transportation Environmental Study Report* (AECOM, 2019a).

Information request letters were submitted on May 2, 2025, to the Peterborough – Bancroft District MNR office and QC to obtain/confirm fisheries data associated with the identified watercourses (**Table 1-1**). The information requests included the following: watercourse names and crossing locations, watercourse classifications, habitat information/location, fish community data, absence/presence of any vulnerable species and/or critical habitat, in-water work timing window, MNR management objectives, groundwater discharge areas and benthic invertebrate data. No correspondence with DFO at this stage of the Project has been completed; however, DFO's online aquatic SAR mapping has been reviewed. Responses were received from QC and MNR and can be found in **Appendix A**. Agency consultation should be initiated once again early during detailed design.

### 2.1 Background Data Collection Results

The watercourses in the Study Area fall under the jurisdiction of the QC within the Napanee River watershed, covering more than 196,000 hectares (ha) and six sub-watershed (QC, 2021). According to the 2023 Quinte Conservation watershed report card, the surface water quality is "Good", as well as "Excellent" forest cover providing approximately 50% of the riparian areas in the watershed. Similarly, wetland cover was also graded as "Excellent" with approximately 18% coverage throughout (QC, 2023).

The *Highway 401 Interchange Improvements at Palace Road Class EA and Preliminary Design Study TESR* (AECOM, 2019a) was reviewed. Fish and fish habitat assessments in the TESR primarily focused on the Napanee River, and similar findings were confirmed during the 2025 field surveys. However, watercourses within the Palace Road interchange were assessed in greater detail during the 2025 surveys, resulting in differing findings. Accordingly, these watercourses have been included for further consideration in this report (**Section 3**).

## 2.1.1 Fish Species

A review of the available background information from MNR resources returned records for the fish species identified below in the Napanee River (**Table 2-1**).

**Table 2-1: Fish Species Records for Napanee River (MNR, 2026b)**

| Fish Species Records | Scientific Name                 | SARA <sup>1</sup> | PSO <sup>2</sup> |
|----------------------|---------------------------------|-------------------|------------------|
| Alewife              | <i>Alosa pseudoharengus</i>     | -                 | -                |
| Black Crappie        | <i>Pomoxis nigromaculatus</i>   | -                 | -                |
| Blackchin Shiner     | <i>Miniellus heterodon</i>      | -                 | -                |
| Blacknose Shiner     | <i>Notropis heterolepis</i>     | -                 | -                |
| Bluegill             | <i>Lepomis macrochirus</i>      | -                 | -                |
| Bluntnose Minnow     | <i>Pimephales notatus</i>       | -                 | -                |
| Bridle Shiner        | <i>Notropis bifrenatus</i>      | SC                | -                |
| Brook Silverside     | <i>Labidesthes sicculus</i>     | -                 | -                |
| Brown Bullhead       | <i>Ameiurus nebulosus</i>       | -                 | -                |
| Burbot               | <i>Lota lota</i>                | -                 | -                |
| Central Mudminnow    | <i>Umbra limi</i>               | -                 | -                |
| Channel Catfish      | <i>Ictalurus punctatus</i>      | -                 | -                |
| Chinook Salmon       | <i>Oncorhynchus tshawytscha</i> | -                 | -                |
| Common Shiner        | <i>Luxilus cornutus</i>         | -                 | -                |
| Emerald Bowfin       | <i>Amia ocellicauda</i>         | -                 | -                |
| Fallfish             | <i>Semotilus corporalis</i>     | -                 | -                |
| Gizzard Shad         | <i>Dorosoma cepedianum</i>      | -                 | -                |
| Golden Shiner        | <i>Notemigonus crysoleucas</i>  | -                 | -                |
| Iowa Darter          | <i>Etheostoma exile</i>         | -                 | -                |
| Largemouth Bass      | <i>Micropterus nigricans</i>    | -                 | -                |
| Logperch             | <i>Percina caprodes</i>         | -                 | -                |
| Longnose Dace        | <i>Rhinichthys cataractae</i>   | -                 | -                |
| Northern Pike        | <i>Esox lucius</i>              | -                 | -                |
| Pumpkinseed          | <i>Lepomis gibbosus</i>         | -                 | -                |
| Rock Bass            | <i>Ambloplites rupestris</i>    | -                 | -                |
| Smallmouth Bass      | <i>Micropterus dolomieu</i>     | -                 | -                |
| Spottail Shiner      | <i>Hudsonius hudsonius</i>      | -                 | -                |
| White Perch          | <i>Morone americana</i>         | -                 | -                |
| White Sucker         | <i>Catostomus commersonii</i>   | -                 | -                |
| Yellow Bullhead      | <i>Ameiurus natalis</i>         | -                 | -                |
| Yellow Perch         | <i>Perca flavescens</i>         | -                 | -                |

<sup>1</sup> Federal *Species at Risk Act* (SARA) Status per Schedule 1 of SARA: SC = Special Concern

<sup>2</sup> Provincial *Protected Species in Ontario* (PSO) under the *Species Conservation Act* (SCA)

## 2.1.2 Aquatic Species at Risk

Under the Ontario *Species Conservation Act*, 2025 (SCA; in effect as of March 30, 2026), only species listed as Threatened (THR) and Endangered (END) under *Ontario Regulation (O. Reg) 60/26 Protected Species in Ontario (PSO) List* receive individual and habitat protection. Similar to the SCA, species listed as THR or END under Schedule 1 of the federal *Species at Risk Act* (2002) (SARA) receive individual and habitat protection. For the purposes of this report, these species will be considered SAR.

Based on DFO's online SAR Mapping tool, there are no known federally listed aquatic SAR within the Study Area. Online records from MNR returned Bridle Shiner (*Notropis bifrenatus*) in the Napanee River. This species is listed as Special Concern (SC) under the SARA and SCA; however, SC species are not included on the PSO List and are not afforded protection under either Act. Therefore, Bridle Shine is discussed here but not included in **Table 2-1**. Previous records of American Eel (*Anguilla rostrata*) exist for the Napanee River (AECOM, 2019a); however, these records are no longer returned through NHIC as they date from 2010 and are considered historic. It is important to note that any SC species potentially present within the Study Area may be uplisted to THR or END during the lifetime of the Project. Should this occur, relevant federal and provincial government agencies should be consulted immediately to determine how to proceed and avoid contravention of the SCA and/or SARA.

## 3. Field Investigations

### 3.1 Field Investigation Methods

Results obtained from the field investigations were used to characterize fish habitat and to identify any sensitive or significant aquatic features which may be impacted by the proposed work. The aquatic component of the fisheries assessment was completed following methodologies outlined in the Fish Guide and in conjunction with the Protocol. Permission to Enter (PTE) was requested in 2025, and a portion of the PTE parcels were granted, with some received after the spring assessments had been completed.

Two assessments (spring and summer) were completed for the watercourses within the Study Area to capture potential seasonal changes in habitat conditions. During the spring field investigations, from June 10 to 17, 2025, the watercourses were initially inspected to determine the potential to support fish. Habitat features, impediments to fish passage, flow regime, and connectivity to direct fish habitat were among the details recorded during the assessment and used to determine if a watercourse could potentially support fish. A second assessment of fish habitat in the Study Area was completed during the summer from August 19 to August 21, 2025. During the summer field investigations, fish habitat that was assessed in the spring was re-assessed to confirm habitat conditions and updated as needed to capture seasonal changes. It should be noted that drought conditions were present during the summer assessment (Government of Canada, 2025).

Fish sampling was also completed in the summer of 2025 using a variety of methods such as dip netting, backpack electrofishing, and baited minnow traps. Site conditions at the time of the assessment dictated the method(s) that were employed, such as water depth, visibility, conductivity, substrate type, safe access etc. The fish collections were carried out under the authority of a License to Collect Fish for Scientific Purposes from the MNR (**Appendix B**).

Detailed notes, photographs, and habitat sketches were documented to characterize the existing conditions, function, suitability, and habitat use by migratory and resident large or small-bodied fish. Specialized habitat and other notable features, such as suitable spawning habitat, evidence of erosion, sources of pollution, fish passage impediments, potentially suitable SAR habitat, and incidental fish observations were also documented.

Substrate was recorded by percent composition of substrate type as per below:

- a) Bedrock – continuous rock that may be only partly exposed;
- b) Boulders – separate, often embedded, over 250 mm diameter;
- c) Cobble – 65 mm to 250 mm in diameter;
- d) Gravel – 2 mm to 65 mm in diameter;
- e) Sand – 0.06 mm – 2 mm in diameter, gritty;
- f) Silt – 0.002 mm – 0.06 mm in diameter, floury;
- g) Clay – <0.002 mm diameter, silky;
- h) Muck – mix of detritus and silt, sand and/or clay; and
- i) Detritus – organic matter.

Visual observations of water clarity, water colour, presence/distribution and type of aquatic and riparian vegetation and algal growth, and surrounding land use were also recorded.

In-water cover was documented based on the presence and distribution of material through the water column for fish to seek refuge. In-water cover may be provided by woody debris, boulders, cobble, aquatic vegetation, other material (i.e., anthropogenic structures), and undercut banks.

Overhead canopy cover was estimated based on the percentage of the stream that was shaded and covered by the presence and distribution of material hanging over the water (i.e., trees, shrubs, grasses, herbaceous, man-made structures or other).

The type of aquatic vegetation was described (floating, emergent, or submergent), and the abundance of each type was described as the percent of surface area coverage at each assessed reach. Riparian zone vegetation (e.g., woody, herbaceous, grasses, etc.) was also described.

Adjacent land uses and sources of pollution were noted for potential influences or impacts to aquatic habitat function.

Reaches were determined based on stream morphology. Stream morphology was assessed to describe potential areas of habitat, including:

- Runs – typically deep, fast-flowing water with little to no turbulence of water;
- Riffles – shallow, fast-flowing water typically running over rocks where the surface turbulence aerates the water;
- Flats – slow-flowing water with a smooth un-agitated surface; and
- Pools – pockets of slow-moving water.

Channel measurements were taken at multiple locations within a reach, and mean values calculated in the field were documented, including:

- Mean wetted depth (WD; m) – average water depth;
- Mean wetted width (WW; m) – average width of the wetted area;
- Mean bankfull width (BFW m) – average width of the formed waterbody; and
- Mean bankfull depth (BFD m) – average depth of the formed waterbody.

Depth measurements were taken randomly at multiple locations, where access was possible. These measurements were depicted on the habitat sketch to illustrate the depth / shoreline profile and calculate the section's mean depth.

A photographic record was documented during the field surveys and is provided in **Appendix C**. Field notes and habitat maps recorded during the fish habitat assessments are provided in **Appendix D**. A Constraints and Opportunities map can be found in **Appendix E**.

## 3.2 Fish and Fish Habitat Existing Conditions

A detailed description of the existing aquatic conditions documented during the spring and summer field investigations of the Napanee River is presented in **Sections 3.2** and **3.3**, as this feature was identified as significant fish habitat. **Table 3-1** summarizes the existing fish habitat conditions of all crossings within the Study Area. **Table 3-2** provides a summary of the fish community as identified through online resources and field investigations. **Appendix D** illustrates site conditions and locations of notable habitat features, opportunities, and constraints documented during the field investigations.

Of the seven watercourses surveyed, one was identified as direct fish habitat, four as indirect fish habitat (including one identified during fieldwork), and one was identified as not fish habitat (**Table 3-1**). A seventh watercourse (WC-

14) was originally intended to be surveyed, but due to field constraints, was assessed by desktop review only and determined to provide seasonal fish habitat due to its direct connection to the Napanee River.

Within the six watercourses surveyed in the field, branches and reaches were assessed for permanency. Based on channel characteristics, the Napanee River was classified as a permanent feature (i.e., defined stream bottom and prominent, continuous banks; and lacking in terrestrial plants on the stream bottom) (Irwin, Bergmann and Boos, 2013). The remaining five watercourses surveyed had a mixture of permanent, intermittent, and ephemeral reaches/branches and are described below (**Table 3-1**). Based on background information, it is assumed that WC-14 is intermittent (MNR, 2026).

The majority of watercourses were relatively small (< 5 m BFW and < 1 m BFD) features with the exception of the Napanee River, which is a major watercourse with an approximately 20 m BFW. The surveyed watercourses comprised a variety of sediment types and sizes, and generally a well-established cover of instream and on shore macrophytes. Particularly prominent emergent species included cattails (*Typha* spp.) and Reed Canary Grass (*Phalaris arundinacea*) (**Table 3-1**).

Obstacles to fish passage were identified in two locations where seasonally low flows and dry conditions presented potential restrictions to movement (**Table 3-1**). Fish were observed within the Napanee River during the summer assessment (**Table 3-2**).

The Napanee River is a large watercourse and significant feature within the Study Area and is detailed in **Section 3.2.1**.

### 3.2.1 WC-13 (Napanee River)

The Napanee River is a relatively large watercourse that flows north to south beneath Highway 401 via a three-span concrete bridge. The downstream section is fairly linear for approximately 10 m before veering west. The watercourse was visually assessed as it was too deep to safely determine morphological measurements; WW was estimated in the field while BFW was estimated using aerial imagery (Google Earth, 2025). Water flows were slow and water levels were observed to be low, with approximately 1.5 m of exposed banks observed in the downstream section during the spring assessment showing signs of erosion. Clay was observed on banks in the upstream and downstream environment. Floating vegetation was abundant in the downstream reach with the exception of the thalweg, which was clear of vegetation. The surrounding land use consisted of highway, agricultural, residential and forest. Additional information is detailed in **Table 3-1** and **Appendix D**.

Hydrology and Channel Form:

- Upstream – Permanent feature with run morphology during the spring assessment and flat morphology during the summer assessment (mean 20.0 m BFW; mean 18.0 m WW). Flows appeared slow. Sand, clay, muck, and detritus substrates were observed in the channel. The right and left banks was observed to be unstable with signs of erosion.
- Downstream – Permanent feature with flat morphology (mean 20.0 m BFW and mean 3.0 BFD; mean 16.0 m WW). Clay, muck, and detritus substrates were observed in the channel. The right and left banks was observed to be unstable with signs of erosion. Banks were undercut, however, at the time of assessment were above the water level and therefore did not provide in-stream cover.

Riparian and Instream Habitat:

- Upstream – In-stream cover included woody debris, organic debris, and vascular macrophytes. Vascular macrophytes were the dominant source of in-stream cover during the summer assessment (60% of cover), particularly floating vegetation (70% of vascular macrophyte cover). Some shore-cover species observed included cattails, Reed Canary Grass, and Poison Ivy (*Toxicodendron radicans*).



**Fish and Fish Habitat Existing Conditions and Impact Assessment Report**

*Highway 401 / Napanee River Bridge Improvements Preliminary Design and Class Environmental Assessment Study (WP 4039-19-01)*

- Downstream – In-stream cover was relatively sparse (30%) and included organic debris, woody debris, and vascular macrophytes. Floating vegetation comprised the majority of the vascular macrophyte coverage. Some shore-cover species observed included cattails, Reed Canary Grass, and Flowering Rush (*Butomus umbellatus*).

Connectivity:

- Upstream and downstream sections were observed to be well connected.

Fish Community:

- Fish community surveys captured six different species, with Bluntnose Minnow (*Pimephales notatus*) being the most abundant. Eastern Elliptio (*Elliptio complanata*) was observed along the downstream banks during the spring assessment.
- The thermal regime of this watercourse was warmwater according to MNR (2026) records.

Table 3-1: Existing Fish and Fish Habitat Conditions Summary Table (Template D2A)

| Waterbody ID           | MTO ID         | Highway/Road Crossing                              | Date                                 | Flow                                                              | Thermal Regime   | Fish Habitat <sup>1</sup> | Channel Morphology                                                                                                                                                                                                      | Substrate Type                                                                                                                                                                                                                                                                                                                                                                                                                        | Channel Dimensions (m) <sup>2</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Vegetation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Constraints & Opportunities                                                                                                                                                                                                                                                                                                                                                        | Significant Fish Habitat                                                                                                                                                  |
|------------------------|----------------|----------------------------------------------------|--------------------------------------|-------------------------------------------------------------------|------------------|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| WC-13<br>Napanee River | 17X-0062/B0    | Highway 401                                        | June 17, 2025<br><br>August 21, 2025 | Permanent                                                         | Warm (MNR, 2026) | Direct                    | <b>Upstream:</b><br><u>Spring:</u> Run (100%)<br><br><u>Summer:</u> Flats (100%)<br><br><b>Downstream:</b><br><u>Spring:</u> Flats (100%)<br><br><u>Summer:</u> N/A                                                     | <b>Upstream:</b><br><u>Spring:</u> Run: Sand (50%), Clay (50%)<br><br><u>Summer:</u> Flats: Clay (40%), Muck (50%), Detritus (10%)<br><br><b>Downstream:</b><br><u>Spring:</u> Flats: Clay (30%), Muck (50%), Detritus (20%)<br><br><u>Summer:</u> N/A                                                                                                                                                                                | <b>Upstream:</b><br><u>Spring:</u> N/A<br><br><u>Summer:</u> Flats WD = N/A<br>Flats WW = 18.00<br>Flats BFD = N/A<br>Flats BFW = 20.00<br><br><b>Downstream:</b><br><u>Spring:</u> Flats WD = N/A<br>Flats WW = 16.00<br>Flats BFD = 3.00<br>Flats BFW = 20.00<br><br><u>Summer:</u> N/A                                                                                                                                                                                                                                                                                                                 | <b>Emergent:</b><br>Flowering Rush ( <i>Butomus umbellatus</i> ), American Burreed, American Bulrush ( <i>Schoenoplectus americanus</i> ), Hybrid Cattail ( <i>Typha x glauca</i> ), Broad-leaved Cattail ( <i>Typha latifolia</i> ), Canada Anemone ( <i>Anemone canadensis</i> )<br><br><b>Submergent:</b><br>Curly-leaved Pondweed ( <i>Potamogeton crispus</i> ), Alpine Pondweed ( <i>Potamogeton alpinus</i> ), Water-milfoil ( <i>Myriophyllum</i> sp.),<br><br><b>Floating:</b> Floating-leaved Pondweed, Algae, Fragrant Water-lily ( <i>Nymphaea odorata</i> ) | <ul style="list-style-type: none"><li>■ Invasive species removal – Flowering Rush. Reduce invasive species spread by following clean equipment protocols and BMP for Flowering Rush (Simkovic, 2020a).</li><li>■ Tree removal at bridge.</li><li>■ Low flows during spring assessment and more evident during summer assessment.</li></ul>                                         | Capacity to support key lifecycle functions, including spawning, rearing, feeding, and migration of fish, but is not limited within the Study Area and broader watershed. |
| WC-14                  |                | Palace Road                                        | N/A                                  | Intermittent (MNR, 2026)                                          | Unknown          | Seasonally Direct         | Desktop review only due to field constraints                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                           |
| WC-14a                 | CV-0401-000398 | Palace Road (County Road 5) ramps north of Hwy 401 | June 10, 2025<br><br>August 21, 2025 | <b>Upstream:</b> Intermittent<br><br><b>Downstream:</b> Permanent | Unknown          | Indirect                  | <b>Upstream:</b><br><u>Spring:</u> Run (95%), Riffle (5%)<br><br><u>Summer:</u> Dry Channel<br><br><b>Downstream:</b><br><u>Spring:</u> Run (60%), Riffle (20%), Other (Cascade; 20%)<br><br><u>Summer:</u> Dry Channel | <b>Upstream:</b><br><u>Spring:</u> Run: Gravel (20%), Sand (20%), Silt (20%), Muck (20%), Detritus (20%)<br>Riffle: Gravel (35%), Sand (10%), Detritus (55%)<br><br><u>Summer:</u> N/A<br><br><b>Downstream:</b><br><u>Spring:</u> Run: Cobble (40%), Gravel (30%), Sand (15%), Silt (15%)<br>Riffle: Cobble (45%), Gravel (35%), Sand (20%)<br>Other (Cascade): Cobble (20%), Gravel (10%), Detritus (70%)<br><br><u>Summer:</u> N/A | <b>Upstream:</b><br><u>Spring:</u> Run WD = 0.15<br>Run WW = 0.60<br>Run BFD = 0.65<br>Run BFW = 3.50<br>Riffle WD = 0.09<br>Riffle WW = 0.35<br>Riffle BFD = 0.65<br>Riffle BFW = 1.50<br><br><u>Summer:</u> Dry Channel<br>BFD = 0.65<br>BFW = 3.50<br><br><b>Downstream:</b><br><u>Spring:</u> Run WD = 0.07<br>Run WW = 0.85<br>Run BFD = 0.30<br>Run BFW = 2.50<br>Riffle WD = 0.05<br>Riffle WW = 0.30<br>Riffle BFD = 0.30<br>Riffle BFW = 2.00<br>Cascade WD = N/A<br>Cascade WW = 0.20<br>Cascade BFD = 0.03<br>Cascade BFW = 1.00<br><br><u>Summer:</u> Dry Channel<br>BFD = 0.30<br>BFW = 2.00 | <b>Emergent:</b><br>Narrow-leaved Cattail                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <p>This culvert is associated with surface water drainage from the highway interchange. There is no channelized feature upstream of the interchange and a steep cascade located downstream of the culvert impedes passage upstream, thus this channel provides indirect habitat to the downstream habitat.</p> <ul style="list-style-type: none"><li>■ Seasonal low flow</li></ul> | None                                                                                                                                                                      |

| Waterbody ID | MTO ID         | Highway/Road Crossing                              | Date                                                  | Flow                                                                    | Thermal Regime | Fish Habitat <sup>1</sup> | Channel Morphology                                                                                                                                                                                      | Substrate Type                                                                                                                                                                                                                                                                                                                           | Channel Dimensions (m) <sup>2</sup>                                                                                                                                                                                                                                                                                                                                                                                                            | Vegetation                                     | Constraints & Opportunities                                                                                                                                                                                                                                                                                                                                    | Significant Fish Habitat |
|--------------|----------------|----------------------------------------------------|-------------------------------------------------------|-------------------------------------------------------------------------|----------------|---------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| WC-15        | CV-0401-000394 | Palace Road (County Road 5) ramps north of Hwy 401 | June 10, 2025<br><br>August 21, 2025                  | Intermittent                                                            | Unknown        | Indirect                  | <b>Downstream:</b><br><u>Spring:</u> Pool (5%), Flats (95%)<br><br><u>Summer:</u><br>Dry Channel                                                                                                        | <b>Downstream:</b><br><u>Spring:</u><br>Pool: Gravel (70%), Sand (20%), Silt (10%)<br>Flats: Gravel (70%), Sand (20%), Silt (10%)<br><br><u>Summer:</u> N/A                                                                                                                                                                              | <b>Downstream:</b><br><u>Spring:</u><br>Pool WD = 0.19<br>Pool WW = 1.00<br>Pool BFD = 0.60<br>Pool BFW = 3.00<br>Flats WD = 0.04<br>Flats WW = 0.15<br>Flats BFD = 0.60<br>Flats BFW = 3.00<br><br><u>Summer:</u><br>Dry Channel<br>BFD = 0.60<br>BFW = 3.00                                                                                                                                                                                  | <b>Emergent:</b><br>Reed Canary Grass, Cattail | This feature conveys drainage into the interchange via a storm drain that connects to WC-2-14a. There is no defined channel upstream, and fish passage is impeded downstream at WC-2-14a; therefore, the feature contributes indirectly to downstream habitat.<br><br>■ Bank stabilization.                                                                    | None                     |
| WC-16        |                | County Road 5                                      | June 10, 2025<br><br>August 21, 2025                  | Intermittent                                                            | Unknown        | Indirect                  | <b>Upstream:</b><br><u>Spring:</u> Run (100%)<br><br><u>Summer:</u><br>Dry Channel<br><br><b>Downstream:</b><br><u>Spring:</u> Flats (95%), Pool (5%)<br><br><u>Summer:</u><br>Dry Channel              | <b>Upstream:</b><br><u>Spring:</u><br>Run: Cobble (20%), Sand (10%), Silt (30%), Clay (40%)<br><br><u>Summer:</u> N/A<br><br><b>Downstream:</b><br><u>Spring:</u><br>Pool: Sand (30%), Silt (60%), Detritus (10%)<br>Flats: Boulder (5%), Cobble (10%), Sand (10%), Silt (50%), Clay (25%)<br><br><u>Summer:</u> N/A                     | <b>Upstream:</b><br><u>Spring:</u><br>Run WD = 0.10<br>Run WW = 0.25<br>Run BFD = 0.60<br>Run BFW = 1.20<br><br><u>Summer:</u><br>Dry Channel<br>BFD = 0.60<br>BFW = 1.20<br><br><b>Downstream:</b><br><u>Spring:</u><br>Pool WD = 0.10<br>Pool WW = 2.50<br>Pool BFD = 0.75<br>Pool BFW = 3.50<br>Flats WD = 0.07<br>Flats WW = 0.40<br>Flats BFD = 0.35<br>Flats BFW = 1.25<br><br><u>Summer:</u><br>Dry Channel<br>BFD = 0.35<br>BFW = 3.50 | <b>Emergent:</b><br>Reed Canary Grass          | This culvert conveys overland surface water from within the ROW and upstream drainage associated with WC-2-17. A steep channel grade and a cobble berm ~100 m downstream of the culvert impede upstream fish passage, thus this channel provides indirect habitat to the downstream habitat.<br><br>■ Bank stabilization<br>■ Litter clean up                  | None                     |
| WC-17        | CV-0401-000061 | Highway 401                                        | June 11, 2025<br>June 12, 2025<br><br>August 21, 2025 | <b>Upstream:</b><br>Ephemeral<br><br><b>Downstream:</b><br>Intermittent | Unknown        | Indirect                  | <b>Upstream:</b><br><u>Spring:</u> Run (95%), Culvert (5%)<br><br><u>Summer:</u><br>Dry Channel<br><br><b>Downstream:</b><br><u>Spring:</u> Run (60%), Flats (40%)<br><br><u>Summer:</u><br>Dry Channel | <b>Upstream:</b><br><u>Spring:</u><br>Run: Sand (10%), Silt (40%), Clay (50%)<br>Culvert: Cobble (15%), Gravel (20%), Sand (10%), Silt (30%), Clay (25%)<br><br><u>Summer:</u> N/A<br><br><b>Downstream:</b><br><u>Spring:</u><br>Run: Gravel (30%), Sand (10%), Silt (20%), Clay (40%)<br>Flats: Silt (30%), Clay (60%), Detritus (10%) | <b>Upstream:</b><br><u>Spring:</u><br>Run WD = 0.07<br>Run WW = 0.20<br>Run BFD = 0.25<br>Run BFW = 0.75<br>Culvert WD = 0.20<br>Culvert WW = 1.20<br>Culvert BFD = 0.50<br>Culvert BFW = 1.20<br><br><u>Summer:</u><br>Dry Channel<br>BFD = 0.50<br>BDW = 1.20                                                                                                                                                                                | <b>Emergent:</b><br>Reed Canary Grass          | This culvert is associated with surface water drainage collected from within the highway ROW. No channelized feature upstream (south) of the ROW was observed and downstream fish passage is impeded at WC-2-16 by the same steep channel and cobble berm; thus, this feature contributes indirectly to downstream habitat.<br><br>■ Seasonally dry in summer. | None                     |

| Waterbody ID | MTO ID                          | Highway/Road Crossing | Date                                                                     | Flow                                                                    | Thermal Regime | Fish Habitat <sup>1</sup> | Channel Morphology                                                                                                                                                             | Substrate Type                                                                                                                                                                                                                 | Channel Dimensions (m) <sup>2</sup>                                                                                                                                                                                                                                                                                                                                                  | Vegetation                                | Constraints & Opportunities                                                                                                                                                                                                                                                                                                                                                        | Significant Fish Habitat |
|--------------|---------------------------------|-----------------------|--------------------------------------------------------------------------|-------------------------------------------------------------------------|----------------|---------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
|              |                                 |                       |                                                                          |                                                                         |                |                           |                                                                                                                                                                                | <u>Summer:</u> N/A                                                                                                                                                                                                             | <b>Downstream:</b><br><u>Spring:</u><br>Run WD = 0.08<br>Run WW = 0.40<br>Run BFD = 0.30<br>Run BFW = 0.60<br>Flats WD = 0.50<br>Flats WW = 1.25<br>Flats BFD = 0.60<br>Flats BFW = 1.50<br><br><u>Summer:</u><br>Dry Channel<br>BFD = 0.60<br>BFW = 1.50                                                                                                                            |                                           |                                                                                                                                                                                                                                                                                                                                                                                    |                          |
| WC-18        | CV-0401-000060 / CV-0401-000348 | Highway 401           | June 11, 2025<br>June 12, 2025<br><br>August 19, 2025<br>August 21, 2025 | <b>Upstream:</b><br>Ephemeral<br><br><b>Downstream:</b><br>Intermittent | Unknown        | Not Fish Habitat          | <b>Upstream:</b><br><u>Spring:</u> Flats (100%)<br><br><u>Summer:</u> Dry Channel<br><br><b>Downstream:</b><br><u>Spring:</u> Culvert (100%)<br><br><u>Summer:</u> Dry Channel | <b>Upstream:</b><br><u>Spring:</u><br>Flats: Silt (35%), Clay (10%), Muck (55%)<br><br><u>Summer:</u> N/A<br><br><b>Downstream:</b><br><u>Spring:</u><br>Culvert: Silt (30%), Clay (40%), Muck (30%)<br><br><u>Summer:</u> N/A | <b>Upstream:</b><br><u>Spring:</u><br>Flats WD = 0.10<br>Flats WW = 2.00<br>Flats BFD = 0.30<br>Flats BFW = 2.50<br><br><u>Summer:</u><br>Dry Channel<br>BFD = 0.30<br>BFW = 2.50<br><br><b>Downstream:</b><br><u>Spring:</u><br>Culvert WD = 0.12<br>Culvert WW = 1.20<br>Culvert BFD = 0.30<br>Culvert BFW = 1.20<br><br><u>Summer:</u><br>Dry Channel<br>BFD = 0.30<br>BFW = 1.20 | <b>Emergent:</b><br>Narrow-leaved Cattail | Low elevation point conveying highway drainage. Aerial imagery does not show direct connection to Napanee River. Defined channel absent approximately 150 m downstream of ROW. No feature upstream (north) of highway. Permission to enter had not been granted at time of assessment to confirm connectivity outside of ROW.<br><br>■ Vehicle fording – avoid when water present. | None                     |

1 Fish habitat is defined in subsection 2(1) of the Fisheries Act to include all waters frequented by fish and any other areas upon which fish depend directly or indirectly to carry out their life processes. The types of areas that can directly or indirectly support life processes include but are not limited to spawning grounds and nursery, rearing, food supply and migration areas.

2 WW= Wetted Width, WD= Wetted Depth, BFW= Bankfull Width, BFD= Bankfull Depth

Table Description:

|                |                                                                       |                               |                                                                                                                    |
|----------------|-----------------------------------------------------------------------|-------------------------------|--------------------------------------------------------------------------------------------------------------------|
| Waterbody ID   | Name of waterbody and Crossing # / Station                            | Substrate Type                | Boulder, cobble, rubble, gravel, sand, muck, etc.                                                                  |
| Date           | Insert date field investigations occurred (DD/MM/YYYY), as applicable | Channel Morphology            | E.g. Riffles, runs, pools, undercut banks, etc.                                                                    |
| Flow           | Ephemeral, Intermittent, Permanent                                    | Vegetation                    | Riparian & In-stream species; emergent, submergent and floating aquatic vegetation                                 |
| Thermal Regime | Warm, Cool, Cold                                                      | Constraints and Opportunities | E.g. Perched culvert, eroding bank, fish passage barrier, undersized CSP                                           |
| Fish Habitat   | Direct, Indirect, Not Fish Habitat                                    | Significant Fish Habitat      | E.g. specialized habitat that supports critical life functions, areas contributing to fisheries productivity, etc. |

### 3.3 Fish Community Sampling

**Table 3-2** below includes a summary of fish sampling results from field investigations and a summary of the fish communities expected to inhabit the watercourses based on background information and site investigations.

In-water work timing windows are determined by the MNR and are based on the spawning and early development periods of fish that occur in the identified watercourses. Limited fish community data was available for the watercourses in the Study Area. On July 6, 2026, the MNR provided a response identifying a restricted in-water work timing window of **March 15 to July 15** for construction. Accordingly, the timing window presented in **Table 3-2** reflects the MNR's direction and supersedes the timing windows previously determined using the *In-water Work Timing Window Guidelines* (MNR, 2013). See **Appendix A** for agency correspondence.

Table 3-2: Existing Fish Community Summary Table

| Waterbody ID / Crossing ID | Date                  | Fish Species Identified                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Year Class(es)       | Species at Risk Present | Restricted In-water Work Timing Window <sup>1</sup> |
|----------------------------|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|-------------------------|-----------------------------------------------------|
| WC-13<br>Napanee River     | August 21, 2025       | <b>AECOM 2025:</b> Bluntnose Minnow ( <i>Pimephales notatus</i> ), Brook Silverside ( <i>Labidesthes sicculus</i> ), Golden Shiner ( <i>Notemigonus crysoleucas</i> ), Johnny Darter ( <i>Etheostoma nigrum</i> ), Pumpkinseed ( <i>Lepomis gibbosus</i> ), Rock Bass ( <i>Ambloplites rupestris</i> ).<br><b>MNR 2026:</b> Alewife ( <i>Alosa pseudoharengus</i> ), Black Crappie ( <i>Pomoxis nigromaculatus</i> ), Blackchin Shiner ( <i>Miniellus heterodon</i> ), Blacknose Shiner ( <i>Notropis heterolepis</i> ), Bluegill ( <i>Lepomis macrochirus</i> ), Bluntnose Minnow, Bridle Shiner ( <i>Notropis bifrenatus</i> ), Brook Silverside, Brown Bullhead ( <i>Ameiurus nebulosus</i> ), Burbot ( <i>Lota lota</i> ), Central Mudminnow ( <i>Umbra limi</i> ), Channel Catfish ( <i>Ictalurus punctatus</i> ), Chinook Salmon ( <i>Oncorhynchus tshawytscha</i> ), Cods ( <i>Gadus</i> spp.), Common Shiner ( <i>Luxilus cornutus</i> ), Emerald Bowfin ( <i>Amia ocellicauda</i> ), Fallfish ( <i>Semotilus corporalis</i> ), Gizzard Shad ( <i>Dorosoma cepedianum</i> ), Golden Shiner, Iowa Darter ( <i>Etheostoma exile</i> ), Largemouth Bass ( <i>Micropterus nigricans</i> ), Logperch ( <i>Percina caprodes</i> ), Longnose Dace ( <i>Rhinichthys cataractae</i> ), Northern Pike, Pumpkinseed, Rock Bass, Smallmouth Bass ( <i>Micropterus dolomieu</i> ), Spottail Shiner ( <i>Hudsonius hudsonius</i> ), White Perch ( <i>Morone americana</i> ), White Sucker ( <i>Catostomus commersonii</i> ), Yellow Bullhead ( <i>Ameiurus natalis</i> ), Yellow Perch ( <i>Perca flavescens</i> ) | Adults and Juveniles | No                      | March 15 – July 15                                  |
| WC-14                      | N/A                   | <b>AECOM 2025:</b> Not assessed due to field constraints                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | N/A                  | N/A                     | March 15 – July 15                                  |
| WC-14a                     | N/A                   | <b>AECOM 2025:</b> Not fished due to dry channel.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | N/A                  | N/A                     | March 15 – July 15 (beyond MTO ROW)                 |
| WC-15                      | Indirect Fish Habitat |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                      |                         | No applicable timing window.                        |
| WC-16                      | Indirect Fish Habitat |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                      |                         | No applicable timing window.                        |
| WC-17                      | Indirect Fish Habitat |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                      |                         | No applicable timing window.                        |
| WC-18                      | Not Fish Habitat      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                      |                         |                                                     |

Notes: 1 In-water work timing window based on MNR guidelines (2013).



## 4. Preliminary Impact Assessment

Proposed activities in and around aquatic environments were identified by the drainage, structural, and broader design teams during the Preliminary Design phase under the current scope of work. For this assessment, the focus is limited to watercourses and water features that provide fish habitat and are located within 30 m of Project-related works. Routine activities were excluded. These identified features were carried forward for evaluation of the potential effects of the Project on fish and fish habitat.

This Impact Assessment, including application of the 2025 Fisheries Protocol and the associated notification and review recommendations, is based on the current preliminary design for the Napanee River Bridge (**Appendix F**), the *Drainage and Hydrology Structural Crossing Report (Draft): Highway 401 Improvements, Belleville (Study 2): Napanee River Bridge, Site No. 17X-0062/B0* (AECOM, 2026c) (Napanee River Bridge Drainage Report), and the *Drainage and Hydrology Report: Highway 401 / Palace Road Interchange (IC 582) and Median Improvements* (AECOM, 2019b) (2019 Drainage Report). As the design advances and more detailed information becomes available, these findings may be refined to reflect updates to the Project design and supporting analyses.

### 4.1 Description of Proposed Works

The advancement of the current Napanee River Bridge Improvements Preliminary Design and Class EA Study is intended to accommodate 8 lanes along Highway 401 and consider profile refinements to meet environmental, drainage and fluvial geomorphological requirements. While the bridge will accommodate the future 8 lanes along Highway 401 there is no timing for this widening improvement and therefore the bridge construction will consider an interim tie-in to the existing Highway 401 with consideration for 6 lanes in the future for the section stretching from west of the Napanee River Bridge to east of Palace Road. Based on the preliminary general arrangement design (**Appendix F**), the following proposed works will be completed as part of the current Napanee River Bridge Improvements Class EA:

- Highway widening to accommodate interim six lanes to ultimate eight lanes of traffic;
- Full removal of the existing Napanee River bridge, including existing piers;
- Replacement with a wider, single-span bridge supported by east and west abutments with a span of 44.0 m set approximately at the waters edge based on the 2-year high-water mark (HWM);
- Rock slope protection installed along the embankments to mitigate erosion and maintain channel stability.

The proposed works noted above will be reviewed and confirmed during Detail Design prior to construction.

All culverts within the existing interchange will be removed and replaced with new culverts in new locations to accommodate the reconfiguration as described below (see **Figure 4**).

- Four new culverts, C1-PR, C2-PR, C3-PR and C5-PR, will be installed beneath Palace Road realignment section;
- Two new culverts, C2-1-PR and C2-2-PR, will be installed underneath new ramps N/S-E and W-N/S, respectively;
- One new culvert, C4-PR, will be installed under new Ramp N/S-W;
- Culvert C6-EX will be removed due to feasibility and constructability issues. Two new ditches will be designed to accommodate the flows originally passing through the culvert C6-EX. Upon removal of the culvert C6-EX, the flow will be diverted to a new ditch grading westerly along south of Highway 401 from the existing culvert C6-EX to the new culvert C2-PR. The diverted flows will be conveyed through the proposed culverts C2-PR and C2-1-PR and drain into a new ditch that runs along southwest of new Ramp

W-N/S and ultimately discharge to the Napanee River. The ditches will be designed to convey the 100 year diverted flows;

- Design new ditches in the northeast, southwest and northwest quadrants and regrade/realign the existing ditches along new Ramp E-N/S to convey the flows to/from new culverts based on the proposed road alignment (AECOM, 2019b).

**Note:** As indicated, the planned reconfiguration of the Highway 401 interchange at Palace Road as identified as the Technically Preferred Plan in the preceding *Highway 401 Interchange Improvements at Palace Road Class Environmental Assessment and Preliminary Design Study Transportation Environmental Study Report (March 2019)* has been previously approved and is not part of the current Napanee River Bridge Improvements Preliminary Design and Class EA Study. However, watercourses not previously evaluated in the TESR have been incorporated into the current assessment.







## 4.1.1 General Construction Activities within 30 metres of a Watercourse

General construction activities that occur within 30 m of a watercourse or drainage feature could have the potential to cause HADD. Some of the more common general construction activities that will take place within 30 m of identified drainage features and watercourses are listed below:

- Use of industrial equipment;
- Vegetation clearing / grubbing;
- Excavation;
- Grading;
- Highway widening and interchange reconfiguration;
- Soil storage;
- Riparian planting; and
- Organic debris management.

General construction activities that are covered under MTO Routine Works are discussed in detail in **Section 4.2**.

## 4.1.2 Culvert Work Occurring in Areas Designated as Indirect / Not Fish Habitat

Six existing culverts are present within the Study Area. **Table 4-1** identifies the culverts proposed for removal as well as those proposed for new installation at drainage features that do not provide direct fish habitat. While the proposed works at these locations do not involve in-water activities within fish habitat, construction activities across the broader Project limits—including at the drainage features listed—could adversely affect fish and fish habitat if standard mitigation measures, such as erosion and sediment control (ESC) and spill prevention, are not implemented. Mitigation measures are described in **Section 5**. As a result, the culvert works summarized in **Table 4-1** are not discussed further in this report.

Table 4-1: Culvert Work at Drainage Features (Indirect/Not Fish Habitat)

| Waterbody ID /<br>Culvert ID <sup>1</sup> /<br>Station | Existing                                       |               |                    | Proposed |               |                    | Proposed Work |
|--------------------------------------------------------|------------------------------------------------|---------------|--------------------|----------|---------------|--------------------|---------------|
|                                                        | Type                                           | Length<br>(m) | Width/Span<br>(mm) | Type     | Length<br>(m) | Width/Span<br>(mm) |               |
| C1-EX                                                  | High-density polyethylene (HDPE) Pipe          | 23.0          | 900                | N/A      | N/A           | N/A                | Removal       |
| C2-EX                                                  | Corrugated Steel Pipe (CSP)                    | 50.0          | 650                | N/A      | N/A           | N/A                | Removal       |
| WC-2-14a /<br>C3-EX                                    | Structural Plate Corrugated Steel Pipe (SPCSP) | 31.0          | 750                | N/A      | N/A           | N/A                | Removal       |
| WC-2-15                                                | Stormwater outlet                              | N/A           | N/A                | N/A      | N/A           | N/A                | Grading       |
| WC-2-16 /<br>C4-EX                                     | Box                                            | 35.0          | 1520               | N/A      | N/A           | N/A                | Removal       |
| C5-EX                                                  | CSP                                            | 17.0          | 900                | N/A      | N/A           | N/A                | Removal       |
| WC-2-17 /<br>C6-EX                                     | Box                                            | 46.0          | 1200               | N/A      | N/A           | N/A                | Removal       |
| WC-2-18 /<br>CV-0401-000060                            | Non-rigid Frame open (NRFO)                    | 26.08         | 1200               | N/A      | N/A           | N/A                | Leave as is   |
| WC-2-18 /<br>CV-0401-000060                            | NRFO                                           | 26.00         | 1200               | N/A      | N/A           | N/A                | Leave as is   |
| C1-PR                                                  | N/A                                            | N/A           | N/A                | Box      | 23.1          | 1830               | New Culvert   |
| C2-PR                                                  | N/A                                            | N/A           | N/A                | Box      | 56.6          | 1220               | New Culvert   |
| C2-1-PR                                                | N/A                                            | N/A           | N/A                | Box      | 86.6          | 1220               | New Culvert   |
| C2-2-PR                                                | N/A                                            | N/A           | N/A                | Circular | 41.2          | 800                | New Culvert   |

<sup>1</sup> Culvert ID, including existing and proposed culvert work, from *Drainage and Hydrology Report: Highway 401 / Palace Road Interchange (IC 582) and Median Improvements (GWP No. 4197-13-00)* (AECOM, 2019b) completed during the Palace Road EA.

### 4.1.3 Napanee River Bridge Replacement

The existing Napanee River crossing is anticipated to be replaced with two independent single-span bridge structures carrying eastbound and westbound traffic, respectively. The proposed works are expected to include widening of the bridge deck to accommodate future traffic lane expansions, removal of the existing in-water piers, construction of new abutments, and installation of bank protection measures below the HWM. Proposed works can be found in **Table 4-2**.

A design considerations table was prepared for the proposed work in or near fish habitat and is presented in **Table 4-3**.



Table 4-2: Summary of Proposed Works in or near Fish Habitat

| Waterbody ID / Crossing # / Station | Fish Habitat | Existing                          |                  |                 |               | Proposed             |                  |                 |               | Proposed Work                                                                                                                                                                                                                |
|-------------------------------------|--------------|-----------------------------------|------------------|-----------------|---------------|----------------------|------------------|-----------------|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                     |              | Type                              | Bridge Width (m) | Bridge Span (m) | Clearance (m) | Type                 | Bridge Width (m) | Bridge Span (m) | Clearance (m) |                                                                                                                                                                                                                              |
| WC-13 / 17X-0062B0 (EBL)            | Direct       | Three-span Cast in place concrete | 28.8             | 30.5            | 5.7           | Single Span Concrete | 27.8             | 44.0            | 6.0           | <ul style="list-style-type: none"><li>■ Removal of existing three-span bridge, including piers</li><li>■ Construction of a single span concrete bridge and associated abutments</li><li>■ Bank protection measures</li></ul> |
| WC-13 / 17X-0062B0 (WBL)            | Direct       |                                   |                  |                 |               | Single Span Concrete | 23.2             | 44.0            | 6.4           | <ul style="list-style-type: none"><li>■ Removal of existing three-span bridge, including piers</li><li>■ Construction of a single span concrete bridge and associated abutments</li><li>■ Bank protection measures</li></ul> |

Table 4-3: Design Considerations Table

| Factors to Consider           | Design Considerations Provided by the Fisheries Assessment Specialist                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Describe How Each Factor Was Addressed Through Design                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| In-water Works Timing Window  | <ul style="list-style-type: none"><li>■ Review of background information from public resources found reference to the thermal regime for the Napanee River. Where thermal regime was not indicated, anticipated thermal regimes at water crossings based on adjacent waterbodies, observations during field studies and fish species were used to identify the potential thermal regime. Thermal regimes and in-water timing window should be confirmed with Ministry of Natural Resources (MNR) during detailed design.</li><li>■ Work at the Napanee River (WC-13) can occur between <b>July 16 to March 14</b> of any given year for the protection of spring and fall spawning species. In-water works, where required, should abide by these timing windows.</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <ul style="list-style-type: none"><li>■ In-water work will abide by the timing windows.</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Fish Passage                  | <ul style="list-style-type: none"><li>■ In-water work isolation measures (e.g., cofferdams) required for in-water works should not be in place outside of the in-water work timing window.</li><li>■ A physical impediment to fish movement was observed at: WC-14a (riffle and woody debris).</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <ul style="list-style-type: none"><li>■ In-water work isolation measures will be planned to comply with the in-water work timing window, will not be installed outside of the appropriate timing window, and will follow guidance found in the DFO <i>Standard: In-water site isolation</i> (DFO, 2025b).</li><li>■ Fish screens should be used to avoid the entrainment of fish in pumps or hoses as per the DFO <i>Interim Standard: Water intake end-of-pipe fish screens</i> (DFO, 2026a).</li><li>■ Culverts shall be designed following the fish passage recommendations in MTO's Highway Drainage Design Standards (MTO, 2008).</li></ul> |
| Significant Fish Habitat*     | <ul style="list-style-type: none"><li>■ No aquatic Species at Risk are known to occur in or near the Study Area.</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <ul style="list-style-type: none"><li>■ Timing restrictions for in-water works shall be implemented to protect sensitive life stages/ processes of migratory and resident fish.</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Constraints and Opportunities | <ul style="list-style-type: none"><li>■ Bank erosion was observed at WC-15 and WC-16. Where feasible, stabilize the watercourse with appropriate materials and/or plantings to reduce erosion and sediment inputs into downstream watercourse.</li><li>■ The existing bridge piers are proposed to be removed. Although this will result in a temporary disturbance to fish habitat, it will be an overall increase in fish habitat after construction.</li><li>■ Reed Canary Grass (<i>Phalaris arundinacea</i>) was abundant throughout the Study Area. Invasive species management measures including equipment cleaning protocols and BMPs should be considered for this species, in addition to the following species and locations:<ul style="list-style-type: none"><li>○ Flowering Rush (<i>Butomus umbellatus</i>) – WC-13 (Napanee River)</li></ul></li><li>■ Garbage / litter was observed at various locations within the ROW throughout the Study Area during field investigations. It is recommended that garbage is removed in areas where works are proposed and disposed of in an appropriate manner.</li><li>■ Maintain downstream flows that support indirect fish habitat and associated allochthonous inputs.</li></ul> | <ul style="list-style-type: none"><li>■ Riparian plantings and riparian seedings should be applied along watercourses where soils will be disturbed and/or where restoration works are proposed.</li><li>■ Consult BMP, particularly for Flowering Rush (Simkovic, 2020), when conducting works where invasive plant species occur, including equipment cleaning protocols (Halloran, <i>et al.</i>, 2013).</li><li>■ The geomorphology team has been consulted for works at WC-13 (Napanee River bridge) to determine the appropriate width of the bridge in relation to the channel bankfull width.</li></ul>                                  |
| Other Considerations          | <ul style="list-style-type: none"><li>■ MTO Best Management Practices (BMPs) should be applied where possible to mitigate impacts on fish and fish habitat, such as the <i>Ditch Maintenance Within 30 Metres of a Waterbody BMP</i> and <i>Riparian Vegetation Maintenance in Existing Right-Of-Way BMP</i>. If BMPs are not applicable, all works within 30 m of a watercourse will need to be assessed following the Pathway of Effects protocol as per Step 4, and DFO review may be required.</li><li>■ Stream bed protection will consist of native material where possible, and any rock protection below the high-water mark will consist of round riverstone in accordance with Ontario Provincial Standard Specifications (OPSS) 1005 and Non-Standard Special Provisions (NSSP) 008.</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                    | <ul style="list-style-type: none"><li>■ This is based on preliminary design. The work is subject to change, and to be confirmed later in the design process.</li><li>■ Rock protection shall consist of riverstone in accordance with OPSS 1005 and NSSP 008. See Draft Fluvial Assessment of Napanee River Bridge Crossing – Highway 401 Belleville to Kingston (AECOM, 2026d) for more details.</li></ul>                                                                                                                                                                                                                                      |

## 4.2 MTO Routine Works (Step 1)

Under Step 1 of the 2025 Fisheries Protocol, Project activities were assessed against the list of MTO Routine Works in the 2025 Fisheries Protocol and the 2025 *Environmental Guide for Fisheries – Maintenance Works* (Fisheries Maintenance Guide) (MTO, 2025c). Routine Works are those within the MTO ROW (including shoulders and paved area) that are within 30 m of, but not below, the HWM of a waterbody and risk of HADD or harm to fish can be mitigated (e.g., prevent sediment / debris from entering the waterbody). As per Step 1b, activities associated with the Project that are not addressed in the following sections (e.g., non-fish habitat drainage improvements, etc.) and fall within 30 m of a waterbody are considered to be Routine Works. Proper implementation of the applicable measures stipulated in the MTO *Guide for Erosion and Sediment Control During Construction Highway Projects* (MTO, 2015) and Ontario Provincial Standard Specification (OPSS) 182 – General Specification for Environmental Protection for Construction in and around Waterbodies and on Waterbody Banks is required.

Bridge replacement activities are not considered Routine Works and are therefore carried forward to Step 3 of the Protocol (**Section 4.3**).

## 4.3 MTO Best Management Practices (Step 3)

Project activities were assessed against the *Environmental Guide for Fisheries – Best Management Practices Manual* (MTO BMPs) (MTO, 2025b) to determine which can be addressed by BMPs as per Step 3 in the 2025 Fisheries Protocol. Application of BMPs requires adherence to the Operational Constraints and Protection Measures identified in each BMP. Certain conditions and provisions are outlined in each BMP (e.g., work must be completed within the allowable in-water work timing window, etc.), which must be met in order to remain in compliance. Applicable notification procedures are required for the use of BMPs. **Table 4-4** summarizes the activities carried forward from Step 2 to the BMP review and where a BMP does or does not apply.

Where BMPs for *Temporary Watercourse Crossings* and *Riparian Vegetation Maintenance in Existing Right-Of-Way* apply, the work at these locations can proceed. The mitigation measures stipulated in the BMPs and summarized in **Section 5** must be implemented to comply. As the Project progresses, BMPs should be reassessed to confirm their continued applicability. An MTO Project Notification Form and Submission Package will be prepared for submission to the MTO Regional Environmental Section. For those activities for which an MTO BMP does not apply, the activity was carried forward to the Fisheries Assessment Process of Step 4 of the 2025 Fisheries Protocol.

**Table 4-4: Summary of Construction Activity and Associated BMP**

| Proposed Works / Activity                                                                            | Waterbody ID/Culvert ID | Associated Best Management Practices (BMPs)              | Step 4 Assessment |
|------------------------------------------------------------------------------------------------------|-------------------------|----------------------------------------------------------|-------------------|
| Bridge Replacement, including widening, removal of existing piers, and bank protection below the HWM | WC-13                   | None                                                     | Carried to Step 4 |
| Riparian vegetation maintenance in existing Right-Of-Way                                             | WC-13                   | Riparian Vegetation Maintenance in Existing Right-Of-Way | N/A               |
| Temporary watercourse crossing                                                                       | WC-13                   | Temporary Watercourse Crossing                           | N/A               |

## 4.4 Step 4 – Fisheries Assessment

The Fisheries Assessment Process (Step 4 of the 2025 Fisheries Protocol) applies to project activities that may have an impact on fish habitat and that do not qualify as MTO Routine Works (Step 1) nor meet the conditions of the MTO BMP Manual (Step 3). While the Fisheries Assessment Process also applies to indirect fish habitat it is anticipated that with the application of general avoidance and mitigation measures, potential impacts to indirect fish habitat can be avoided. All work at these locations should be performed in dry conditions. Where necessary, temporary bypass pumping shall be implemented to maintain downstream flow.

### 4.4.1 Potential Impacts

The proposed activities associated with the work described in **Section 4.1** that did not meet the requirements listed under MTO Routine Works or Fisheries BMPs have been assessed to determine the potential impacts to fish and fish habitat. Potential impacts to fish habitat have been identified using the Pathway of Effects (PoE) diagrams provided in the Fish Guide. The PoE diagrams are used to display how activities may impact the aquatic environment and to help determine where and how mitigation and protection measures required to minimize or avoid these impacts. This is accomplished through the use of pathways, stressors, and residual effects flow charts, and has been developed for both in-water and land-based construction activities.

By applying these pathways and incorporating the relevant mitigation measures, it becomes possible to determine whether potential adverse effects can be effectively avoided or minimized, or if residual impacts remain that could result in harm to fish or a HADD of fish habitat.

Bridge replacement, including widening, removal of existing piers, and bank protection below the HWM, which falls outside the scope of MTO Routine Works and BMPs, has been assessed for the potential impacts on fish and fish habitat.

**Table 4-5** summarizes these proposed works and whether or not they are likely to cause a HADD to fish habitat.

**Table 4-5: Summary of Construction Activity and HADD Potential**

| Proposed Works / Activity                                                                                        | Waterbody ID/Culvert ID | Summary of Impacts                                                                                                                                                                                                                                                                                                                                                                                                     |
|------------------------------------------------------------------------------------------------------------------|-------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Bridge Replacement, including widening, removal of existing piers, and bank protection below the highwater mark. | WC-13 / 17X-0062/B0     | <ul style="list-style-type: none"> <li>■ Removal of the existing piers and in-water isolation measures may cause a temporary disruption to fish habitat.</li> <li>■ The limited extent of the rock protection is likely to alter fish habitat.</li> <li>■ Bridge widening will result in permanent destruction of riparian habitat.</li> <li>■ Review by Fisheries and Oceans Canada (DFO) may be required.</li> </ul> |

## 4.4.2 Pathways of Effects Assessment

The following is a summary of the potential negative effects on fish and fish habitat, which may result from activities associated with the proposed work that is applicable to all works described in **Section 4.1** unless specifically noted in the Routine Works (**Section 4.2**). The Aquatic Effects Assessment Table (Template D3) is provided in **Appendix G**.

### ■ Land-based Activities

- Use of industrial equipment may result in alterations to contaminant concentrations from fuel or fluid leaks. An increase in sediment may result from increased erosion potential where industrial equipment has exposed and loosened soils. Cleaning or maintenance of structures may result in changes to contaminant and sediment concentrations if wash water can enter a waterbody.
- Vegetation clearing may result in alterations to sediment concentrations and habitat structure and cover because of increased erosion potential and sediment deposition. Changes in food supply and nutrient concentrations may result from the loss of external inputs with a reduction in riparian vegetation. The use of herbicides may result in changes to contaminant concentrations.
- Grading may result in alterations to sediment concentrations and habitat structure and cover because of increased erosion potential and sediment deposition.
- Excavation may result in changes to bank stability, increasing the erosion potential and sediment concentrations.

### ■ In-water Activities

- Placement of material or structures in water can result in changes the channel or shoreline morphology, aquatic macrophytes, and substrate composition. This can lead to changes in sediment concentration, habitat structure and cover, food supply, nutrient concentrations, and may result in direct or indirect impacts to fish and fish habitat.
- Removal of aquatic vegetation may result in changes in dissolved oxygen concentrations, food supply, nutrient concentrations, habitat structure and cover, sediment concentrations or contaminant concentrations because of the release of sediment, nutrient inputs, habitat, and light penetration.
- Use of industrial equipment below the high-water mark (HWM) could result in impacts to fish and fish habitat as well as alterations to sediment concentrations from the release of sediment or an increase in contaminant concentrations from fluid leaks from equipment.
- The installation of in-water work isolation measures may result in incidental entrainment and potential death of fish and limit access for fish to habitats.
- Any dewatering and pumping of isolated in-water work areas could displace or kill fish and change access to and composition of habitat features. Alterations to flows could increase erosion and scour potential and result in alterations to temperatures and concentrations of sediment, food, contaminants, or nutrients, and water extraction using pumps could result in death of fish by entrainment in pumps and machinery.
- Improper management of wastewater can result in a change in water temperature, change in migration access to habitat, change of dissolved oxygen concentration, changes in nutrient concentrations, change in contaminant concentrations and introduction of pathogens, disease vectors, and exotics.
- Alterations to flows could increase erosion and scour potential and result in alterations to temperatures and concentrations of sediment, food, contaminants, or nutrients.

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- Changes to fish passage could result in changes in water chemistry/temperature and flow alternation, which may lead to incidental entrainment, impingement or mortality of resident species and changes to habitat access.
- Structure removals could result in changes to channel morphology or shoreline morphology and habitat structure or cover.

## 5. Mitigation

The general protection and mitigation measures described in OPSS.PROV 182 – General Specification for Environmental Protection for Construction in and around Waterbodies and on Waterbody Banks, and the MTO *Environmental Guide for Erosion and Sediment Control During Construction of Highway Projects* (MTO, 2015) apply to the Project for activities determined to have low likelihood of HADD of fish habitat or harm to fish at Step 1 of the 2025 Fisheries Protocol, including Routine Work and/or where the work is at least 30 m from a waterbody. This includes the proposed work related to the overall highway widening west of the Napanee River and east of the interchange reconfiguration, associated drainage improvements where fish habitat is not present, and potential temporary crossings if required to move equipment in place. The following sections outline the specific mitigation measures stipulated in the applicable BMPs or identified through the Fisheries Assessment Process based on Preliminary Design. These measures shall be confirmed and finalized during Detailed Design.

### 5.1 MTO BMP for Riparian Vegetation Maintenance in Existing ROW

Specific mitigations stipulated in this BMP include:

- In-water work shall be scheduled to prevent disruption of sensitive life stages of fish by adhering to appropriate in-water work timing windows. Work below the HWM can only occur between **July 16** and **March 14** for the Napanee River; and
- BMP may not be used for the removal of more than one third of the total woody vegetation in the ROW, complete vegetation clearing, and/or removal of riparian vegetation if the riparian area is identified as critical habitat of SAR.

### 5.2 MTO BMP for Temporary Watercourse Crossings

Specific mitigations stipulated in this BMP include:

- Generally, there are no restrictions on timing for the construction of temporary clear-span bridge structures as they do not involve in-water work. However, if there are any activities (e.g. fording) below the HWM with the potential to disrupt sensitive fish life stages then these works shall adhere to the in-water work timing window of **July 16** to **March 14** for the Napanee River;
- Locate crossings at straight section of the watercourse, perpendicular to the watercourse bank and avoid any area that is inherently unstable and may result in erosion and scouring of the waterbody beds;
- Fording of a flowing watercourse by machinery shall be limited to a one-time event (over and back) and is only to occur if an existing crossing at another location is not available or practical to use
  - Grading the waterbody banks is not permitted;
  - If minor rutting is to occur, waterbed protection measures (e.g., swamp mats) should be used provided they do not constrict flows or block fish passage;
  - Fording should only occur under low flow conditions;
  - If the waterbody banks are steep and highly erodible and erosion and degradation are likely to occur, a temporary bridge shall be used to protect these areas; and
  - Stabilize banks after crossing.



## 5.3 Site-Specific Mitigation Measures

Bridge replacement, including widening, removal of existing piers, and bank protection below the HWM, does not meet the criteria of MTO Routine Works or an MTO BMP and therefore must be carried forward through the Fisheries Assessment Process through Step 4 of the Protocol:

Installation of the new culverts is expected to occur in the dry or, where necessary, temporary bypass pumping shall be implemented to maintain downstream flow.

The following OPSS and MTO Central Region Special Provisions (SPs) are associated with the proposed works. While this list is comprehensive in terms of fish and fish habitat protection, it is not exhaustive of all OPSSs applicable to the Project. The specifications listed below specifically pertain to the protection of aquatic resources.

### 5.3.1 Operational Constraints

- An Access Management Plan shall be created to limit access to waterbodies and banks to protect riparian vegetation and to minimize bank disturbance.
- Minimize duration of in-water work.
- Conduct in-stream work during low flow periods to allow work in water to be isolated from flows.
- Schedule work to avoid wet, windy and rainy periods that may increase erosion and sedimentation and allow for proper re-stabilization and re-vegetation as appropriate prior to winter.
- In-water work below the HWM and work on watercourse banks shall be carried out during the appropriate in-water work timing window of **July 16 – March 14** (i.e., no in-water work is permitted from **March 15 – July 15**).

### 5.3.2 Management Practices and Controls

- Isolated in-water work areas must be cleared of fish prior to the commencement of work. Fish must be released unharmed downstream. Intakes of pumps and hoses for de-watering of in-water work areas shall be screened to avoid impingement and/or entrainment of fish (as per OPSS.PROV 182).
- All planned vegetation removals are anticipated to occur within property owned by MTO and largely within the highway ROW. Some select removals may also be required on areas adjacent to the ROW where MTO will seek Permission to Enter and Construct. Trees not designated for removal will be protected by fencing installed prior to vegetation removal and construction (as per OPSS. PROV 801).
- The contractor shall develop and implement an Erosion and Sediment Control (ESC) plan to contain/isolate exposed soils, stockpiled materials, and unstable areas in the work zone to prevent the release of sediment to all waterbodies and ensure the work site is stabilized prior to removal of ESC measures following construction (as per OPSS. PROV 804 and OPSS.PROV 805). Site-specific ESC plans should be developed for each watercourse crossing where work is proposed within 30 m of a watercourse following DFO's Interim Standard: Planning for land-based erosion and sediment control (DFO, 2026b).
- Design and implement an in-water work area isolation plan to maintain clean flow around the work area where in-water work is proposed (as per OPSS.PROV 804, OPSS.PROV 805, and OPSS.PROV 517). The design shall:
  - Use only clean materials free of particle matter for temporary cofferdams
  - Manage flow withdrawal and discharge to prevent erosion and the release of sediment to a waterbody, and

- Ensure work zones are stabilized against high flows at the end of each workday.
- As per OPSS.PROV 182, any fish isolated in the work area shall be transferred (using appropriate capture, handling, and release techniques to prevent harm and minimize stress) downstream or away from the construction area following DFO's Interim Standard: Fish capture and relocation (DFO, 2026c). A Licence to Collect Fish for Scientific Purposes (LCFSP) shall be obtained prior to the start of any fish relocation works. Fish screens shall be used to avoid entrainment of fish in pumps or hoses following DFO's Interim Standard: Water intake end-of-pipe fish screens (DFO, 2026a).
- Design and implement a work area containment plan to isolate all above-water work to prevent the release of sediment or other contaminants to a waterbody (as per OPSS.PROV 517). The design shall include regular inspection, repair, removal, and disposal of isolation measures and materials. Work zones should be clearly delineated before work to avoid unintentional intrusions into nearby natural areas.
- Where possible, organic material barriers (i.e., fibre roll barrier, sediment log, coir rolls etc.) shall be used in the drainage ditches to mitigate sediment transport (as per OPSS.PROV 804).
- Materials used or generated during construction (i.e., organics, soil, woody debris, temporary stockpiles, construction debris, etc.) shall be stored and managed in a way that prevents the release of these materials to a waterbody. This shall include storing materials a safe distance from a waterbody (i.e., greater than 30 m from any watercourse) and/or isolation measures (as per OPSS.PROV 182 and OPSS.PROV 180).
- Dewatering operations shall be managed to prevent erosion or the release of sediment-laden water to a waterbody (as per OPSS. PROV 805).
- Any sediment or deposited material that requires removal during drainage work shall not be allowed to enter any waterbody (as per OPSS.PROV 510).
- A Spills Management Plan shall be prepared and shall include materials, instructions, education, and emergency numbers. The plan shall be kept onsite at all times, communicated to work crews and be properly implemented in the event of accidental spills (Spill Prevention and Response Contingency Plan as per OPSS.PROV 100, OPSS.PROV 180, OPSS.PROV 182, and O. Reg 224/07).
- Operate, store, and maintain equipment and associated materials in a manner and at a distance that prevents the entry of any deleterious substance from entering a waterbody (as per OPSS.PROV 182). Any part of equipment entering the waterbody or operating from the bank shall be cleaned, free of fluid leaks and in good working condition.
- The contractor shall refer to and incorporate mitigations and obtain permits associated with wildlife, access management, ESC, and Invasive Species.

### 5.3.3 Rehabilitation

- Stabilize any portion of the bed of a waterbody disturbed during construction to pre-construction conditions (or better). This shall include substrates (as per OPSS.PROV 182 and OPSS.PROV 1005).
- Stabilize the banks of a waterbody that have been disturbed during construction to pre-construction conditions or better (as per OPSS.PROV 182 and OPSS. PROV 804). This shall include riparian vegetation or stone material, temporary measures, and the avoidance of hard engineering.
- Stabilize and re-vegetate soils exposed or disturbed during construction, including new or cleaned-out ditches (as per OPSS.PROV 182).

### 5.3.4 Monitoring

- Should any SAR be uplisted throughout the Project and require registration under the *Species Conservation Act* and/or Authorization under the *Fisheries Act*, the construction and post-construction monitoring shall incorporate all requirements of these approvals.
- In-water and near-water work shall be monitored to ensure mitigation measures are properly implemented, functioning, maintained and repaired as needed, and removed following construction (as per OPSS.PROV 182).
- ESC in accordance with MTO Non-Standard Special Provisions (NSSP) (OPSS. PROV 804, OPSS.PROV 805, and SP805F01).

## 5.4 Environmental Provisions

The following OPSSs and MTO SPs are recommended for evaluation and inclusion as the project moves into Detailed Design:

- OPSS. PROV 801 – Protection of Trees
- OPSS. PROV 802 – Topsoil
- OPSS.PROV 803 – Vegetative Cover
- OPSS. PROV 804 – Temporary Erosion Control
- OPSS. PROV 805 – Temporary Sediment Control
- OPSS.PROV 825 – Placement of Aggregates in Waterbodies
- OPSS. PROV 517 – Dewatering and Temporary Flow Passage Systems
- OPSS. PROV 1005 – Material Specification for Aggregates - Waterbody
- OPSS. PROV 206 – Grading
- OPSS. PROV 201 – Clearing, Close Cut Clearing, Grubbing, and Removal of Surface and Piled Boulders
- OPSS. PROV 511 – Rip-Rap, Rock Protection, and Granular Sheeting
- OPSS. PROV 539 – Temporary Protection Systems
- OPSS. PROV 510 – Removal
- Environmental Protection During Work in Watercourses and on Watercourse Banks in accordance with OPSS. PROV 182
- Temporary ESC Measures in accordance with OPSS. PROV 804 and OPSS. PROV 805 and ESC in accordance with MTO NSSP (OPSS.PROV 804, OPSS.PROV 805, and SP805F01)
- Management of Excess Materials in accordance with OPSS 180
- General Environmental Protection
- Operational Constraint - Maintenance of Existing Drainage in accordance with MTO NSSP
- Spill Prevention and Response Contingency Plan in accordance with OPSS.PROV 100
- Timing of in-water Work in accordance with SP101F23

## 6. Determination of HADD

The determination of a HADD of fish habitat was conducted in accordance with the 2025 Fisheries Protocol and the PoE methodology. Each activity was evaluated based on its potential to alter habitat structure, flow regime, substrate composition, and ecological connectivity. The following outlines the types of changes to fish habitat that may constitute a HADD, distinguishing between alterations that may be mitigated and those that result in permanent habitat loss requiring offsetting measures.

**Alteration** - A change to fish habitat that affects its structure or function but does not completely eliminate it. Alteration may be mitigated with best practices.

- Examples:
- Changing the shape of a streambed during culvert replacement.
- Modifying flow patterns or substrate composition.
- Removing vegetation that temporarily reduces shading or bank stability.

**Destruction** – A complete and permanent loss of fish habitat. The habitat is removed or buried, and its ecological function is eliminated. Destruction usually requires offsetting under the *Fisheries Act* to achieve “no net loss” of fish habitat.

Examples:

- Infilling a stream or wetland.
- Realigning a watercourse and abandoning the original channel.
- Removing spawning beds or critical habitat features.

A summary of the anticipated impacts is included below in **Table 6-3** and are provided in the Fish and Fish Habitat Impact Documentation (**Appendix H**). **Table 6-1** and **Table 6-2** below summarize the characteristics used to determine the spatial scale and intensity of potential impacts to fish and fish habitat.

**Table 6-1: Spatial Scale of potential impact determination**

| Category           | Definition                                     |
|--------------------|------------------------------------------------|
| <b>Short-term</b>  | <1 year; temporary construction impacts        |
| <b>Medium-term</b> | 1–5 years; recovery expected post-construction |
| <b>Long-term</b>   | >5 years; permanent change to habitat          |
| <b>Permanent</b>   | Irreversible loss or alteration of habitat     |

**Table 6-2: Intensity of potential impact determination**

| Category         | Definition                                            |
|------------------|-------------------------------------------------------|
| <b>Low</b>       | Minimal disruption; easily mitigated                  |
| <b>Moderate</b>  | Noticeable impact; mitigated with BMPs or restoration |
| <b>High</b>      | Significant alteration or loss of habitat             |
| <b>Very High</b> | Destruction of critical or irreplaceable habitat      |

**Table 6-3: Impact Summary Table**

| Activity                                                                               | Location            | Residual Effects                                                                                                                                                                                                                                                                                                                                                                                                                                         | Spatial Scale                                                                                                                                                                                                                                                               | Duration                                                                                                                                                                                         | Intensity                                                                                                                                         | HADD                                                 |
|----------------------------------------------------------------------------------------|---------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|
| <b>Bridge replacement, including widening, bridge pier removal and bank protection</b> | WC-13 / 17X-0062/B0 | <ul style="list-style-type: none"> <li>Change in habitat structure and cover</li> <li>Change in nutrient concentrations</li> <li>Change in food supply</li> <li>Change in sediment concentration</li> <li>Change in contaminant concentration</li> <li>Change in water temperature</li> <li>Change in slope and land drainage patterns</li> <li>Change in access to habitats</li> <li>Change in Dissolved Oxygen</li> <li>Change in base flow</li> </ul> | <ul style="list-style-type: none"> <li>Temporary negative effects are anticipated to be low and localized to construction areas and rock slope protection.</li> <li>Permanent positive residual effects are anticipated after the removal of the existing piers.</li> </ul> | <ul style="list-style-type: none"> <li>Impacts are anticipated to have short-term effects and are expected to resolve following the completion of construction and riparian planting.</li> </ul> | <ul style="list-style-type: none"> <li>The intensity will be low due to the temporary disturbance to fish habitat during construction.</li> </ul> | <ul style="list-style-type: none"> <li>No</li> </ul> |

## 6.1 HADD Avoidance

The Step 4 process, including assessment of how prescribed mitigation and avoidance measures can negate potential effects, determined most Project activities that do not meet the conditions of an MTO BMP or MTO Routine Works can avoid or mitigate the potential effects to fish and fish habitat by implementing the mitigation measures, avoidance measures, and applicable environmental provisions described in **Section 5**. Provided the environmental protection and mitigation measures outlined in **Section 5** are properly implemented, maintained, monitored for effectiveness, and repaired as needed, it is anticipated that HADD to fish habitat or death of fish is unlikely to result from the proposed construction activities associated with bridge replacement works.

### 6.1.1 Bridge Widening

The abutments for the new bridge will be located above the HWM; however, a temporary in-water or near water work area may be required during construction. With appropriate application of mitigation measures outlined in **Section 5**, this activity is not expected to result in a HADD.

### 6.1.2 Riparian Vegetation

Permanent destruction of riparian vegetation (approximately 453 m<sup>2</sup>) will occur where bridge widening and abutment installation are required. Without mitigation, these changes could reduce habitat structure and ecological function. However, the affected area is limited to the footprint of the new bridge within the existing MTO ROW, which currently consists primarily of maintained (mowed) grass. Following post-construction restoration, these changes are not expected to adversely affect fish or fish habitat.

### 6.1.3 Existing Pier Removal

Removal of the piers is expected to result in a permanent gain of fish habitat following completion of the works. Temporary disruption to fish habitat will occur during installation of isolation measures (e.g., cofferdams) required for pier removal. With appropriate application of mitigation measures outlined in Section 5, this activity is not expected to result in a HADD. While alternative removal methods (e.g., use of a rock road) have the potential to result in HADD, it is anticipated that HADD can be avoided through implementation of appropriate design and mitigation measures (e.g., adherence to timing windows and ESC measures).

### 6.1.4 Bank Protection

Placement of bank protection below the HWM will result in a permanent alteration of fish habitat. However, the spatial extent of this alteration is limited (approximately 100 m<sup>2</sup>), and the use of appropriately sized rock can provide interstitial spaces that contribute to habitat heterogeneity. As such, this activity is not expected to result in a HADD of fish habitat. The activity should be re-evaluated during detailed design.

### 6.1.5 Fish Passage

Fish passage may be temporarily affected during pier removal while isolation measures are in place. Construction activities should be staged such that some part of the watercourse remains open for fish passage throughout the works (i.e., removal of one pier at a time). Given that flow rates are not expected to change after the removal of the existing bridge piers and construction of a single span bridge (AECOM, 2026c), fish passage is not expected to be impacted after construction.



## 6.2 Summary

The placement of approximately 100 m<sup>2</sup> of rock protection below the 2-year HWM, along with the removal of approximately 453 m<sup>2</sup> of riparian vegetation to accommodate the new bridge, will result in localized and permanent habitat alteration resulting from placement of the rock protection and destruction of riparian habitat. The effects are limited in scale and magnitude, and occur within a reach characterized by abundant, non-limiting instream habitat and low-quality riparian cover dominated by maintained grasses. As such, the affected features are not limited within the systems and do not support critical life stages for sensitive fish species. Additionally, there will be a temporary disruption of fish habitat for the removal of the existing piers which will result in a gain of approximately 60 m<sup>2</sup> of fish habitat. Therefore, these changes are not expected to result in a HADD of fish habitat.

The design, construction methods, and impact assessment should be re-evaluated during the detailed design phase of the Project.

## 7. Notification and Approvals

### 7.1 SCA and SARA Approvals and/or Permits

As described in **Section 2.1.2**, no records or known presence of aquatic SAR exist in the Study Area. Further assessment, review or submission to regulatory agencies for compliance with the SCA or SARA is not required.

### 7.2 Fisheries Act – Fish and Fish Habitat Protection Program

In accordance with Steps 3 and 5 of the 2025 Fisheries Protocol, a Project Notification Form should be completed for submission to the MTO Regional Environmental Section for those activities identified in **Section 4.1** that comply with MTO BMPs. This includes Riparian Vegetation Maintenance within an existing ROW and Temporary Watercourse Crossing using methods and at locations described in **Section 4.3**.

In accordance with Steps 4 and 5 of the 2025 Fisheries Protocol, a Project Notification Form will be completed for submission to the MTO Regional Environmental Section for those activities identified in **Section 4.1**, as work to be completed following the guidance of an MTO BMP, and those activities identified as work that does not meet the conditions of an MTO BMP. Based on our current understanding of the Project at preliminary design, assessment of these activities following the Fisheries Assessment Process and PoE Assessment determined that a HADD is unlikely.

In accordance with Steps 4 and 6 of the 2025 Fisheries Protocol, an RfR may need to be developed and submitted to the DFO Fish and Fish Habitat Protection Program (FFHPP) for those activities where the risk of HADD is possible (i.e., construction methods for pier removal). Pending detailed design and construction methods, activities should be re-evaluated to confirm review by DFO FFHPP is not required.

## 8. Potential Enhancement / Offsetting Measures

Opportunities to improve the existing fish habitat conditions and/or improve fish passage were documented during the field investigations carried out in 2025. Those opportunities that are reasonably feasible to be implemented into the Project are listed in **Table 4-3** and are further discussed below.

Invasive species were identified within the Study Area within the ROW, most notably Flowering Rush in the Napanee River. Flowering Rush mainly spreads vegetatively through rhizomes via fragmentation or rhizome bulblets. It can spread by human activities, where rhizome bulblets and fragments are accidentally transported on equipment (Simkovic, 2020). Work taking place where this species occurs should follow the BMP for their management and control to prevent further spread of the invasive plant, such as those pertaining to material management and cleaning machinery of organic debris that could transfer seeds, etc. (Simkovic, 2020 & Halloran, *et al.*, 2013).

Throughout the Study Area, low flow conditions were observed in watercourse features, potentially creating issues for resident fish that may become stranded in channels that are no longer connected to a larger system. Similar low flow conditions were also observed in the Napanee River, which is considered a larger, more hydraulically complex system in the Study Area and geographical area. Under these conditions, refuge pools are often used by fish in these systems to survive until water levels rise and/or a rain event occurs that allows them to seek out more permanent habitat. However, as these conditions were observed within the watercourse and not limited to within the ROW / crossing structure, measures such as low-flow channels and refuge pools, etc. at the crossing structures would not improve fish passage and are therefore not recommended for consideration at this time. A potential impediment to fish passage was observed in WC-14a where woody debris caused stream to split into chutes and created cascade-like features. This area may be in the new proposed ROW given that the area will be widened towards the west and will be closer to the Napanee River. Should this potential impediment be within the proposed ROW, removal of the debris should be considered to re-instate more natural flow and watercourse structure.

Eroded banks were observed in the ROW along the Napanee River (WC-13) that could be stabilized (where feasible) with stone and/or plantings to eliminate further scouring and sedimentation into the watercourses. River stone should be used below the 2-year HWM, while plantings can also be incorporated to further stabilize and naturalize the riparian lands, while also providing shading the watercourse features. Stone details (type, size, and placement) and planting details (species, density, and placement) should be illustrated on the drawings where works are proposed. Refer to the Draft *Fluvial Geomorphic Assessment for Natural Channel Design – Napanee River* (AECOM, 2026d) for more details

Trash and other anthropogenic debris were observed throughout the Project Limits, including ditches, watercourses, and inside culverts. Trash can be hazardous to wildlife and can interrupt fish passage with sufficient debris. It is recommended that efforts are made throughout the Project Limits to remove the accumulated trash.

## 9. Summary

The proposed Highway 401 / Napanee River Bridge improvements extend from 350 m east of Newburgh Road / County Road 1 East to 1 km east of Palace Road (County Road 5) for a total length of approximately 2.5 km. The Project includes replacement of the existing three-span Napanee River Bridge with new single-span structures for eastbound and westbound traffic and widening of Highway 401 to accommodate future lane expansions. The fisheries assessment considers all water features within 120 m of the Highway 401 ROW over a study length of approximately 2.5 km.

A total of seven watercourses were identified within the Study Area including the Napanee River (WC-13) which was classified as direct fish habitat and represents the primary aquatic feature of concern. One watercourse was identified as seasonally direct fish habitat, four were identified as indirect fish habitat, and one was identified as not fish habitat.

The Napanee River is a warmwater system supporting a diverse fish community. Background data and 2025 field surveys identified over 30 fish species historically recorded in the river, with field sampling confirming the presence of small-bodied forage fish and centrarchids. No federally or provincially protected aquatic SAR were identified; however, Bridle Shiner (Special Concern) has been historically recorded. Field investigations documented stable connectivity upstream and downstream of the bridge, but also noted low flow conditions, bank erosion, invasive aquatic vegetation (notably Flowering Rush), and localized habitat simplification.

Proposed works with the greatest potential to affect fish and fish habitat include removal of existing bridge piers, construction of new single-span bridges over the Napanee River including riparian vegetation removal, and bank protection works below the high-water mark. These activities do not qualify as MTO Routine Works or applicable BMPs and were therefore assessed under Step 4 of the Fisheries Protocol. The assessment concluded that all activities could avoid death of fish and HADD of fish habitat. A suite of site-specific mitigation measures is recommended, including strict adherence to in-water work timing windows (July 16 to March 14), isolation of in-water work areas, fish rescue and relocation, erosion and sediment control, invasive species management, and habitat rehabilitation using natural channel design principles where feasible.

While the Fisheries Assessment Process also applies to indirect fish habitat it is anticipated that with the application of general avoidance and mitigation measures, potential impacts to indirect fish habitat can be avoided. All work within the Palace Road interchange should be performed in dry conditions. Where necessary, temporary bypass pumping shall be implemented to maintain downstream flow.

Based on the anticipated construction activities, the report concludes that death of fish or HADD of fish habitat is not likely, although submission to DFO may be required for those activities where a risk of HADD is possible based on construction methods. All activities should be reviewed during detailed design. Opportunities for habitat enhancement, including bank stabilization, invasive species control, and debris removal, have also been identified.

## 10. References

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# Appendix **A**

## Agency Correspondence

## Court, Andrea

---

**From:** Berube, Margaret (MNR) <Margaret.Berube@ontario.ca>  
**Sent:** Monday, July 6, 2026 9:58 AM  
**To:** Court, Andrea  
**Subject:** RE: Request for Natural Heritage Information - 401 Planning Study from 4.3 km East of Highway 37 to 8 km West of County Road 38.

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Hi Andrea,

Apologies for the delay – I was on vacation.

For the Napanee River, no in-water works should be permitted during the following dates: March 15 – July 15. However, you should reach out to DFO re. Bridle Shiner.

I see that you've also applied March 15 – July 15 to four sites in Appendix A, Background Review of Fish Habitat and Fish Community Data.

If your review of these sites using the ARA layers indicates that they all have warmwater thermal regimes and warmwater fish communities, then this window is acceptable as it's the most protective.

Sincerely,

Margaret

### Margaret Bérubé

Management Biologist | Peterborough Work Center – Peterborough Bancroft District  
Ministry of Natural Resources | Ontario Public Service  
705-772-9824 | [margaret.berube@ontario.ca](mailto:margaret.berube@ontario.ca)



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**From:** Court, Andrea <andrea.court@aecom.com>  
**Sent:** June 23, 2026 10:24 AM

**To:** Berube, Margaret (MNR) <Margaret.Berube@ontario.ca>

**Cc:** Crawford, Kate <kate.crawford@aecom.com>; Easterling, Katie <katie.easterling@aecom.com>; Wells, Zach <Zach.Wells@aecom.com>; Witt, Jordan <Jordan.Witt1@aecom.com>; Potter, Andrea <andrea.potter@aecom.com>

**Subject:** RE: Request for Natural Heritage Information - 401 Planning Study from 4.3 km East of Highway 37 to 8 km West of County Road 38.

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Thanks Margaret.

Could you please confirm if a restricted timing window of September 15 to July 15 for the Napanee River is appropriate?

Additionally, does MNR agree with the applicable timing windows identified in Table 2 that was provided based on the MTO protocol?

Thanks,  
Andrea

**Andrea Court**  
*she/her/hers*

Aquatic Ecologist, Environment  
M 1-289-253-9197  
[andrea.court@aecom.com](mailto:andrea.court@aecom.com)

**AECOM**  
[aecom.com](http://aecom.com)

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---

**From:** Berube, Margaret (MNR) <[Margaret.Berube@ontario.ca](mailto:Margaret.Berube@ontario.ca)>

**Sent:** Friday, June 19, 2026 12:35 PM

**To:** Court, Andrea <[andrea.court@aecom.com](mailto:andrea.court@aecom.com)>

**Subject:** RE: Request for Natural Heritage Information - 401 Planning Study from 4.3 km East of Highway 37 to 8 km West of County Road 38.

Hi Andrea,

Some of the features you've listed below aren't within MNR's mandate. Please see the attached document for further clarification.

**Presence of Natural Areas (Environmentally Significant / Sensitive Areas, PSWs, Areas of Natural and Scientific Interest [ANSIs], Provincial Parks, Conservation Reserves, and Wildlife Management Areas)**

Please refer to Ontario GeoHub. If you need specific wetland evaluations or ANSI checksheets, please send this request to [MNR.F.PET@ontario.ca](mailto:MNR.F.PET@ontario.ca).

**Natural Area Reports**

**In-water Timing Restrictions**

See attached document.

**Important Commercial or Recreation Fisheries**

Please see the Fisheries Management Plan for Fisheries Management Zone 18 [here](#).

**Water Quantity / Quality Data**

## **Groundwater Discharge Areas**

### **Watercourse Names, Thermal and Flow Regimes**

Please refer to the Aquatic Resource Area datasets in Ontario GeoHub.

### **Fish Habitat Sensitivity**

Please refer to the Aquatic Resource Area datasets in Ontario GeoHub.

### **Habitat Information and Location**

### **Fisheries Management Objectives / plans**

Please see the Fisheries Management Plan for Fisheries Management Zone 18 [here](#).

### **Fish Community Records**

Please refer to the Aquatic Resource Area datasets in Ontario GeoHub.

### **Benthic Invertebrate data**

### **Known fish spawning**

Please refer to the Fish Activity Area dataset in Ontario GeoHub.

### **Aboriginal Fisheries**

### **Significant Wildlife Habitat**

Study areas which may contain significant wildlife habitat should be investigated for its presence or absence. Significant wildlife habitat may include features such as seasonal concentration areas for wildlife species, rare vegetation communities, specialized habitats of wildlife, habitats of species of conservation concern, and animal movement corridors.

Please note, relying on online mapping tools only may not accurately reflect the presence or absence of significant wildlife habitat within the project study area. Surveys or additional site level assessments are often required to confirm the presence or absence of natural heritage features and values.

The proposed project area is located within Eco-region 6E (Lake Simcoe – Rideau, Mixedwood Plains) and Eco-districts 6E-9 (Havelock) and 6E-15 (Picton).

The following technical guides are the province's best available information to support identification of significant natural heritage features in different landscapes:

- Natural Heritage Reference Manual, 2005 (attached)
- [Significant Wildlife Habitat Technical Guide, 2000](#)
- [Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E, January 2015](#)
- [Significant Wildlife Habitat Mitigation Support Tool, Version 2014](#)

Margaret

### **Margaret Bérubé**

Management Biologist | Peterborough Work Center – Peterborough Bancroft District

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---

**From:** Court, Andrea <[andrea.court@aecom.com](mailto:andrea.court@aecom.com)>

**Sent:** June 2, 2026 2:09 PM

**To:** Cotter, Deanna (MNR) <[Deanna.Cotter@ontario.ca](mailto:Deanna.Cotter@ontario.ca)>

**Cc:** Crawford, Kate <[kate.crawford@aecom.com](mailto:kate.crawford@aecom.com)>; Easterling, Katie <[katie.easterling@aecom.com](mailto:katie.easterling@aecom.com)>; Wells, Zach <[Zach.Wells@aecom.com](mailto:Zach.Wells@aecom.com)>; Witt, Jordan <[Jordan.Witt1@aecom.com](mailto:Jordan.Witt1@aecom.com)>; Potter, Andrea <[andrea.potter@aecom.com](mailto:andrea.potter@aecom.com)>

**Subject:** RE: Request for Natural Heritage Information - 401 Planning Study from 4.3 km East of Highway 37 to 8 km West of County Road 38.

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Thank you for the quick response.

I'll use the provided email for future inquiries and look forward to hearing from someone soon.

Andrea

**Andrea Court**  
she/her/hers

Aquatic Ecologist, Environment  
M 1-289-253-9197  
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**From:** Cotter, Deanna (MNR) <[Deanna.Cotter@ontario.ca](mailto:Deanna.Cotter@ontario.ca)>  
**Sent:** Tuesday, June 2, 2026 2:01 PM  
**To:** Court, Andrea <[andrea.court@aecom.com](mailto:andrea.court@aecom.com)>  
**Cc:** Crawford, Kate <[kate.crawford@aecom.com](mailto:kate.crawford@aecom.com)>; Easterling, Katie <[katie.easterling@aecom.com](mailto:katie.easterling@aecom.com)>; Wells, Zach <[Zach.Wells@aecom.com](mailto:Zach.Wells@aecom.com)>; Witt, Jordan <[Jordan.Witt1@aecom.com](mailto:Jordan.Witt1@aecom.com)>; Potter, Andrea <[andrea.potter@aecom.com](mailto:andrea.potter@aecom.com)>  
**Subject:** RE: Request for Natural Heritage Information - 401 Planning Study from 4.3 km East of Highway 37 to 8 km West of County Road 38.

Good afternoon Andrea,

Apologies, but I somehow missed the initial incoming e-mail from Adam. Any future inquiries to our office can be sent to [mnrf.pet@ontario.ca](mailto:mnrf.pet@ontario.ca) for future tracking and triage.

Consider this email received and someone will follow up with you on your inquiry soon.

Thanks,  
Deanna

**Deanna Cotter**  
District Supervisor | Peterborough Work Center – Peterborough Bancroft District  
Ministry of Natural Resources | Ontario Public Service  
705-872-1924 | [deanna.cotter@ontario.ca](mailto:deanna.cotter@ontario.ca)

**Ontario** 

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Preferred Pronouns: she/her/hers, listen to the pronunciation of my [name](#)



**Please note:** As part of providing [accessible customer service](#), if you have any accommodation needs, require communication supports, or alternate formats please let me know.

---

**From:** Court, Andrea <[andrea.court@aecom.com](mailto:andrea.court@aecom.com)>

**Sent:** June 2, 2026 1:53 PM

**To:** Cotter, Deanna (MNR) <[Deanna.Cotter@ontario.ca](mailto:Deanna.Cotter@ontario.ca)>

**Cc:** Crawford, Kate <[kate.crawford@aecom.com](mailto:kate.crawford@aecom.com)>; Easterling, Katie <[katie.easterling@aecom.com](mailto:katie.easterling@aecom.com)>; Wells, Zach <[Zach.Wells@aecom.com](mailto:Zach.Wells@aecom.com)>; Witt, Jordan <[Jordan.Witt1@aecom.com](mailto:Jordan.Witt1@aecom.com)>; Potter, Andrea <[andrea.potter@aecom.com](mailto:andrea.potter@aecom.com)>

**Subject:** Request for Natural Heritage Information - 401 Planning Study from 4.3 km East of Highway 37 to 8 km West of County Road 38.

**CAUTION -- EXTERNAL E-MAIL - Do not click links or open attachments unless you recognize the sender.**

Hello Deanna,

I am following up on our previous request for information related to the following project.

AECOM has been retained by the Ministry of Transportation (MTO) to undertake two Planning, Preliminary Design and Class Environmental Assessment (EA) Studies to develop a plan of improvement to Highway 401 between the City of Belleville and the City of Kingston. These two studies will address current and future transportation needs by developing a plan for the rehabilitation and/or replacement of various structures, determining the long-term interchange configuration at seven locations, and establishing the footprint for the interim six and ultimate eight lanes of Highway 401. Study #1 is located within the City of Belleville, the Township of Tyendinaga, the Town of Greater Napanee, the County of Hastings, and the County of Lennox and Addington. Study #2 is located within the Town of Greater Napanee, the Township of Loyalist, and the County of Lennox and Addington.

As part of the Study #2 project, the previously approved Palace Road Interchange Technically Preferred Plan, as documented in the *Highway 401 Interchange Improvements at Palace Road Class Environmental Assessment and Preliminary Design Study Transportation Environmental Study Report (March 2019)*, was revisited to assess compatibility with an interim and ultimate footprint of Highway 401, as well as to accommodate a potential 130 km/h design speed. Based on this review, no significant modifications to the previously approved configuration are recommended. However, as the Palace Road Interchange Technically Preferred Plan is now moving forward to Detail Design, advancement of the Napanee River Bridge (Site 17X-0062/B0) improvements from the current Study #2 project is required due to its proximity to Palace Road. As such, the improvements to the Napanee River Bridge are being advanced as a separate Preliminary Design and Class EA Study (GWP 4040-20-00) that will include standalone environmental reports and ultimately, documentation in a separate Transportation Environmental Study Report (TESR).

We are requesting any additional fisheries information available to support the background review for this project. We would also appreciate an expedited response regarding the Napanee River, if possible.

Thank you in advance for your assistance. Please let me know if you have any questions or require additional information to support this request.

Thank you,  
Andrea

**Andrea Court**  
*she/her/hers*

Aquatic Ecologist, Environment  
M 1-289-253-9197  
[andrea.court@aecom.com](mailto:andrea.court@aecom.com)

---

**From:** Liposcak, Adam <[adam.liposcak@aecom.com](mailto:adam.liposcak@aecom.com)>

**Sent:** Friday, May 2, 2025 10:20 AM

**To:** [deanna.cotter@ontario.ca](mailto:deanna.cotter@ontario.ca)

**Cc:** Ballie, Jessica <[Jessica.Ballie@aecom.com](mailto:Jessica.Ballie@aecom.com)>; Anevich, Megan <[megan.anevich@aecom.com](mailto:megan.anevich@aecom.com)>; Court, Andrea <[andrea.court@aecom.com](mailto:andrea.court@aecom.com)>; Perz, Johanna <[Johanna.Perz@aecom.com](mailto:Johanna.Perz@aecom.com)>; Potter, Andrea <[andrea.potter@aecom.com](mailto:andrea.potter@aecom.com)>; Witt, Jordan <[Jordan.Witt1@aecom.com](mailto:Jordan.Witt1@aecom.com)>

**Subject:** Request for Natural Heritage Information - 401 Planning Study from 4.3 km East of Highway 37 to 8 km West of County Road 38.

Dear Deanna Cotter,

Please find attached a formal information request letter. AECOM has been retained by the Ministry of Transportation (MTO) to undertake two Planning, Preliminary Design and Class Environmental Assessment (EA) Studies to develop a plan of improvement to Highway 401 between the City of Belleville and the City of Kingston. These two studies will address current and future transportation needs by developing a plan for the rehabilitation and/or replacement of various structures, determining the long-term interchange configuration at seven locations, and establishing the footprint for the interim six and ultimate eight lanes of Highway 401. Study #1 is located within the City of Belleville, the Township of Tyendinaga, the Town of Greater Napanee, the County of Hastings, and the County of Lennox and Addington. Study #2 is located within the Town of Greater Napanee, the Township of Loyalist, and the County of Lennox and Addington.

The purpose of the attached letter is to request additional natural heritage information to be considered as part of the background review process for the Project. Thank you in advance for any assistance you may provide. Please let me know if you have any questions or require any additional information in order to process our request.

Thank you,  
Adam Liposcak, Dip.

Ecologist, Impact Assessment and Permitting, Canada  
M +1-226-753-6777  
[adam.liposcak@aecom.com](mailto:adam.liposcak@aecom.com)

## Court, Andrea

---

**From:** Ballie, Jessica  
**Sent:** Monday, June 2, 2025 4:59 AM  
**To:** Anevich, Megan; Court, Andrea; Liposcak, Adam  
**Cc:** Perz, Johanna; Potter, Andrea; Witt, Jordan  
**Subject:** Fw: Request for Natural Heritage Information - 401 Planning Study from 4.3 km East of Highway 37 to 8 km West of County Road 38.

FYI- see response from CRCA below. @Liposcak, Adam can you please save a copy of this email to the 300-series folder?

Thanks,  
**Jessica Ballie** (*she/her*)  
Terrestrial Ecologist, Impact Assessment and Permitting, Canada

D +1-416-706-4396

[Jessica.Ballie@aecom.com](mailto:Jessica.Ballie@aecom.com)

[Click here](#) to connect with me on LinkedIn

AECOM

[aecom.com?](http://aecom.com?)

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---

**From:** Liposcak, Adam <adam.liposcak@aecom.com>  
**Sent:** Friday, May 30, 2025 4:24 PM  
**To:** Ballie, Jessica <Jessica.Ballie@aecom.com>  
**Subject:** FW: Request for Natural Heritage Information - 401 Planning Study from 4.3 km East of Highway 37 to 8 km West of County Road 38.

Adam Liposcak, Dip.

Ecologist, Impact Assessment and Permitting, Canada

M +1-226-753-6777

[adam.liposcak@aecom.com](mailto:adam.liposcak@aecom.com)

---

**From:** Mike Dakin <MDakin@crca.ca>  
**Sent:** May 30, 2025 3:56 PM  
**To:** Liposcak, Adam <adam.liposcak@aecom.com>  
**Cc:** Mallory Wright <MWright@crca.ca>  
**Subject:** RE: Request for Natural Heritage Information - 401 Planning Study from 4.3 km East of Highway 37 to 8 km West of County Road 38.

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Hello Adam,

Apologies for the delay in following up on your request.

I've completed a preliminary review of our files and have found the following information sources that may be of some assistance:

- Various site-specific Environmental Impact Assessments for private lands abutting or in proximity to the Highway 401 corridor in the general study area
- Central Cataraqui Region Natural Heritage Study (CRCA, 2006) – a regional-scale natural heritage study used to inform municipal policy (includes Loyalist Township)
- Lennox and Addington County Natural Heritage Study (2021)
- Napanee Natural Heritage Study (CRCA, LTC, Quinte Conservation, 2005)
- Natural Heritage Plan for the Land Conservancy of Kingston, Frontenac, Lennox and Addington (North-South Environmental, 2017)

We can share the regional and municipal studies, as these are publicly available. But we may need you to go through an FOI process for private, site-specific environmental studies.

We may also have some benthic invertebrate monitoring data and possibly some limited fish monitoring data for Wilton and Millhaven Creek. If this sort of data is of interest, please let me know and I can see what is available.

Let me know if there are any questions for now.

Mike

**Michael Dakin** RPP, MCIP  
Supervisor, Development Review



**Phone:** (613) 546-4228 ext. 228

**Toll-Free:** 1-877-956-2722

**Web:** [www.CataraquiConservation.ca](http://www.CataraquiConservation.ca)

**Please note individuals should schedule an appointment with Cataraqui Conservation staff for any in-person inquiries relating to planning and permitting matters. Contact me or visit <https://crca.ca/property-inquiry-form/> to do so.**

---

**From:** Liposcak, Adam <[adam.liposcak@aecom.com](mailto:adam.liposcak@aecom.com)>

**Sent:** May 2, 2025 10:16 AM

**To:** Mike Dakin <[MDakin@crca.ca](mailto:MDakin@crca.ca)>; Mallory Wright <[MWright@crca.ca](mailto:MWright@crca.ca)>

**Cc:** Ballie, Jessica <[Jessica.Ballie@aecom.com](mailto:Jessica.Ballie@aecom.com)>; Anevich, Megan <[megan.anevich@aecom.com](mailto:megan.anevich@aecom.com)>; Court, Andrea <[andrea.court@aecom.com](mailto:andrea.court@aecom.com)>; Perz, Johanna <[Johanna.Perz@aecom.com](mailto:Johanna.Perz@aecom.com)>; Potter, Andrea <[andrea.potter@aecom.com](mailto:andrea.potter@aecom.com)>; Witt, Jordan <[Jordan.Witt1@aecom.com](mailto:Jordan.Witt1@aecom.com)>

**Subject:** Request for Natural Heritage Information - 401 Planning Study from 4.3 km East of Highway 37 to 8 km West of County Road 38.

Dear Mallory Wright and Michael Rakin,

Please find attached a formal information request letter. AECOM has been retained by the Ministry of Transportation (MTO) to undertake two Planning, Preliminary Design and Class Environmental Assessment (EA) Studies to develop a plan of improvement to Highway 401 between the City of Belleville and the City of Kingston. These two studies will address current and future transportation needs by developing a plan for the rehabilitation and/or replacement of various structures, determining the long-term interchange configuration at seven locations, and establishing the footprint for the interim six and ultimate eight lanes of Highway 401. Study #1 is located within the City of Belleville, the Township of Tyendinaga, the Town of Greater Napanee, the County of Hastings, and the County of Lennox and Addington. Study #2 is located within the Town of Greater Napanee, the Township of Loyalist, and the County of Lennox and Addington.

The purpose of the attached letter is to request additional natural heritage information to be considered as part of the background review process for the Project. Thank you in advance for any assistance you may provide. Please let me know if you have any questions or require any additional information in order to process our request.

Thank you,  
Adam Liposcak, Dip.

Ecologist, Impact Assessment and Permitting, Canada  
M +1-226-753-6777  
[adam.liposcak@aecom.com](mailto:adam.liposcak@aecom.com)

## Court, Andrea

---

**From:** Liposcak, Adam  
**Sent:** Monday, June 2, 2025 10:20 AM  
**To:** Anevich, Megan; Court, Andrea; Perz, Johanna  
**Cc:** Ballie, Jessica  
**Subject:** FW: Highway 401 Between Belleville and Kingston

Adam Liposcak, Dip.

Ecologist, Impact Assessment and Permitting, Canada  
M +1-226-753-6777  
[adam.liposcak@aecom.com](mailto:adam.liposcak@aecom.com)

---

**From:** Paul McCoy <PMcCoy@quinteconservation.ca>  
**Sent:** May 2, 2025 11:01 AM  
**To:** Liposcak, Adam <adam.liposcak@aecom.com>  
**Subject:** Highway 401 Between Belleville and Kingston

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Adam

As per Bill 23 and O. Reg. 596/22, Conservation Authorities no longer provide natural heritage comments for projects under the EA Act.

However, this office has participated in several virtual meetings and provided natural hazard information for the subject project.



### Paul McCoy

Planning and Regulations Manager

**P:** 613-968-3434 or 613-354-3312 ext. 108

**E:** [pmccoy@quinteconservation.ca](mailto:pmccoy@quinteconservation.ca)

RR#2, 2061 Old Hwy #2, Belleville, ON K8N 4Z2

[QuinteConservation.ca](http://QuinteConservation.ca) | [QuinteSourceWater.ca](http://QuinteSourceWater.ca)



*Working, living, and learning on the traditional territories of the Anishinabek, Huron-Wendat, and Haudenosaunee (Iroquois) peoples.*

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## Court, Andrea

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**From:** Liposcak, Adam  
**Sent:** Monday, June 2, 2025 10:22 AM  
**To:** Perz, Johanna; Court, Andrea; Anevich, Megan  
**Cc:** Ballie, Jessica  
**Subject:** FW: Request for Natural Heritage Information - 401 Planning Study from 4.3 km East of Highway 37 to 8 km West of County Road 38.

Adam Liposcak, Dip.

Ecologist, Impact Assessment and Permitting, Canada  
M +1-226-753-6777  
[adam.liposcak@aecom.com](mailto:adam.liposcak@aecom.com)

---

**From:** Cotter, Deanna (MNR) <Deanna.Cotter@ontario.ca>  
**Sent:** May 2, 2025 10:21 AM  
**To:** Liposcak, Adam <adam.liposcak@aecom.com>  
**Subject:** Automatic reply: Request for Natural Heritage Information - 401 Planning Study from 4.3 km East of Highway 37 to 8 km West of County Road 38.

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I will be unavailable from Wednesday, April 30 to Friday, May 2.

If you need immediate assistance please contact:

**Terrah Bird at [terrah.bird@ontario.ca](mailto:terrah.bird@ontario.ca).**

Otherwise I will respond to all e-mails when I return on Monday, May 5.

Thank you,

Deanna Cotter

District Supervisor

Peterborough Work Center - Ministry of Natural Resources

## Anevich, Megan

---

**From:** Liposcak, Adam  
**Sent:** May 2, 2025 10:24 AM  
**To:** pmccoy@quinteconservation.ca  
**Cc:** Ballie, Jessica; Perz, Johanna; Anevich, Megan; Court, Andrea; Potter, Andrea; Witt, Jordan  
**Subject:** Request for Natural Heritage Information - 401 Planning Study from 4.3 km East of Highway 37 to 8 km West of County Road 38.  
**Attachments:** LET-2025-05-01-Info\_Request\_QC-Belleville to Kingston.pdf  
**Categories:** Red Category

Dear Paul McCoy,

Please find attached a formal information request letter. AECOM has been retained by the Ministry of Transportation (MTO) to undertake two Planning, Preliminary Design and Class Environmental Assessment (EA) Studies to develop a plan of improvement to Highway 401 between the City of Belleville and the City of Kingston. These two studies will address current and future transportation needs by developing a plan for the rehabilitation and/or replacement of various structures, determining the long-term interchange configuration at seven locations, and establishing the footprint for the interim six and ultimate eight lanes of Highway 401. Study #1 is located within the City of Belleville, the Township of Tyendinaga, the Town of Greater Napanee, the County of Hastings, and the County of Lennox and Addington. Study #2 is located within the Town of Greater Napanee, the Township of Loyalist, and the County of Lennox and Addington.

The purpose of the attached letter is to request additional natural heritage information to be considered as part of the background review process for the Project. Thank you in advance for any assistance you may provide. Please let me know if you have any questions or require any additional information in order to process our request.

Thank you,

Adam Liposcak, Dip.

Ecologist, Impact Assessment and Permitting, Canada  
M +1-226-753-6777  
[adam.liposcak@aecom.com](mailto:adam.liposcak@aecom.com)



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www.aecom.com

Quinte Conservation  
2061 Old Highway #2  
Belleville, ON K8N4Z2

Paul McCoy  
Planning & Regulations Manager  
Tel: 613-968-3434  
Fax: 613-968-8240  
[pmccoy@quinteconservation.ca](mailto:pmccoy@quinteconservation.ca)

May 1, 2025

| <b>Project #</b> | <b>Client Reference:</b> |
|------------------|--------------------------|
| 60734357         | GWP 4022-21-00           |
|                  | GWP 4016-21-00           |

**Subject: Request for Natural Heritage Information Highway 401 Planning Improvements between Belleville and Kingston Study #1 (GWP 4022-21-00) Study #2 (GWP 4016-21-00) Preliminary Design and Class Environmental Assessment Study Ontario Ministry of Transportation**

Dear Paul McCoy,

The Ontario Ministry of Transportation (MTO) has retained AECOM Canada ULC to conduct the following two Planning, Preliminary Design and Class Environmental Assessment (EA) Studies to develop a plan of improvement to Highway 401 between the City of Belleville and the City of Kingston:

- Study 1 limits include Highway 401 from 4.3 km east of Highway 37 (IC 544) to 5 km west of County Road 41/Centre Street (IC 579) for a total length of approximately 26 km.
- Study 2 limits include Highway 401 from 5 km west of County Road 41/Centre Street (IC 579) to 8 km west of County Road 38 (IC 611) for a total length of approximately 34 km.

These studies will address current and future transportation needs by developing a plan for the rehabilitation and/or replacement of various structures, determining the long-term interchange configuration at seven locations, and establishing the footprint for the interim six and ultimate eight lanes of Highway 401.

Study #1 is located within the City of Belleville, the Township of Tyendinaga, the Town of Greater Napanee, the County of Hastings, and the County of Lennox and Addington. Study #2 is located within the Town of Greater Napanee, the Township of Loyalist, and the County of Lennox and Addington. The Study Area for the ecological investigation includes a 200 m area around the centerline of Highway 401, along the extent of both study limits. The Study Area is shown in **Figure 1**.







AECOM has undertaken a preliminary review of available background data within the Study Area using the following available sources:

- Ontario Ministry of Natural Resources (MNR)'s Make-a-Map: Natural Heritage Areas application and Natural Heritage Information Centre (NHIC) records (MNR, 2025a);
- Ontario MNR's Geospatial Ontario (GEO) GeoHub database (MNR; 2025b);
- Ontario Ministry of Natural Resources (MNR)'s Fish ON-Line (MNR, 2025c);
- Ontario Reptile and Amphibian Atlas (ORAA; Ontario Nature 2019);
- Ontario Breeding Bird Atlas (OBBA; Bird Studies Canada et.al, 2025);
- Ontario Butterfly Atlas (OBA; Toronto Entomologists' Association [TEA], 2025a);
- Ontario Moth Atlas (Toronto Entomologists' Association [TEA], 2025b);
- Ontario Tree Atlas Program (OTAP, University of Guelph, 2025)
- iNaturalist (2025);
- eBird (Cornell Lab of Ornithology, 2025);
- Bat Conservation International (BCI) Species Profiles and Range Maps (BCI, 2025);
- Species at Risk (SAR) in Ontario List online (Ministry of Environment, Conservation and Parks [MECP], 2025);
- Clam Counter, the freshwater mussel reporting and identification app (Toronto Zoo and DFO, 2025);
- Fisheries and Oceans Canada (DFO)'s Aquatic SAR Mapping (DFO, 2025);
- Cataraqui Conservation Watershed report cards and maps (Cataraqui Conservation, 2025); and,
- Quinte Conservation Watershed report cards and maps (Quinte Conservation, 2025).

Review of the above sources identified the following natural heritage features within the vicinity of the Study Area:

- Salmon River Alvar Area of Natural and Scientific Interest (ANSI; MNR, 2025a, MNR; 2025b);
- Millhaven Creek Provincially Significant Wetland (PSW; MNR, 2025a, MNR; 2025b);
- Napanee Limestone Plain Important Bird Area (IBA; IBA 2025);
- Rare Plant Community - Red Cedar - Early Buttercup Treed Alvar Grassland Type (S2) (MNR, 2025a);
- Rare Plant Community - Tufted Hairgrass - Canada Bluegrass - Philadelphia Panic Grass Alvar Grassland Type (S2S3) (MNR, 2025a);
- Wildlife Concentration Area - Colonial Waterbird Nesting Area (MNR, 2025a); and,
- Wildlife Concentration Area – Mixed Wader Nesting Colony (MNR, 2025a).

According to available species records, 21 SAR<sup>1</sup> and 50 Species of Conservation Concern (SOCC)<sup>2</sup> were identified as potentially occurring within the vicinity of the Project location. These species and their associated S-Ranks and status under the *Endangered Species Act, 2007* (ESA), *Species at Risk Act, 2002* (SARA) and the Committee on the Endangered Wildlife in Canada (COSEWIC) are shown in **Table 1**.

---

<sup>1</sup> Species at Risk (SAR) refer to species listed as Threatened, Endangered or Extirpated under the provincial Endangered Species Act, 2007 that are afforded individual and habitat protection.

<sup>2</sup> Species of Conservation Concern (SOCC) refer to the following:

- Species with Provincial S rank assigned by the Natural Heritage Information Centre as S1 (critically imperiled), S2 (imperiled) or S3 (vulnerable);
- Species listed as Special Concern under the Endangered Species Act, 2007; and
- Species identified as nationally Endangered or Threatened by the Committee on the Status of Endangered Wildlife in Canada, which are not protected under the Endangered Species Act, 2007.



**Table 1: Records of Protected Species Within the Vicinity of the Study Area**

| SAR/SOCC | Taxon  | Common Name                 | Scientific Name                   | S-Rank <sup>1</sup> | COSEWIC Status <sup>2</sup> | SARA Status <sup>2</sup> | ESA Status <sup>2</sup> | Latest Year <sup>3</sup> | Source <sup>4</sup>    |
|----------|--------|-----------------------------|-----------------------------------|---------------------|-----------------------------|--------------------------|-------------------------|--------------------------|------------------------|
| SAR      | Bird   | Bank Swallow                | <i>Riparia riparia</i>            | S4B                 | THR                         | THR                      | THR                     | NA                       | OBBA                   |
| SAR      | Bird   | Bobolink                    | <i>Dolichonyx oryzivorus</i>      | S4B                 | SC                          | THR                      | THR                     | 2024                     | NHIC; OBBA; eBird      |
| SAR      | Bird   | Chimney Swift               | <i>Chaetura pelagica</i>          | S3B                 | THR                         | THR                      | THR                     | NA                       | OBBA; eBird            |
| SAR      | Bird   | Eastern Meadowlark          | <i>Sturnella magna</i>            | S4B, S3N            | THR                         | THR                      | THR                     | 2023                     | NHIC; OBBA; eBird      |
| SAR      | Bird   | King Rail                   | <i>Rallus elegans</i>             | S1B                 | END                         | END                      | END                     | NA                       | OBBA; IBA              |
| SAR      | Bird   | Least Bittern               | <i>Ixobrychus exilis</i>          | S4B                 | THR                         | THR                      | THR                     | NA                       | OBBA                   |
| SAR      | Bird   | Loggerhead Shrike           | <i>Lanius ludovicianus</i>        | S1B                 | END                         | END                      | END                     | 2020                     | NHIC; OBBA; eBird; IBA |
| SAR      | Bird   | Red-headed Woodpecker       | <i>Melanerpes erythrocephalus</i> | S3                  | END                         | END                      | END                     | 2019                     | eBird                  |
| SAR      | Fish   | American Eel                | <i>Anguilla rostrata</i>          | S1S2                | THR                         | No Status                | END                     | NA                       | NHIC                   |
| SAR      | Mammal | Eastern Red Bat             | <i>Lasiurus borealis</i>          | S2S3                | END                         | No Status                | END                     | NA                       | BCI                    |
| SAR      | Mammal | Eastern Small-Footed Myotis | <i>Myotis leibii</i>              | S2S3                | No Status                   | No Status                | END                     | NA                       | BCI                    |
| SAR      | Mammal | Little Brown Myotis         | <i>Myotis lucifugus</i>           | S3                  | END                         | END                      | END                     | NA                       | BCI                    |
| SAR      | Mammal | Northern Myotis             | <i>Myotis septentrionalis</i>     | S3                  | END                         | END                      | END                     | NA                       | BCI                    |
| SAR      | Mammal | Northern Hoary Bat          | <i>Lasiurus cinereus</i>          | S2S3                | END                         | No Status                | END                     | NA                       | BCI                    |
| SAR      | Mammal | Silver-haired Bat           | <i>Lasionycteris noctivagans</i>  | S2S3                | END                         | No Status                | END                     | NA                       | BCI                    |
| SAR      | Mammal | Tricolored Bat              | <i>Perimyotis subflavus</i>       | S3?                 | END                         | END                      | END                     | NA                       | BCI                    |
| SAR      | Plant  | Black Ash                   | <i>Fraxinus nigra</i>             | S4                  | END                         | No Status                | THR                     | NA                       | OTA                    |
| SAR      | Plant  | Butternut                   | <i>Juglans cinerea</i>            | S2?                 | END                         | END                      | END                     | 2020                     | OTA; iNaturalist       |
| SAR      | Plant  | Juniper Sedge               | <i>Carex juniperorum</i>          | S1                  | END                         | END                      | END                     | NA                       | NHIC                   |

| SAR/SOCC | Taxon   | Common Name               | Scientific Name                      | S-Rank <sup>1</sup> | COSEWIC Status <sup>2</sup> | SARA Status <sup>2</sup> | ESA Status <sup>2</sup> | Latest Year <sup>3</sup> | Source <sup>4</sup>     |
|----------|---------|---------------------------|--------------------------------------|---------------------|-----------------------------|--------------------------|-------------------------|--------------------------|-------------------------|
| SAR      | Plant   | Hill's Pondweed           | <i>Potamogeton x ogdenii</i>         | SNA                 | END                         | END                      | END                     | N/A                      | NHIC                    |
| SAR      | Reptile | Blanding's Turtle         | <i>Emydoidea blandingii</i>          | S3                  | END                         | No Status                | THR                     | 2024                     | NHIC; iNaturalist; ORAA |
| SOCC     | Bird    | American Coot             | <i>Fulica americana</i>              | S3B, S4N            | NAR                         | No Status                | NAR                     | NA                       | OBBA                    |
| SOCC     | Bird    | Barn Swallow              | <i>Hirundo rustica</i>               | S4B                 | SC                          | THR                      | SC                      | 2024                     | OBBA; eBird             |
| SOCC     | Bird    | Black-crowned Night-Heron | <i>Nycticorax nycticorax</i>         | S3B, S2N, S4M       | No Status                   | No Status                | No Status               | 2022                     | iNaturalist             |
| SOCC     | Bird    | Black Tern                | <i>Chlidonias niger</i>              | S3B, S4M            | NAR                         | No Status                | SC                      | NA                       | OBBA                    |
| SOCC     | Bird    | Blue-winged Teal          | <i>Spatula discors</i>               | S3B, S4M            | No Status                   | No Status                | No Status               | NA                       | NHIC; OBBA              |
| SOCC     | Bird    | Common Gallinule          | <i>Gallinula galeata</i>             | S3B                 | No Status                   | No Status                | No Status               | NA                       | OBBA                    |
| SOCC     | Bird    | Common Nighthawk          | <i>Chordeiles minor</i>              | S4B                 | SC                          | SC                       | SC                      | NA                       | OBBA                    |
| SOCC     | Bird    | Eastern Wood-pewee        | <i>Contopus virens</i>               | S4B                 | SC                          | SC                       | SC                      | 2021                     | NHIC; OBBA; eBird       |
| SOCC     | Bird    | Eastern Whip-poor-will    | <i>Antrostomus vociferus</i>         | S4B                 | SC                          | THR                      | SC                      | 2024                     | OBBA; eBird             |
| SOCC     | Bird    | Evening Grosbeak          | <i>Coccothraustes vespertinus</i>    | S4B                 | SC                          | SC                       | SC                      | NA                       | OBBA                    |
| SOCC     | Bird    | Golden-winged Warbler     | <i>Vermivora chrysoptera</i>         | S3B                 | THR                         | THR                      | SC                      | NA                       | OBBA                    |
| SOCC     | Bird    | Grasshopper Sparrow       | <i>Ammodramus savannarum</i>         | S4B                 | SC                          | No Status                | SC                      | 2024                     | NHIC; OBBA; eBird       |
| SOCC     | Bird    | Great Egret               | <i>Ardea alba</i>                    | S2B, S3M            | No Status                   | No Status                | No Status               | 2024                     | eBird                   |
| SOCC     | Bird    | Purple Martin             | <i>Progne subis</i>                  | S3B                 | No Status                   | No Status                | No Status               | 2022                     | NHIC; eBird             |
| SOCC     | Bird    | Upland Sandpiper          | <i>Bartramia longicauda</i>          | S2B                 | No Status                   | No Status                | No Status               | 2021                     | NHIC; OBBA; eBird       |
| SOCC     | Bird    | Wood Thrush               | <i>Hylocichla mustelina</i>          | S4B                 | THR                         | THR                      | SC                      | 2024                     | NHIC; OBBA; eBird       |
| SOCC     | Fish    | Silver Lamprey            | <i>Ichthyomyzon unicuspis pop. 1</i> | S3                  | SC                          | SC                       | SC                      | NA                       | DFO                     |
| SOCC     | Fish    | Bridle Shiner             | <i>Notropis bifrenatus</i>           | S2                  | SC                          | SC                       | SC                      | NA                       | LIO                     |

| SAR/SOCC | Taxon   | Common Name                 | Scientific Name                 | S-Rank <sup>1</sup> | COSEWIC Status <sup>2</sup> | SARA Status <sup>2</sup> | ESA Status <sup>2</sup> | Latest Year <sup>3</sup> | Source <sup>4</sup>           |
|----------|---------|-----------------------------|---------------------------------|---------------------|-----------------------------|--------------------------|-------------------------|--------------------------|-------------------------------|
| SOCC     | Fish    | River Redhorse              | <i>Moxostoma carinatum</i>      | S2                  | SC                          | SC                       | SC                      | NA                       | DFO                           |
| SOCC     | Fish    | Channel Darter              | <i>Percina copelandi pop. 2</i> | S2                  | END                         | END                      | SC                      | NA                       | NHIC, DFO                     |
| SOCC     | Insect  | Finlayson's Oakworm Moth    | <i>Anisota finlaysoni</i>       | S2                  | SC                          | No Status                | No Status               | NA                       | NHIC                          |
| SOCC     | Insect  | Giant Leopard Moth          | <i>Hypercompe scribonia</i>     | S3S4                | No Status                   | No Status                | No Status               | 2023                     | iNaturalist                   |
| SOCC     | Insect  | Hackberry Emperor           | <i>Asterocampa celtis</i>       | S3                  | No Status                   | No Status                | No Status               | 2021                     | OBA                           |
| SOCC     | Insect  | Judith's Underwing          | <i>Catocala judith</i>          | S2S3                | No Status                   | No Status                | No Status               | 2019                     | OMA                           |
| SOCC     | Insect  | Juniper Hairstreak          | <i>Callophrys gryneus</i>       | S3                  | No Status                   | No Status                | No Status               | 2023                     | NHIC; OBA                     |
| SOCC     | Insect  | Monarch                     | <i>Danaus plexippus</i>         | S2N, S4B            | END                         | END                      | SC                      | 2023                     | OBA                           |
| SOCC     | Insect  | Orange Virbia               | <i>Virbia aurantiaca</i>        | S3S4                | No Status                   | No Status                | No Status               | 2019                     | OMA                           |
| SOCC     | Insect  | Penitent Underwing          | <i>Catocala piatrix</i>         | S3                  | No Status                   | No Status                | No Status               | 2019                     | OMA                           |
| SOCC     | Lichen  | Blushing Scale Lichen       | <i>Psora decipiens</i>          | S3                  | No Status                   | No Status                | No Status               | NA                       | NHIC                          |
| SOCC     | Lichen  | Rusty Firedot Lichen        | <i>Blastenia ferruginea</i>     | S1?                 | No Status                   | No Status                | No Status               | NA                       | NHIC                          |
| SOCC     | Lichen  | <i>Scytinium dactylinum</i> | <i>Scytinium dactylinum</i>     | S3                  | No Status                   | No Status                | No Status               | 2024                     | iNaturalist                   |
| SOCC     | Mollusk | Black Sandshell             | <i>Ligumia recta</i>            | S3                  | No Status                   | No Status                | No Status               | NA                       | ClamCounter                   |
| SOCC     | Mollusk | Eastern Floater             | <i>Pyganodon cataracta</i>      | S3                  | No Status                   | No Status                | No Status               | NA                       | ClamCounter                   |
| SOCC     | Mollusk | Eastern Pondmussel          | <i>Ligumia nasuta</i>           | S1                  | END                         | SC                       | SC                      | NA                       | ClamCounter                   |
| SOCC     | Mollusk | Elktoe                      | <i>Alasmidonta marginata</i>    | S3                  | No Status                   | No Status                | No Status               | NA                       | ClamCounter                   |
| SOCC     | Mollusk | Pink Heelsplitter           | <i>Potamilus alatus</i>         | S3                  | No Status                   | No Status                | No Status               | NA                       | ClamCounter                   |
| SOCC     | Mollusk | Triangle Floater            | <i>Alasmidonta undulata</i>     | S3                  | No Status                   | No Status                | No Status               | NA                       | ClamCounter                   |
| SOCC     | Mollusk | Rainbow                     | <i>Cambarunio iris</i>          | S1                  | SC                          | SC                       | SC                      | 2022                     | DFO; iNaturalist; ClamCounter |

| SAR/SOCC | Taxon   | Common Name             | Scientific Name               | S-Rank <sup>1</sup> | COSEWIC Status <sup>2</sup> | SARA Status <sup>2</sup> | ESA Status <sup>2</sup> | Latest Year <sup>3</sup> | Source <sup>4</sup> |
|----------|---------|-------------------------|-------------------------------|---------------------|-----------------------------|--------------------------|-------------------------|--------------------------|---------------------|
|          |         |                         |                               |                     |                             |                          |                         |                          |                     |
| SOCC     | Plant   | Creeping Draba          | <i>Tomostima reptans</i>      | S2S3                | No Status                   | No Status                | No Status               | NA                       | NHIC                |
| SOCC     | Plant   | Grooved Yellow Flax     | <i>Linum sulcatum</i>         | S2S3                | No Status                   | No Status                | No Status               | NA                       | NHIC                |
| SOCC     | Plant   | One-sided Rush          | <i>Juncus secundus</i>        | S3                  | No Status                   | No Status                | No Status               | NA                       | NHIC                |
| SOCC     | Plant   | Round-nerved Grimmia    | <i>Grimmia teretinervis</i>   | S2                  | No Status                   | No Status                | No Status               | NA                       | NHIC                |
| SOCC     | Plant   | Short-stalked Chickweed | <i>Cerastium brachypodum</i>  | S2                  | No Status                   | No Status                | No Status               | NA                       | NHIC                |
| SOCC     | Plant   | Side-oats Grama         | <i>Bouteloua curtipendula</i> | S2                  | No Status                   | No Status                | No Status               | NA                       | NHIC                |
| SOCC     | Plant   | Tinted Woodland Spurge  | <i>Euphorbia commutata</i>    | S1                  | No Status                   | No Status                | No Status               | 2020                     | NHIC; iNaturalist   |
| SOCC     | Plant   | Tiny Mousetail          | <i>Myosurus minimus</i>       | S2                  | No Status                   | No Status                | No Status               | NA                       | NHIC                |
| SOCC     | Plant   | Yellow-fruited Sedge    | <i>Carex annectens</i>        | S2                  | No Status                   | No Status                | No Status               | NA                       | NHIC                |
| SOCC     | Reptile | Eastern Musk Turtle     | <i>Sternotherus odoratus</i>  | S3                  | SC                          | SC                       | SC                      | 2016                     | NHIC; ORAA          |
| SOCC     | Reptile | Northern Map Turtle     | <i>Graptemys geographica</i>  | S3                  | SC                          | SC                       | SC                      | 2024                     | ORAA; iNaturalist   |
| SOCC     | Reptile | Snapping Turtle         | <i>Chelydra serpentina</i>    | S4                  | SC                          | SC                       | SC                      | 2019                     | NHIC; ORAA          |

<sup>1</sup> S-Rank: Subnational Rank

S1: Extremely rare in Ontario; usually 5 or fewer occurrences in the province, or very few remaining hectares.

S2: Very rare in Ontario; usually between 5 and 20 occurrences in the province, or few remaining hectares.

S3: Vulnerable—Vulnerable in the province due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation.

S4: Apparently Secure—Uncommon but not rare; some cause for long-term concern due to declines or other factors.

S?: Not Ranked/ under review.

B: Breeding—Conservation status refers to the breeding population of the species in the province.

N: Nonbreeding—Conservation status refers to the non-breeding population of the species in the province.

<sup>2</sup> NAR: Not at Risk

SC: Special Concern

THR: Threatened

END: Endangered

<sup>3</sup> Records shown are within the past 20 years (2001 – 2021), or there is no associated date. Older records are considered historical and have been excluded.

<sup>4</sup> NHIC: Natural Heritage Information Centre

OBBA: Ontario Breeding Bird Atlas

OBA: Ontario Butterfly Atlas

ORAA: Ontario Reptile and Amphibian Atlas

BCI: Bat Conservation International

Fish and fish habitat information was collected where available for watercourses in the study area and is summarized in **Attachment A**. According to DFO's Aquatic SAR mapping (2025), aquatic SAR and Critical Habitat were identified in the Salmon River (WC-1-16). As per Step 2 of the MTO/DFO/MNRF *Protocol for Protecting Fish and Fish Habitat on Provincial Transportation Undertakings* (2020), AECOM kindly requests that Quinte Conservation review the information in **Attachment A** and confirm or update as needed.

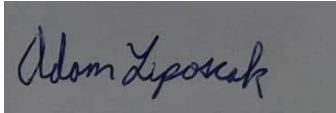
During this preliminary desktop review, AECOM has also identified data gaps for which we require additional information. **Please consider this a formal request for the following information.** If you could please review the above listed data and provide us with any additional information, reports, and GIS data pertaining to:

- Presence of Natural Areas (Environmentally Significant / Sensitive Areas, PSWs, Areas of Natural and Scientific Interest [ANSIs], Provincial Parks, Conservation Reserves, and Wildlife Management Areas);
- Natural Area Reports;
- In-water Timing Restrictions;
- Important Commercial or Recreation Fisheries;
- Water Quantity / Quality Data;
- Groundwater Discharge Areas;
- Watercourse Names, Thermal and Flow Regimes;
- Fish Habitat Sensitivity;
- Habitat Information and Location;
- Fisheries Management Objectives / plans;
- Fish Community Records;
- Benthic Invertebrate data;
- Known fish spawning;
- Aboriginal Fisheries;
- Regulation limits;
- Regulated floodplain mapping;
- Significant Wildlife Habitat including SOCC occurrences or wildlife use of the area; and,
- SAR occurrences.

Any insight that Quinte Conservation can provide is greatly appreciated. AECOM will be reaching out to other applicable agencies for additional records within the vicinity of the Project location. If you have any questions, please do not hesitate to contact the undersigned. Thank you for your time and assistance.

Sincerely,

**AECOM Canada ULC**

A handwritten signature in black ink, reading "Adam Liposcak", is displayed on a dark grey rectangular background.

Adam Liposcak, Dip.  
Ecologist

[adam.liposcak@aecom.com](mailto:adam.liposcak@aecom.com)

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**Attachment A: Background Review of Fish Habitat and Fish Community Data**

| Location                           | Waterbody Name    | Waterbody GPS<br>(Attach Google map)                                                                                           | Watercourse Classification<br>(i.e. warmwater, coldwater) <sup>1</sup> | Habitat Information<br>(Include details/locations for fish passage barriers, known spawning habitats, groundwater upwellings, migratory corridors, etc.) | Historical Data<br>(Include details on the historical fish species present, and if the waterbody is considered to support any vulnerable, threatened, or endangered aquatic species) <sup>1</sup> | MNR Fisheries Management Objectives<br>(If applicable, include details) | In-Water Timing Windows for Construction<br>(Provide dates) <sup>2</sup> |
|------------------------------------|-------------------|--------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|--------------------------------------------------------------------------|
| WC-1-01                            |                   | 44.2105, -77.3382<br><a href="#">Google Maps</a>                                                                               |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-1-02                            |                   | 44.2141, -77.3231<br><a href="#">Google Maps</a>                                                                               |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-1-03                            |                   | 44.2149, -77.3198<br><a href="#">Google Maps</a>                                                                               |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-1-04                            |                   | 44.2174, -77.3094<br><a href="#">Google Maps</a>                                                                               |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-1-05                            |                   | 44.2195, -77.3003<br><a href="#">Google Maps</a>                                                                               |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-1-06                            | Blessington Creek | 44.2219, -77.2837<br><a href="#">Google Maps</a>                                                                               | Warm                                                                   |                                                                                                                                                          | <ul style="list-style-type: none"> <li>• Brook Stickleback (<i>Culaea inconstans</i>)</li> <li>• Central Mudminnow (<i>Umbra limi</i>)</li> <li>• Sunfish (<i>Lepomis sp.</i>)</li> </ul>         |                                                                         | No in-water works from March 15 – July 15                                |
| WC-1-07                            |                   | 44.2199, -77.2750<br><a href="#">Google Maps</a>                                                                               |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-1-08                            |                   | 44.2181, -77.2694<br><a href="#">Google Maps</a>                                                                               |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-1-09                            |                   | 44.2173, -77.2631<br><a href="#">Google Maps</a>                                                                               |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-1-10a,<br>WC-1-10b,<br>WC-1-10c |                   | WC-1-10a:<br>44.2207, -77.2446<br><a href="#">Google Maps</a><br>WC-1-10b:<br>44.2199, -77.2428<br><a href="#">Google Maps</a> |                                                                        |                                                                                                                                                          | <ul style="list-style-type: none"> <li>• Brook Stickleback</li> <li>• Finescale Dace (<i>Chrosomus neogaeus</i>)</li> </ul>                                                                       |                                                                         | No in-water works from March 15 – July 15                                |

| Location | Waterbody Name   | Waterbody GPS<br>(Attach Google map)                          | Watercourse Classification<br>(i.e. warmwater, coldwater) <sup>1</sup> | Habitat Information<br>(Include details/locations for fish passage barriers, known spawning habitats, groundwater upwellings, migratory corridors, etc.) | Historical Data<br>(Include details on the historical fish species present, and if the waterbody is considered to support any vulnerable, threatened, or endangered aquatic species) <sup>1</sup>                                                       | MNR Fisheries Management Objectives<br>(If applicable, include details) | In-Water Timing Windows for Construction<br>(Provide dates) <sup>2</sup> |
|----------|------------------|---------------------------------------------------------------|------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|--------------------------------------------------------------------------|
|          |                  | WC-1-10c:<br>44.2198, -77.2417<br><a href="#">Google Maps</a> |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                                                                         |                                                                         |                                                                          |
| WC-1-11  |                  | 44.2174, -77.2418<br><a href="#">Google Maps</a>              |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                                                                         |                                                                         |                                                                          |
| WC-1-12  |                  | 44.2208, -77.2343<br><a href="#">Google Maps</a>              |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                                                                         |                                                                         |                                                                          |
| WC-1-13  |                  | 44.2214, -77.2319<br><a href="#">Google Maps</a>              |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                                                                         |                                                                         |                                                                          |
| WC-1-14  |                  | 44.2243, -77.2092<br><a href="#">Google Maps</a>              |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                                                                         |                                                                         |                                                                          |
| WC-1-15  |                  | 44.2250, -77.2043<br><a href="#">Google Maps</a>              |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                                                                         |                                                                         |                                                                          |
| WC-1-16  | Salmon River     | 44.2284, -77.1800<br><a href="#">Google Maps</a>              |                                                                        | Channel Darter ( <i>Percina copelandi</i> ) Critical Habitat (Fisheries and Oceans Canada [DFO], 2025)                                                   | <ul style="list-style-type: none"> <li>• Channel Darter (Lake Ontario)</li> <li>• Rainbow (<i>Villosa iris</i>)</li> <li>• River Redhorse (<i>Moxostoma carinatum</i>)</li> <li>• Silver Lamprey (<i>Ichthyomyzon unicuspis</i>) (DFO, 2025)</li> </ul> |                                                                         | No in-water works from March 15 – July 15                                |
| WC-1-17  |                  | 44.2334, -77.1431<br><a href="#">Google Maps</a>              |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                                                                         |                                                                         |                                                                          |
| WC-1-18  | Marysville Creek | 44.2358, -77.1257<br><a href="#">Google Maps</a>              | Warm                                                                   |                                                                                                                                                          |                                                                                                                                                                                                                                                         |                                                                         |                                                                          |
| WC-1-19  | Marysville Creek | 44.2383, -77.1136<br><a href="#">Google Maps</a>              | Warm                                                                   |                                                                                                                                                          |                                                                                                                                                                                                                                                         |                                                                         |                                                                          |
| WC-1-20  |                  | 44.2404, -77.0925                                             |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                                                                         |                                                                         |                                                                          |

| Location | Waterbody Name            | Waterbody GPS<br>(Attach Google map)             | Watercourse Classification<br>(i.e. warmwater, coldwater) <sup>1</sup> | Habitat Information<br>(Include details/locations for fish passage barriers, known spawning habitats, groundwater upwellings, migratory corridors, etc.) | Historical Data<br>(Include details on the historical fish species present, and if the waterbody is considered to support any vulnerable, threatened, or endangered aquatic species) <sup>1</sup>                                                                   | MNR Fisheries Management Objectives<br>(If applicable, include details) | In-Water Timing Windows for Construction<br>(Provide dates) <sup>2</sup> |
|----------|---------------------------|--------------------------------------------------|------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|--------------------------------------------------------------------------|
|          |                           | <a href="#">Google Maps</a>                      |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                                                                                     |                                                                         |                                                                          |
| WC-1-21  |                           | 44.2403, -77.0912<br><a href="#">Google Maps</a> |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                                                                                     |                                                                         |                                                                          |
| WC-1-22  |                           | 44.2407, -77.0879<br><a href="#">Google Maps</a> |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                                                                                     |                                                                         |                                                                          |
| WC-1-23  |                           | 44.2412, -77.0838<br><a href="#">Google Maps</a> |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                                                                                     |                                                                         |                                                                          |
| WC-1-24  |                           | 44.2411, -77.0808<br><a href="#">Google Maps</a> |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                                                                                     |                                                                         |                                                                          |
| WC-1-25  |                           | 44.2428, -77.0628<br><a href="#">Google Maps</a> |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                                                                                     |                                                                         |                                                                          |
| WC-1-26  | Tributary to Sucker Creek | 44.2461, -77.0511<br><a href="#">Google Maps</a> | Warm                                                                   | Direct fish habitat (MNR, 2025b)                                                                                                                         | <ul style="list-style-type: none"> <li>• Brook Stickleback</li> <li>• Central Mudminnow</li> <li>• Fathead Minnow (<i>Pimephales promelas</i>)</li> <li>• Northern Redbelly Dace (<i>Chrosomus eos</i>)</li> <li>• Pumpkinseed (<i>Lepomis gibbosus</i>)</li> </ul> |                                                                         | No in-water works from March 15 – July 15                                |
| WC-1-27  |                           | 44.2414, -77.0624<br><a href="#">Google Maps</a> |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                                                                                     |                                                                         |                                                                          |
| WC-2-01  |                           | 44.2519, -77.0086<br><a href="#">Google Maps</a> |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                                                                                     |                                                                         |                                                                          |
| WC-2-02  |                           | 44.2534, -76.9979<br><a href="#">Google Maps</a> |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                                                                                     |                                                                         |                                                                          |
| WC-2-03  |                           | 44.2599, -76.9784<br><a href="#">Google Maps</a> |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                                                                                     |                                                                         |                                                                          |
| WC-2-04  |                           | 44.2612, -76.9748<br><a href="#">Google Maps</a> |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                                                                                     |                                                                         |                                                                          |

| Location | Waterbody Name | Waterbody GPS<br>(Attach Google map)             | Watercourse Classification<br>(i.e. warmwater, coldwater) <sup>1</sup> | Habitat Information<br>(Include details/locations for fish passage barriers, known spawning habitats, groundwater upwellings, migratory corridors, etc.) | Historical Data<br>(Include details on the historical fish species present, and if the waterbody is considered to support any vulnerable, threatened, or endangered aquatic species) <sup>1</sup> | MNR Fisheries Management Objectives<br>(If applicable, include details) | In-Water Timing Windows for Construction<br>(Provide dates) <sup>2</sup> |
|----------|----------------|--------------------------------------------------|------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|--------------------------------------------------------------------------|
| WC-2-05  |                | 44.2641, -76.9676<br><a href="#">Google Maps</a> |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-2-06  |                | 44.2657, -76.9657<br><a href="#">Google Maps</a> |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-2-07  |                | 44.2637, -76.9644<br><a href="#">Google Maps</a> |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-2-08  |                | 44.2664, -76.9633<br><a href="#">Google Maps</a> |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-2-09a | Sucker Creek   | 44.2625, -76.9640<br><a href="#">Google Maps</a> | Warm                                                                   |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-2-09b | Sucker Creek   | 44.2660, -76.9612<br><a href="#">Google Maps</a> | Warm                                                                   |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-2-10  |                | 44.2655, -76.9491<br><a href="#">Google Maps</a> |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-2-11  |                | 44.2649, -76.9452<br><a href="#">Google Maps</a> |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-2-13  | Napanee River  | 44.2675, -76.9324<br><a href="#">Google Maps</a> |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-2-14  |                | 44.2670, -76.9319<br><a href="#">Google Maps</a> |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-2-15  |                | 44.2705, -76.9240<br><a href="#">Google Maps</a> |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-2-16  |                | 44.2715, -76.9232<br><a href="#">Google Maps</a> |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-2-17  |                | 44.2711, -76.9205<br><a href="#">Google Maps</a> |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |

| Location | Waterbody Name | Waterbody GPS<br>(Attach Google map)             | Watercourse Classification<br>(i.e. warmwater, coldwater) <sup>1</sup> | Habitat Information<br>(Include details/locations for fish passage barriers, known spawning habitats, groundwater upwellings, migratory corridors, etc.) | Historical Data<br>(Include details on the historical fish species present, and if the waterbody is considered to support any vulnerable, threatened, or endangered aquatic species) <sup>1</sup> | MNR Fisheries Management Objectives<br>(If applicable, include details) | In-Water Timing Windows for Construction<br>(Provide dates) <sup>2</sup> |
|----------|----------------|--------------------------------------------------|------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|--------------------------------------------------------------------------|
| WC-2-18  |                | 44.2725, -76.9101<br><a href="#">Google Maps</a> |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-2-19  |                | 44.2722, -76.9054<br><a href="#">Google Maps</a> |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-2-20  |                | 44.2730, -76.9038<br><a href="#">Google Maps</a> |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-2-21  |                | 44.2728, -76.8996<br><a href="#">Google Maps</a> |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-2-22  |                | 44.2734, -76.8894<br><a href="#">Google Maps</a> |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-2-23  |                | 44.2742, -76.8822<br><a href="#">Google Maps</a> |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-2-26  | Little Creek   | 44.2755, -76.8698<br><a href="#">Google Maps</a> | Warm                                                                   |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-2-27  |                | 44.2760, -76.8681<br><a href="#">Google Maps</a> |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-2-28  |                | 44.2763, -76.8582<br><a href="#">Google Maps</a> |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-2-29  |                | 44.2768, -76.8449<br><a href="#">Google Maps</a> |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-2-30  |                | 44.2772, -76.8361<br><a href="#">Google Maps</a> |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-2-31  | Spring Creek   | 44.2773, -76.8310<br><a href="#">Google Maps</a> | Warm                                                                   |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-2-32  |                | 44.2788, -76.8009<br><a href="#">Google Maps</a> |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |



| Location | Waterbody Name | Waterbody GPS<br>(Attach Google map)              | Watercourse Classification<br>(i.e. warmwater, coldwater) <sup>1</sup> | Habitat Information<br>(Include details/locations for fish passage barriers, known spawning habitats, groundwater upwellings, migratory corridors, etc.) | Historical Data<br>(Include details on the historical fish species present, and if the waterbody is considered to support any vulnerable, threatened, or endangered aquatic species) <sup>1</sup> | MNR Fisheries Management Objectives<br>(If applicable, include details) | In-Water Timing Windows for Construction<br>(Provide dates) <sup>2</sup> |
|----------|----------------|---------------------------------------------------|------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|--------------------------------------------------------------------------|
| WC-2-33a | Wilton Creek   | 44.2791 , -76.7897<br><a href="#">Google Maps</a> | Warm                                                                   |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-2-33b | Wilton Creek   | 44.2810, -76.7868<br><a href="#">Google Maps</a>  | Warm                                                                   |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-2-34  |                | 44.2788, -76.7876<br><a href="#">Google Maps</a>  |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-2-35  |                | 44.2782, -76.7867<br><a href="#">Google Maps</a>  |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-2-36  |                | 44.2797, -76.7741<br><a href="#">Google Maps</a>  |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-2-37  |                | 44.2803, -76.7587<br><a href="#">Google Maps</a>  |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-2-38  |                | 44.2807, -76.7513<br><a href="#">Google Maps</a>  |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-2-39  |                | 44.2812, -76.7411<br><a href="#">Google Maps</a>  |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-2-40  |                | 44.2814, -76.7364<br><a href="#">Google Maps</a>  |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-2-41  |                | 44.2817, -76.7308<br><a href="#">Google Maps</a>  |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-2-42a |                | 44.2834, -76.7272<br><a href="#">Google Maps</a>  |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-2-42b |                | 44.2836, -76.7268<br><a href="#">Google Maps</a>  |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-2-43  |                | 44.2797, -76.7246<br><a href="#">Google Maps</a>  |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |

| Location | Waterbody Name  | Waterbody GPS<br>(Attach Google map)             | Watercourse Classification<br>(i.e. warmwater, coldwater) <sup>1</sup> | Habitat Information<br>(Include details/locations for fish passage barriers, known spawning habitats, groundwater upwellings, migratory corridors, etc.) | Historical Data<br>(Include details on the historical fish species present, and if the waterbody is considered to support any vulnerable, threatened, or endangered aquatic species) <sup>1</sup> | MNR Fisheries Management Objectives<br>(If applicable, include details) | In-Water Timing Windows for Construction<br>(Provide dates) <sup>2</sup> |
|----------|-----------------|--------------------------------------------------|------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|--------------------------------------------------------------------------|
| WC-2-44a | Millhaven Creek | 44.2823, -76.7196<br><a href="#">Google Maps</a> |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-2-44b | Millhaven Creek | 44.2852, -76.7168<br><a href="#">Google Maps</a> |                                                                        | Dam structure north of study area.                                                                                                                       |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-2-45  |                 | 44.2835, -76.7147<br><a href="#">Google Maps</a> |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-2-46  |                 | 44.2820, -76.7171<br><a href="#">Google Maps</a> |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-2-47  |                 | 44.2827, -76.7115<br><a href="#">Google Maps</a> |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-2-48  |                 | 44.2832, -76.7016<br><a href="#">Google Maps</a> |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-2-49  |                 | 44.284, -76.6947<br><a href="#">Google Maps</a>  | Warm                                                                   |                                                                                                                                                          | • Northern Redbelly Dace                                                                                                                                                                          |                                                                         |                                                                          |
| WC-2-50  |                 | 44.2845, -76.686<br><a href="#">Google Maps</a>  |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-2-51  |                 | 44.2846, -76.6807<br><a href="#">Google Maps</a> |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-2-52  |                 | 44.2847, -76.6782<br><a href="#">Google Maps</a> |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-2-53  |                 | 44.2848, -76.6729<br><a href="#">Google Maps</a> |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-2-54  |                 | 44.2848, -76.6693<br><a href="#">Google Maps</a> |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |

<sup>1</sup> Ministry of Natural Resources (MNR) GeoHub Land Information Ontario (2025). <https://geohub.lio.gov.on.ca/datasets/aquatic-resource-area-line-segment/explore>

<sup>2</sup> MNR In-water Works Timing Window (2013). <https://docs.ontario.ca/documents/2579/stdprod-109170.pdf>

## Anevich, Megan

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**From:** Liposcak, Adam  
**Sent:** May 2, 2025 10:16 AM  
**To:** mdakin@crca.ca; MWright@crca.ca  
**Cc:** Ballie, Jessica; Anevich, Megan; Court, Andrea; Perz, Johanna; Potter, Andrea; Witt, Jordan  
**Subject:** Request for Natural Heritage Information - 401 Planning Study from 4.3 km East of Highway 37 to 8 km West of County Road 38.  
**Attachments:** LET-2025-05-01-Info\_Request\_CRCA-Belleville to Kingston.pdf

Dear Mallory Wright and Michael Rakin,

Please find attached a formal information request letter. AECOM has been retained by the Ministry of Transportation (MTO) to undertake two Planning, Preliminary Design and Class Environmental Assessment (EA) Studies to develop a plan of improvement to Highway 401 between the City of Belleville and the City of Kingston. These two studies will address current and future transportation needs by developing a plan for the rehabilitation and/or replacement of various structures, determining the long-term interchange configuration at seven locations, and establishing the footprint for the interim six and ultimate eight lanes of Highway 401. Study #1 is located within the City of Belleville, the Township of Tyendinaga, the Town of Greater Napanee, the County of Hastings, and the County of Lennox and Addington. Study #2 is located within the Town of Greater Napanee, the Township of Loyalist, and the County of Lennox and Addington.

The purpose of the attached letter is to request additional natural heritage information to be considered as part of the background review process for the Project. Thank you in advance for any assistance you may provide. Please let me know if you have any questions or require any additional information in order to process our request.

Thank you,  
Adam Liposcak, Dip.

Ecologist, Impact Assessment and Permitting, Canada  
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[adam.liposcak@aecom.com](mailto:adam.liposcak@aecom.com)



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Cataraqui Region Conservation Authority  
2069 Battersea Road  
Glenburnie, ON K0H 1S0

May 1, 2025

To: Mallory Wright, Water Resources Technologist  
[MWright@crca.ca](mailto:MWright@crca.ca)

**Project #**  
60734357

**Client Reference:**  
GWP 4022-21-00  
GWP 4016-21-00

Michael Dakin, Supervisor Development Review  
[mdakin@crca.ca](mailto:mdakin@crca.ca)

**Subject: Request for Natural Heritage Information Highway 401 Planning Improvements between Belleville and Kingston Study #1 (GWP 4022-21-00) Study #2 (GWP 4016-21-00) Preliminary Design and Class Environmental Assessment Study Ontario Ministry of Transportation**

The Ontario Ministry of Transportation (MTO) has retained AECOM Canada ULC to conduct the following two Planning, Preliminary Design and Class Environmental Assessment (EA) Studies to develop a plan of improvement to Highway 401 between the City of Belleville and the City of Kingston:

- Study 1 limits include Highway 401 from 4.3 km east of Highway 37 (IC 544) to 5 km west of County Road 41/Centre Street (IC 579) for a total length of approximately 26 km.
- Study 2 limits include Highway 401 from 5 km west of County Road 41/Centre Street (IC 579) to 8 km west of County Road 38 (IC 611) for a total length of approximately 34 km.

These studies will address current and future transportation needs by developing a plan for the rehabilitation and/or replacement of various structures, determining the long-term interchange configuration at seven locations, and establishing the footprint for the interim six and ultimate eight lanes of Highway 401.

Study #1 is located within the City of Belleville, the Township of Tyendinaga, the Town of Greater Napanee, the County of Hastings, and the County of Lennox and Addington. Study #2 is located within the Town of Greater Napanee, the Township of Loyalist, and the County of Lennox and Addington. The Study Area for the ecological investigation includes a 200 m area around the centerline of Highway 401, along the extent of both study limits. The Study Area is shown in **Figure 1**.







AECOM has undertaken a preliminary review of available background data within the Study Area using the following available sources:

- Ontario Ministry of Natural Resources (MNR)'s Make-a-Map: Natural Heritage Areas application and Natural Heritage Information Centre (NHIC) records (MNR, 2025a);
- Ontario MNR's Geospatial Ontario (GEO) GeoHub database (MNR; 2025b);
- Ontario Ministry of Natural Resources (MNR)'s Fish ON-Line (MNR, 2025c);
- Ontario Reptile and Amphibian Atlas (ORAA; Ontario Nature 2019);
- Ontario Breeding Bird Atlas (OBBA; Bird Studies Canada et.al, 2025);
- Ontario Butterfly Atlas (OBA; Toronto Entomologists' Association [TEA], 2025a);
- Ontario Moth Atlas (Toronto Entomologists' Association [TEA], 2025b);
- Ontario Tree Atlas Program (OTAP, University of Guelph, 2025)
- iNaturalist (2025);
- eBird (Cornell Lab of Ornithology, 2025);
- Bat Conservation International (BCI) Species Profiles and Range Maps (BCI, 2025);
- Species at Risk (SAR) in Ontario List online (Ministry of Environment, Conservation and Parks [MECP], 2025);
- Clam Counter, the freshwater mussel reporting and identification app (Toronto Zoo and DFO, 2025);
- Fisheries and Oceans Canada (DFO)'s Aquatic SAR Mapping (DFO, 2025);
- Cataraqui Conservation Watershed report cards and maps (Cataraqui Conservation, 2025); and,
- Quinte Conservation Watershed report cards and maps (Quinte Conservation, 2025).

Review of the above sources identified the following natural heritage features within the vicinity of the Study Area:

- Salmon River Alvar Area of Natural and Scientific Interest (ANSI; MNR, 2025a, MNR; 2025b);
- Millhaven Creek Provincially Significant Wetland (PSW; MNR, 2025a, MNR; 2025b);
- Napanee Limestone Plain Important Bird Area (IBA; IBA 2025);
- Rare Plant Community - Red Cedar - Early Buttercup Treed Alvar Grassland Type (S2) (MNR, 2025a);
- Rare Plant Community - Tufted Hairgrass - Canada Bluegrass - Philadelphia Panic Grass Alvar Grassland Type (S2S3) (MNR, 2025a);
- Wildlife Concentration Area - Colonial Waterbird Nesting Area (MNR, 2025a); and,
- Wildlife Concentration Area – Mixed Wader Nesting Colony (MNR, 2025a).

According to available species records, 21 SAR<sup>1</sup> and 50 Species of Conservation Concern (SOCC)<sup>2</sup> were identified as potentially occurring within the vicinity of the Project location. These species and their associated S-Ranks and status under the *Endangered Species Act, 2007* (ESA), *Species at Risk Act, 2002* (SARA) and the Committee on the Endangered Wildlife in Canada (COSEWIC) are shown in **Table 1**.

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<sup>1</sup> Species at Risk (SAR) refer to species listed as Threatened, Endangered or Extirpated under the provincial Endangered Species Act, 2007 that are afforded individual and habitat protection.

<sup>2</sup> Species of Conservation Concern (SOCC) refer to the following:

- Species with Provincial S rank assigned by the Natural Heritage Information Centre as S1 (critically imperiled), S2 (imperiled) or S3 (vulnerable);
- Species listed as Special Concern under the Endangered Species Act, 2007; and
- Species identified as nationally Endangered or Threatened by the Committee on the Status of Endangered Wildlife in Canada, which are not protected under the Endangered Species Act, 2007.



**Table 1: Records of Protected Species Within the Vicinity of the Study Area**

| SAR/SOCC | Taxon  | Common Name                 | Scientific Name                   | S-Rank <sup>1</sup> | COSE WIC Status <sup>2</sup> | SARA Status <sup>2</sup> | ESA Status <sup>2</sup> | Latest Year <sup>3</sup> | Source <sup>4</sup>    |
|----------|--------|-----------------------------|-----------------------------------|---------------------|------------------------------|--------------------------|-------------------------|--------------------------|------------------------|
| SAR      | Bird   | Bank Swallow                | <i>Riparia riparia</i>            | S4B                 | THR                          | THR                      | THR                     | NA                       | OBBA                   |
| SAR      | Bird   | Bobolink                    | <i>Dolichonyx oryzivorus</i>      | S4B                 | SC                           | THR                      | THR                     | 2024                     | NHIC; OBBA; eBird      |
| SAR      | Bird   | Chimney Swift               | <i>Chaetura pelagica</i>          | S3B                 | THR                          | THR                      | THR                     | NA                       | OBBA; eBird            |
| SAR      | Bird   | Eastern Meadowlark          | <i>Sturnella magna</i>            | S4B, S3N            | THR                          | THR                      | THR                     | 2023                     | NHIC; OBBA; eBird      |
| SAR      | Bird   | King Rail                   | <i>Rallus elegans</i>             | S1B                 | END                          | END                      | END                     | NA                       | OBBA; IBA              |
| SAR      | Bird   | Least Bittern               | <i>Ixobrychus exilis</i>          | S4B                 | THR                          | THR                      | THR                     | NA                       | OBBA                   |
| SAR      | Bird   | Loggerhead Shrike           | <i>Lanius ludovicianus</i>        | S1B                 | END                          | END                      | END                     | 2020                     | NHIC; OBBA; eBird; IBA |
| SAR      | Bird   | Red-headed Woodpecker       | <i>Melanerpes erythrocephalus</i> | S3                  | END                          | END                      | END                     | 2019                     | eBird                  |
| SAR      | Fish   | American Eel                | <i>Anguilla rostrata</i>          | S1S2                | THR                          | No Status                | END                     | NA                       | NHIC                   |
| SAR      | Mammal | Eastern Red Bat             | <i>Lasiurus borealis</i>          | S2S3                | END                          | No Status                | END                     | NA                       | BCI                    |
| SAR      | Mammal | Eastern Small-Footed Myotis | <i>Myotis leibii</i>              | S2S3                | No Status                    | No Status                | END                     | NA                       | BCI                    |
| SAR      | Mammal | Little Brown Myotis         | <i>Myotis lucifugus</i>           | S3                  | END                          | END                      | END                     | NA                       | BCI                    |
| SAR      | Mammal | Northern Myotis             | <i>Myotis septentrionalis</i>     | S3                  | END                          | END                      | END                     | NA                       | BCI                    |
| SAR      | Mammal | Hoary Bat                   | <i>Lasiurus cinereus</i>          | S2S3                | END                          | No Status                | END                     | NA                       | BCI                    |
| SAR      | Mammal | Silver-haired Bat           | <i>Lasionycteris noctivagans</i>  | S2S3                | END                          | No Status                | END                     | NA                       | BCI                    |
| SAR      | Mammal | Tricolored Bat              | <i>Perimyotis subflavus</i>       | S3?                 | END                          | END                      | END                     | NA                       | BCI                    |
| SAR      | Plant  | Black Ash                   | <i>Fraxinus nigra</i>             | S4                  | END                          | No Status                | THR                     | NA                       | OTA                    |
| SAR      | Plant  | Butternut                   | <i>Juglans cinerea</i>            | S2?                 | END                          | END                      | END                     | 2020                     | OTA; iNaturalist       |
| SAR      | Plant  | Juniper Sedge               | <i>Carex juniperorum</i>          | S1                  | END                          | END                      | END                     | NA                       | NHIC                   |
| SAR      | Plant  | Hills Pondweed              | <i>Potamogeton x ogdenii</i>      | SNA                 | END                          | END                      | END                     | N/A                      | NHIC                   |

| SAR/SOCC | Taxon   | Common Name               | Scientific Name                      | S-Rank <sup>1</sup> | COSE WIC Status <sup>2</sup> | SARA Status <sup>2</sup> | ESA Status <sup>2</sup> | Latest Year <sup>3</sup> | Source <sup>4</sup>     |
|----------|---------|---------------------------|--------------------------------------|---------------------|------------------------------|--------------------------|-------------------------|--------------------------|-------------------------|
| SAR      | Reptile | Blanding's Turtle         | <i>Emydoidea blandingii</i>          | S3                  | END                          | No Status                | THR                     | 2024                     | NHIC; iNaturalist; ORAA |
| SOCC     | Bird    | American Coot             | <i>Fulica americana</i>              | S3B, S4N            | NAR                          | No Status                | NAR                     | NA                       | OBBA                    |
| SOCC     | Bird    | Barn Swallow              | <i>Hirundo rustica</i>               | S4B                 | SC                           | THR                      | SC                      | 2024                     | OBBA; eBird             |
| SOCC     | Bird    | Black-crowned Night-Heron | <i>Nycticorax nycticorax</i>         | S3B, S2N, S4M       | No Status                    | No Status                | No Status               | 2022                     | iNaturalist             |
| SOCC     | Bird    | Black Tern                | <i>Chlidonias niger</i>              | S3B, S4M            | NAR                          | No Status                | SC                      | NA                       | OBBA                    |
| SOCC     | Bird    | Blue-winged Teal          | <i>Spatula discors</i>               | S3B, S4M            | No Status                    | No Status                | No Status               | NA                       | NHIC; OBBA              |
| SOCC     | Bird    | Common Gallinule          | <i>Gallinula galeata</i>             | S3B                 | No Status                    | No Status                | No Status               | NA                       | OBBA                    |
| SOCC     | Bird    | Common Nighthawk          | <i>Chordeiles minor</i>              | S4B                 | SC                           | SC                       | SC                      | NA                       | OBBA                    |
| SOCC     | Bird    | Eastern Wood-pewee        | <i>Contopus virens</i>               | S4B                 | SC                           | SC                       | SC                      | 2021                     | NHIC; OBBA; eBird       |
| SOCC     | Bird    | Eastern Whip-poor-will    | <i>Antrostomus vociferus</i>         | S4B                 | SC                           | THR                      | SC                      | 2024                     | OBBA; eBird             |
| SOCC     | Bird    | Evening Grosbeak          | <i>Coccothraustes vespertinus</i>    | S4B                 | SC                           | SC                       | SC                      | NA                       | OBBA                    |
| SOCC     | Bird    | Golden-winged Warbler     | <i>Vermivora chrysoptera</i>         | S3B                 | THR                          | THR                      | SC                      | NA                       | OBBA                    |
| SOCC     | Bird    | Grasshopper Sparrow       | <i>Ammodramus savannarum</i>         | S4B                 | SC                           | No Status                | SC                      | 2024                     | NHIC; OBBA; eBird       |
| SOCC     | Bird    | Great Egret               | <i>Ardea alba</i>                    | S2B, S3M            | No Status                    | No Status                | No Status               | 2024                     | eBird                   |
| SOCC     | Bird    | Purple Martin             | <i>Progne subis</i>                  | S3B                 | No Status                    | No Status                | No Status               | 2022                     | NHIC; eBird             |
| SOCC     | Bird    | Upland Sandpiper          | <i>Bartramia longicauda</i>          | S2B                 | No Status                    | No Status                | No Status               | 2021                     | NHIC; OBBA; eBird       |
| SOCC     | Bird    | Wood Thrush               | <i>Hylocichla mustelina</i>          | S4B                 | THR                          | THR                      | SC                      | 2024                     | NHIC; OBBA; eBird       |
| SOCC     | Fish    | Silver Lamprey            | <i>Ichthyomyzon unicuspis pop. 1</i> | S3                  | SC                           | SC                       | SC                      | NA                       | DFO                     |
| SOCC     | Fish    | Bridle Shiner             | <i>Notropis bifrenatus</i>           | S2                  | SC                           | SC                       | SC                      | NA                       | LIO                     |
| SOCC     | Fish    | River Redhorse            | <i>Moxostoma carinatum</i>           | S2                  | SC                           | SC                       | SC                      | NA                       | DFO                     |

| SAR/SOCC | Taxon   | Common Name                 | Scientific Name                 | S-Rank <sup>1</sup> | COSE WIC Status <sup>2</sup> | SARA Status <sup>2</sup> | ESA Status <sup>2</sup> | Latest Year <sup>3</sup> | Source <sup>4</sup>           |
|----------|---------|-----------------------------|---------------------------------|---------------------|------------------------------|--------------------------|-------------------------|--------------------------|-------------------------------|
| SOCC     | Fish    | Channel Darter              | <i>Percina copelandi pop. 2</i> | S2                  | END                          | END                      | SC                      | NA                       | NHIC, DFO                     |
| SOCC     | Insect  | Finlayson's Oakworm Moth    | <i>Anisota finlaysoni</i>       | S2                  | SC                           | No Status                | No Status               | NA                       | NHIC                          |
| SOCC     | Insect  | Giant Leopard Moth          | <i>Hypercompe scribonia</i>     | S3S4                | No Status                    | No Status                | No Status               | 2023                     | iNaturalist                   |
| SOCC     | Insect  | Hackberry Emperor           | <i>Asterocampa celtis</i>       | S3                  | No Status                    | No Status                | No Status               | 2021                     | OBA                           |
| SOCC     | Insect  | Judith's Underwing          | <i>Catocala judith</i>          | S2S3                | No Status                    | No Status                | No Status               | 2019                     | OMA                           |
| SOCC     | Insect  | Juniper Hairstreak          | <i>Callophrys gryneus</i>       | S3                  | No Status                    | No Status                | No Status               | 2023                     | NHIC; OBA                     |
| SOCC     | Insect  | Monarch                     | <i>Danaus plexippus</i>         | S2N, S4B            | END                          | END                      | SC                      | 2023                     | OBA                           |
| SOCC     | Insect  | Orange Virbia               | <i>Virbia aurantiaca</i>        | S3S4                | No Status                    | No Status                | No Status               | 2019                     | OMA                           |
| SOCC     | Insect  | Penitent Underwing          | <i>Catocala piatrix</i>         | S3                  | No Status                    | No Status                | No Status               | 2019                     | OMA                           |
| SOCC     | Lichen  | Blushing Scale Lichen       | <i>Psora decipiens</i>          | S3                  | No Status                    | No Status                | No Status               | NA                       | NHIC                          |
| SOCC     | Lichen  | Rusty Firedot Lichen        | <i>Blastenia ferruginea</i>     | S1?                 | No Status                    | No Status                | No Status               | NA                       | NHIC                          |
| SOCC     | Lichen  | <i>Scytinium dactylinum</i> | <i>Scytinium dactylinum</i>     | S3                  | No Status                    | No Status                | No Status               | 2024                     | iNaturalist                   |
| SOCC     | Mollusk | Black Sandshell             | <i>Ligumia recta</i>            | S3                  | No Status                    | No Status                | No Status               | NA                       | ClamCounter                   |
| SOCC     | Mollusk | Eastern Floater             | <i>Pyganodon cataracta</i>      | S3                  | No Status                    | No Status                | No Status               | NA                       | ClamCounter                   |
| SOCC     | Mollusk | Eastern Pondmussel          | <i>Ligumia nasuta</i>           | S1                  | END                          | SC                       | SC                      | NA                       | ClamCounter                   |
| SOCC     | Mollusk | Elktoe                      | <i>Alasmidonta marginata</i>    | S3                  | No Status                    | No Status                | No Status               | NA                       | ClamCounter                   |
| SOCC     | Mollusk | Pink Heelsplitter           | <i>Potamilus alatus</i>         | S3                  | No Status                    | No Status                | No Status               | NA                       | ClamCounter                   |
| SOCC     | Mollusk | Triangle Floater            | <i>Alasmidonta undulata</i>     | S3                  | No Status                    | No Status                | No Status               | NA                       | ClamCounter                   |
| SOCC     | Mollusk | Rainbow                     | <i>Cambarunio iris</i>          | S1                  | SC                           | SC                       | SC                      | 2022                     | DFO; iNaturalist; ClamCounter |

| SAR/SOCC | Taxon   | Common Name             | Scientific Name               | S-Rank <sup>1</sup> | COSEWIC Status <sup>2</sup> | SARA Status <sup>2</sup> | ESA Status <sup>2</sup> | Latest Year <sup>3</sup> | Source <sup>4</sup> |
|----------|---------|-------------------------|-------------------------------|---------------------|-----------------------------|--------------------------|-------------------------|--------------------------|---------------------|
| SOCC     | Plant   | Creeping Draba          | <i>Tomostima reptans</i>      | S2S3                | No Status                   | No Status                | No Status               | NA                       | NHIC                |
| SOCC     | Plant   | Grooved Yellow Flax     | <i>Linum sulcatum</i>         | S2S3                | No Status                   | No Status                | No Status               | NA                       | NHIC                |
| SOCC     | Plant   | One-sided Rush          | <i>Juncus secundus</i>        | S3                  | No Status                   | No Status                | No Status               | NA                       | NHIC                |
| SOCC     | Plant   | Round-nerved Grimmia    | <i>Grimmia teretineris</i>    | S2                  | No Status                   | No Status                | No Status               | NA                       | NHIC                |
| SOCC     | Plant   | Short-stalked Chickweed | <i>Cerastium brachypodium</i> | S2                  | No Status                   | No Status                | No Status               | NA                       | NHIC                |
| SOCC     | Plant   | Side-oats Grama         | <i>Bouteloua curtipendula</i> | S2                  | No Status                   | No Status                | No Status               | NA                       | NHIC                |
| SOCC     | Plant   | Tinted Woodland Spurge  | <i>Euphorbia commutata</i>    | S1                  | No Status                   | No Status                | No Status               | 2020                     | NHIC; iNaturalist   |
| SOCC     | Plant   | Tiny Mousetail          | <i>Myosurus minimus</i>       | S2                  | No Status                   | No Status                | No Status               | NA                       | NHIC                |
| SOCC     | Plant   | Yellow-fruited Sedge    | <i>Carex annectens</i>        | S2                  | No Status                   | No Status                | No Status               | NA                       | NHIC                |
| SOCC     | Reptile | Eastern Musk Turtle     | <i>Sternotherus odoratus</i>  | S3                  | SC                          | SC                       | SC                      | 2016                     | NHIC; ORAA          |
| SOCC     | Reptile | Northern Map Turtle     | <i>Graptemys geographica</i>  | S3                  | SC                          | SC                       | SC                      | 2024                     | ORAA; iNaturalist   |
| SOCC     | Reptile | Snapping Turtle         | <i>Chelydra serpentina</i>    | S4                  | SC                          | SC                       | SC                      | 2019                     | NHIC; ORAA          |

<sup>1</sup> S-Rank: Subnational Rank

S1: Extremely rare in Ontario; usually 5 or fewer occurrences in the province, or very few remaining hectares.

S2: Very rare in Ontario; usually between 5 and 20 occurrences in the province, or few remaining hectares.

S3: Vulnerable—Vulnerable in the province due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation.

S4: Apparently Secure—Uncommon but not rare; some cause for long-term concern due to declines or other factors.

S?: Not Ranked/ under review.

B: Breeding—Conservation status refers to the breeding population of the species in the province.

N: Nonbreeding—Conservation status refers to the non-breeding population of the species in the province.

<sup>2</sup> NAR: Not at Risk

SC: Special Concern

THR: Threatened

END: Endangered

<sup>3</sup> Records shown are within the past 20 years (2001 – 2021), or there is no associated date. Older records are considered historical and have been excluded.

<sup>4</sup> NHIC: Natural Heritage Information Centre

OBBA: Ontario Breeding Bird Atlas

OBA: Ontario Butterfly Atlas

ORAA: Ontario Reptile and Amphibian Atlas

BCI: Bat Conservation International

Fish and fish habitat information was collected where available for watercourses in the Study Area and is summarized in **Attachment A**. According to DFO's Aquatic SAR mapping (2025), aquatic SAR and Critical Habitat were identified in the Salmon River (WC-1-16). As per Step 2 of the MTO/DFO/MNRF *Protocol for Protecting Fish and Fish Habitat on Provincial Transportation Undertakings* (2020), AECOM kindly requests that the Cataraqui Region Conservation Authority review the information in **Attachment A** and confirm or update as needed.

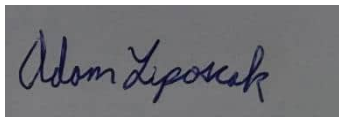
During this preliminary desktop review, AECOM has also identified data gaps for which we require additional information. **Please consider this a formal request for the following information.** If you could please review the above listed data and provide us with any additional information, reports, and GIS data pertaining to:

- Presence of Natural Areas (Environmentally Significant / Sensitive Areas, PSWs, Areas of Natural and Scientific Interest [ANSIs], Provincial Parks, Conservation Reserves, and Wildlife Management Areas);
- Natural Area Reports;
- In-water Timing Restrictions;
- Important Commercial or Recreation Fisheries;
- Water Quantity / Quality Data;
- Groundwater Discharge Areas;
- Watercourse Names, Thermal and Flow Regimes;
- Fish Habitat Sensitivity;
- Habitat Information and Location;
- Fisheries Management Objectives / plans;
- Fish Community Records;
- Benthic Invertebrate data;
- Known fish spawning;
- Aboriginal Fisheries;
- Regulation limits;
- Regulated floodplain mapping;
- Significant Wildlife Habitat including SOCC occurrences or wildlife use of the area; and,
- SAR occurrences.

Any insight that Cataraqui Conservation can provide is greatly appreciated. AECOM will be reaching out to other applicable agencies for additional records within the vicinity of the Project location. If you have any questions, please do not hesitate to contact the undersigned. Thank you for your time and assistance.

Sincerely,

**AECOM Canada ULC**

A rectangular box containing a handwritten signature in dark ink. The signature appears to read "Adam Liposcak".

Adam Liposcak, Dip.  
Ecologist

[adam.liposcak@aecom.com](mailto:adam.liposcak@aecom.com)

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**Attachment A: Background Review of Fish Habitat and Fish Community Data**

| Location                           | Waterbody Name    | Waterbody GPS<br>(Attach Google map)                                                                                                        | Watercourse Classification<br>(i.e. warmwater, coldwater) <sup>1</sup> | Habitat Information<br>(Include details/locations for fish passage barriers, known spawning habitats, groundwater upwellings, migratory corridors, etc.) | Historical Data<br>(Include details on the historical fish species present, and if the waterbody is considered to support any vulnerable, threatened, or endangered aquatic species) <sup>1</sup> | MNR Fisheries Management Objectives<br>(If applicable, include details) | In-Water Timing Windows for Construction<br>(Provide dates) <sup>2</sup> |
|------------------------------------|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|--------------------------------------------------------------------------|
| WC-1-01                            |                   | 44.2105, -77.3382<br><a href="#">Google Maps</a>                                                                                            |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-1-02                            |                   | 44.2141, -77.3231<br><a href="#">Google Maps</a>                                                                                            |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-1-03                            |                   | 44.2149, -77.3198<br><a href="#">Google Maps</a>                                                                                            |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-1-04                            |                   | 44.2174, -77.3094<br><a href="#">Google Maps</a>                                                                                            |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-1-05                            |                   | 44.2195, -77.3003<br><a href="#">Google Maps</a>                                                                                            |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-1-06                            | Blessington Creek | 44.2219, -77.2837<br><a href="#">Google Maps</a>                                                                                            | Warm                                                                   |                                                                                                                                                          | <ul style="list-style-type: none"> <li>• Brook Stickleback (<i>Culaea inconstans</i>)</li> <li>• Central Mudminnow (<i>Umbra limi</i>)</li> <li>• Sunfish (<i>Lepomis sp.</i>)</li> </ul>         |                                                                         | No in-water works from March 15 – July 15                                |
| WC-1-07                            |                   | 44.2199, -77.2750<br><a href="#">Google Maps</a>                                                                                            |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-1-08                            |                   | 44.2181, -77.2694<br><a href="#">Google Maps</a>                                                                                            |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-1-09                            |                   | 44.2173, -77.2631<br><a href="#">Google Maps</a>                                                                                            |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-1-10a,<br>WC-1-10b,<br>WC-1-10c |                   | WC-1-10a:<br>44.2207, -77.2446<br><a href="#">Google Maps</a><br>WC-1-10b:<br>44.2199, -77.2428<br><a href="#">Google Maps</a><br>WC-1-10c: |                                                                        |                                                                                                                                                          | <ul style="list-style-type: none"> <li>• Brook Stickleback</li> <li>• Finescale Dace (<i>Chrosomus neogaeus</i>)</li> </ul>                                                                       |                                                                         | No in-water works from March 15 – July 15                                |

| Location | Waterbody Name   | Waterbody GPS<br>(Attach Google map)             | Watercourse<br>Classification<br>(i.e. warmwater,<br>coldwater) <sup>1</sup> | Habitat Information<br>(Include details/locations for<br>fish passage barriers, known<br>spawning habitats,<br>groundwater upwellings,<br>migratory corridors, etc.) | Historical Data<br>(Include details on the<br>historical fish species<br>present, and if the<br>waterbody is considered<br>to support any vulnerable,<br>threatened, or endangered<br>aquatic species) <sup>1</sup>                                     | MNR<br>Fisheries<br>Management<br>Objectives<br>(If<br>applicable,<br>include<br>details) | In-Water Timing<br>Windows for<br>Construction<br>(Provide dates) <sup>2</sup> |
|----------|------------------|--------------------------------------------------|------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
|          |                  | 44.2198, -77.2417<br><a href="#">Google Maps</a> |                                                                              |                                                                                                                                                                      |                                                                                                                                                                                                                                                         |                                                                                           |                                                                                |
| WC-1-11  |                  | 44.2174, -77.2418<br><a href="#">Google Maps</a> |                                                                              |                                                                                                                                                                      |                                                                                                                                                                                                                                                         |                                                                                           |                                                                                |
| WC-1-12  |                  | 44.2208, -77.2343<br><a href="#">Google Maps</a> |                                                                              |                                                                                                                                                                      |                                                                                                                                                                                                                                                         |                                                                                           |                                                                                |
| WC-1-13  |                  | 44.2214, -77.2319<br><a href="#">Google Maps</a> |                                                                              |                                                                                                                                                                      |                                                                                                                                                                                                                                                         |                                                                                           |                                                                                |
| WC-1-14  |                  | 44.2243, -77.2092<br><a href="#">Google Maps</a> |                                                                              |                                                                                                                                                                      |                                                                                                                                                                                                                                                         |                                                                                           |                                                                                |
| WC-1-15  |                  | 44.2250, -77.2043<br><a href="#">Google Maps</a> |                                                                              |                                                                                                                                                                      |                                                                                                                                                                                                                                                         |                                                                                           |                                                                                |
| WC-1-16  | Salmon River     | 44.2284, -77.1800<br><a href="#">Google Maps</a> |                                                                              | Channel Darter ( <i>Percina copelandi</i> ) Critical Habitat<br>(Fisheries and Oceans Canada [DFO], 2025)                                                            | <ul style="list-style-type: none"> <li>• Channel Darter (Lake Ontario)</li> <li>• Rainbow (<i>Villosa iris</i>)</li> <li>• River Redhorse (<i>Moxostoma carinatum</i>)</li> <li>• Silver Lamprey (<i>Ichthyomyzon unicuspis</i>) (DFO, 2025)</li> </ul> |                                                                                           | No in-water works from March 15 – July 15                                      |
| WC-1-17  |                  | 44.2334, -77.1431<br><a href="#">Google Maps</a> |                                                                              |                                                                                                                                                                      |                                                                                                                                                                                                                                                         |                                                                                           |                                                                                |
| WC-1-18  | Marysville Creek | 44.2358, -77.1257<br><a href="#">Google Maps</a> | Warm                                                                         |                                                                                                                                                                      |                                                                                                                                                                                                                                                         |                                                                                           |                                                                                |
| WC-1-19  | Marysville Creek | 44.2383, -77.1136<br><a href="#">Google Maps</a> | Warm                                                                         |                                                                                                                                                                      |                                                                                                                                                                                                                                                         |                                                                                           |                                                                                |
| WC-1-20  |                  | 44.2404, -77.0925<br><a href="#">Google Maps</a> |                                                                              |                                                                                                                                                                      |                                                                                                                                                                                                                                                         |                                                                                           |                                                                                |

| Location | Waterbody Name                  | Waterbody GPS<br>(Attach Google map)             | Watercourse<br>Classification<br>(i.e. warmwater,<br>coldwater) <sup>1</sup> | Habitat Information<br>(Include details/locations for<br>fish passage barriers, known<br>spawning habitats,<br>groundwater upwellings,<br>migratory corridors, etc.) | Historical Data<br>(Include details on the<br>historical fish species<br>present, and if the<br>waterbody is considered<br>to support any vulnerable,<br>threatened, or endangered<br>aquatic species) <sup>1</sup>                                                         | MNR<br>Fisheries<br>Management<br>Objectives<br>(If<br>applicable,<br>include<br>details) | In-Water Timing<br>Windows for<br>Construction<br>(Provide dates) <sup>2</sup> |
|----------|---------------------------------|--------------------------------------------------|------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| WC-1-21  |                                 | 44.2403, -77.0912<br><a href="#">Google Maps</a> |                                                                              |                                                                                                                                                                      |                                                                                                                                                                                                                                                                             |                                                                                           |                                                                                |
| WC-1-22  |                                 | 44.2407, -77.0879<br><a href="#">Google Maps</a> |                                                                              |                                                                                                                                                                      |                                                                                                                                                                                                                                                                             |                                                                                           |                                                                                |
| WC-1-23  |                                 | 44.2412, -77.0838<br><a href="#">Google Maps</a> |                                                                              |                                                                                                                                                                      |                                                                                                                                                                                                                                                                             |                                                                                           |                                                                                |
| WC-1-24  |                                 | 44.2411, -77.0808<br><a href="#">Google Maps</a> |                                                                              |                                                                                                                                                                      |                                                                                                                                                                                                                                                                             |                                                                                           |                                                                                |
| WC-1-25  |                                 | 44.2428, -77.0628<br><a href="#">Google Maps</a> |                                                                              |                                                                                                                                                                      |                                                                                                                                                                                                                                                                             |                                                                                           |                                                                                |
| WC-1-26  | Tributary to<br>Sucker<br>Creek | 44.2461, -77.0511<br><a href="#">Google Maps</a> | Warm                                                                         | Direct fish habitat (MNR, 2025b)                                                                                                                                     | <ul style="list-style-type: none"> <li>• Brook Stickleback</li> <li>• Central Mudminnow</li> <li>• Fathead Minnow<br/>(<i>Pimephales promelas</i>)</li> <li>• Northern Redbelly Dace<br/>(<i>Chrosomus eos</i>)</li> <li>• Pumpkinseed (<i>Lepomis gibbosus</i>)</li> </ul> |                                                                                           | No in-water works<br>from March 15 – July<br>15                                |
| WC-1-27  |                                 | 44.2414, -77.0624<br><a href="#">Google Maps</a> |                                                                              |                                                                                                                                                                      |                                                                                                                                                                                                                                                                             |                                                                                           |                                                                                |
| WC-2-01  |                                 | 44.2519, -77.0086<br><a href="#">Google Maps</a> |                                                                              |                                                                                                                                                                      |                                                                                                                                                                                                                                                                             |                                                                                           |                                                                                |
| WC-2-02  |                                 | 44.2534, -76.9979<br><a href="#">Google Maps</a> |                                                                              |                                                                                                                                                                      |                                                                                                                                                                                                                                                                             |                                                                                           |                                                                                |
| WC-2-03  |                                 | 44.2599, -76.9784<br><a href="#">Google Maps</a> |                                                                              |                                                                                                                                                                      |                                                                                                                                                                                                                                                                             |                                                                                           |                                                                                |
| WC-2-04  |                                 | 44.2612, -76.9748<br><a href="#">Google Maps</a> |                                                                              |                                                                                                                                                                      |                                                                                                                                                                                                                                                                             |                                                                                           |                                                                                |

| Location | Waterbody Name   | Waterbody GPS<br>(Attach Google map)             | Watercourse<br>Classification<br>(i.e. warmwater,<br>coldwater) <sup>1</sup> | Habitat Information<br>(Include details/locations for<br>fish passage barriers, known<br>spawning habitats,<br>groundwater upwellings,<br>migratory corridors, etc.) | Historical Data<br>(Include details on the<br>historical fish species<br>present, and if the<br>waterbody is considered<br>to support any vulnerable,<br>threatened, or endangered<br>aquatic species) <sup>1</sup> | MNR<br>Fisheries<br>Management<br>Objectives<br>(If<br>applicable,<br>include<br>details) | In-Water Timing<br>Windows for<br>Construction<br>(Provide dates) <sup>2</sup> |
|----------|------------------|--------------------------------------------------|------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| WC-2-05  |                  | 44.2641, -76.9676<br><a href="#">Google Maps</a> |                                                                              |                                                                                                                                                                      |                                                                                                                                                                                                                     |                                                                                           |                                                                                |
| WC-2-06  |                  | 44.2657, -76.9657<br><a href="#">Google Maps</a> |                                                                              |                                                                                                                                                                      |                                                                                                                                                                                                                     |                                                                                           |                                                                                |
| WC-2-07  |                  | 44.2637, -76.9644<br><a href="#">Google Maps</a> |                                                                              |                                                                                                                                                                      |                                                                                                                                                                                                                     |                                                                                           |                                                                                |
| WC-2-08  |                  | 44.2664, -76.9633<br><a href="#">Google Maps</a> |                                                                              |                                                                                                                                                                      |                                                                                                                                                                                                                     |                                                                                           |                                                                                |
| WC-2-09a | Sucker<br>Creek  | 44.2625, -76.9640<br><a href="#">Google Maps</a> | Warm                                                                         |                                                                                                                                                                      |                                                                                                                                                                                                                     |                                                                                           |                                                                                |
| WC-2-09b | Sucker<br>Creek  | 44.2660, -76.9612<br><a href="#">Google Maps</a> | Warm                                                                         |                                                                                                                                                                      |                                                                                                                                                                                                                     |                                                                                           |                                                                                |
| WC-2-10  |                  | 44.2655, -76.9491<br><a href="#">Google Maps</a> |                                                                              |                                                                                                                                                                      |                                                                                                                                                                                                                     |                                                                                           |                                                                                |
| WC-2-11  |                  | 44.2649, -76.9452<br><a href="#">Google Maps</a> |                                                                              |                                                                                                                                                                      |                                                                                                                                                                                                                     |                                                                                           |                                                                                |
| WC-2-13  | Napanee<br>River | 44.2675, -76.9324<br><a href="#">Google Maps</a> |                                                                              |                                                                                                                                                                      |                                                                                                                                                                                                                     |                                                                                           |                                                                                |
| WC-2-14  |                  | 44.2670, -76.9319<br><a href="#">Google Maps</a> |                                                                              |                                                                                                                                                                      |                                                                                                                                                                                                                     |                                                                                           |                                                                                |
| WC-2-15  |                  | 44.2705, -76.9240<br><a href="#">Google Maps</a> |                                                                              |                                                                                                                                                                      |                                                                                                                                                                                                                     |                                                                                           |                                                                                |
| WC-2-16  |                  | 44.2715, -76.9232<br><a href="#">Google Maps</a> |                                                                              |                                                                                                                                                                      |                                                                                                                                                                                                                     |                                                                                           |                                                                                |
| WC-2-17  |                  | 44.2711, -76.9205<br><a href="#">Google Maps</a> |                                                                              |                                                                                                                                                                      |                                                                                                                                                                                                                     |                                                                                           |                                                                                |
| WC-2-18  |                  | 44.2725, -76.9101<br><a href="#">Google Maps</a> |                                                                              |                                                                                                                                                                      |                                                                                                                                                                                                                     |                                                                                           |                                                                                |

| Location | Waterbody Name | Waterbody GPS<br>(Attach Google map)             | Watercourse<br>Classification<br>(i.e. warmwater,<br>coldwater) <sup>1</sup> | Habitat Information<br>(Include details/locations for<br>fish passage barriers, known<br>spawning habitats,<br>groundwater upwellings,<br>migratory corridors, etc.) | Historical Data<br>(Include details on the<br>historical fish species<br>present, and if the<br>waterbody is considered<br>to support any vulnerable,<br>threatened, or endangered<br>aquatic species) <sup>1</sup> | MNR<br>Fisheries<br>Management<br>Objectives<br>(If<br>applicable,<br>include<br>details) | In-Water Timing<br>Windows for<br>Construction<br>(Provide dates) <sup>2</sup> |
|----------|----------------|--------------------------------------------------|------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| WC-2-19  |                | 44.2722, -76.9054<br><a href="#">Google Maps</a> |                                                                              |                                                                                                                                                                      |                                                                                                                                                                                                                     |                                                                                           |                                                                                |
| WC-2-20  |                | 44.2730, -76.9038<br><a href="#">Google Maps</a> |                                                                              |                                                                                                                                                                      |                                                                                                                                                                                                                     |                                                                                           |                                                                                |
| WC-2-21  |                | 44.2728, -76.8996<br><a href="#">Google Maps</a> |                                                                              |                                                                                                                                                                      |                                                                                                                                                                                                                     |                                                                                           |                                                                                |
| WC-2-22  |                | 44.2734, -76.8894<br><a href="#">Google Maps</a> |                                                                              |                                                                                                                                                                      |                                                                                                                                                                                                                     |                                                                                           |                                                                                |
| WC-2-23  |                | 44.2742, -76.8822<br><a href="#">Google Maps</a> |                                                                              |                                                                                                                                                                      |                                                                                                                                                                                                                     |                                                                                           |                                                                                |
| WC-2-26  | Little Creek   | 44.2755, -76.8698<br><a href="#">Google Maps</a> | Warm                                                                         |                                                                                                                                                                      |                                                                                                                                                                                                                     |                                                                                           |                                                                                |
| WC-2-27  |                | 44.2760, -76.8681<br><a href="#">Google Maps</a> |                                                                              |                                                                                                                                                                      |                                                                                                                                                                                                                     |                                                                                           |                                                                                |
| WC-2-28  |                | 44.2763, -76.8582<br><a href="#">Google Maps</a> |                                                                              |                                                                                                                                                                      |                                                                                                                                                                                                                     |                                                                                           |                                                                                |
| WC-2-29  |                | 44.2768, -76.8449<br><a href="#">Google Maps</a> |                                                                              |                                                                                                                                                                      |                                                                                                                                                                                                                     |                                                                                           |                                                                                |
| WC-2-30  |                | 44.2772, -76.8361<br><a href="#">Google Maps</a> |                                                                              |                                                                                                                                                                      |                                                                                                                                                                                                                     |                                                                                           |                                                                                |
| WC-2-31  | Spring Creek   | 44.2773, -76.8310<br><a href="#">Google Maps</a> | Warm                                                                         |                                                                                                                                                                      |                                                                                                                                                                                                                     |                                                                                           |                                                                                |
| WC-2-32  |                | 44.2788, -76.8009<br><a href="#">Google Maps</a> |                                                                              |                                                                                                                                                                      |                                                                                                                                                                                                                     |                                                                                           |                                                                                |
| WC-2-33a | Wilton Creek   | 44.2791, -76.7897<br><a href="#">Google Maps</a> | Warm                                                                         |                                                                                                                                                                      |                                                                                                                                                                                                                     |                                                                                           |                                                                                |
| WC-2-33b | Wilton Creek   | 44.2810, -76.7868<br><a href="#">Google Maps</a> | Warm                                                                         |                                                                                                                                                                      |                                                                                                                                                                                                                     |                                                                                           |                                                                                |



| Location | Waterbody Name     | Waterbody GPS<br>(Attach Google map)             | Watercourse<br>Classification<br>(i.e. warmwater,<br>coldwater) <sup>1</sup> | Habitat Information<br>(Include details/locations for<br>fish passage barriers, known<br>spawning habitats,<br>groundwater upwellings,<br>migratory corridors, etc.) | Historical Data<br>(Include details on the<br>historical fish species<br>present, and if the<br>waterbody is considered<br>to support any vulnerable,<br>threatened, or endangered<br>aquatic species) <sup>1</sup> | MNR<br>Fisheries<br>Management<br>Objectives<br>(If<br>applicable,<br>include<br>details) | In-Water Timing<br>Windows for<br>Construction<br>(Provide dates) <sup>2</sup> |
|----------|--------------------|--------------------------------------------------|------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| WC-2-34  |                    | 44.2788, -76.787<br><a href="#">Google Maps</a>  |                                                                              |                                                                                                                                                                      |                                                                                                                                                                                                                     |                                                                                           |                                                                                |
| WC-2-35  |                    | 44.2782, -76.7867<br><a href="#">Google Maps</a> |                                                                              |                                                                                                                                                                      |                                                                                                                                                                                                                     |                                                                                           |                                                                                |
| WC-2-36  |                    | 44.2797, -76.7741<br><a href="#">Google Maps</a> |                                                                              |                                                                                                                                                                      |                                                                                                                                                                                                                     |                                                                                           |                                                                                |
| WC-2-37  |                    | 44.2803, -76.7587<br><a href="#">Google Maps</a> |                                                                              |                                                                                                                                                                      |                                                                                                                                                                                                                     |                                                                                           |                                                                                |
| WC-2-38  |                    | 44.2807, -76.7513<br><a href="#">Google Maps</a> |                                                                              |                                                                                                                                                                      |                                                                                                                                                                                                                     |                                                                                           |                                                                                |
| WC-2-39  |                    | 44.2812, -76.7411<br><a href="#">Google Maps</a> |                                                                              |                                                                                                                                                                      |                                                                                                                                                                                                                     |                                                                                           |                                                                                |
| WC-2-40  |                    | 44.2814, -76.7364<br><a href="#">Google Maps</a> |                                                                              |                                                                                                                                                                      |                                                                                                                                                                                                                     |                                                                                           |                                                                                |
| WC-2-41  |                    | 44.2817, -76.7308<br><a href="#">Google Maps</a> |                                                                              |                                                                                                                                                                      |                                                                                                                                                                                                                     |                                                                                           |                                                                                |
| WC-2-42a |                    | 44.2834, -76.7272<br><a href="#">Google Maps</a> |                                                                              |                                                                                                                                                                      |                                                                                                                                                                                                                     |                                                                                           |                                                                                |
| WC-2-42b |                    | 44.2836, -76.7268<br><a href="#">Google Maps</a> |                                                                              |                                                                                                                                                                      |                                                                                                                                                                                                                     |                                                                                           |                                                                                |
| WC-2-43  |                    | 44.2797, -76.7246<br><a href="#">Google Maps</a> |                                                                              |                                                                                                                                                                      |                                                                                                                                                                                                                     |                                                                                           |                                                                                |
| WC-2-44a | Millhaven<br>Creek | 44.2823, -76.7196<br><a href="#">Google Maps</a> |                                                                              |                                                                                                                                                                      |                                                                                                                                                                                                                     |                                                                                           |                                                                                |
| WC-2-44b | Millhaven<br>Creek | 44.2852, -76.7168<br><a href="#">Google Maps</a> |                                                                              | Dam structure north of study<br>area.                                                                                                                                |                                                                                                                                                                                                                     |                                                                                           |                                                                                |
| WC-2-45  |                    | 44.2835, -76.7147<br><a href="#">Google Maps</a> |                                                                              |                                                                                                                                                                      |                                                                                                                                                                                                                     |                                                                                           |                                                                                |

| Location | Waterbody Name | Waterbody GPS<br>(Attach Google map)             | Watercourse<br>Classification<br>(i.e. warmwater,<br>coldwater) <sup>1</sup> | Habitat Information<br>(Include details/locations for<br>fish passage barriers, known<br>spawning habitats,<br>groundwater upwellings,<br>migratory corridors, etc.) | Historical Data<br>(Include details on the<br>historical fish species<br>present, and if the<br>waterbody is considered<br>to support any vulnerable,<br>threatened, or endangered<br>aquatic species) <sup>1</sup> | MNR<br>Fisheries<br>Management<br>Objectives<br>(If<br>applicable,<br>include<br>details) | In-Water Timing<br>Windows for<br>Construction<br>(Provide dates) <sup>2</sup> |
|----------|----------------|--------------------------------------------------|------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| WC-2-46  |                | 44.2820, -76.7171<br><a href="#">Google Maps</a> |                                                                              |                                                                                                                                                                      |                                                                                                                                                                                                                     |                                                                                           |                                                                                |
| WC-2-47  |                | 44.2827, -76.7115<br><a href="#">Google Maps</a> |                                                                              |                                                                                                                                                                      |                                                                                                                                                                                                                     |                                                                                           |                                                                                |
| WC-2-48  |                | 44.2832, -76.7016<br><a href="#">Google Maps</a> |                                                                              |                                                                                                                                                                      |                                                                                                                                                                                                                     |                                                                                           |                                                                                |
| WC-2-49  |                | 44.284, -76.6947<br><a href="#">Google Maps</a>  | Warm                                                                         |                                                                                                                                                                      | • Northern Redbelly Dace                                                                                                                                                                                            |                                                                                           |                                                                                |
| WC-2-50  |                | 44.2845, -76.686<br><a href="#">Google Maps</a>  |                                                                              |                                                                                                                                                                      |                                                                                                                                                                                                                     |                                                                                           |                                                                                |
| WC-2-51  |                | 44.2846, -76.6807<br><a href="#">Google Maps</a> |                                                                              |                                                                                                                                                                      |                                                                                                                                                                                                                     |                                                                                           |                                                                                |
| WC-2-52  |                | 44.2847, -76.6782<br><a href="#">Google Maps</a> |                                                                              |                                                                                                                                                                      |                                                                                                                                                                                                                     |                                                                                           |                                                                                |
| WC-2-53  |                | 44.2848, -76.6729<br><a href="#">Google Maps</a> |                                                                              |                                                                                                                                                                      |                                                                                                                                                                                                                     |                                                                                           |                                                                                |
| WC-2-54  |                | 44.2848, -76.6693<br><a href="#">Google Maps</a> |                                                                              |                                                                                                                                                                      |                                                                                                                                                                                                                     |                                                                                           |                                                                                |

<sup>1</sup> Ministry of Natural Resources (MNR) GeoHub Land Information Ontario (2025). <https://geohub.lio.gov.on.ca/datasets/aquatic-resource-area-line-segment/explore>

<sup>2</sup> MNR In-water Works Timing Window (2013). <https://docs.ontario.ca/documents/2579/stdprod-109170.pdf>

## Anevich, Megan

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**From:** Liposcak, Adam  
**Sent:** May 2, 2025 10:20 AM  
**To:** deanna.cotter@ontario.ca  
**Cc:** Ballie, Jessica; Anevich, Megan; Court, Andrea; Perz, Johanna; Potter, Andrea; Witt, Jordan  
**Subject:** Request for Natural Heritage Information - 401 Planning Study from 4.3 km East of Highway 37 to 8 km West of County Road 38.  
**Attachments:** LET-2025-05-01-Info\_Request\_MNR-Belleville to Kingston.pdf

Dear Deanna Cotter,

Please find attached a formal information request letter. AECOM has been retained by the Ministry of Transportation (MTO) to undertake two Planning, Preliminary Design and Class Environmental Assessment (EA) Studies to develop a plan of improvement to Highway 401 between the City of Belleville and the City of Kingston. These two studies will address current and future transportation needs by developing a plan for the rehabilitation and/or replacement of various structures, determining the long-term interchange configuration at seven locations, and establishing the footprint for the interim six and ultimate eight lanes of Highway 401. Study #1 is located within the City of Belleville, the Township of Tyendinaga, the Town of Greater Napanee, the County of Hastings, and the County of Lennox and Addington. Study #2 is located within the Town of Greater Napanee, the Township of Loyalist, and the County of Lennox and Addington.

The purpose of the attached letter is to request additional natural heritage information to be considered as part of the background review process for the Project. Thank you in advance for any assistance you may provide. Please let me know if you have any questions or require any additional information in order to process our request.

Thank you,  
Adam Liposcak, Dip.

Ecologist, Impact Assessment and Permitting, Canada  
M +1-226-753-6777  
[adam.liposcak@aecom.com](mailto:adam.liposcak@aecom.com)

Ministry of Natural Resources – Peterborough Bancroft District  
300 Water Street  
Peterborough, ON  
K9J3C7

May 1, 2025

**Project #**  
60734357

**Client Reference:**  
GWP 4022-21-00  
GWP 4016-21-00

Deanna Cotter, District Supervisor  
deanna.cotter@ontario.ca

**Subject: Request for Natural Heritage Information Highway 401 Planning Improvements between Belleville and Kingston Study #1 (GWP 4022-21-00) Study #2 (GWP 4016-21-00) Preliminary Design and Class Environmental Assessment Study Ontario Ministry of Transportation**

Dear Deanna Cotter,

The Ontario Ministry of Transportation (MTO) has retained AECOM Canada ULC to conduct the following two Planning, Preliminary Design and Class Environmental Assessment (EA) Studies to develop a plan of improvement to Highway 401 between the City of Belleville and the City of Kingston:

- Study 1 limits include Highway 401 from 4.3 km east of Highway 37 (IC 544) to 5 km west of County Road 41/Centre Street (IC 579) for a total length of approximately 26 km.
- Study 2 limits include Highway 401 from 5 km west of County Road 41/Centre Street (IC 579) to 8 km west of County Road 38 (IC 611) for a total length of approximately 34 km.

These studies will address current and future transportation needs by developing a plan for the rehabilitation and/or replacement of various structures, determining the long-term interchange configuration at seven locations, and establishing the footprint for the interim six and ultimate eight lanes of Highway 401.

Study #1 is located within the City of Belleville, the Township of Tyendinaga, the Town of Greater Napanee, the County of Hastings, and the County of Lennox and Addington. Study #2 is located within the Town of Greater Napanee, the Township of Loyalist, and the County of Lennox and Addington. The Study Area for the ecological investigation includes a 200 m area around the centerline of Highway 401, along the extent of both study limits. The Study Area is shown in **Figure 1**.







AECOM has undertaken a preliminary review of available background data within the Study Area using the following available sources:

- Ontario Ministry of Natural Resources (MNR)'s Make-a-Map: Natural Heritage Areas application and Natural Heritage Information Centre (NHIC) records (MNR, 2025a);
- Ontario MNR's Geospatial Ontario (GEO) GeoHub database (MNR; 2025b);
- Ontario Ministry of Natural Resources (MNR)'s Fish ON-Line (MNR, 2025c);
- Ontario Reptile and Amphibian Atlas (ORAA; Ontario Nature 2019);
- Ontario Breeding Bird Atlas (OBBA; Bird Studies Canada et.al, 2025);
- Ontario Butterfly Atlas (OBA; Toronto Entomologists' Association [TEA], 2025a);
- Ontario Moth Atlas (Toronto Entomologists' Association [TEA], 2025b);
- Ontario Tree Atlas Program (OTAP, University of Guelph, 2025)
- iNaturalist (2025);
- eBird (Cornell Lab of Ornithology, 2025);
- Bat Conservation International (BCI) Species Profiles and Range Maps (BCI, 2025);
- Species at Risk (SAR) in Ontario List online (Ministry of Environment, Conservation and Parks [MECP], 2025);
- Clam Counter, the freshwater mussel reporting and identification app (Toronto Zoo and DFO, 2025);
- Fisheries and Oceans Canada (DFO)'s Aquatic SAR Mapping (DFO, 2025);
- Cataraqui Conservation Watershed report cards and maps (Cataraqui Conservation, 2025); and,
- Quinte Conservation Watershed report cards and maps (Quinte Conservation, 2025).

Review of the above sources identified the following natural heritage features within the vicinity of the Study Area:

- Salmon River Alvar Area of Natural and Scientific Interest (ANSI; MNR, 2025a, MNR; 2025b);
- Millhaven Creek Provincially Significant Wetland (PSW; MNR, 2025a, MNR; 2025b);
- Napanee Limestone Plain Important Bird Area (IBA; IBA 2025);
- Rare Plant Community - Red Cedar - Early Buttercup Treed Alvar Grassland Type (S2) (MNR, 2025a);
- Rare Plant Community - Tufted Hairgrass - Canada Bluegrass - Philadelphia Panic Grass Alvar Grassland Type (S2S3) (MNR, 2025a);
- Wildlife Concentration Area - Colonial Waterbird Nesting Area (MNR, 2025a); and,
- Wildlife Concentration Area – Mixed Wader Nesting Colony (MNR, 2025a).

According to available species records, 21 SAR<sup>1</sup> and 50 Species of Conservation Concern (SOCC)<sup>2</sup> were identified as potentially occurring within the vicinity of the Project location. These species and their associated S-Ranks and status under the *Endangered Species Act, 2007* (ESA), *Species at Risk Act, 2002* (SARA) and the Committee on the Endangered Wildlife in Canada (COSEWIC) are shown in **Table 1**.

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<sup>1</sup> Species at Risk (SAR) refer to species listed as Threatened, Endangered or Extirpated under the provincial Endangered Species Act, 2007 that are afforded individual and habitat protection.

<sup>2</sup> Species of Conservation Concern (SOCC) refer to the following:

- Species with Provincial S rank assigned by the Natural Heritage Information Centre as S1 (critically imperiled), S2 (imperiled) or S3 (vulnerable);
- Species listed as Special Concern under the Endangered Species Act, 2007; and
- Species identified as nationally Endangered or Threatened by the Committee on the Status of Endangered Wildlife in Canada, which are not protected under the Endangered Species Act, 2007.



**Table 1: Records of Protected Species Within the Vicinity of the Study Area**

| SAR/SOCC | Taxon  | Common Name                 | Scientific Name                   | S-Rank <sup>1</sup> | COSEWIC Status <sup>2</sup> | SARA Status <sup>2</sup> | ESA Status <sup>2</sup> | Latest Year <sup>3</sup> | Source <sup>4</sup>    |
|----------|--------|-----------------------------|-----------------------------------|---------------------|-----------------------------|--------------------------|-------------------------|--------------------------|------------------------|
| SAR      | Bird   | Bank Swallow                | <i>Riparia riparia</i>            | S4B                 | THR                         | THR                      | THR                     | NA                       | OBBA                   |
| SAR      | Bird   | Bobolink                    | <i>Dolichonyx oryzivorus</i>      | S4B                 | SC                          | THR                      | THR                     | 2024                     | NHIC; OBBA; eBird      |
| SAR      | Bird   | Chimney Swift               | <i>Chaetura pelagica</i>          | S3B                 | THR                         | THR                      | THR                     | NA                       | OBBA; eBird            |
| SAR      | Bird   | Eastern Meadowlark          | <i>Sturnella magna</i>            | S4B, S3N            | THR                         | THR                      | THR                     | 2023                     | NHIC; OBBA; eBird      |
| SAR      | Bird   | King Rail                   | <i>Rallus elegans</i>             | S1B                 | END                         | END                      | END                     | NA                       | OBBA; IBA              |
| SAR      | Bird   | Least Bittern               | <i>Ixobrychus exilis</i>          | S4B                 | THR                         | THR                      | THR                     | NA                       | OBBA                   |
| SAR      | Bird   | Loggerhead Shrike           | <i>Lanius ludovicianus</i>        | S1B                 | END                         | END                      | END                     | 2020                     | NHIC; OBBA; eBird; IBA |
| SAR      | Fish   | American Eel                | <i>Anguilla rostrata</i>          | S1S2                | THR                         | No Status                | END                     | NA                       | NHIC                   |
| SAR      | Bird   | Red-headed Woodpecker       | <i>Melanerpes erythrocephalus</i> | S3                  | END                         | END                      | END                     | 2019                     | eBird                  |
| SAR      | Mammal | Eastern Red Bat             | <i>Lasiurus borealis</i>          | S2S3                | END                         | No Status                | END                     | NA                       | BCI                    |
| SAR      | Mammal | Eastern Small-Footed Myotis | <i>Myotis leibii</i>              | S2S3                | No Status                   | No Status                | END                     | NA                       | BCI                    |
| SAR      | Mammal | Little Brown Myotis         | <i>Myotis lucifugus</i>           | S3                  | END                         | END                      | END                     | NA                       | BCI                    |
| SAR      | Mammal | Northern Myotis             | <i>Myotis septentrionalis</i>     | S3                  | END                         | END                      | END                     | NA                       | BCI                    |
| SAR      | Mammal | Northern Hoary Bat          | <i>Lasiurus cinereus</i>          | S2S3                | END                         | No Status                | END                     | NA                       | BCI                    |
| SAR      | Mammal | Silver-haired Bat           | <i>Lasionycteris noctivagans</i>  | S2S3                | END                         | No Status                | END                     | NA                       | BCI                    |
| SAR      | Mammal | Tricolored Bat              | <i>Perimyotis subflavus</i>       | S3?                 | END                         | END                      | END                     | NA                       | BCI                    |
| SAR      | Plant  | Black Ash                   | <i>Fraxinus nigra</i>             | S4                  | END                         | No Status                | THR                     | NA                       | OTA                    |
| SAR      | Plant  | Butternut                   | <i>Juglans cinerea</i>            | S2?                 | END                         | END                      | END                     | 2020                     | OTA; iNaturalist       |
| SAR      | Plant  | Juniper Sedge               | <i>Carex juniperorum</i>          | S1                  | END                         | END                      | END                     | NA                       | NHIC                   |
| SAR      | Plant  | Hill's Pondweed             | <i>Potamogeton x ogdenii</i>      | SNA                 | END                         | END                      | END                     | N/A                      | NHIC                   |

| SAR/SOCC | Taxon   | Common Name               | Scientific Name                      | S-Rank <sup>1</sup> | COSEWIC Status <sup>2</sup> | SARA Status <sup>2</sup> | ESA Status <sup>2</sup> | Latest Year <sup>3</sup> | Source <sup>4</sup>     |
|----------|---------|---------------------------|--------------------------------------|---------------------|-----------------------------|--------------------------|-------------------------|--------------------------|-------------------------|
| SAR      | Reptile | Blanding's Turtle         | <i>Emydoidea blandingii</i>          | S3                  | END                         | No Status                | THR                     | 2024                     | NHIC; iNaturalist; ORAA |
| SOCC     | Bird    | American Coot             | <i>Fulica americana</i>              | S3B, S4N            | NAR                         | No Status                | NAR                     | NA                       | OBBA                    |
| SOCC     | Bird    | Barn Swallow              | <i>Hirundo rustica</i>               | S4B                 | SC                          | THR                      | SC                      | 2024                     | OBBA; eBird             |
| SOCC     | Bird    | Black-crowned Night-Heron | <i>Nycticorax nycticorax</i>         | S3B, S2N, S4M       | No Status                   | No Status                | No Status               | 2022                     | iNaturalist             |
| SOCC     | Bird    | Black Tern                | <i>Chlidonias niger</i>              | S3B, S4M            | NAR                         | No Status                | SC                      | NA                       | OBBA                    |
| SOCC     | Bird    | Blue-winged Teal          | <i>Spatula discors</i>               | S3B, S4M            | No Status                   | No Status                | No Status               | NA                       | NHIC; OBBA              |
| SOCC     | Bird    | Common Gallinule          | <i>Gallinula galeata</i>             | S3B                 | No Status                   | No Status                | No Status               | NA                       | OBBA                    |
| SOCC     | Bird    | Common Nighthawk          | <i>Chordeiles minor</i>              | S4B                 | SC                          | SC                       | SC                      | NA                       | OBBA                    |
| SOCC     | Bird    | Eastern Wood-pewee        | <i>Contopus virens</i>               | S4B                 | SC                          | SC                       | SC                      | 2021                     | NHIC; OBBA; eBird       |
| SOCC     | Bird    | Eastern Whip-poor-will    | <i>Antrostomus vociferus</i>         | S4B                 | SC                          | THR                      | SC                      | 2024                     | OBBA; eBird             |
| SOCC     | Bird    | Evening Grosbeak          | <i>Coccothraustes vespertinus</i>    | S4B                 | SC                          | SC                       | SC                      | NA                       | OBBA                    |
| SOCC     | Bird    | Golden-winged Warbler     | <i>Vermivora chrysoptera</i>         | S3B                 | THR                         | THR                      | SC                      | NA                       | OBBA                    |
| SOCC     | Bird    | Grasshopper Sparrow       | <i>Ammodramus savannarum</i>         | S4B                 | SC                          | No Status                | SC                      | 2024                     | NHIC; OBBA; eBird       |
| SOCC     | Bird    | Great Egret               | <i>Ardea alba</i>                    | S2B, S3M            | No Status                   | No Status                | No Status               | 2024                     | eBird                   |
| SOCC     | Bird    | Purple Martin             | <i>Progne subis</i>                  | S3B                 | No Status                   | No Status                | No Status               | 2022                     | NHIC; eBird             |
| SOCC     | Bird    | Upland Sandpiper          | <i>Bartramia longicauda</i>          | S2B                 | No Status                   | No Status                | No Status               | 2021                     | NHIC; OBBA; eBird       |
| SOCC     | Bird    | Wood Thrush               | <i>Hylocichla mustelina</i>          | S4B                 | THR                         | THR                      | SC                      | 2024                     | NHIC; OBBA; eBird       |
| SOCC     | Fish    | Silver Lamprey            | <i>Ichthyomyzon unicuspis pop. 1</i> | S3                  | SC                          | SC                       | SC                      | NA                       | DFO                     |
| SOCC     | Fish    | Bridle Shiner             | <i>Notropis bifrenatus</i>           | S2                  | SC                          | SC                       | SC                      | NA                       | LIO                     |
| SOCC     | Fish    | River Redhorse            | <i>Moxostoma carinatum</i>           | S2                  | SC                          | SC                       | SC                      | NA                       | DFO                     |
| SOCC     | Fish    | Channel Darter            | <i>Percina copelandi pop. 2</i>      | S2                  | END                         | END                      | SC                      | NA                       | NHIC, DFO               |

| SAR/SOCC | Taxon   | Common Name                 | Scientific Name              | S-Rank <sup>1</sup> | COSEWIC Status <sup>2</sup> | SARA Status <sup>2</sup> | ESA Status <sup>2</sup> | Latest Year <sup>3</sup> | Source <sup>4</sup>           |
|----------|---------|-----------------------------|------------------------------|---------------------|-----------------------------|--------------------------|-------------------------|--------------------------|-------------------------------|
| SOCC     | Insect  | Finlayson's Oakworm Moth    | <i>Anisota finlaysoni</i>    | S2                  | SC                          | No Status                | No Status               | NA                       | NHIC                          |
| SOCC     | Insect  | Giant Leopard Moth          | <i>Hypercompe scribonia</i>  | S3S4                | No Status                   | No Status                | No Status               | 2023                     | iNaturalist                   |
| SOCC     | Insect  | Hackberry Emperor           | <i>Asterocampa celtis</i>    | S3                  | No Status                   | No Status                | No Status               | 2021                     | OBA                           |
| SOCC     | Insect  | Judith's Underwing          | <i>Catocala judith</i>       | S2S3                | No Status                   | No Status                | No Status               | 2019                     | OMA                           |
| SOCC     | Insect  | Juniper Hairstreak          | <i>Callophrys gryneus</i>    | S3                  | No Status                   | No Status                | No Status               | 2023                     | NHIC; OBA                     |
| SOCC     | Insect  | Monarch                     | <i>Danaus plexippus</i>      | S2N, S4B            | END                         | END                      | SC                      | 2023                     | OBA                           |
| SOCC     | Insect  | Orange Virbia               | <i>Virbia aurantiaca</i>     | S3S4                | No Status                   | No Status                | No Status               | 2019                     | OMA                           |
| SOCC     | Insect  | Penitent Underwing          | <i>Catocala piatrix</i>      | S3                  | No Status                   | No Status                | No Status               | 2019                     | OMA                           |
| SOCC     | Lichen  | Blushing Scale Lichen       | <i>Psora decipiens</i>       | S3                  | No Status                   | No Status                | No Status               | NA                       | NHIC                          |
| SOCC     | Lichen  | Rusty Firedot Lichen        | <i>Blastenia ferruginea</i>  | S1?                 | No Status                   | No Status                | No Status               | NA                       | NHIC                          |
| SOCC     | Lichen  | <i>Scytinium dactylinum</i> | <i>Scytinium dactylinum</i>  | S3                  | No Status                   | No Status                | No Status               | 2024                     | iNaturalist                   |
| SOCC     | Mollusk | Black Sandshell             | <i>Ligumia recta</i>         | S3                  | No Status                   | No Status                | No Status               | NA                       | ClamCounter                   |
| SOCC     | Mollusk | Eastern Floater             | <i>Pyganodon cataracta</i>   | S3                  | No Status                   | No Status                | No Status               | NA                       | ClamCounter                   |
| SOCC     | Mollusk | Eastern Pondmussel          | <i>Ligumia nasuta</i>        | S1                  | END                         | SC                       | SC                      | NA                       | ClamCounter                   |
| SOCC     | Mollusk | Elktoe                      | <i>Alasmidonta marginata</i> | S3                  | No Status                   | No Status                | No Status               | NA                       | ClamCounter                   |
| SOCC     | Mollusk | Pink Heelsplitter           | <i>Potamilus alatus</i>      | S3                  | No Status                   | No Status                | No Status               | NA                       | ClamCounter                   |
| SOCC     | Mollusk | Triangle Floater            | <i>Alasmidonta undulata</i>  | S3                  | No Status                   | No Status                | No Status               | NA                       | ClamCounter                   |
| SOCC     | Mollusk | Rainbow                     | <i>Cambarunio iris</i>       | S1                  | SC                          | SC                       | SC                      | 2022                     | DFO; iNaturalist; ClamCounter |
| SOCC     | Plant   | Creeping Draba              | <i>Tomostima reptans</i>     | S2S3                | No Status                   | No Status                | No Status               | NA                       | NHIC                          |
| SOCC     | Plant   | Grooved Yellow Flax         | <i>Linum sulcatum</i>        | S2S3                | No Status                   | No Status                | No Status               | NA                       | NHIC                          |

| SAR/SOCC | Taxon   | Common Name             | Scientific Name               | S-Rank <sup>1</sup> | COSEWIC Status <sup>2</sup> | SARA Status <sup>2</sup> | ESA Status <sup>2</sup> | Latest Year <sup>3</sup> | Source <sup>4</sup> |
|----------|---------|-------------------------|-------------------------------|---------------------|-----------------------------|--------------------------|-------------------------|--------------------------|---------------------|
| SOCC     | Plant   | One-sided Rush          | <i>Juncus secundus</i>        | S3                  | No Status                   | No Status                | No Status               | NA                       | NHIC                |
| SOCC     | Plant   | Round-nerved Grimmia    | <i>Grimmia teretinervis</i>   | S2                  | No Status                   | No Status                | No Status               | NA                       | NHIC                |
| SOCC     | Plant   | Short-stalked Chickweed | <i>Cerastium brachypodium</i> | S2                  | No Status                   | No Status                | No Status               | NA                       | NHIC                |
| SOCC     | Plant   | Side-oats Grama         | <i>Bouteloua curtipendula</i> | S2                  | No Status                   | No Status                | No Status               | NA                       | NHIC                |
| SOCC     | Plant   | Tinted Woodland Spurge  | <i>Euphorbia commutata</i>    | S1                  | No Status                   | No Status                | No Status               | 2020                     | NHIC; iNaturalist   |
| SOCC     | Plant   | Tiny Mousetail          | <i>Myosurus minimus</i>       | S2                  | No Status                   | No Status                | No Status               | NA                       | NHIC                |
| SOCC     | Plant   | Yellow-fruited Sedge    | <i>Carex annectens</i>        | S2                  | No Status                   | No Status                | No Status               | NA                       | NHIC                |
| SOCC     | Reptile | Eastern Musk Turtle     | <i>Sternotherus odoratus</i>  | S3                  | SC                          | SC                       | SC                      | 2016                     | NHIC; ORAA          |
| SOCC     | Reptile | Northern Map Turtle     | <i>Graptemys geographica</i>  | S3                  | SC                          | SC                       | SC                      | 2024                     | ORAA; iNaturalist   |
| SOCC     | Reptile | Snapping Turtle         | <i>Chelydra serpentina</i>    | S4                  | SC                          | SC                       | SC                      | 2019                     | NHIC; ORAA          |

<sup>1</sup> S-Rank: Subnational Rank

S1: Extremely rare in Ontario; usually 5 or fewer occurrences in the province, or very few remaining hectares.

S2: Very rare in Ontario; usually between 5 and 20 occurrences in the province, or few remaining hectares.

S3: Vulnerable—Vulnerable in the province due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation.

S4: Apparently Secure—Uncommon but not rare; some cause for long-term concern due to declines or other factors.

S?: Not Ranked/ under review.

B: Breeding—Conservation status refers to the breeding population of the species in the province.

N: Nonbreeding—Conservation status refers to the non-breeding population of the species in the province.

<sup>2</sup> NAR: Not at Risk

SC: Special Concern

THR: Threatened

END: Endangered

<sup>3</sup> Records shown are within the past 20 years (2001 – 2021), or there is no associated date. Older records are considered historical and have been excluded.

<sup>4</sup> NHIC: Natural Heritage Information Centre

OBBA: Ontario Breeding Bird Atlas

OBA: Ontario Butterfly Atlas

ORAA: Ontario Reptile and Amphibian Atlas

BCI: Bat Conservation International

Fish and fish habitat information was collected where available for watercourses in the Study Area and is summarized in **Attachment A**. According to DFO's Aquatic SAR mapping (2025), aquatic SAR and Critical Habitat were identified in the Salmon River (WC-1-16). As per Step 2 of the MTO/DFO/MNRF *Protocol for Protecting Fish and Fish Habitat on Provincial Transportation Undertakings* (2020), AECOM kindly requests that the MNR review the information in **Attachment A** and confirm or update as needed.

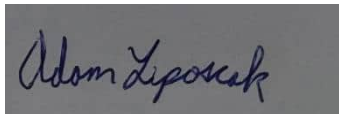
During this preliminary desktop review, AECOM has also identified data gaps for which we require additional information. **Please consider this a formal request for the following information.** If you could please review the above listed data and provide us with any additional information, reports, and GIS data pertaining to:

- Presence of Natural Areas (Environmentally Significant / Sensitive Areas, PSWs, Areas of Natural and Scientific Interest [ANSIs], Provincial Parks, Conservation Reserves, and Wildlife Management Areas);
- Natural Area Reports;
- In-water Timing Restrictions;
- Important Commercial or Recreation Fisheries;
- Water Quantity / Quality Data;
- Groundwater Discharge Areas;
- Watercourse Names, Thermal and Flow Regimes;
- Fish Habitat Sensitivity;
- Habitat Information and Location;
- Fisheries Management Objectives / plans;
- Fish Community Records;
- Benthic Invertebrate data;
- Known fish spawning;
- Aboriginal Fisheries;
- Significant Wildlife Habitat including SOCC occurrences or wildlife use of the area; and,
- SAR occurrences.

Any insight that MNR can provide is greatly appreciated. AECOM will be reaching out to other applicable agencies for additional records within the vicinity of the Project location. If you have any questions, please do not hesitate to contact the undersigned. Thank you for your time and assistance.

Sincerely,

**AECOM Canada ULC**

A handwritten signature in black ink, reading "Adam Liposcak", is displayed on a dark grey rectangular background.

Adam Liposcak, Dip.  
Ecologist

[adam.liposcak@aecom.com](mailto:adam.liposcak@aecom.com)

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# Attachment A: Background Review of Fish Habitat and Fish Community Data

| Location                           | Waterbody Name    | Waterbody GPS<br>(Attach Google map)                                       | Watercourse Classification<br>(i.e. warmwater, coldwater) <sup>1</sup> | Habitat Information<br>(Include details/locations for fish passage barriers, known spawning habitats, groundwater upwellings, migratory corridors, etc.) | Historical Data<br>(Include details on the historical fish species present, and if the waterbody is considered to support any vulnerable, threatened, or endangered aquatic species) <sup>1</sup> | MNR Fisheries Management Objectives<br>(If applicable, include details) | In-Water Timing Windows for Construction<br>(Provide dates) <sup>2</sup> |
|------------------------------------|-------------------|----------------------------------------------------------------------------|------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|--------------------------------------------------------------------------|
| WC-1-01                            |                   | 44.2105, -77.3382<br><a href="#">Google Maps</a>                           |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-1-02                            |                   | 44.2141, -77.3231<br><a href="#">Google Maps</a>                           |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-1-03                            |                   | 44.2149, -77.3198<br><a href="#">Google Maps</a>                           |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-1-04                            |                   | 44.2174, -77.3094<br><a href="#">Google Maps</a>                           |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-1-05                            |                   | 44.2195, -77.3003<br><a href="#">Google Maps</a>                           |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-1-06                            | Blessington Creek | 44.2219, -77.2837<br><a href="#">Google Maps</a>                           | Warm                                                                   |                                                                                                                                                          | <ul style="list-style-type: none"> <li>• Brook Stickleback (<i>Culaea inconstans</i>)</li> <li>• Central Mudminnow (<i>Umbra limi</i>)</li> <li>• Sunfish (<i>Lepomis sp.</i>)</li> </ul>         |                                                                         | No in-water works from March 15 – July 15                                |
| WC-1-07                            |                   | 44.2199, -77.2750<br><a href="#">Google Maps</a>                           |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-1-08                            |                   | 44.2181, -77.2694<br><a href="#">Google Maps</a>                           |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-1-09                            |                   | 44.2173, -77.2631<br><a href="#">Google Maps</a>                           |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-1-10a,<br>WC-1-10b,<br>WC-1-10c |                   | WC-1-10a:<br>44.2207, -77.2446<br><a href="#">Google Maps</a><br>WC-1-10b: |                                                                        |                                                                                                                                                          | <ul style="list-style-type: none"> <li>• Brook Stickleback</li> <li>• Finescale Dace (<i>Chrosomus neogaeus</i>)</li> </ul>                                                                       |                                                                         | No in-water works from March 15 – July 15                                |

| Location | Waterbody Name | Waterbody GPS<br>(Attach Google map)                                                                              | Watercourse Classification<br>(i.e. warmwater, coldwater) <sup>1</sup> | Habitat Information<br>(Include details/locations for fish passage barriers, known spawning habitats, groundwater upwellings, migratory corridors, etc.) | Historical Data<br>(Include details on the historical fish species present, and if the waterbody is considered to support any vulnerable, threatened, or endangered aquatic species) <sup>1</sup>                                               | MNR Fisheries Management Objectives<br>(If applicable, include details) | In-Water Timing Windows for Construction<br>(Provide dates) <sup>2</sup> |
|----------|----------------|-------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|--------------------------------------------------------------------------|
|          |                | 44.2199, -77.2428<br><a href="#">Google Maps</a><br>WC-1-10c:<br>44.2198, -77.2417<br><a href="#">Google Maps</a> |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                                                                 |                                                                         |                                                                          |
| WC-1-11  |                | 44.2174, -77.2418<br><a href="#">Google Maps</a>                                                                  |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                                                                 |                                                                         |                                                                          |
| WC-1-12  |                | 44.2208, -77.2343<br><a href="#">Google Maps</a>                                                                  |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                                                                 |                                                                         |                                                                          |
| WC-1-13  |                | 44.2214, -77.2319<br><a href="#">Google Maps</a>                                                                  |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                                                                 |                                                                         |                                                                          |
| WC-1-14  |                | 44.2243, -77.2092<br><a href="#">Google Maps</a>                                                                  |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                                                                 |                                                                         |                                                                          |
| WC-1-15  |                | 44.2250, -77.2043<br><a href="#">Google Maps</a>                                                                  |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                                                                 |                                                                         |                                                                          |
| WC-1-16  | Salmon River   | 44.2284, -77.1800<br><a href="#">Google Maps</a>                                                                  |                                                                        | Channel Darter ( <i>Percina copelandi</i> ) Critical Habitat (Fisheries and Oceans Canada [DFO], 2025)                                                   | <ul style="list-style-type: none"> <li>Channel Darter (Lake Ontario)</li> <li>Rainbow (<i>Villosa iris</i>)</li> <li>River Redhorse (<i>Moxostoma carinatum</i>)</li> <li>Silver Lamprey (<i>Ichthyomyzon unicuspis</i>) (DFO, 2025)</li> </ul> |                                                                         | No in-water works from March 15 – July 15                                |
| WC-1-17  |                | 44.2334, -77.1431<br><a href="#">Google Maps</a>                                                                  |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                                                                 |                                                                         |                                                                          |

| Location | Waterbody Name            | Waterbody GPS<br>(Attach Google map)             | Watercourse Classification<br>(i.e. warmwater, coldwater) <sup>1</sup> | Habitat Information<br>(Include details/locations for fish passage barriers, known spawning habitats, groundwater upwellings, migratory corridors, etc.) | Historical Data<br>(Include details on the historical fish species present, and if the waterbody is considered to support any vulnerable, threatened, or endangered aquatic species) <sup>1</sup>                                                                   | MNR Fisheries Management Objectives<br>(If applicable, include details) | In-Water Timing Windows for Construction<br>(Provide dates) <sup>2</sup> |
|----------|---------------------------|--------------------------------------------------|------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|--------------------------------------------------------------------------|
| WC-1-18  | Marysville Creek          | 44.2358, -77.1257<br><a href="#">Google Maps</a> | Warm                                                                   |                                                                                                                                                          |                                                                                                                                                                                                                                                                     |                                                                         |                                                                          |
| WC-1-19  | Marysville Creek          | 44.2383, -77.1136<br><a href="#">Google Maps</a> | Warm                                                                   |                                                                                                                                                          |                                                                                                                                                                                                                                                                     |                                                                         |                                                                          |
| WC-1-20  |                           | 44.2404, -77.0925<br><a href="#">Google Maps</a> |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                                                                                     |                                                                         |                                                                          |
| WC-1-21  |                           | 44.2403, -77.0912<br><a href="#">Google Maps</a> |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                                                                                     |                                                                         |                                                                          |
| WC-1-22  |                           | 44.2407, -77.0879<br><a href="#">Google Maps</a> |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                                                                                     |                                                                         |                                                                          |
| WC-1-23  |                           | 44.2412, -77.0838<br><a href="#">Google Maps</a> |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                                                                                     |                                                                         |                                                                          |
| WC-1-24  |                           | 44.2411, -77.0808<br><a href="#">Google Maps</a> |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                                                                                     |                                                                         |                                                                          |
| WC-1-25  |                           | 44.2428, -77.0628<br><a href="#">Google Maps</a> |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                                                                                     |                                                                         |                                                                          |
| WC-1-26  | Tributary to Sucker Creek | 44.2461, -77.0511<br><a href="#">Google Maps</a> | Warm                                                                   | Direct fish habitat (MNR, 2025b)                                                                                                                         | <ul style="list-style-type: none"> <li>• Brook Stickleback</li> <li>• Central Mudminnow</li> <li>• Fathead Minnow (<i>Pimephales promelas</i>)</li> <li>• Northern Redbelly Dace (<i>Chrosomus eos</i>)</li> <li>• Pumpkinseed (<i>Lepomis gibbosus</i>)</li> </ul> |                                                                         | No in-water works from March 15 – July 15                                |
| WC-1-27  |                           | 44.2414, -77.0624<br><a href="#">Google Maps</a> |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                                                                                     |                                                                         |                                                                          |

| Location | Waterbody Name | Waterbody GPS<br>(Attach Google map)             | Watercourse Classification<br>(i.e. warmwater, coldwater) <sup>1</sup> | Habitat Information<br>(Include details/locations for fish passage barriers, known spawning habitats, groundwater upwellings, migratory corridors, etc.) | Historical Data<br>(Include details on the historical fish species present, and if the waterbody is considered to support any vulnerable, threatened, or endangered aquatic species) <sup>1</sup> | MNR Fisheries Management Objectives<br>(If applicable, include details) | In-Water Timing Windows for Construction<br>(Provide dates) <sup>2</sup> |
|----------|----------------|--------------------------------------------------|------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|--------------------------------------------------------------------------|
| WC-2-01  |                | 44.2519, -77.0086<br><a href="#">Google Maps</a> |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-2-02  |                | 44.2534, -76.9979<br><a href="#">Google Maps</a> |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-2-03  |                | 44.2599, -76.9784<br><a href="#">Google Maps</a> |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-2-04  |                | 44.2612, -76.9748<br><a href="#">Google Maps</a> |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-2-05  |                | 44.2641, -76.9676<br><a href="#">Google Maps</a> |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-2-06  |                | 44.2657, -76.9657<br><a href="#">Google Maps</a> |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-2-07  |                | 44.2637, -76.9644<br><a href="#">Google Maps</a> |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-2-08  |                | 44.2664, -76.9633<br><a href="#">Google Maps</a> |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-2-09a | Sucker Creek   | 44.2625, -76.9640<br><a href="#">Google Maps</a> | Warm                                                                   |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-2-09b | Sucker Creek   | 44.2660, -76.9612<br><a href="#">Google Maps</a> | Warm                                                                   |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-2-10  |                | 44.2655, -76.9491<br><a href="#">Google Maps</a> |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-2-11  |                | 44.2649, -76.9452<br><a href="#">Google Maps</a> |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-2-13  | Napanee River  | 44.2675, -76.9324<br><a href="#">Google Maps</a> |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |

| Location | Waterbody Name | Waterbody GPS<br>(Attach Google map)             | Watercourse Classification<br>(i.e. warmwater, coldwater) <sup>1</sup> | Habitat Information<br>(Include details/locations for fish passage barriers, known spawning habitats, groundwater upwellings, migratory corridors, etc.) | Historical Data<br>(Include details on the historical fish species present, and if the waterbody is considered to support any vulnerable, threatened, or endangered aquatic species) <sup>1</sup> | MNR Fisheries Management Objectives<br>(If applicable, include details) | In-Water Timing Windows for Construction<br>(Provide dates) <sup>2</sup> |
|----------|----------------|--------------------------------------------------|------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|--------------------------------------------------------------------------|
| WC-2-14  |                | 44.2670, -76.9319<br><a href="#">Google Maps</a> |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-2-15  |                | 44.2705, -76.9240<br><a href="#">Google Maps</a> |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-2-16  |                | 44.2715, -76.9232<br><a href="#">Google Maps</a> |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-2-17  |                | 44.2711, -76.9205<br><a href="#">Google Maps</a> |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-2-18  |                | 44.2725, -76.9101<br><a href="#">Google Maps</a> |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-2-19  |                | 44.2722, -76.9054<br><a href="#">Google Maps</a> |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-2-20  |                | 44.2730, -76.9038<br><a href="#">Google Maps</a> |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-2-21  |                | 44.2728, -76.8996<br><a href="#">Google Maps</a> |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-2-22  |                | 44.2734, -76.8894<br><a href="#">Google Maps</a> |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-2-23  |                | 44.2742, -76.8822<br><a href="#">Google Maps</a> |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-2-26  | Little Creek   | 44.2755, -76.8698<br><a href="#">Google Maps</a> | Warm                                                                   |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-2-27  |                | 44.2760, -76.8681<br><a href="#">Google Maps</a> |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-2-28  |                | 44.2763, -76.8582<br><a href="#">Google Maps</a> |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |



| Location | Waterbody Name | Waterbody GPS<br>(Attach Google map)             | Watercourse Classification<br>(i.e. warmwater, coldwater) <sup>1</sup> | Habitat Information<br>(Include details/locations for fish passage barriers, known spawning habitats, groundwater upwellings, migratory corridors, etc.) | Historical Data<br>(Include details on the historical fish species present, and if the waterbody is considered to support any vulnerable, threatened, or endangered aquatic species) <sup>1</sup> | MNR Fisheries Management Objectives<br>(If applicable, include details) | In-Water Timing Windows for Construction<br>(Provide dates) <sup>2</sup> |
|----------|----------------|--------------------------------------------------|------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|--------------------------------------------------------------------------|
| WC-2-29  |                | 44.2768, -76.8449<br><a href="#">Google Maps</a> |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-2-30  |                | 44.2772, -76.8361<br><a href="#">Google Maps</a> |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-2-31  | Spring Creek   | 44.2773, -76.8310<br><a href="#">Google Maps</a> | Warm                                                                   |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-2-32  |                | 44.2788, -76.8009<br><a href="#">Google Maps</a> |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-2-33a | Wilton Creek   | 44.2791, -76.7897<br><a href="#">Google Maps</a> | Warm                                                                   |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-2-33b | Wilton Creek   | 44.2810, -76.7868<br><a href="#">Google Maps</a> | Warm                                                                   |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-2-34  |                | 44.2788, -76.7876<br><a href="#">Google Maps</a> |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-2-35  |                | 44.2782, -76.7867<br><a href="#">Google Maps</a> |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-2-36  |                | 44.2797, -76.7741<br><a href="#">Google Maps</a> |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-2-37  |                | 44.2803, -76.7587<br><a href="#">Google Maps</a> |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-2-38  |                | 44.2807, -76.7513<br><a href="#">Google Maps</a> |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-2-39  |                | 44.2812, -76.7411<br><a href="#">Google Maps</a> |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-2-40  |                | 44.2814, -76.7364<br><a href="#">Google Maps</a> |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |

| Location | Waterbody Name  | Waterbody GPS<br>(Attach Google map)             | Watercourse Classification<br>(i.e. warmwater, coldwater) <sup>1</sup> | Habitat Information<br>(Include details/locations for fish passage barriers, known spawning habitats, groundwater upwellings, migratory corridors, etc.) | Historical Data<br>(Include details on the historical fish species present, and if the waterbody is considered to support any vulnerable, threatened, or endangered aquatic species) <sup>1</sup> | MNR Fisheries Management Objectives<br>(If applicable, include details) | In-Water Timing Windows for Construction<br>(Provide dates) <sup>2</sup> |
|----------|-----------------|--------------------------------------------------|------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|--------------------------------------------------------------------------|
| WC-2-41  |                 | 44.2817, -76.7308<br><a href="#">Google Maps</a> |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-2-42a |                 | 44.2834, -76.7272<br><a href="#">Google Maps</a> |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-2-42b |                 | 44.2836, -76.7268<br><a href="#">Google Maps</a> |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-2-43  |                 | 44.2797, -76.7246<br><a href="#">Google Maps</a> |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-2-44a | Millhaven Creek | 44.2823, -76.7196<br><a href="#">Google Maps</a> |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-2-44b | Millhaven Creek | 44.2852, -76.7168<br><a href="#">Google Maps</a> |                                                                        | Dam structure north of study area.                                                                                                                       |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-2-45  |                 | 44.2835, -76.7147<br><a href="#">Google Maps</a> |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-2-46  |                 | 44.2820, -76.7171<br><a href="#">Google Maps</a> |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-2-47  |                 | 44.2827, -76.7115<br><a href="#">Google Maps</a> |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-2-48  |                 | 44.2832, -76.7016<br><a href="#">Google Maps</a> |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-2-49  |                 | 44.284, -76.6947<br><a href="#">Google Maps</a>  | Warm                                                                   |                                                                                                                                                          | <ul style="list-style-type: none"> <li>Northern Redbelly Dace</li> </ul>                                                                                                                          |                                                                         |                                                                          |
| WC-2-50  |                 | 44.2845, -76.686<br><a href="#">Google Maps</a>  |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-2-51  |                 | 44.2846, -76.6807<br><a href="#">Google Maps</a> |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |

| Location | Waterbody Name | Waterbody GPS<br>(Attach Google map)             | Watercourse Classification<br>(i.e. warmwater, coldwater) <sup>1</sup> | Habitat Information<br>(Include details/locations for fish passage barriers, known spawning habitats, groundwater upwellings, migratory corridors, etc.) | Historical Data<br>(Include details on the historical fish species present, and if the waterbody is considered to support any vulnerable, threatened, or endangered aquatic species) <sup>1</sup> | MNR Fisheries Management Objectives<br>(If applicable, include details) | In-Water Timing Windows for Construction<br>(Provide dates) <sup>2</sup> |
|----------|----------------|--------------------------------------------------|------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|--------------------------------------------------------------------------|
| WC-2-52  |                | 44.2847, -76.6782<br><a href="#">Google Maps</a> |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-2-53  |                | 44.2848, -76.6729<br><a href="#">Google Maps</a> |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |
| WC-2-54  |                | 44.2848, -76.6693<br><a href="#">Google Maps</a> |                                                                        |                                                                                                                                                          |                                                                                                                                                                                                   |                                                                         |                                                                          |

<sup>1</sup> Ministry of Natural Resources (MNR) GeoHub Land Information Ontario (2025). <https://geohub.lio.gov.on.ca/datasets/aquatic-resource-area-line-segment/explore>

<sup>2</sup> MNR In-water Works Timing Window (2013). <https://docs.ontario.ca/documents/2579/stdprod-109170.pdf>

# Appendix **B**

## **License to Collect Fish for Scientific Purposes from the MNR**

This licence is issued under Part IV of Ontario Regulation 664/98 (Fish Licensing) made under the *Fish and Wildlife Conservation Act, 1997* to collect the species, sizes and quantities of fish from the waters as set out below.

LICENSEE:

|                            |                                                        |
|----------------------------|--------------------------------------------------------|
| This Licence is issued to: | Mailing Address of Licensee:                           |
| Andrea Court               | Unit 201<br>45 Goderich Road<br>Hamilton ON<br>L8E 4W8 |
| Phone Number of Licensee:  | Email Address of Licensee:                             |
| 289-253-9197               | andrea.court@aecom.com                                 |

Name of Business/Organization/Affiliation: AECOM Canada ULC (AECOM)

|                         |            |                      |            |
|-------------------------|------------|----------------------|------------|
| LICENCE EFFECTIVE DATE: | 2025-05-16 | LICENCE EXPIRY DATE: | 2025-12-31 |
|-------------------------|------------|----------------------|------------|

**PURPOSE OF COLLECTION:** To complete a Fish community survey to support Ministry of Transportation with the rehabilitation and/or replacement of bridges and culverts on Highway 401 between Belleville and Kingston.

This Licence authorizes the licence holder together with the assistants named in application PEBA-2025-FWCA-00186 (the “Application”) to collect the species, sizes and quantities of fish from the waters and locations identified in the Application.

LICENCE CONDITIONS:

1. This licence and the Application must be carried at all times while activities are being carried out under the authority of the licence.
2. Fish can only be collected by means of the following gear from May 16<sup>th</sup> to December 31<sup>st</sup>, 2025.:  
**dip nets and baitfish traps.**
3. Fish may be collected by the means of the following gear from July 16<sup>th</sup> to December 31<sup>st</sup>, 2025:  
**dip nets, baitfish traps, electrofishing gear (backpack).**
4. All gear used to collect fish shall be inspected at least once daily and clearly marked with the name and licence number of the licence holder any time it is left unattended while in the water.
5. Due to potential spawning activity by resident or migratory fish species, visual inspection of all sampling areas must be done prior to sampling. Sampling must not be initiated if spawning activity or redds are observed. Should spawning activity or redds be observed after sampling has commenced, all sampling must be stopped in order to prevent disturbance to the fish and habitats.

- All gear and equipment used for fish collection shall be decontaminated using the decontamination methods outlined for watercraft and watercraft equipment in the document entitled “*Best Management Practices for Preventing the Spread of Aquatic Invasive Species – Guidance for Watercraft Users*”, dated 2021, available on a website maintained by the Government of Ontario.
- Unless specified otherwise in these conditions, all live fish collected, other than a species classified as a prohibited or restricted invasive species under the *Invasive Species Act, 2015* or an aquatic invasive species set out under the *Aquatic Invasive Species Regulations (AISR)* made under the *Fisheries Act (Canada)*, shall be immediately released, in a manner that causes the least harm to the fish, into the closest suitable habitat outside of the work area.
- Any person acting under the authority of this licence, shall immediately report the capture of any invasive fish species, as defined in the AISR, (e.g. Ruffe, Tubenose Goby, Round Goby, rusty crayfish, invasive carp, etc.) to the Invading Species Hotline (1-800-563-7711) or [www.eddmaps.org/ontario/distribution](http://www.eddmaps.org/ontario/distribution). Any such specimens shall be euthanized (and eviscerated if required under either the AISR or the *Ontario Fishery Regulations, 2007*).
- Unless specifically authorized under the *Endangered Species Act, 2007* (ESA) ( e.g., regulation or permit) and/or federal *Species at Risk Act* (SARA) permit, sampling must cease when a species at risk is caught. These fish shall be immediately released in a manner that causes the least harm to the fish, into the closest suitable habitat outside of the work area. The appropriate authorities shall be notified to obtain required authorization prior to continuation of sampling. Contact the Ministry of Environment, Conservation and Parks (<https://www.ontario.ca/page/how-get-endangered-species-act-permit-or-authorization>) and/or Fisheries and Oceans Canada (<https://www.dfo-mpo.gc.ca/species-especes/sara-lep/permits-permis/index-eng.html>) for information on the relevant authorization.
- All fish species at risk must also be reported to the Ministry of Natural Resources and Forestry Natural Heritage Information Centre on the appropriate form at: [Natural Heritage Information Centre \(NHIC\) Observation Reporting Form | EngageON \(ontario.ca\)](#)
- The holder this licence shall complete a report as required under subsection 34.1(9) of Ontario Regulation 664/98 and submit it to the Minister by January 31 following the licence expiration.

For a link to the reporting form, please go to the related page on [Ontario.ca](http://Ontario.ca).

This licence is not valid in Provincial Parks, Conservation Reserves, National Parks, National Historic canals and waterways, National Marine Conservation Areas, or Conservation Authority property without the written permission from the authorized person in charge of the area concerned.

This licence does not allow access to any private property without permission of the landowner.

Ministry Approval

|                                                                          |                                                                                                    |                              |
|--------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|------------------------------|
| Issued by:<br>Jesse Van Allen                                            | Signature:<br> | Date Signed:<br>May 16, 2025 |
| <div> <div>box</div> <div>SIGN</div> <div>427WK5RY-4YJXP5W5</div> </div> |                                                                                                    |                              |



# Appendix **C**

## Photographic Log

|                                          |                                                                                                                             |                    |
|------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|--------------------|
| <b>Client Name:</b>                      | <b>Report Name</b>                                                                                                          | <b>Project No.</b> |
| Ontario Ministry of Transportation (MTO) | Highway 401 / Napanee River Bridge Improvements Preliminary Design and Class Environmental Assessment Study (WP 4039-19-01) | 60734357           |

|                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                      |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  <p>AECOM<br/>401 East Belleville to Kingston N.R.<br/>2025.06.17.15:46<br/>18T 345753 4903383<br/>Macdonald-Cartier Fwy, Napanee, ON K0K 2Z0</p> <p>SE</p> |  <p>AECOM<br/>401 East Belleville to Kingston N.R.<br/>2025.06.17.14:19<br/>18T 345742 4903418<br/>Macdonald-Cartier Fwy, Greater Napanee, ON K0K 2Z0</p> <p>W</p> |
| <p><b>Photograph 1 ↑</b></p> <p><b>June 17, 2025. WC-13 (Napanee River).</b> View of the feature with Reed Canary Grass along the banks, facing southeast.</p>                                                                               | <p><b>Photograph 2 ↑</b></p> <p><b>June 17, 2025. WC-13 (Napanee River).</b> View of the feature with aquatic vegetation along the banks, facing west.</p>                                                                                           |
|  <p>AECOM<br/>60734357 Belleville to Kingston<br/>2025.06.17.14:14<br/>44.26771, -76.93275</p> <p>E</p>                                                    |  <p>AECOM<br/>WC-2-14a US<br/>2025.06.10.12:55<br/>44.27046, -76.92598<br/>Macdonald-Cartier Fwy, Greater Napanee, ON K0K 2Z0</p> <p>E</p>                        |
| <p><b>Photograph 3. ↑</b></p> <p><b>June 17, 2025. WC-13 (Napanee River).</b> View of the feature under the highway overpass, facing east.</p>                                                                                               | <p><b>Photograph 4. ↑</b></p> <p><b>June 10, 2025. WC-14a.</b> View of the feature within the on-ramps in the upstream region, facing east.</p>                                                                                                      |



|                                          |                                                                                                                             |                    |
|------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|--------------------|
| <b>Client Name:</b>                      | <b>Report Name</b>                                                                                                          | <b>Project No.</b> |
| Ontario Ministry of Transportation (MTO) | Highway 401 / Napanee River Bridge Improvements Preliminary Design and Class Environmental Assessment Study (WP 4039-19-01) | 60734357           |



**Photograph 5** ↑  
**June 10, 2025. WC-14a.** View of the culvert inlet, facing southwest.



**Photograph 6** ↑  
**June 10, 2025. WC-14a.** View of the downstream channel with substrate sorting, facing northwest.



**Photograph 7** ↑  
**June 10, 2025. WC-14a.** View of the downstream channel and a potential impediment to fish passage, facing northwest.



**Photograph 8** ↑  
**August 21, 2025. WC-15.** View of the feature with a storm inlet in the upstream region, facing west.



|                                          |                                                                                                                             |                    |
|------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|--------------------|
| <b>Client Name:</b>                      | <b>Report Name</b>                                                                                                          | <b>Project No.</b> |
| Ontario Ministry of Transportation (MTO) | Highway 401 / Napanee River Bridge Improvements Preliminary Design and Class Environmental Assessment Study (WP 4039-19-01) | 60734357           |

|                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                      |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  <p> <small> AECOM<br/> WP-2-16-15<br/> 2025.06.10 14:30<br/> 44.27145, -76.92369<br/> 931 County Rd 5, Greater Napanee, ON K0K 2Z0 </small> </p>  |  <p> <small> AECOM<br/> WP-2-16-15<br/> 2025.06.10 14:34<br/> 44.27145, -76.92369<br/> 931 County Rd 5, Greater Napanee, ON K0K 2Z0 </small> </p>  |
| <p><b>Photograph 9</b> ↑</p> <p><b>June 10, 2025. WC-15.</b> View of the feature at the downstream outlet, facing east.</p>                                                                                                         | <p><b>Photograph 10.</b> ↑</p> <p><b>June 10, 2025. WC-16.</b> View of the feature in the upstream environment, facing south.</p>                                                                                                    |
|  <p> <small> AECOM<br/> WP-2-16-15<br/> 2025.06.10 14:43<br/> 44.27145, -76.92369<br/> 931 County Rd 5, Greater Napanee, ON K0K 2Z0 </small> </p> |  <p> <small> AECOM<br/> WP-2-16-15<br/> 2025.06.10 14:44<br/> 44.27145, -76.92369<br/> 931 County Rd 5, Greater Napanee, ON K0K 2Z0 </small> </p> |
| <p><b>Photograph 11.</b> ↑</p> <p><b>June 10, 2025. WC-16.</b> View of the feature looking upstream at pooling in front of the downstream outlet, facing southeast.</p>                                                             | <p><b>Photograph 12.</b> ↑</p> <p><b>June 12, 2025. WC-16.</b> View of the feature downstream within the right of way (ROW), facing south.</p>                                                                                       |



|                                          |                                                                                                                             |                    |
|------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|--------------------|
| <b>Client Name:</b>                      | <b>Report Name</b>                                                                                                          | <b>Project No.</b> |
| Ontario Ministry of Transportation (MTO) | Highway 401 / Napanee River Bridge Improvements Preliminary Design and Class Environmental Assessment Study (WP 4039-19-01) | 60734357           |

|                                                                                                                                                                                                             |                                                                                                                                                                                                              |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  <p>AECOM<br/>WC-2-16 DS<br/>2025.06.10 14:47<br/>44-27139-76-92466<br/>9311 County Rd 5, Greater Napanee, ON K0R 2Z0</p>  |  <p>AECOM<br/>WC-2-17 DS<br/>2025.06.12 08:58<br/>44-27139-76-92466<br/>Macdonald-Cartier Fwy, Greater Napanee, ON K0K</p> |
| <p><b>Photograph 13</b> ↑</p> <p><b>June 12, 2025. WC-16.</b> View of the feature downstream as it leaves the ROW and enters a wooded area, facing southwest.</p>                                           | <p><b>Photograph 14.</b> ↑</p> <p><b>June 12, 2025. WC-17.</b> View of the feature at the downstream outlet through Reed Canary Grass, facing north.</p>                                                     |
|  <p>AECOM<br/>WC-2-18 N<br/>2025.06.12 14:30<br/>44-27285-76-91020<br/>Macdonald-Cartier Fwy, Greater Napanee, ON K0K</p> |  <p>AECOM<br/>WC-2-18 S<br/>2025.06.11 08:58<br/>44-27217-76-90099<br/>Macdonald-Cartier Fwy, Greater Napanee, ON K0K</p> |
| <p><b>Photograph 15.</b> ↑</p> <p><b>June 10, 2025. WC-18.</b> View of the feature dominated by cattails, facing north.</p>                                                                                 | <p><b>Photograph 16.</b> ↑</p> <p><b>June 10, 2025. WC-18.</b> View of the feature dominated by Reed Canary Grass, facing south.</p>                                                                         |

|                                                                 |                                                                                                                                                   |                                |
|-----------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|
| <b>Client Name:</b><br>Ontario Ministry of Transportation (MTO) | <b>Report Name</b><br>Highway 401 / Napanee River Bridge Improvements Preliminary Design and Class Environmental Assessment Study (WP 4039-19-01) | <b>Project No.</b><br>60734357 |
|-----------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|

|                                                                                                                                                                                                       |                                                                                                                                                                                                                                |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  <p>AECOM<br/>401 East<br/>2025-08-21 14:52<br/>131 345762 4903377<br/>Macdonald-Carter Hwy, Napanee, ON K7R 4B6</p> |  <p>AECOM<br/>401 East Bellevue Rd, Kingston, SA 2<br/>2025-08-19 09:59<br/>181 343215 4902929<br/>11 Richmond Blvd, Napanee, ON K7R 4B6</p> |
| <p><b>Photograph 17. ↑</b><br/><b>August 21, 2025.</b> Golden Shiner (<i>Notemigonus crysoleucas</i>).</p>                                                                                            | <p><b>Photograph 18. ↑</b><br/><b>August 19, 2025.</b> Bluntnose Minnow (<i>Pimephales notatus</i>).</p>                                                                                                                       |



|                                          |                                                                                                                             |                    |
|------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|--------------------|
| <b>Client Name:</b>                      | <b>Report Name</b>                                                                                                          | <b>Project No.</b> |
| Ontario Ministry of Transportation (MTO) | Highway 401 / Napanee River Bridge Improvements Preliminary Design and Class Environmental Assessment Study (WP 4039-19-01) | 60734357           |



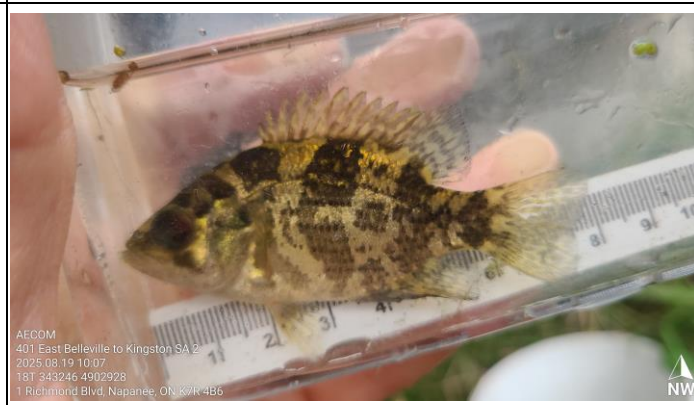
**Photograph 19. ↑**  
**August 21, 2025. Brook Silverside (*Labidesthes sicculus*).**



**Photograph 20. ↑**  
**August 22, 2025. Johnny Darter (*Etheostoma nigrum*).**



**Photograph 21. ↑**  
**August 19, 2025. Pumpkinseed (*Lepomis gibbosus*).**



**Photograph 22. ↑**  
**August 19, 2025. Rock Bass (*Ambloplites rupestris*).**

# Appendix **D**

## **Field Notes and Habitat Maps**

Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Time Started:           | Time Finished:          | Is stream realignment required | Location of Crossing:              | Latitude | Longitude | Location  |
|--------------|-----------------------------|-------------------------|-------------------------|-------------------------|--------------------------------|------------------------------------|----------|-----------|-----------|
| WC-13        | Upstream                    | 2025-06-17 16:00        | 2025-06-17 18:17        |                         | No                             |                                    | 44.2677  | -76.9327  |           |
| WC-13        | Downstream                  | 2025-06-17 16:00        | 08-21-2025 17:27:37.574 | 2025-08-21 17:52        | No                             | Hwy 401 W                          | 44.2673  | -76.9325  |           |
| WC-13        | Upstream                    | 08-21-2025 19:34:02.321 | 08-21-2025 19:34:14.695 | 2025-08-21 19:52        | No                             | Hwy 401 W                          | 44.2676  | -76.9327  |           |
| WC-14        |                             | 2025-06-17 16:00        |                         |                         | No                             |                                    | 44.2669  | -76.9319  | Skatepark |
| WC-14a       | Upstream                    | 2025-06-10 16:00        | 2025-06-10 16:55        | 06-10-2025 17:16:08.560 | Unknown                        | Hwy 401 W off ramp at County Rd. 5 | 44.2705  | -76.926   | Skatepark |
| WC-14a       | Downstream                  | 2025-06-10 16:00        | 2025-06-10 17:25        | 2025-06-10 17:45        | Unknown                        | Hwy 401 W on ramp at County Rd. 5  | 44.2703  | -76.9267  | Skatepark |
| WC-14a       | Upstream                    | 08-21-2025 15:39:48.797 | 08-21-2025 15:40:06.334 | 2025-08-21 15:49        | Unknown                        | Hwy 401 W off ramp at County Rd. 5 | 44.2704  | -76.926   |           |
| WC-14a       | Downstream                  | 2025-08-21 16:00        | 2025-08-21 15:51        | 2025-08-21 15:56        | Unknown                        | Hwy 401 W on ramp at County Rd. 5  | 44.2704  | -76.9267  |           |

Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Weather Conditions       | Air Temperature (°C): | Water Temperature (°C): | Conductivity (µS/cm): | Water Velocity: | Water pH Level: | Dissolved Oxygen (mg/L): |
|--------------|-----------------------------|-------------------------|--------------------------|-----------------------|-------------------------|-----------------------|-----------------|-----------------|--------------------------|
| WC-13        | Upstream                    | 2025-06-17 16:00        | overcast clouds          | 24.48                 | 23.8                    | 273.8                 |                 | 7.72            | 5.56                     |
| WC-13        | Downstream                  | 2025-06-17 16:00        | Full sun                 | 24                    |                         |                       |                 |                 |                          |
| WC-13        | Upstream                    | 08-21-2025 19:34:02.321 | Full sun                 | 26                    |                         |                       |                 |                 |                          |
| WC-14        |                             | 2025-06-17 16:00        | scattered clouds         | 21.64                 |                         |                       |                 |                 |                          |
| WC-14a       | Upstream                    | 2025-06-10 16:00        | clear sky                | 19.84                 |                         |                       |                 |                 |                          |
| WC-14a       | Downstream                  | 2025-06-10 16:00        | clear sky                | 23.47                 | 12.7                    | 643                   | 0.02            | 7.67            | 10.67                    |
| WC-14a       | Upstream                    | 08-21-2025 15:39:48.797 | Partially cloudy         | 21                    |                         |                       |                 |                 |                          |
| WC-14a       | Downstream                  | 2025-08-21 16:00        | sunny with cloudy brakes | 21                    |                         |                       |                 |                 |                          |

Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Drainage System: | MTO Chainage: | Township:       | MNRF District:                 | Surrounding Land Use:       | Pollution Sources:                              |
|--------------|-----------------------------|-------------------------|------------------|---------------|-----------------|--------------------------------|-----------------------------|-------------------------------------------------|
| WC-13        | Upstream                    | 2025-06-17 16:00        | Napanee River    |               | Greater Napanee | Peterborough Bancroft District | Highways,Agriculture        |                                                 |
| WC-13        | Downstream                  | 2025-06-17 16:00        | Napanee River    |               | Greater Napanee | Peterborough Bancroft District | Highways,Residential,Forest | Ag and highway runoff                           |
| WC-13        | Upstream                    | 08-21-2025 19:34:02.321 | Napanee River    |               | Greater Napanee | Peterborough Bancroft District | Highways,Agriculture,Forest | Hwy and ag runoff                               |
| WC-14        |                             | 2025-06-17 16:00        |                  |               | Greater Napanee | Peterborough Bancroft District | Highways                    |                                                 |
| WC-14a       | Upstream                    | 2025-06-10 16:00        | Napanee River    |               | Greater Napanee | Peterborough Bancroft District | Meadow,Highways             | Hwy drainage                                    |
| WC-14a       | Downstream                  | 2025-06-10 16:00        | Napanee River    |               | Greater Napanee | Peterborough Bancroft District | Forest,Highways,Other       | Hwy pollution, stream crosse a utility corridor |
| WC-14a       | Upstream                    | 08-21-2025 15:39:48.797 | Napanee River    |               | Greater Napanee | Peterborough Bancroft District | Meadow,Highways             | Hwy drainage                                    |
| WC-14a       | Downstream                  | 2025-08-21 16:00        | Napanee River    |               | Greater Napanee | Peterborough Bancroft District | Forest,Highways,Other       | Hwy pollution, stream crosse a utility corridor |

Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Existing Structure Type: | Existing Structure Width (m): | Existing Structure Height (m): | Section Type: | Section Type Status: | Fish Habitat      |
|--------------|-----------------------------|-------------------------|--------------------------|-------------------------------|--------------------------------|---------------|----------------------|-------------------|
| WC-13        | Upstream                    | 2025-06-17 16:00        | Bridge                   |                               |                                | Steam_River   | Permanent            | Direct            |
| WC-13        | Downstream                  | 2025-06-17 16:00        | Bridge                   |                               |                                | Steam_River   | Permanent            | Direct            |
| WC-13        | Upstream                    | 08-21-2025 19:34:02.321 | Bridge                   |                               |                                | Steam_River   | Permanent            | Direct            |
| WC-14        |                             | 2025-06-17 16:00        |                          |                               |                                | Steam_River   | Intermittent         | Seasonally Direct |
| WC-14a       | Upstream                    | 2025-06-10 16:00        | CSP                      | 0.75                          | 0.75                           | Channelized   | Intermittent         | Indirect          |
| WC-14a       | Downstream                  | 2025-06-10 16:00        | CSP                      | 0.75                          | 0.75                           | Steam_River   | Permanent            | Seasonally Direct |
| WC-14a       | Upstream                    | 08-21-2025 15:39:48.797 | CSP                      | 0.75                          | 0.75                           | Channelized   | Intermittent         | Indirect          |
| WC-14a       | Downstream                  | 2025-08-21 16:00        | CSP                      | 0.75                          | 0.75                           | Steam_River   | Permanent            | Seasonally Direct |



Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Section Type Description:                                                                                                                                                                                                                                                                                                                                        | Section Length: | Subsection Types | Run - Percentage of area: |
|--------------|-----------------------------|-------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|------------------|---------------------------|
| WC-13        | Upstream                    | 2025-06-17 16:00        | Large river with clay on banks. Mature trees provide minimal overhanging vegetation,                                                                                                                                                                                                                                                                             |                 | Run              | 100                       |
| WC-13        | Downstream                  | 2025-06-17 16:00        | Large river with clay on banks. Mature trees provide minimal overhanging vegetation,                                                                                                                                                                                                                                                                             |                 | Flats            |                           |
| WC-13        | Upstream                    | 08-21-2025 19:34:02.321 | Large river with clay on banks. Mature trees provide minimal overhanging vegetation,                                                                                                                                                                                                                                                                             | 100             | Flats            |                           |
| WC-14        |                             | 2025-06-17 16:00        | Not assessed as it is outside of ROW                                                                                                                                                                                                                                                                                                                             |                 |                  |                           |
| WC-14a       | Upstream                    | 2025-06-10 16:00        | Defined, meandering channel conveying water westerly under Hwy 401 W off/on ramp at County Rd. 5. Channel flows through a cultural meadow dominated by grasses. Consist primarily of runs with a small riffle at the culvert inlet. Bent grasses along with high banks and HWM indicates periods of highflows. Canary reed grasses grows throughout the channel. | 55              | Run,Riffle       | 95                        |
| WC-14a       | Downstream                  | 2025-06-10 16:00        | Defined channel, meandering through forest, conveying water westerly into Napanee river. Heavily vegetated banks. Woody debris cause streams to split into chutes and creating cascade like featur during lowflow.                                                                                                                                               | 25              | Run,Riffle,Other | 60                        |
| WC-14a       | Upstream                    | 08-21-2025 15:39:48.797 | Dry at the time of assessment. Linear channel through the clover leaf dominated by reed canary grass and purple loosestrife.                                                                                                                                                                                                                                     | 55              |                  |                           |
| WC-14a       | Downstream                  | 2025-08-21 16:00        | dry no water. Defined channel, meandering through forest, conveying water westerly into Napanee river. Heavily vegetated banks. Woody debris cause streams to split into chutes and creating cascade like features during lowflow.                                                                                                                               | 25              |                  |                           |

Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Run - Mean wetted depth (m): | Run - Mean wetted width (m): | Run - Mean bankful depth (m): | Run - Mean bankful width (m): | Run - Substrate Type:          |
|--------------|-----------------------------|-------------------------|------------------------------|------------------------------|-------------------------------|-------------------------------|--------------------------------|
| WC-13        | Upstream                    | 2025-06-17 16:00        |                              |                              |                               |                               | Clay,Sand                      |
| WC-13        | Downstream                  | 2025-06-17 16:00        |                              |                              |                               |                               |                                |
| WC-13        | Upstream                    | 08-21-2025 19:34:02.321 |                              |                              |                               |                               |                                |
| WC-14        |                             | 2025-06-17 16:00        |                              |                              |                               |                               |                                |
| WC-14a       | Upstream                    | 2025-06-10 16:00        | 0.15                         | 0.6                          | 0.65                          | 3.5                           | Sand,Gravel,Detritus,Muck,Silt |
| WC-14a       | Downstream                  | 2025-06-10 16:00        | 0.07                         | 0.85                         | 0.3                           | 2.5                           | Gravel,Cobble,Silt,Sand        |
| WC-14a       | Upstream                    | 08-21-2025 15:39:48.797 |                              |                              |                               |                               |                                |
| WC-14a       | Downstream                  | 2025-08-21 16:00        |                              |                              |                               |                               |                                |

Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Run - Bedrock Substrate % | Run - Boulder Substrate % | Run - Cobble Substrate % | Run - Gravel Substrate % | Run - Sand Substrate % | Run - Silt Substrate % |
|--------------|-----------------------------|-------------------------|---------------------------|---------------------------|--------------------------|--------------------------|------------------------|------------------------|
| WC-13        | Upstream                    | 2025-06-17 16:00        |                           |                           |                          |                          | 50                     |                        |
| WC-13        | Downstream                  | 2025-06-17 16:00        |                           |                           |                          |                          |                        |                        |
| WC-13        | Upstream                    | 08-21-2025 19:34:02.321 |                           |                           |                          |                          |                        |                        |
| WC-14        |                             | 2025-06-17 16:00        |                           |                           |                          |                          |                        |                        |
| WC-14a       | Upstream                    | 2025-06-10 16:00        |                           |                           |                          | 20                       | 20                     | 20                     |
| WC-14a       | Downstream                  | 2025-06-10 16:00        |                           |                           | 40                       | 30                       | 15                     | 15                     |
| WC-14a       | Upstream                    | 08-21-2025 15:39:48.797 |                           |                           |                          |                          |                        |                        |
| WC-14a       | Downstream                  | 2025-08-21 16:00        |                           |                           |                          |                          |                        |                        |

Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Run - Clay Substrate % | Run - Muck Substrate % | Run - Detritus Substrate % | Run - Total Substrate Percentage: | Pool - Percentage of area: | Pool - Mean wetted depth (m): |
|--------------|-----------------------------|-------------------------|------------------------|------------------------|----------------------------|-----------------------------------|----------------------------|-------------------------------|
| WC-13        | Upstream                    | 2025-06-17 16:00        | 50                     |                        |                            |                                   |                            |                               |
| WC-13        | Downstream                  | 2025-06-17 16:00        |                        |                        |                            |                                   |                            |                               |
| WC-13        | Upstream                    | 08-21-2025 19:34:02.321 |                        |                        |                            |                                   |                            |                               |
| WC-14        |                             | 2025-06-17 16:00        |                        |                        |                            |                                   |                            |                               |
| WC-14a       | Upstream                    | 2025-06-10 16:00        |                        | 20                     | 20                         | 100                               |                            |                               |
| WC-14a       | Downstream                  | 2025-06-10 16:00        |                        |                        |                            | 100                               |                            |                               |
| WC-14a       | Upstream                    | 08-21-2025 15:39:48.797 |                        |                        |                            |                                   |                            |                               |
| WC-14a       | Downstream                  | 2025-08-21 16:00        |                        |                        |                            |                                   |                            |                               |

Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Pool - Mean wetted width (m): | Pool - Mean bankful depth (m): | Pool - Mean bankful width (m): | Pool - Substrate Type: | Pool - Bedrock Substrate % |
|--------------|-----------------------------|-------------------------|-------------------------------|--------------------------------|--------------------------------|------------------------|----------------------------|
| WC-13        | Upstream                    | 2025-06-17 16:00        |                               |                                |                                |                        |                            |
| WC-13        | Downstream                  | 2025-06-17 16:00        |                               |                                |                                |                        |                            |
| WC-13        | Upstream                    | 08-21-2025 19:34:02.321 |                               |                                |                                |                        |                            |
| WC-14        |                             | 2025-06-17 16:00        |                               |                                |                                |                        |                            |
| WC-14a       | Upstream                    | 2025-06-10 16:00        |                               |                                |                                |                        |                            |
| WC-14a       | Downstream                  | 2025-06-10 16:00        |                               |                                |                                |                        |                            |
| WC-14a       | Upstream                    | 08-21-2025 15:39:48.797 |                               |                                |                                |                        |                            |
| WC-14a       | Downstream                  | 2025-08-21 16:00        |                               |                                |                                |                        |                            |

Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Pool - Boulder Substrate % | Pool - Cobble Substrate % | Pool - Gravel Substrate % | Pool - Sand Substrate % | Pool - Silt Substrate % | Pool - Clay Substrate % |
|--------------|-----------------------------|-------------------------|----------------------------|---------------------------|---------------------------|-------------------------|-------------------------|-------------------------|
| WC-13        | Upstream                    | 2025-06-17 16:00        |                            |                           |                           |                         |                         |                         |
| WC-13        | Downstream                  | 2025-06-17 16:00        |                            |                           |                           |                         |                         |                         |
| WC-13        | Upstream                    | 08-21-2025 19:34:02.321 |                            |                           |                           |                         |                         |                         |
| WC-14        |                             | 2025-06-17 16:00        |                            |                           |                           |                         |                         |                         |
| WC-14a       | Upstream                    | 2025-06-10 16:00        |                            |                           |                           |                         |                         |                         |
| WC-14a       | Downstream                  | 2025-06-10 16:00        |                            |                           |                           |                         |                         |                         |
| WC-14a       | Upstream                    | 08-21-2025 15:39:48.797 |                            |                           |                           |                         |                         |                         |
| WC-14a       | Downstream                  | 2025-08-21 16:00        |                            |                           |                           |                         |                         |                         |



Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Pool - Muck Substrate % | Pool - Detritus Substrate % | Pool - Total Substrate %: | Riffle - Percentage of Area: | Riffle - Mean wetted depth (m): | Riffle - Mean wetted width (m): |
|--------------|-----------------------------|-------------------------|-------------------------|-----------------------------|---------------------------|------------------------------|---------------------------------|---------------------------------|
| WC-13        | Upstream                    | 2025-06-17 16:00        |                         |                             |                           |                              |                                 |                                 |
| WC-13        | Downstream                  | 2025-06-17 16:00        |                         |                             |                           |                              |                                 |                                 |
| WC-13        | Upstream                    | 08-21-2025 19:34:02.321 |                         |                             |                           |                              |                                 |                                 |
| WC-14        |                             | 2025-06-17 16:00        |                         |                             |                           |                              |                                 |                                 |
| WC-14a       | Upstream                    | 2025-06-10 16:00        |                         |                             |                           | 5                            | 0.09                            | 0.35                            |
| WC-14a       | Downstream                  | 2025-06-10 16:00        |                         |                             |                           | 20                           | 0.05                            | 0.3                             |
| WC-14a       | Upstream                    | 08-21-2025 15:39:48.797 |                         |                             |                           |                              |                                 |                                 |
| WC-14a       | Downstream                  | 2025-08-21 16:00        |                         |                             |                           |                              |                                 |                                 |

Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Riffle - Mean bankful depth (m): | Riffle - Mean bankful width (m): | Riffle - Substrate Type: | Riffle - Bedrock Substrate % | Riffle - Boulder Substrate % |
|--------------|-----------------------------|-------------------------|----------------------------------|----------------------------------|--------------------------|------------------------------|------------------------------|
| WC-13        | Upstream                    | 2025-06-17 16:00        |                                  |                                  |                          |                              |                              |
| WC-13        | Downstream                  | 2025-06-17 16:00        |                                  |                                  |                          |                              |                              |
| WC-13        | Upstream                    | 08-21-2025 19:34:02.321 |                                  |                                  |                          |                              |                              |
| WC-14        |                             | 2025-06-17 16:00        |                                  |                                  |                          |                              |                              |
| WC-14a       | Upstream                    | 2025-06-10 16:00        | 0.65                             | 1.5                              | Gravel,Detritus,Sand     |                              |                              |
| WC-14a       | Downstream                  | 2025-06-10 16:00        | 0.3                              | 2                                | Cobble,Gravel,Sand       |                              |                              |
| WC-14a       | Upstream                    | 08-21-2025 15:39:48.797 |                                  |                                  |                          |                              |                              |
| WC-14a       | Downstream                  | 2025-08-21 16:00        |                                  |                                  |                          |                              |                              |

Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Riffle - Cobble Substrate % | Riffle - Gravel Substrate % | Riffle - Sand Substrate % | Riffle - Silt Substrate % | Riffle - Clay Substrate % | Riffle - Muck Substrate % |
|--------------|-----------------------------|-------------------------|-----------------------------|-----------------------------|---------------------------|---------------------------|---------------------------|---------------------------|
| WC-13        | Upstream                    | 2025-06-17 16:00        |                             |                             |                           |                           |                           |                           |
| WC-13        | Downstream                  | 2025-06-17 16:00        |                             |                             |                           |                           |                           |                           |
| WC-13        | Upstream                    | 08-21-2025 19:34:02.321 |                             |                             |                           |                           |                           |                           |
| WC-14        |                             | 2025-06-17 16:00        |                             |                             |                           |                           |                           |                           |
| WC-14a       | Upstream                    | 2025-06-10 16:00        |                             | 35                          | 10                        |                           |                           |                           |
| WC-14a       | Downstream                  | 2025-06-10 16:00        | 45                          | 35                          | 20                        |                           |                           |                           |
| WC-14a       | Upstream                    | 08-21-2025 15:39:48.797 |                             |                             |                           |                           |                           |                           |
| WC-14a       | Downstream                  | 2025-08-21 16:00        |                             |                             |                           |                           |                           |                           |

Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Riffle - Detritus Substrate % | Riffle - Total Substrate % | Flats - Percentage of Area: | Flats - Mean wetted depth (m): | Flats - Mean wetted width (m): |
|--------------|-----------------------------|-------------------------|-------------------------------|----------------------------|-----------------------------|--------------------------------|--------------------------------|
| WC-13        | Upstream                    | 2025-06-17 16:00        |                               |                            |                             |                                |                                |
| WC-13        | Downstream                  | 2025-06-17 16:00        |                               |                            | 100                         |                                | 16                             |
| WC-13        | Upstream                    | 08-21-2025 19:34:02.321 |                               |                            | 100                         |                                | 18                             |
| WC-14        |                             | 2025-06-17 16:00        |                               |                            |                             |                                |                                |
| WC-14a       | Upstream                    | 2025-06-10 16:00        | 55                            | 100                        |                             |                                |                                |
| WC-14a       | Downstream                  | 2025-06-10 16:00        |                               | 100                        |                             |                                |                                |
| WC-14a       | Upstream                    | 08-21-2025 15:39:48.797 |                               |                            |                             |                                |                                |
| WC-14a       | Downstream                  | 2025-08-21 16:00        |                               |                            |                             |                                |                                |

Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Flats - Mean bankful depth (m): | Flats - Mean bankful width (m): | Flats - Substrate Type: | Flats - Bedrock Substrate % | Flats - Boulder Substrate % |
|--------------|-----------------------------|-------------------------|---------------------------------|---------------------------------|-------------------------|-----------------------------|-----------------------------|
| WC-13        | Upstream                    | 2025-06-17 16:00        |                                 |                                 |                         |                             |                             |
| WC-13        | Downstream                  | 2025-06-17 16:00        | 3                               | 20                              | Clay,Muck,Detritus      |                             |                             |
| WC-13        | Upstream                    | 08-21-2025 19:34:02.321 |                                 | 20                              | Clay,Muck,Detritus      |                             |                             |
| WC-14        |                             | 2025-06-17 16:00        |                                 |                                 |                         |                             |                             |
| WC-14a       | Upstream                    | 2025-06-10 16:00        |                                 |                                 |                         |                             |                             |
| WC-14a       | Downstream                  | 2025-06-10 16:00        |                                 |                                 |                         |                             |                             |
| WC-14a       | Upstream                    | 08-21-2025 15:39:48.797 |                                 |                                 |                         |                             |                             |
| WC-14a       | Downstream                  | 2025-08-21 16:00        |                                 |                                 |                         |                             |                             |

Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Flats - Cobble Substrate % | Flats - Gravel Substrate % | Flats - Sand Substrate % | Flats - Silt Substrate % | Flats - Clay Substrate % | Flats - Muck Substrate % |
|--------------|-----------------------------|-------------------------|----------------------------|----------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| WC-13        | Upstream                    | 2025-06-17 16:00        |                            |                            |                          |                          |                          |                          |
| WC-13        | Downstream                  | 2025-06-17 16:00        |                            |                            |                          |                          | 30                       | 50                       |
| WC-13        | Upstream                    | 08-21-2025 19:34:02.321 |                            |                            |                          |                          | 40                       | 50                       |
| WC-14        |                             | 2025-06-17 16:00        |                            |                            |                          |                          |                          |                          |
| WC-14a       | Upstream                    | 2025-06-10 16:00        |                            |                            |                          |                          |                          |                          |
| WC-14a       | Downstream                  | 2025-06-10 16:00        |                            |                            |                          |                          |                          |                          |
| WC-14a       | Upstream                    | 08-21-2025 15:39:48.797 |                            |                            |                          |                          |                          |                          |
| WC-14a       | Downstream                  | 2025-08-21 16:00        |                            |                            |                          |                          |                          |                          |



Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Flats - Detritus Substrate % | Flats - Total Substrate %: | Culvert - Percentage of Area: | Culvert - Mean wetted depth (m): | Culvert - Mean wetted width (m): |
|--------------|-----------------------------|-------------------------|------------------------------|----------------------------|-------------------------------|----------------------------------|----------------------------------|
| WC-13        | Upstream                    | 2025-06-17 16:00        |                              |                            |                               |                                  |                                  |
| WC-13        | Downstream                  | 2025-06-17 16:00        | 20                           |                            |                               |                                  |                                  |
| WC-13        | Upstream                    | 08-21-2025 19:34:02.321 | 10                           |                            |                               |                                  |                                  |
| WC-14        |                             | 2025-06-17 16:00        |                              |                            |                               |                                  |                                  |
| WC-14a       | Upstream                    | 2025-06-10 16:00        |                              |                            |                               |                                  |                                  |
| WC-14a       | Downstream                  | 2025-06-10 16:00        |                              |                            |                               |                                  |                                  |
| WC-14a       | Upstream                    | 08-21-2025 15:39:48.797 |                              |                            |                               |                                  |                                  |
| WC-14a       | Downstream                  | 2025-08-21 16:00        |                              |                            |                               |                                  |                                  |

Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Culvert - Mean bankful depth (m): | Culvert - Mean bankful width (m): | Culvert - Substrate Type: | Culvert - Bedrock Substrate % | Culvert - Boulder Substrate % |
|--------------|-----------------------------|-------------------------|-----------------------------------|-----------------------------------|---------------------------|-------------------------------|-------------------------------|
| WC-13        | Upstream                    | 2025-06-17 16:00        |                                   |                                   |                           |                               |                               |
| WC-13        | Downstream                  | 2025-06-17 16:00        |                                   |                                   |                           |                               |                               |
| WC-13        | Upstream                    | 08-21-2025 19:34:02.321 |                                   |                                   |                           |                               |                               |
| WC-14        |                             | 2025-06-17 16:00        |                                   |                                   |                           |                               |                               |
| WC-14a       | Upstream                    | 2025-06-10 16:00        |                                   |                                   |                           |                               |                               |
| WC-14a       | Downstream                  | 2025-06-10 16:00        |                                   |                                   |                           |                               |                               |
| WC-14a       | Upstream                    | 08-21-2025 15:39:48.797 |                                   |                                   |                           |                               |                               |
| WC-14a       | Downstream                  | 2025-08-21 16:00        |                                   |                                   |                           |                               |                               |

Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Culvert - Cobble Substrate % | Culvert - Gravel Substrate % | Culvert - Sand Substrate % | Culvert - Silt Substrate % | Culvert - Clay Substrate % | Culvert - Muck Substrate % |
|--------------|-----------------------------|-------------------------|------------------------------|------------------------------|----------------------------|----------------------------|----------------------------|----------------------------|
| WC-13        | Upstream                    | 2025-06-17 16:00        |                              |                              |                            |                            |                            |                            |
| WC-13        | Downstream                  | 2025-06-17 16:00        |                              |                              |                            |                            |                            |                            |
| WC-13        | Upstream                    | 08-21-2025 19:34:02.321 |                              |                              |                            |                            |                            |                            |
| WC-14        |                             | 2025-06-17 16:00        |                              |                              |                            |                            |                            |                            |
| WC-14a       | Upstream                    | 2025-06-10 16:00        |                              |                              |                            |                            |                            |                            |
| WC-14a       | Downstream                  | 2025-06-10 16:00        |                              |                              |                            |                            |                            |                            |
| WC-14a       | Upstream                    | 08-21-2025 15:39:48.797 |                              |                              |                            |                            |                            |                            |
| WC-14a       | Downstream                  | 2025-08-21 16:00        |                              |                              |                            |                            |                            |                            |

Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Culvert - Detritus Substrate % | Culvert - Total Substrate %: | Other - Percentage of Area: | Other - Mean wetted depth (m): | Other - Mean wetted width (m): |
|--------------|-----------------------------|-------------------------|--------------------------------|------------------------------|-----------------------------|--------------------------------|--------------------------------|
| WC-13        | Upstream                    | 2025-06-17 16:00        |                                |                              |                             |                                |                                |
| WC-13        | Downstream                  | 2025-06-17 16:00        |                                |                              |                             |                                |                                |
| WC-13        | Upstream                    | 08-21-2025 19:34:02.321 |                                |                              |                             |                                |                                |
| WC-14        |                             | 2025-06-17 16:00        |                                |                              |                             |                                |                                |
| WC-14a       | Upstream                    | 2025-06-10 16:00        |                                |                              |                             |                                |                                |
| WC-14a       | Downstream                  | 2025-06-10 16:00        |                                |                              |                             |                                | 0.2                            |
| WC-14a       | Upstream                    | 08-21-2025 15:39:48.797 |                                |                              |                             |                                |                                |
| WC-14a       | Downstream                  | 2025-08-21 16:00        |                                |                              |                             |                                |                                |

Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Other - Mean bankful depth (m): | Other - Mean bankful width (m): | Other - Substrate Description                     | Other - Substrate Type: |
|--------------|-----------------------------|-------------------------|---------------------------------|---------------------------------|---------------------------------------------------|-------------------------|
| WC-13        | Upstream                    | 2025-06-17 16:00        |                                 |                                 |                                                   |                         |
| WC-13        | Downstream                  | 2025-06-17 16:00        |                                 |                                 |                                                   |                         |
| WC-13        | Upstream                    | 08-21-2025 19:34:02.321 |                                 |                                 |                                                   |                         |
| WC-14        |                             | 2025-06-17 16:00        |                                 |                                 |                                                   |                         |
| WC-14a       | Upstream                    | 2025-06-10 16:00        |                                 |                                 |                                                   |                         |
| WC-14a       | Downstream                  | 2025-06-10 16:00        | 0.03                            | 1                               | Cascade feature caused by woody debris and cobble | Detritus,Cobble,Gravel  |
| WC-14a       | Upstream                    | 08-21-2025 15:39:48.797 |                                 |                                 |                                                   |                         |
| WC-14a       | Downstream                  | 2025-08-21 16:00        |                                 |                                 |                                                   |                         |

Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Other - Bedrock Substrate % | Other - Boulder Substrate % | Other - Cobble Substrate % | Other - Gravel Substrate % | Other - Sand Substrate % | Other - Silt Substrate % |
|--------------|-----------------------------|-------------------------|-----------------------------|-----------------------------|----------------------------|----------------------------|--------------------------|--------------------------|
| WC-13        | Upstream                    | 2025-06-17 16:00        |                             |                             |                            |                            |                          |                          |
| WC-13        | Downstream                  | 2025-06-17 16:00        |                             |                             |                            |                            |                          |                          |
| WC-13        | Upstream                    | 08-21-2025 19:34:02.321 |                             |                             |                            |                            |                          |                          |
| WC-14        |                             | 2025-06-17 16:00        |                             |                             |                            |                            |                          |                          |
| WC-14a       | Upstream                    | 2025-06-10 16:00        |                             |                             |                            |                            |                          |                          |
| WC-14a       | Downstream                  | 2025-06-10 16:00        |                             |                             | 20                         | 10                         |                          |                          |
| WC-14a       | Upstream                    | 08-21-2025 15:39:48.797 |                             |                             |                            |                            |                          |                          |
| WC-14a       | Downstream                  | 2025-08-21 16:00        |                             |                             |                            |                            |                          |                          |



Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Other - Clay Substrate % | Other - Muck Substrate % | Other - Detritus Substrate % | Other - Total Substrate %: | Left Bank Stability: | Right Bank Stability: |
|--------------|-----------------------------|-------------------------|--------------------------|--------------------------|------------------------------|----------------------------|----------------------|-----------------------|
| WC-13        | Upstream                    | 2025-06-17 16:00        |                          |                          |                              |                            | Slightly Unstable    | Slightly Unstable     |
| WC-13        | Downstream                  | 2025-06-17 16:00        |                          |                          |                              |                            | Slightly Unstable    | Slightly Unstable     |
| WC-13        | Upstream                    | 08-21-2025 19:34:02.321 |                          |                          |                              |                            | Slightly Unstable    | Slightly Unstable     |
| WC-14        |                             | 2025-06-17 16:00        |                          |                          |                              |                            |                      |                       |
| WC-14a       | Upstream                    | 2025-06-10 16:00        |                          |                          |                              |                            | Moderately Unstable  | Moderately Unstable   |
| WC-14a       | Downstream                  | 2025-06-10 16:00        |                          |                          | 70                           | 100                        | Slightly Unstable    | Slightly Unstable     |
| WC-14a       | Upstream                    | 08-21-2025 15:39:48.797 |                          |                          |                              |                            | Moderately Unstable  | Moderately Unstable   |
| WC-14a       | Downstream                  | 2025-08-21 16:00        |                          |                          |                              |                            | Slightly Unstable    | Slightly Unstable     |

Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Left Bank Description: | Right Bank Description: | Sources of in-stream cover:                       | Total In-stream Cover %: | Undercut Banks In-stream Cover %: | Boulder In-stream Cover %: |
|--------------|-----------------------------|-------------------------|------------------------|-------------------------|---------------------------------------------------|--------------------------|-----------------------------------|----------------------------|
| WC-13        | Upstream                    | 2025-06-17 16:00        | Eroding Bank           | Eroding Bank            | Vascular_Macrophytes,Organic_Debris               | 0                        |                                   |                            |
| WC-13        | Downstream                  | 2025-06-17 16:00        | Eroding Bank           | Eroding Bank            | Vascular_Macrophytes,Organic_Debris,Woody_Debris  | 30                       |                                   |                            |
| WC-13        | Upstream                    | 08-21-2025 19:34:02.321 | Eroding Bank           | Eroding Bank            | Vascular_Macrophytes,Organic_Debris,Woody_Debris  | 25                       |                                   |                            |
| WC-14        |                             | 2025-06-17 16:00        |                        |                         |                                                   | 0                        |                                   |                            |
| WC-14a       | Upstream                    | 2025-06-10 16:00        | Vulnerable Bank        | Vulnerable Bank         | Undercut_Banks,Organic_Debris                     | 55                       | 40                                |                            |
| WC-14a       | Downstream                  | 2025-06-10 16:00        | Vulnerable Bank        | Vulnerable Bank         | Undercut_Banks,Cobble,Woody_Debris,Organic_Debris | 55                       | 20                                |                            |
| WC-14a       | Upstream                    | 08-21-2025 15:39:48.797 | Vulnerable Bank        | Vulnerable Bank         |                                                   |                          |                                   |                            |
| WC-14a       | Downstream                  | 2025-08-21 16:00        | Vulnerable Bank        | Vulnerable Bank         |                                                   |                          |                                   |                            |

Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Cobble In-stream Cover %: | Woody Debris In-Stream Cover %: | Organic Debris In-stream Cover %: | Vascular Macrophytes In-stream Cover %: | Total Overhanging Cover: |
|--------------|-----------------------------|-------------------------|---------------------------|---------------------------------|-----------------------------------|-----------------------------------------|--------------------------|
| WC-13        | Upstream                    | 2025-06-17 16:00        |                           |                                 | 25                                | 25                                      | 1_to_29_Pct              |
| WC-13        | Downstream                  | 2025-06-17 16:00        |                           | 10                              | 15                                | 75                                      | 30_to_59_Pct             |
| WC-13        | Upstream                    | 08-21-2025 19:34:02.321 |                           | 20                              | 20                                | 60                                      | 1_to_29_Pct              |
| WC-14        |                             | 2025-06-17 16:00        |                           |                                 |                                   |                                         |                          |
| WC-14a       | Upstream                    | 2025-06-10 16:00        |                           |                                 | 60                                |                                         | 60_to_89_Pct             |
| WC-14a       | Downstream                  | 2025-06-10 16:00        | 40                        | 30                              | 10                                |                                         | 60_to_89_Pct             |
| WC-14a       | Upstream                    | 08-21-2025 15:39:48.797 |                           |                                 |                                   |                                         |                          |
| WC-14a       | Downstream                  | 2025-08-21 16:00        |                           |                                 |                                   |                                         |                          |

Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Shore Cover Comments:                                                                                                                                       | Vegetation Types Present:    | Submergent Vegetation (%): |
|--------------|-----------------------------|-------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|----------------------------|
| WC-13        | Upstream                    | 2025-06-17 16:00        | Cattails, reed canary graas, poison ivy, dead ash,                                                                                                          | Submergent                   | 10                         |
| WC-13        | Downstream                  | 2025-06-17 16:00        | Cattails, reed canary grass, dead ash, flowering rush                                                                                                       | Submergent,Floating,Emergent | 10                         |
| WC-13        | Upstream                    | 08-21-2025 19:34:02.321 | Cattails, reed canary graas, poison ivy, dead ash, flowering rush,<br>some cattails                                                                         | Floating,Emergent            |                            |
| WC-14        |                             | 2025-06-17 16:00        |                                                                                                                                                             |                              |                            |
| WC-14a       | Upstream                    | 2025-06-10 16:00        | Reed canary grass grows within the channel and provides shade<br>and cover for fish                                                                         | Emergent                     |                            |
| WC-14a       | Downstream                  | 2025-06-10 16:00        | Gray dogwood, greenashh, riverbank grape,bittersweet nightshade,<br>woodavens, swamp creeper, jewel weed sp. Bent vegetation<br>suggest periods of highflow | None                         |                            |
| WC-14a       | Upstream                    | 08-21-2025 15:39:48.797 |                                                                                                                                                             |                              |                            |
| WC-14a       | Downstream                  | 2025-08-21 16:00        | Gray dogwood, greenash, riverbank grape,bittersweet nightshade,<br>woodavens, swamp creeper, jewel weed sp. Bent vegetation<br>suggest periods of highflow  |                              |                            |

Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Predominant Submergent Species:                                                                      | Floating Vegetation (%): | Predominant Floating Species:              | Emergent Vegetation(%): |
|--------------|-----------------------------|-------------------------|------------------------------------------------------------------------------------------------------|--------------------------|--------------------------------------------|-------------------------|
| WC-13        | Upstream                    | 2025-06-17 16:00        | Curly leaf pondweed, northern pondweed, milfoil, cattails, meadow anenome, american white water lily |                          |                                            |                         |
| WC-13        | Downstream                  | 2025-06-17 16:00        | Milfoil                                                                                              | 70                       | Broadleaved pondweed, algae                | 20                      |
| WC-13        | Upstream                    | 08-21-2025 19:34:02.321 |                                                                                                      | 70                       | Broadleaf pondweed, white waterlily, algae | 30                      |
| WC-14        |                             | 2025-06-17 16:00        |                                                                                                      |                          |                                            |                         |
| WC-14a       | Upstream                    | 2025-06-10 16:00        |                                                                                                      |                          |                                            | 10                      |
| WC-14a       | Downstream                  | 2025-06-10 16:00        |                                                                                                      |                          |                                            |                         |
| WC-14a       | Upstream                    | 08-21-2025 15:39:48.797 |                                                                                                      |                          |                                            |                         |
| WC-14a       | Downstream                  | 2025-08-21 16:00        |                                                                                                      |                          |                                            |                         |

Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Predominant Emergent Species:                      | Migratory Obstructions Found: | Permanent Obstructions: | Seasonal Obstructions:                                                           | Spawning Critical Habitat: | Groundwater Indicators Observed: |
|--------------|-----------------------------|-------------------------|----------------------------------------------------|-------------------------------|-------------------------|----------------------------------------------------------------------------------|----------------------------|----------------------------------|
| WC-13        | Upstream                    | 2025-06-17 16:00        |                                                    | No                            |                         |                                                                                  |                            |                                  |
| WC-13        | Downstream                  | 2025-06-17 16:00        | Flowering rush, american burreed                   | No                            |                         |                                                                                  | None                       | None                             |
| WC-13        | Upstream                    | 08-21-2025 19:34:02.321 | American bullrush, flowering rush, hybrid cattails | No                            |                         |                                                                                  | None                       | None                             |
| WC-14        |                             | 2025-06-17 16:00        |                                                    |                               |                         |                                                                                  |                            |                                  |
| WC-14a       | Upstream                    | 2025-06-10 16:00        | Narrowleaf cattails                                | Yes                           |                         | Potential low flow may create impediment to fish passage in the riffle section   |                            |                                  |
| WC-14a       | Downstream                  | 2025-06-10 16:00        |                                                    | Yes                           |                         | Low flow might cause impediment to fish passage upstream in the cascade sections |                            |                                  |
| WC-14a       | Upstream                    | 08-21-2025 15:39:48.797 |                                                    | Yes                           |                         | low flow may create impediment to fish passage                                   | None                       | None                             |
| WC-14a       | Downstream                  | 2025-08-21 16:00        |                                                    | Yes                           |                         | Low flow might cause impediment to fish passage upstream in the cascade sections |                            |                                  |



Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Other Critical Habitat: | Potential Enhancement Opportunities:                   |
|--------------|-----------------------------|-------------------------|-------------------------|--------------------------------------------------------|
| WC-13        | Upstream                    | 2025-06-17 16:00        |                         |                                                        |
| WC-13        | Downstream                  | 2025-06-17 16:00        | None                    | Maintain habitat<br>Invasive species removal           |
| WC-13        | Upstream                    | 08-21-2025 19:34:02.321 | None                    | Tree removal at bridge (likely<br>provinding fish hab) |
| WC-14        |                             | 2025-06-17 16:00        |                         |                                                        |
| WC-14a       | Upstream                    | 2025-06-10 16:00        |                         |                                                        |
| WC-14a       | Downstream                  | 2025-06-10 16:00        |                         |                                                        |
| WC-14a       | Upstream                    | 08-21-2025 15:39:48.797 | None                    | Invasive species removal                               |
| WC-14a       | Downstream                  | 2025-08-21 16:00        |                         |                                                        |

Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Additional Comments:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|--------------|-----------------------------|-------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| WC-13        | Upstream                    | 2025-06-17 16:00        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| WC-13        | Downstream                  | 2025-06-17 16:00        | Downstream portion of the Napanee consits of flat morphology. Wind is blowing the surface of the water but the flow of water is very slow. Broadleaved pondweed dominates both sides of the river but the thalweg portion has a clear surface. Water levels are significantly low with more than 1.5 m of exposed banks. Eastern eliptio along the banks. Banks are dominated by flowering rush and reed canary grass. The downstream portion is fairly linear for approx 10pm before turning west. Some woody debris throuout. Banks show signs of eroding with some undercutting but the water level is so low that the undercutting is not underwater (not in stream cover at the time). Depth was approximate and likely the average but the thalweg was slightly deeper. |
| WC-13        | Upstream                    | 08-21-2025 19:34:02.321 | Fairly linear river with a bend towards the E approx 150m upstream. Agricultural lands surrounding the river with reed canary grass banks and minimal riparian trees. Upstream has more open water and less floating veg than downstream. Water level is much lower than spring with exposed banks. Depth is likely similar to the downstream portion where we were able to measure during electrofishing. Thalweg through the middle of 3 sections of the bridge.                                                                                                                                                                                                                                                                                                            |
| WC-14        |                             | 2025-06-17 16:00        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| WC-14a       | Upstream                    | 2025-06-10 16:00        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| WC-14a       | Downstream                  | 2025-06-10 16:00        | Potential fish habitat due to close proximity to Napanee river. Access via County Rd 5.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| WC-14a       | Upstream                    | 08-21-2025 15:39:48.797 | Potential seasonal habitat but dry at the time of assessment. Channel is dense with reed canary grass but still defined. Supports high flow in the spring but conveys drainage to the Napanee. Likely fish hab closer to the napanee but indirect at the clover leaf.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| WC-14a       | Downstream                  | 2025-08-21 16:00        | Spring: potential fish habitat due to close proximity to Napanee river. Access via County Rd 5.<br><br>Summer: dry no water in defined channel. Drainage conveys water west to the Napanee River. Culvert is half crushed. Defined channels may be possible seasonal fish habitat during certain periodes of the year depending on conditions downstream. No vegetation growing in channel Only wetland vegetation species observed was Spotted Jewelweed and Silky Dogwood. Channel goes through forested area.                                                                                                                                                                                                                                                              |

Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Time Started:           | Time Finished:          | Is stream realignment required | Location of Crossing:   | Latitude | Longitude | Location |
|--------------|-----------------------------|-------------------------|-------------------------|-------------------------|--------------------------------|-------------------------|----------|-----------|----------|
| WC-15        | Downstream                  | 2025-06-10 16:00        | 2025-06-10 16:08        | 2025-06-10 16:22        | Unknown                        | Highway 401 clover leaf | 44.2705  | -76.9241  |          |
| WC-15        | Downstream                  | 08-21-2025 15:23:41.194 | 08-21-2025 15:24:09.678 | 08-21-2025 15:34:54.254 | Unknown                        | Highway 401 clover leaf | 44.2705  | -76.9245  |          |
| WC-16        | Upstream                    | 2025-06-10 16:00        | 2025-06-10 18:36        | 2025-06-10 19:05        | Unknown                        | County Road 5           | 44.2713  | -76.9233  |          |
| WC-16        | Downstream                  | 2025-06-10 16:00        | 2025-06-10 19:06        | 2025-06-10 19:28        | Unknown                        | County road 5           | 44.2714  | -76.9237  |          |
| WC-16        | Upstream                    | 08-21-2025 14:58:06.828 | 08-21-2025 14:58:22.310 | 2025-08-21 15:07        | Unknown                        | County Road 5           | 44.2713  | -76.9233  |          |

Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Weather Conditions       | Air Temperature (°C): | Water Temperature (°C): | Conductivity (µS/cm): | Water Velocity: | Water pH Level: | Dissolved Oxygen (mg/L): |
|--------------|-----------------------------|-------------------------|--------------------------|-----------------------|-------------------------|-----------------------|-----------------|-----------------|--------------------------|
| WC-15        | Downstream                  | 2025-06-10 16:00        | clear sky                | 21.81                 | 8.9                     | 566                   |                 | 7.35            | 8.98                     |
| WC-15        | Downstream                  | 08-21-2025 15:23:41.194 | sunny with cloudy brakes | 20                    |                         |                       |                 |                 |                          |
| WC-16        | Upstream                    | 2025-06-10 16:00        | clear sky                | 22.92                 |                         |                       |                 |                 |                          |
| WC-16        | Downstream                  | 2025-06-10 16:00        | clear sky                | 22.92                 |                         |                       |                 |                 |                          |
| WC-16        | Upstream                    | 08-21-2025 14:58:06.828 | Partially cloudy         | 21                    |                         |                       |                 |                 |                          |

Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Drainage System: | MTO Chainage: | Township:       | MNRF District:                 | Surrounding Land Use:                  | Pollution Sources: |
|--------------|-----------------------------|-------------------------|------------------|---------------|-----------------|--------------------------------|----------------------------------------|--------------------|
| WC-15        | Downstream                  | 2025-06-10 16:00        |                  |               | Greater Napanee | Peterborough Bancroft District | Highways,Meadow                        | Road runoff        |
| WC-15        | Downstream                  | 08-21-2025 15:23:41.194 |                  |               | Greater Napanee | Peterborough Bancroft District | Highways,Meadow                        | Road runoff        |
| WC-16        | Upstream                    | 2025-06-10 16:00        |                  |               | Greater Napanee | Peterborough Bancroft District | Highways,Forest,Meadow                 |                    |
| WC-16        | Downstream                  | 2025-06-10 16:00        |                  |               | Greater Napanee | Peterborough Bancroft District | Highways,Municipal_Roads,Meadow,Forest |                    |
| WC-16        | Upstream                    | 08-21-2025 14:58:06.828 |                  |               | Greater Napanee | Peterborough Bancroft District | Highways,Forest,Meadow                 |                    |

Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Existing Structure Type: | Existing Structure Width (m): | Existing Structure Height (m): | Section Type: | Section Type Status: | Fish Habitat |
|--------------|-----------------------------|-------------------------|--------------------------|-------------------------------|--------------------------------|---------------|----------------------|--------------|
| WC-15        | Downstream                  | 2025-06-10 16:00        | CSP                      | .7                            | .6                             | Channelized   | Intermittent         | Indirect     |
| WC-15        | Downstream                  | 08-21-2025 15:23:41.194 | CSP                      | .7                            | .6                             | Channelized   | Intermittent         | Indirect     |
| WC-16        | Upstream                    | 2025-06-10 16:00        | CSP                      | .9                            | .9                             | Channelized   | Ephemeral            | Indirect     |
| WC-16        | Downstream                  | 2025-06-10 16:00        | CSP                      |                               |                                | Steam_River   | Intermittent         | Indirect     |
| WC-16        | Upstream                    | 08-21-2025 14:58:06.828 | CSP                      | .9                            | .9                             | Channelized   | Ephemeral            | Indirect     |



Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Section Type Description:                                   | Section Length: | Subsection Types | Run - Percentage of area: |
|--------------|-----------------------------|-------------------------|-------------------------------------------------------------|-----------------|------------------|---------------------------|
| WC-15        | Downstream                  | 2025-06-10 16:00        | Drainage but potentially supports fish hab ds (see 14a)     | 60              | Pool,Flats       |                           |
| WC-15        | Downstream                  | 08-21-2025 15:23:41.194 | Drainage but potentially supports fish hab ds (see 14a)     | 60              |                  |                           |
| WC-16        | Upstream                    | 2025-06-10 16:00        | Drainage ditch                                              | 30              | Run              | 100                       |
| WC-16        | Downstream                  | 2025-06-10 16:00        | Drainage along road but becomes more substantial downstream | 100             | Flats,Pool       |                           |
| WC-16        | Upstream                    | 08-21-2025 14:58:06.828 | Drainage ditch                                              | 30              |                  |                           |

Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Run - Mean wetted depth (m): | Run - Mean wetted width (m): | Run - Mean bankful depth (m): | Run - Mean bankful width (m): | Run - Substrate Type: |
|--------------|-----------------------------|-------------------------|------------------------------|------------------------------|-------------------------------|-------------------------------|-----------------------|
| WC-15        | Downstream                  | 2025-06-10 16:00        |                              |                              |                               |                               |                       |
| WC-15        | Downstream                  | 08-21-2025 15:23:41.194 |                              |                              |                               |                               |                       |
| WC-16        | Upstream                    | 2025-06-10 16:00        | 0.1                          | 0.25                         | 0.6                           | 1.2                           | Cobble,Clay,Silt,Sand |
| WC-16        | Downstream                  | 2025-06-10 16:00        |                              |                              |                               |                               |                       |
| WC-16        | Upstream                    | 08-21-2025 14:58:06.828 |                              |                              |                               |                               |                       |

Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Run - Bedrock Substrate % | Run - Boulder Substrate % | Run - Cobble Substrate % | Run - Gravel Substrate % | Run - Sand Substrate % | Run - Silt Substrate % |
|--------------|-----------------------------|-------------------------|---------------------------|---------------------------|--------------------------|--------------------------|------------------------|------------------------|
| WC-15        | Downstream                  | 2025-06-10 16:00        |                           |                           |                          |                          |                        |                        |
| WC-15        | Downstream                  | 08-21-2025 15:23:41.194 |                           |                           |                          |                          |                        |                        |
| WC-16        | Upstream                    | 2025-06-10 16:00        |                           |                           | 20                       |                          | 10                     | 30                     |
| WC-16        | Downstream                  | 2025-06-10 16:00        |                           |                           |                          |                          |                        |                        |
| WC-16        | Upstream                    | 08-21-2025 14:58:06.828 |                           |                           |                          |                          |                        |                        |

Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Run - Clay Substrate % | Run - Muck Substrate % | Run - Detritus Substrate % | Run - Total Substrate Percentage: | Pool - Percentage of area: | Pool - Mean wetted depth (m): |
|--------------|-----------------------------|-------------------------|------------------------|------------------------|----------------------------|-----------------------------------|----------------------------|-------------------------------|
| WC-15        | Downstream                  | 2025-06-10 16:00        |                        |                        |                            |                                   | 5                          | 0.19                          |
| WC-15        | Downstream                  | 08-21-2025 15:23:41.194 |                        |                        |                            |                                   |                            |                               |
| WC-16        | Upstream                    | 2025-06-10 16:00        | 40                     |                        |                            |                                   |                            |                               |
| WC-16        | Downstream                  | 2025-06-10 16:00        |                        |                        |                            |                                   | 5                          | 0.1                           |
| WC-16        | Upstream                    | 08-21-2025 14:58:06.828 |                        |                        |                            |                                   |                            |                               |

Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Pool - Mean wetted width (m): | Pool - Mean bankful depth (m): | Pool - Mean bankful width (m): | Pool - Substrate Type: | Pool - Bedrock Substrate % |
|--------------|-----------------------------|-------------------------|-------------------------------|--------------------------------|--------------------------------|------------------------|----------------------------|
| WC-15        | Downstream                  | 2025-06-10 16:00        | 1                             | 0.6                            | 3                              | Sand,Gravel,Silt       |                            |
| WC-15        | Downstream                  | 08-21-2025 15:23:41.194 |                               |                                |                                |                        |                            |
| WC-16        | Upstream                    | 2025-06-10 16:00        |                               |                                |                                |                        |                            |
| WC-16        | Downstream                  | 2025-06-10 16:00        | 2.5                           | 0.75                           | 3.5                            | Silt,Detritus,Sand     |                            |
| WC-16        | Upstream                    | 08-21-2025 14:58:06.828 |                               |                                |                                |                        |                            |

Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Pool - Boulder Substrate % | Pool - Cobble Substrate % | Pool - Gravel Substrate % | Pool - Sand Substrate % | Pool - Silt Substrate % | Pool - Clay Substrate % |
|--------------|-----------------------------|-------------------------|----------------------------|---------------------------|---------------------------|-------------------------|-------------------------|-------------------------|
| WC-15        | Downstream                  | 2025-06-10 16:00        |                            |                           | 70                        | 20                      | 10                      |                         |
| WC-15        | Downstream                  | 08-21-2025 15:23:41.194 |                            |                           |                           |                         |                         |                         |
| WC-16        | Upstream                    | 2025-06-10 16:00        |                            |                           |                           |                         |                         |                         |
| WC-16        | Downstream                  | 2025-06-10 16:00        |                            |                           |                           | 30                      | 60                      |                         |
| WC-16        | Upstream                    | 08-21-2025 14:58:06.828 |                            |                           |                           |                         |                         |                         |



Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Pool - Muck Substrate % | Pool - Detritus Substrate % | Pool - Total Substrate %: | Riffle - Percentage of Area: | Riffle - Mean wetted depth (m): | Riffle - Mean wetted width (m): |
|--------------|-----------------------------|-------------------------|-------------------------|-----------------------------|---------------------------|------------------------------|---------------------------------|---------------------------------|
| WC-15        | Downstream                  | 2025-06-10 16:00        |                         |                             |                           |                              |                                 |                                 |
| WC-15        | Downstream                  | 08-21-2025 15:23:41.194 |                         |                             |                           |                              |                                 |                                 |
| WC-16        | Upstream                    | 2025-06-10 16:00        |                         |                             |                           |                              |                                 |                                 |
| WC-16        | Downstream                  | 2025-06-10 16:00        |                         | 10                          |                           |                              |                                 |                                 |
| WC-16        | Upstream                    | 08-21-2025 14:58:06.828 |                         |                             |                           |                              |                                 |                                 |

Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Riffle - Mean bankful depth (m): | Riffle - Mean bankful width (m): | Riffle - Substrate Type: | Riffle - Bedrock Substrate % | Riffle - Boulder Substrate % |
|--------------|-----------------------------|-------------------------|----------------------------------|----------------------------------|--------------------------|------------------------------|------------------------------|
| WC-15        | Downstream                  | 2025-06-10 16:00        |                                  |                                  |                          |                              |                              |
| WC-15        | Downstream                  | 08-21-2025 15:23:41.194 |                                  |                                  |                          |                              |                              |
| WC-16        | Upstream                    | 2025-06-10 16:00        |                                  |                                  |                          |                              |                              |
| WC-16        | Downstream                  | 2025-06-10 16:00        |                                  |                                  |                          |                              |                              |
| WC-16        | Upstream                    | 08-21-2025 14:58:06.828 |                                  |                                  |                          |                              |                              |

Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Riffle - Cobble Substrate % | Riffle - Gravel Substrate % | Riffle - Sand Substrate % | Riffle - Silt Substrate % | Riffle - Clay Substrate % | Riffle - Muck Substrate % |
|--------------|-----------------------------|-------------------------|-----------------------------|-----------------------------|---------------------------|---------------------------|---------------------------|---------------------------|
| WC-15        | Downstream                  | 2025-06-10 16:00        |                             |                             |                           |                           |                           |                           |
| WC-15        | Downstream                  | 08-21-2025 15:23:41.194 |                             |                             |                           |                           |                           |                           |
| WC-16        | Upstream                    | 2025-06-10 16:00        |                             |                             |                           |                           |                           |                           |
| WC-16        | Downstream                  | 2025-06-10 16:00        |                             |                             |                           |                           |                           |                           |
| WC-16        | Upstream                    | 08-21-2025 14:58:06.828 |                             |                             |                           |                           |                           |                           |

Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Riffle - Detritus Substrate % | Riffle - Total Substrate % | Flats - Percentage of Area: | Flats - Mean wetted depth (m): | Flats - Mean wetted width (m): |
|--------------|-----------------------------|-------------------------|-------------------------------|----------------------------|-----------------------------|--------------------------------|--------------------------------|
| WC-15        | Downstream                  | 2025-06-10 16:00        |                               |                            | 95                          | 0.04                           | 0.15                           |
| WC-15        | Downstream                  | 08-21-2025 15:23:41.194 |                               |                            |                             |                                |                                |
| WC-16        | Upstream                    | 2025-06-10 16:00        |                               |                            |                             |                                |                                |
| WC-16        | Downstream                  | 2025-06-10 16:00        |                               |                            | 95                          | 0.07                           | 0.4                            |
| WC-16        | Upstream                    | 08-21-2025 14:58:06.828 |                               |                            |                             |                                |                                |

Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Flats - Mean bankful depth (m): | Flats - Mean bankful width (m): | Flats - Substrate Type:       | Flats - Bedrock Substrate % | Flats - Boulder Substrate % |
|--------------|-----------------------------|-------------------------|---------------------------------|---------------------------------|-------------------------------|-----------------------------|-----------------------------|
| WC-15        | Downstream                  | 2025-06-10 16:00        | 0.6                             | 3                               | Gravel,Sand,Silt              |                             |                             |
| WC-15        | Downstream                  | 08-21-2025 15:23:41.194 |                                 |                                 |                               |                             |                             |
| WC-16        | Upstream                    | 2025-06-10 16:00        |                                 |                                 |                               |                             |                             |
| WC-16        | Downstream                  | 2025-06-10 16:00        | 0.35                            | 1.25                            | Silt,Sand,Clay,Cobble,Boulder |                             | 5                           |
| WC-16        | Upstream                    | 08-21-2025 14:58:06.828 |                                 |                                 |                               |                             |                             |

Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Flats - Cobble Substrate % | Flats - Gravel Substrate % | Flats - Sand Substrate % | Flats - Silt Substrate % | Flats - Clay Substrate % | Flats - Muck Substrate % |
|--------------|-----------------------------|-------------------------|----------------------------|----------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| WC-15        | Downstream                  | 2025-06-10 16:00        |                            | 70                         | 20                       | 10                       |                          |                          |
| WC-15        | Downstream                  | 08-21-2025 15:23:41.194 |                            |                            |                          |                          |                          |                          |
| WC-16        | Upstream                    | 2025-06-10 16:00        |                            |                            |                          |                          |                          |                          |
| WC-16        | Downstream                  | 2025-06-10 16:00        | 10                         |                            | 10                       | 50                       | 25                       |                          |
| WC-16        | Upstream                    | 08-21-2025 14:58:06.828 |                            |                            |                          |                          |                          |                          |



Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Flats - Detritus Substrate % | Flats - Total Substrate %: | Culvert - Percentage of Area: | Culvert - Mean wetted depth (m): | Culvert - Mean wetted width (m): |
|--------------|-----------------------------|-------------------------|------------------------------|----------------------------|-------------------------------|----------------------------------|----------------------------------|
| WC-15        | Downstream                  | 2025-06-10 16:00        |                              |                            |                               |                                  |                                  |
| WC-15        | Downstream                  | 08-21-2025 15:23:41.194 |                              |                            |                               |                                  |                                  |
| WC-16        | Upstream                    | 2025-06-10 16:00        |                              |                            |                               |                                  |                                  |
| WC-16        | Downstream                  | 2025-06-10 16:00        |                              |                            |                               |                                  |                                  |
| WC-16        | Upstream                    | 08-21-2025 14:58:06.828 |                              |                            |                               |                                  |                                  |

Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Culvert - Mean bankful depth (m): | Culvert - Mean bankful width (m): | Culvert - Substrate Type: | Culvert - Bedrock Substrate % | Culvert - Boulder Substrate % |
|--------------|-----------------------------|-------------------------|-----------------------------------|-----------------------------------|---------------------------|-------------------------------|-------------------------------|
| WC-15        | Downstream                  | 2025-06-10 16:00        |                                   |                                   |                           |                               |                               |
| WC-15        | Downstream                  | 08-21-2025 15:23:41.194 |                                   |                                   |                           |                               |                               |
| WC-16        | Upstream                    | 2025-06-10 16:00        |                                   |                                   |                           |                               |                               |
| WC-16        | Downstream                  | 2025-06-10 16:00        |                                   |                                   |                           |                               |                               |
| WC-16        | Upstream                    | 08-21-2025 14:58:06.828 |                                   |                                   |                           |                               |                               |

Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Culvert - Cobble Substrate % | Culvert - Gravel Substrate % | Culvert - Sand Substrate % | Culvert - Silt Substrate % | Culvert - Clay Substrate % | Culvert - Muck Substrate % |
|--------------|-----------------------------|-------------------------|------------------------------|------------------------------|----------------------------|----------------------------|----------------------------|----------------------------|
| WC-15        | Downstream                  | 2025-06-10 16:00        |                              |                              |                            |                            |                            |                            |
| WC-15        | Downstream                  | 08-21-2025 15:23:41.194 |                              |                              |                            |                            |                            |                            |
| WC-16        | Upstream                    | 2025-06-10 16:00        |                              |                              |                            |                            |                            |                            |
| WC-16        | Downstream                  | 2025-06-10 16:00        |                              |                              |                            |                            |                            |                            |
| WC-16        | Upstream                    | 08-21-2025 14:58:06.828 |                              |                              |                            |                            |                            |                            |

Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Culvert - Detritus Substrate % | Culvert - Total Substrate %: | Other - Percentage of Area: | Other - Mean wetted depth (m): | Other - Mean wetted width (m): |
|--------------|-----------------------------|-------------------------|--------------------------------|------------------------------|-----------------------------|--------------------------------|--------------------------------|
| WC-15        | Downstream                  | 2025-06-10 16:00        |                                |                              |                             |                                |                                |
| WC-15        | Downstream                  | 08-21-2025 15:23:41.194 |                                |                              |                             |                                |                                |
| WC-16        | Upstream                    | 2025-06-10 16:00        |                                |                              |                             |                                |                                |
| WC-16        | Downstream                  | 2025-06-10 16:00        |                                |                              |                             |                                |                                |
| WC-16        | Upstream                    | 08-21-2025 14:58:06.828 |                                |                              |                             |                                |                                |

Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Other - Mean bankful depth (m): | Other - Mean bankful width (m): | Other - Substrate Description | Other - Substrate Type: |
|--------------|-----------------------------|-------------------------|---------------------------------|---------------------------------|-------------------------------|-------------------------|
| WC-15        | Downstream                  | 2025-06-10 16:00        |                                 |                                 |                               |                         |
| WC-15        | Downstream                  | 08-21-2025 15:23:41.194 |                                 |                                 |                               |                         |
| WC-16        | Upstream                    | 2025-06-10 16:00        |                                 |                                 |                               |                         |
| WC-16        | Downstream                  | 2025-06-10 16:00        |                                 |                                 |                               |                         |
| WC-16        | Upstream                    | 08-21-2025 14:58:06.828 |                                 |                                 |                               |                         |

Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Other - Bedrock Substrate % | Other - Boulder Substrate % | Other - Cobble Substrate % | Other - Gravel Substrate % | Other - Sand Substrate % | Other - Silt Substrate % |
|--------------|-----------------------------|-------------------------|-----------------------------|-----------------------------|----------------------------|----------------------------|--------------------------|--------------------------|
| WC-15        | Downstream                  | 2025-06-10 16:00        |                             |                             |                            |                            |                          |                          |
| WC-15        | Downstream                  | 08-21-2025 15:23:41.194 |                             |                             |                            |                            |                          |                          |
| WC-16        | Upstream                    | 2025-06-10 16:00        |                             |                             |                            |                            |                          |                          |
| WC-16        | Downstream                  | 2025-06-10 16:00        |                             |                             |                            |                            |                          |                          |
| WC-16        | Upstream                    | 08-21-2025 14:58:06.828 |                             |                             |                            |                            |                          |                          |



Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Other - Clay Substrate % | Other - Muck Substrate % | Other - Detritus Substrate % | Other - Total Substrate %: | Left Bank Stability: | Right Bank Stability: |
|--------------|-----------------------------|-------------------------|--------------------------|--------------------------|------------------------------|----------------------------|----------------------|-----------------------|
| WC-15        | Downstream                  | 2025-06-10 16:00        |                          |                          |                              |                            | Slightly Unstable    | Slightly Unstable     |
| WC-15        | Downstream                  | 08-21-2025 15:23:41.194 |                          |                          |                              |                            | Slightly Unstable    | Slightly Unstable     |
| WC-16        | Upstream                    | 2025-06-10 16:00        |                          |                          |                              |                            | Stable               | Slightly Unstable     |
| WC-16        | Downstream                  | 2025-06-10 16:00        |                          |                          |                              |                            | Slightly Unstable    | Slightly Unstable     |
| WC-16        | Upstream                    | 08-21-2025 14:58:06.828 |                          |                          |                              |                            | Stable               | Slightly Unstable     |

Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Left Bank Description: | Right Bank Description: | Sources of in-stream cover:                       | Total In-stream Cover %: | Undercut Banks In-stream Cover %: | Boulder In-stream Cover %: |
|--------------|-----------------------------|-------------------------|------------------------|-------------------------|---------------------------------------------------|--------------------------|-----------------------------------|----------------------------|
| WC-15        | Downstream                  | 2025-06-10 16:00        | Eroding Bank           | Eroding Bank            | Undercut_Banks,Vascular_Macrophytes               | 20                       | 70                                |                            |
| WC-15        | Downstream                  | 08-21-2025 15:23:41.194 | Eroding Bank           | Eroding Bank            |                                                   |                          |                                   |                            |
| WC-16        | Upstream                    | 2025-06-10 16:00        | Protected Bank         | Eroding Bank            | Undercut_Banks,Cobble,Vascular_Macrophytes        | 30                       | 60                                |                            |
| WC-16        | Downstream                  | 2025-06-10 16:00        | Eroding Bank           | Eroding Bank            | Boulders,Cobble,Woody_Debris,Vascular_Macrophytes | 40                       |                                   | 5                          |
| WC-16        | Upstream                    | 08-21-2025 14:58:06.828 | Protected Bank         | Eroding Bank            |                                                   |                          |                                   |                            |

Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Cobble In-stream Cover %: | Woody Debris In-Stream Cover %: | Organic Debris In-stream Cover %: | Vascular Macrophytes In-stream Cover %: | Total Overhanging Cover: |
|--------------|-----------------------------|-------------------------|---------------------------|---------------------------------|-----------------------------------|-----------------------------------------|--------------------------|
| WC-15        | Downstream                  | 2025-06-10 16:00        |                           |                                 |                                   | 30                                      | 60_to_89_Pct             |
| WC-15        | Downstream                  | 08-21-2025 15:23:41.194 |                           |                                 |                                   |                                         |                          |
| WC-16        | Upstream                    | 2025-06-10 16:00        | 10                        |                                 |                                   | 30                                      | 30_to_59_Pct             |
| WC-16        | Downstream                  | 2025-06-10 16:00        | 30                        | 25                              |                                   | 40                                      |                          |
| WC-16        | Upstream                    | 08-21-2025 14:58:06.828 |                           |                                 |                                   |                                         |                          |

Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Shore Cover Comments:                 | Vegetation Types Present: | Submergent Vegetation (%): |
|--------------|-----------------------------|-------------------------|---------------------------------------|---------------------------|----------------------------|
| WC-15        | Downstream                  | 2025-06-10 16:00        | Reed canary grass and cattail channel | Emergent                  |                            |
| WC-15        | Downstream                  | 08-21-2025 15:23:41.194 | Reed canary grass and cattail channel |                           |                            |
| WC-16        | Upstream                    | 2025-06-10 16:00        | Reed canary grass                     | Emergent                  |                            |
| WC-16        | Downstream                  | 2025-06-10 16:00        |                                       | Emergent                  |                            |
| WC-16        | Upstream                    | 08-21-2025 14:58:06.828 |                                       |                           |                            |

Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Predominant Submergent Species: | Floating Vegetation (%): | Predominant Floating Species: | Emergent Vegetation(%): |
|--------------|-----------------------------|-------------------------|---------------------------------|--------------------------|-------------------------------|-------------------------|
| WC-15        | Downstream                  | 2025-06-10 16:00        |                                 |                          |                               | 100                     |
| WC-15        | Downstream                  | 08-21-2025 15:23:41.194 |                                 |                          |                               |                         |
| WC-16        | Upstream                    | 2025-06-10 16:00        |                                 |                          |                               | 100                     |
| WC-16        | Downstream                  | 2025-06-10 16:00        |                                 |                          |                               | 100                     |
| WC-16        | Upstream                    | 08-21-2025 14:58:06.828 |                                 |                          |                               |                         |

Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Predominant Emergent Species:                         | Migratory Obstructions Found: | Permanent Obstructions: | Seasonal Obstructions: | Spawning Critical Habitat: | Groundwater Indicators Observed: |
|--------------|-----------------------------|-------------------------|-------------------------------------------------------|-------------------------------|-------------------------|------------------------|----------------------------|----------------------------------|
| WC-15        | Downstream                  | 2025-06-10 16:00        | Reed canary dominant with cattails further downstream | No                            |                         |                        | None                       | None                             |
| WC-15        | Downstream                  | 08-21-2025 15:23:41.194 |                                                       | No                            |                         |                        | None                       | None                             |
| WC-16        | Upstream                    | 2025-06-10 16:00        | Reed canary grass                                     | No                            |                         |                        | None                       | None                             |
| WC-16        | Downstream                  | 2025-06-10 16:00        | Reed                                                  | No                            |                         |                        | None                       | None                             |
| WC-16        | Upstream                    | 08-21-2025 14:58:06.828 |                                                       | Yes                           | Perched culvert 20 cm   |                        | None                       | None                             |



Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Other Critical Habitat: | Potential Enhancement Opportunities:                |
|--------------|-----------------------------|-------------------------|-------------------------|-----------------------------------------------------|
| WC-15        | Downstream                  | 2025-06-10 16:00        | None                    | Maintain habitat, bank stabalization                |
| WC-15        | Downstream                  | 08-21-2025 15:23:41.194 | None                    | Maintain habitat, bank stabalization                |
| WC-16        | Upstream                    | 2025-06-10 16:00        | None                    | Bank stabalization                                  |
| WC-16        | Downstream                  | 2025-06-10 16:00        | None                    | Fix channel at road from tracks,<br>garbage cleanup |
| WC-16        | Upstream                    | 08-21-2025 14:58:06.828 | None                    | Bank stabalization                                  |

Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Additional Comments:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|--------------|-----------------------------|-------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| WC-15        | Downstream                  | 2025-06-10 16:00        | Feature conveys upstream drainage from stormwater grates across county road 5 through the clover leaf to an additonal crossing under the off ramp (see crossing WC-14a). Feature has water and based on bankful width and undercutting, the channel supports high flow. At the time of assessment, 2 chute channels (similar dimentions - flat dimentions in assessment) on both banks are flowing (low flow) and converge approx 20m downstream down a low/moderate gradient. This assessment only goes approx halfway downstream within the clover leaf and then transfers to the 14a assessment. Washout behind the culvert is present from high flows. Channel is dominated by reed canary grass and sparse cattails. 2 stormwater grates on eotjer side of coutry road 5 outflow to a CSP approx 10m from country road 5 west. Riparian includes : bittersweet nightshadd, field horsetail, Willowherbs, bitter wimtercress, anada thistle. Gravel outwash at the culvert present.Supports high flow, likely not fish habitat/indirect but may be fish habitat closer to off ramp where it becomes more substantial (14a).                                                                                                                                                                            |
| WC-15        | Downstream                  | 08-21-2025 15:23:41.194 | Feature conveys upstream drainage from stormwater grates across county road 5 through the clover leaf to an additonal crossing under the off ramp (see crossing WC-14a). Feature has water and based on bankful width and undercutting, the channel supports high flow. At the time of assessment, 2 chute channels (similar dimentions - flat dimentions in assessment) on both banks are flowing (low flow) and converge approx 20m downstream down a low/moderate gradient. This assessment only goes approx halfway downstream within the clover leaf and then transfers to the 14a assessment. Washout behind the culvert is present from high flows. Channel is dominated by reed canary grass and sparse cattails. 2 stormwater grates on either side of coutry road 5 outflow to a CSP approx 10m from country road 5 west. Riparian includes : bittersweet nightshadd, field horsetail, Willowherbs, bitter wimtercress, anada thistle. Gravel outwash at the culvert present. no water in channel at time of assessments however ground in channel is damp and some pooling water at base of culvert 3cm deep and 1m long. Gradient higher 1m away causing backflow. Water likely from previous days rain event. Channel is dense with reed canarygrass and some cattails and purple loosetrife. |
| WC-16        | Upstream                    | 2025-06-10 16:00        | Drainage feature flowing in a ditch beside county road 5. Likely only water present due to rain otherwise dry. Undercutting suggests high flow during storm events or spring. Some streambed characteristics but just supports drainage. Riparian includes red ceadar, reed canary grass, red maple. Likely not fish habitat. Downsteam has more potential.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| WC-16        | Downstream                  | 2025-06-10 16:00        | Feature begins as drainage feature from road runoff and from sitting at a higher elevation. The feature has a large pool near the culvert from a vehicle driving through. The feature transitions to a small stream flowing through reed canary grass for approx 40 m which then transitions to a forest. The feature gradually drops down a moderate gradient towards the napanee river. Piled cobble causing water to pool approx 100 m downstream creating an impediment to water moving further downstream. Dry after the cobble which likely only becomes wet during high flow. Some woody debris within the forest and the feature slightly meanders. Red cedars, freeman maple, red maple, bittersweet nigjtshade, canada goldenrod, reed canary grass. likely not fish habitat due to gradient, low flow, and cobble impediment stopping flow. Likely not fish habitat due to moderate gradient, low flow, and cobble patch approx 100m downstream stopping flow (dry further downstream).                                                                                                                                                                                                                                                                                                         |
| WC-16        | Upstream                    | 08-21-2025 14:58:06.828 | Drainage feature flowing in a ditch beside county road 5. Likely only water present due to rain otherwise dry. Undercutting suggests high flow during storm events or spring. Some streambed characteristics but just supports drainage. Riparian includes red ceadar, reed canary grass, red maple. Likely not fish habitat. Downsteam has more potential.<br><br>Summer: dry drainage feature from WC-17. Undercutting near the culvert. Likely strong flow in the spring. Terrestrial grasses throughout. Hedge row to the S and the municipal road to the N.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Time Started:           | Time Finished:          | Is stream realignment required | Location of Crossing: | Latitude | Longitude | Location  |
|--------------|-----------------------------|-------------------------|-------------------------|-------------------------|--------------------------------|-----------------------|----------|-----------|-----------|
| WC-16        | Downstream                  | 08-21-2025 15:04:35.454 | 08-21-2025 15:04:46.641 | 2025-08-21 15:11        | Unknown                        | County road 5         | 44.2714  | -76.9235  |           |
| WC-17        | Upstream                    | 2025-06-11 16:00        | 2025-06-11 12:26        | 2025-06-11 12:45        | Unknown                        | Highway 401 E         | 44.2709  | -76.9204  | Skatepark |
| WC-17        | Downstream                  | 2025-06-12 16:00        | 06-12-2025 18:46:57.085 | 2025-06-12 19:10        | Unknown                        | Highway 401 W         | 44.2714  | -76.9207  | Skatepark |
| WC-17        | Downstream                  | 2025-08-21 16:00        | 2025-08-21 14:45        | 2025-08-21 14:51        | Unknown                        | Highway 401 W         | 44.2713  | -76.9206  |           |
| WC-17        | Upstream                    | 08-21-2025 19:58:39.789 | 08-21-2025 19:58:45.723 | 08-21-2025 20:02:24.983 | Unknown                        | Highway 401 E         | 44.2709  | -76.9204  |           |
| WC-18        | Downstream                  | 2025-06-11 16:00        | 06-11-2025 13:00:17.257 | 2025-06-11 13:15        | Unknown                        | Highway 401 E         | 44.2722  | -76.9101  | Skatepark |
| WC-18        | Upstream                    | 2025-06-12 16:00        | 06-12-2025 18:32:36.163 |                         | Unknown                        | Hwy 401 W             | 44.2728  | -76.9101  | Skatepark |

Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Weather Conditions       | Air Temperature (°C): | Water Temperature (°C): | Conductivity (µS/cm): | Water Velocity: | Water pH Level: | Dissolved Oxygen (mg/L): |
|--------------|-----------------------------|-------------------------|--------------------------|-----------------------|-------------------------|-----------------------|-----------------|-----------------|--------------------------|
| WC-16        | Downstream                  | 08-21-2025 15:04:35.454 | Partially cloudy         | 21                    |                         |                       |                 |                 |                          |
| WC-17        | Upstream                    | 2025-06-11 16:00        | few clouds               | 14.76                 |                         |                       |                 |                 |                          |
| WC-17        | Downstream                  | 2025-06-12 16:00        | clear sky                | 21.76                 |                         |                       |                 |                 |                          |
| WC-17        | Downstream                  | 2025-08-21 16:00        | Sunny with cloudy brakes | 19                    |                         |                       |                 |                 |                          |
| WC-17        | Upstream                    | 08-21-2025 19:58:39.789 | Sunny                    | 25                    |                         |                       |                 |                 |                          |
| WC-18        | Downstream                  | 2025-06-11 16:00        | few clouds               | 18.9                  |                         |                       |                 |                 |                          |
| WC-18        | Upstream                    | 2025-06-12 16:00        | clear sky                | 21.71                 |                         |                       |                 |                 |                          |

Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Drainage System: | MTO Chainage: | Township:       | MNRF District:                 | Surrounding Land Use:                  | Pollution Sources:                            |
|--------------|-----------------------------|-------------------------|------------------|---------------|-----------------|--------------------------------|----------------------------------------|-----------------------------------------------|
| WC-16        | Downstream                  | 08-21-2025 15:04:35.454 |                  |               | Greater Napanee | Peterborough Bancroft District | Highways,Municipal_Roads,Meadow,Forest |                                               |
| WC-17        | Upstream                    | 2025-06-11 16:00        |                  |               | Greater Napanee | Peterborough Bancroft District | Highways,Forest                        | Runoff                                        |
| WC-17        | Downstream                  | 2025-06-12 16:00        |                  |               | Greater Napanee | Peterborough Bancroft District | Meadow,Forest,Highways                 | Highway runoff                                |
| WC-17        | Downstream                  | 2025-08-21 16:00        |                  |               | Greater Napanee | Peterborough Bancroft District | Meadow,Forest,Highways                 | Highway runoff                                |
| WC-17        | Upstream                    | 08-21-2025 19:58:39.789 |                  |               | Greater Napanee | Peterborough Bancroft District | Highways,Forest                        | Runoff                                        |
| WC-18        | Downstream                  | 2025-06-11 16:00        |                  |               | Greater Napanee | Peterborough Bancroft District | Highways,Forest                        | Highway runoff                                |
| WC-18        | Upstream                    | 2025-06-12 16:00        |                  |               | Greater Napanee | Peterborough Bancroft District | Agriculture,Highways                   | Hwy drainage, aggricultural related pollutant |

Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Existing Structure Type: | Existing Structure Width (m): | Existing Structure Height (m): | Section Type: | Section Type Status: | Fish Habitat     |
|--------------|-----------------------------|-------------------------|--------------------------|-------------------------------|--------------------------------|---------------|----------------------|------------------|
| WC-16        | Downstream                  | 08-21-2025 15:04:35.454 | CSP                      |                               |                                | Steam_River   | Intermittent         | Indirect         |
| WC-17        | Upstream                    | 2025-06-11 16:00        | Open Foot Culvert        | 1.2                           | 1.4                            | Channelized   | Ephemeral            | Indirect         |
| WC-17        | Downstream                  | 2025-06-12 16:00        | Box Culvert              |                               |                                | Channelized   | Intermittent         | Indirect         |
| WC-17        | Downstream                  | 2025-08-21 16:00        | Box Culvert              |                               |                                | Channelized   | Intermittent         | Indirect         |
| WC-17        | Upstream                    | 08-21-2025 19:58:39.789 | Open Foot Culvert        | 1.2                           | 1.4                            | Channelized   | Ephemeral            | Indirect         |
| WC-18        | Downstream                  | 2025-06-11 16:00        | Open Foot Culvert        | 1.2                           | 1.2                            | Channelized   | Ephemeral            | Not Fish Habitat |
| WC-18        | Upstream                    | 2025-06-12 16:00        | Open Foot Culvert        | 1.25                          | 1.25                           | Channelized   | Intermittent         | Not Fish Habitat |



Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Section Type Description:                                                                                                                                                                                                                      | Section Length: | Subsection Types | Run - Percentage of area: |
|--------------|-----------------------------|-------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|------------------|---------------------------|
| WC-16        | Downstream                  | 08-21-2025 15:04:35.454 | Drainage along road                                                                                                                                                                                                                            | 100             |                  |                           |
| WC-17        | Upstream                    | 2025-06-11 16:00        | Drainage                                                                                                                                                                                                                                       | 20              | Culvert,Run      | 95                        |
| WC-17        | Downstream                  | 2025-06-12 16:00        | Upstream drainage flowing north towards WC-16.                                                                                                                                                                                                 | 50              | Run,Flats        | 60                        |
| WC-17        | Downstream                  | 2025-08-21 16:00        | Upstream drainage north towards WC-16.                                                                                                                                                                                                         | 50              |                  |                           |
| WC-17        | Upstream                    | 08-21-2025 19:58:39.789 | Drainage                                                                                                                                                                                                                                       | 20              |                  |                           |
| WC-18        | Downstream                  | 2025-06-11 16:00        | Drainage                                                                                                                                                                                                                                       | 20              | Culvert          |                           |
| WC-18        | Upstream                    | 2025-06-12 16:00        | Hwy drainage ditch. Conveys surface water from agg fields ans hwy drainage southerly under hwy 401. Shallow, stagnant water at the culvert with both the east and west side of the ditch being dry. Narrow leaf cattails present in the ditch. | 60              | Flats            |                           |

Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Run - Mean wetted depth (m): | Run - Mean wetted width (m): | Run - Mean bankful depth (m): | Run - Mean bankful width (m): | Run - Substrate Type: |
|--------------|-----------------------------|-------------------------|------------------------------|------------------------------|-------------------------------|-------------------------------|-----------------------|
| WC-16        | Downstream                  | 08-21-2025 15:04:35.454 |                              |                              |                               |                               |                       |
| WC-17        | Upstream                    | 2025-06-11 16:00        | 0.07                         | 0.2                          | 0.25                          | 0.75                          | Sand,Silt,Clay        |
| WC-17        | Downstream                  | 2025-06-12 16:00        | 0.08                         | 0.4                          | 0.3                           | 0.6                           | Clay,Gravel,Sand,Silt |
| WC-17        | Downstream                  | 2025-08-21 16:00        |                              |                              |                               |                               |                       |
| WC-17        | Upstream                    | 08-21-2025 19:58:39.789 |                              |                              |                               |                               |                       |
| WC-18        | Downstream                  | 2025-06-11 16:00        |                              |                              |                               |                               |                       |
| WC-18        | Upstream                    | 2025-06-12 16:00        |                              |                              |                               |                               |                       |

Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Run - Bedrock Substrate % | Run - Boulder Substrate % | Run - Cobble Substrate % | Run - Gravel Substrate % | Run - Sand Substrate % | Run - Silt Substrate % |
|--------------|-----------------------------|-------------------------|---------------------------|---------------------------|--------------------------|--------------------------|------------------------|------------------------|
| WC-16        | Downstream                  | 08-21-2025 15:04:35.454 |                           |                           |                          |                          |                        |                        |
| WC-17        | Upstream                    | 2025-06-11 16:00        |                           |                           |                          |                          | 10                     | 40                     |
| WC-17        | Downstream                  | 2025-06-12 16:00        |                           |                           |                          | 30                       | 10                     | 20                     |
| WC-17        | Downstream                  | 2025-08-21 16:00        |                           |                           |                          |                          |                        |                        |
| WC-17        | Upstream                    | 08-21-2025 19:58:39.789 |                           |                           |                          |                          |                        |                        |
| WC-18        | Downstream                  | 2025-06-11 16:00        |                           |                           |                          |                          |                        |                        |
| WC-18        | Upstream                    | 2025-06-12 16:00        |                           |                           |                          |                          |                        |                        |

Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Run - Clay Substrate % | Run - Muck Substrate % | Run - Detritus Substrate % | Run - Total Substrate Percentage: | Pool - Percentage of area: | Pool - Mean wetted depth (m): |
|--------------|-----------------------------|-------------------------|------------------------|------------------------|----------------------------|-----------------------------------|----------------------------|-------------------------------|
| WC-16        | Downstream                  | 08-21-2025 15:04:35.454 |                        |                        |                            |                                   |                            |                               |
| WC-17        | Upstream                    | 2025-06-11 16:00        | 50                     |                        |                            |                                   |                            |                               |
| WC-17        | Downstream                  | 2025-06-12 16:00        | 40                     |                        |                            |                                   |                            |                               |
| WC-17        | Downstream                  | 2025-08-21 16:00        |                        |                        |                            |                                   |                            |                               |
| WC-17        | Upstream                    | 08-21-2025 19:58:39.789 |                        |                        |                            |                                   |                            |                               |
| WC-18        | Downstream                  | 2025-06-11 16:00        |                        |                        |                            |                                   |                            |                               |
| WC-18        | Upstream                    | 2025-06-12 16:00        |                        |                        |                            |                                   |                            |                               |

Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Pool - Mean wetted width (m): | Pool - Mean bankful depth (m): | Pool - Mean bankful width (m): | Pool - Substrate Type: | Pool - Bedrock Substrate % |
|--------------|-----------------------------|-------------------------|-------------------------------|--------------------------------|--------------------------------|------------------------|----------------------------|
| WC-16        | Downstream                  | 08-21-2025 15:04:35.454 |                               |                                |                                |                        |                            |
| WC-17        | Upstream                    | 2025-06-11 16:00        |                               |                                |                                |                        |                            |
| WC-17        | Downstream                  | 2025-06-12 16:00        |                               |                                |                                |                        |                            |
| WC-17        | Downstream                  | 2025-08-21 16:00        |                               |                                |                                |                        |                            |
| WC-17        | Upstream                    | 08-21-2025 19:58:39.789 |                               |                                |                                |                        |                            |
| WC-18        | Downstream                  | 2025-06-11 16:00        |                               |                                |                                |                        |                            |
| WC-18        | Upstream                    | 2025-06-12 16:00        |                               |                                |                                |                        |                            |

Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Pool - Boulder Substrate % | Pool - Cobble Substrate % | Pool - Gravel Substrate % | Pool - Sand Substrate % | Pool - Silt Substrate % | Pool - Clay Substrate % |
|--------------|-----------------------------|-------------------------|----------------------------|---------------------------|---------------------------|-------------------------|-------------------------|-------------------------|
| WC-16        | Downstream                  | 08-21-2025 15:04:35.454 |                            |                           |                           |                         |                         |                         |
| WC-17        | Upstream                    | 2025-06-11 16:00        |                            |                           |                           |                         |                         |                         |
| WC-17        | Downstream                  | 2025-06-12 16:00        |                            |                           |                           |                         |                         |                         |
| WC-17        | Downstream                  | 2025-08-21 16:00        |                            |                           |                           |                         |                         |                         |
| WC-17        | Upstream                    | 08-21-2025 19:58:39.789 |                            |                           |                           |                         |                         |                         |
| WC-18        | Downstream                  | 2025-06-11 16:00        |                            |                           |                           |                         |                         |                         |
| WC-18        | Upstream                    | 2025-06-12 16:00        |                            |                           |                           |                         |                         |                         |



Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Pool - Muck Substrate % | Pool - Detritus Substrate % | Pool - Total Substrate %: | Riffle - Percentage of Area: | Riffle - Mean wetted depth (m): | Riffle - Mean wetted width (m): |
|--------------|-----------------------------|-------------------------|-------------------------|-----------------------------|---------------------------|------------------------------|---------------------------------|---------------------------------|
| WC-16        | Downstream                  | 08-21-2025 15:04:35.454 |                         |                             |                           |                              |                                 |                                 |
| WC-17        | Upstream                    | 2025-06-11 16:00        |                         |                             |                           |                              |                                 |                                 |
| WC-17        | Downstream                  | 2025-06-12 16:00        |                         |                             |                           |                              |                                 |                                 |
| WC-17        | Downstream                  | 2025-08-21 16:00        |                         |                             |                           |                              |                                 |                                 |
| WC-17        | Upstream                    | 08-21-2025 19:58:39.789 |                         |                             |                           |                              |                                 |                                 |
| WC-18        | Downstream                  | 2025-06-11 16:00        |                         |                             |                           |                              |                                 |                                 |
| WC-18        | Upstream                    | 2025-06-12 16:00        |                         |                             |                           |                              |                                 |                                 |

Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Riffle - Mean bankful depth (m): | Riffle - Mean bankful width (m): | Riffle - Substrate Type: | Riffle - Bedrock Substrate % | Riffle - Boulder Substrate % |
|--------------|-----------------------------|-------------------------|----------------------------------|----------------------------------|--------------------------|------------------------------|------------------------------|
| WC-16        | Downstream                  | 08-21-2025 15:04:35.454 |                                  |                                  |                          |                              |                              |
| WC-17        | Upstream                    | 2025-06-11 16:00        |                                  |                                  |                          |                              |                              |
| WC-17        | Downstream                  | 2025-06-12 16:00        |                                  |                                  |                          |                              |                              |
| WC-17        | Downstream                  | 2025-08-21 16:00        |                                  |                                  |                          |                              |                              |
| WC-17        | Upstream                    | 08-21-2025 19:58:39.789 |                                  |                                  |                          |                              |                              |
| WC-18        | Downstream                  | 2025-06-11 16:00        |                                  |                                  |                          |                              |                              |
| WC-18        | Upstream                    | 2025-06-12 16:00        |                                  |                                  |                          |                              |                              |

Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Riffle - Cobble Substrate % | Riffle - Gravel Substrate % | Riffle - Sand Substrate % | Riffle - Silt Substrate % | Riffle - Clay Substrate % | Riffle - Muck Substrate % |
|--------------|-----------------------------|-------------------------|-----------------------------|-----------------------------|---------------------------|---------------------------|---------------------------|---------------------------|
| WC-16        | Downstream                  | 08-21-2025 15:04:35.454 |                             |                             |                           |                           |                           |                           |
| WC-17        | Upstream                    | 2025-06-11 16:00        |                             |                             |                           |                           |                           |                           |
| WC-17        | Downstream                  | 2025-06-12 16:00        |                             |                             |                           |                           |                           |                           |
| WC-17        | Downstream                  | 2025-08-21 16:00        |                             |                             |                           |                           |                           |                           |
| WC-17        | Upstream                    | 08-21-2025 19:58:39.789 |                             |                             |                           |                           |                           |                           |
| WC-18        | Downstream                  | 2025-06-11 16:00        |                             |                             |                           |                           |                           |                           |
| WC-18        | Upstream                    | 2025-06-12 16:00        |                             |                             |                           |                           |                           |                           |

Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Riffle - Detritus Substrate % | Riffle - Total Substrate % | Flats - Percentage of Area: | Flats - Mean wetted depth (m): | Flats - Mean wetted width (m): |
|--------------|-----------------------------|-------------------------|-------------------------------|----------------------------|-----------------------------|--------------------------------|--------------------------------|
| WC-16        | Downstream                  | 08-21-2025 15:04:35.454 |                               |                            |                             |                                |                                |
| WC-17        | Upstream                    | 2025-06-11 16:00        |                               |                            |                             |                                |                                |
| WC-17        | Downstream                  | 2025-06-12 16:00        |                               |                            | 40                          | 0.5                            | 1.25                           |
| WC-17        | Downstream                  | 2025-08-21 16:00        |                               |                            |                             |                                |                                |
| WC-17        | Upstream                    | 08-21-2025 19:58:39.789 |                               |                            |                             |                                |                                |
| WC-18        | Downstream                  | 2025-06-11 16:00        |                               |                            |                             |                                |                                |
| WC-18        | Upstream                    | 2025-06-12 16:00        |                               |                            | 100                         | 0.1                            | 2                              |

Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Flats - Mean bankful depth (m): | Flats - Mean bankful width (m): | Flats - Substrate Type: | Flats - Bedrock Substrate % | Flats - Boulder Substrate % |
|--------------|-----------------------------|-------------------------|---------------------------------|---------------------------------|-------------------------|-----------------------------|-----------------------------|
| WC-16        | Downstream                  | 08-21-2025 15:04:35.454 |                                 |                                 |                         |                             |                             |
| WC-17        | Upstream                    | 2025-06-11 16:00        |                                 |                                 |                         |                             |                             |
| WC-17        | Downstream                  | 2025-06-12 16:00        | 0.6                             | 1.5                             | Clay,Silt,Detritus      |                             |                             |
| WC-17        | Downstream                  | 2025-08-21 16:00        |                                 |                                 |                         |                             |                             |
| WC-17        | Upstream                    | 08-21-2025 19:58:39.789 |                                 |                                 |                         |                             |                             |
| WC-18        | Downstream                  | 2025-06-11 16:00        |                                 |                                 |                         |                             |                             |
| WC-18        | Upstream                    | 2025-06-12 16:00        | 0.3                             | 2.5                             | Muck,Silt,Clay          |                             |                             |

Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Flats - Cobble Substrate % | Flats - Gravel Substrate % | Flats - Sand Substrate % | Flats - Silt Substrate % | Flats - Clay Substrate % | Flats - Muck Substrate % |
|--------------|-----------------------------|-------------------------|----------------------------|----------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| WC-16        | Downstream                  | 08-21-2025 15:04:35.454 |                            |                            |                          |                          |                          |                          |
| WC-17        | Upstream                    | 2025-06-11 16:00        |                            |                            |                          |                          |                          |                          |
| WC-17        | Downstream                  | 2025-06-12 16:00        |                            |                            |                          | 30                       | 60                       |                          |
| WC-17        | Downstream                  | 2025-08-21 16:00        |                            |                            |                          |                          |                          |                          |
| WC-17        | Upstream                    | 08-21-2025 19:58:39.789 |                            |                            |                          |                          |                          |                          |
| WC-18        | Downstream                  | 2025-06-11 16:00        |                            |                            |                          |                          |                          |                          |
| WC-18        | Upstream                    | 2025-06-12 16:00        |                            |                            |                          | 35                       | 10                       | 55                       |



Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Flats - Detritus Substrate % | Flats - Total Substrate %: | Culvert - Percentage of Area: | Culvert - Mean wetted depth (m): | Culvert - Mean wetted width (m): |
|--------------|-----------------------------|-------------------------|------------------------------|----------------------------|-------------------------------|----------------------------------|----------------------------------|
| WC-16        | Downstream                  | 08-21-2025 15:04:35.454 |                              |                            |                               |                                  |                                  |
| WC-17        | Upstream                    | 2025-06-11 16:00        |                              |                            | 5                             | 0.2                              | 1.2                              |
| WC-17        | Downstream                  | 2025-06-12 16:00        | 10                           |                            |                               |                                  |                                  |
| WC-17        | Downstream                  | 2025-08-21 16:00        |                              |                            |                               |                                  |                                  |
| WC-17        | Upstream                    | 08-21-2025 19:58:39.789 |                              |                            |                               |                                  |                                  |
| WC-18        | Downstream                  | 2025-06-11 16:00        |                              |                            | 100                           | 0.12                             | 1.2                              |
| WC-18        | Upstream                    | 2025-06-12 16:00        |                              | 100                        |                               |                                  |                                  |

Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Culvert - Mean bankful depth (m): | Culvert - Mean bankful width (m): | Culvert - Substrate Type:    | Culvert - Bedrock Substrate % | Culvert - Boulder Substrate % |
|--------------|-----------------------------|-------------------------|-----------------------------------|-----------------------------------|------------------------------|-------------------------------|-------------------------------|
| WC-16        | Downstream                  | 08-21-2025 15:04:35.454 |                                   |                                   |                              |                               |                               |
| WC-17        | Upstream                    | 2025-06-11 16:00        | 0.5                               | 1.2                               | Cobble,Gravel,Sand,Silt,Clay |                               |                               |
| WC-17        | Downstream                  | 2025-06-12 16:00        |                                   |                                   |                              |                               |                               |
| WC-17        | Downstream                  | 2025-08-21 16:00        |                                   |                                   |                              |                               |                               |
| WC-17        | Upstream                    | 08-21-2025 19:58:39.789 |                                   |                                   |                              |                               |                               |
| WC-18        | Downstream                  | 2025-06-11 16:00        | 0.3                               | 1.2                               | Silt,Clay,Muck               |                               |                               |
| WC-18        | Upstream                    | 2025-06-12 16:00        |                                   |                                   |                              |                               |                               |

Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Culvert - Cobble Substrate % | Culvert - Gravel Substrate % | Culvert - Sand Substrate % | Culvert - Silt Substrate % | Culvert - Clay Substrate % | Culvert - Muck Substrate % |
|--------------|-----------------------------|-------------------------|------------------------------|------------------------------|----------------------------|----------------------------|----------------------------|----------------------------|
| WC-16        | Downstream                  | 08-21-2025 15:04:35.454 |                              |                              |                            |                            |                            |                            |
| WC-17        | Upstream                    | 2025-06-11 16:00        | 15                           | 20                           | 10                         | 30                         | 25                         |                            |
| WC-17        | Downstream                  | 2025-06-12 16:00        |                              |                              |                            |                            |                            |                            |
| WC-17        | Downstream                  | 2025-08-21 16:00        |                              |                              |                            |                            |                            |                            |
| WC-17        | Upstream                    | 08-21-2025 19:58:39.789 |                              |                              |                            |                            |                            |                            |
| WC-18        | Downstream                  | 2025-06-11 16:00        |                              |                              |                            | 30                         | 40                         | 30                         |
| WC-18        | Upstream                    | 2025-06-12 16:00        |                              |                              |                            |                            |                            |                            |

Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Culvert - Detritus Substrate % | Culvert - Total Substrate %: | Other - Percentage of Area: | Other - Mean wetted depth (m): | Other - Mean wetted width (m): |
|--------------|-----------------------------|-------------------------|--------------------------------|------------------------------|-----------------------------|--------------------------------|--------------------------------|
| WC-16        | Downstream                  | 08-21-2025 15:04:35.454 |                                |                              |                             |                                |                                |
| WC-17        | Upstream                    | 2025-06-11 16:00        |                                |                              |                             |                                |                                |
| WC-17        | Downstream                  | 2025-06-12 16:00        |                                |                              |                             |                                |                                |
| WC-17        | Downstream                  | 2025-08-21 16:00        |                                |                              |                             |                                |                                |
| WC-17        | Upstream                    | 08-21-2025 19:58:39.789 |                                |                              |                             |                                |                                |
| WC-18        | Downstream                  | 2025-06-11 16:00        |                                |                              |                             |                                |                                |
| WC-18        | Upstream                    | 2025-06-12 16:00        |                                |                              |                             |                                |                                |

Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Other - Mean bankful depth (m): | Other - Mean bankful width (m): | Other - Substrate Description | Other - Substrate Type: |
|--------------|-----------------------------|-------------------------|---------------------------------|---------------------------------|-------------------------------|-------------------------|
| WC-16        | Downstream                  | 08-21-2025 15:04:35.454 |                                 |                                 |                               |                         |
| WC-17        | Upstream                    | 2025-06-11 16:00        |                                 |                                 |                               |                         |
| WC-17        | Downstream                  | 2025-06-12 16:00        |                                 |                                 |                               |                         |
| WC-17        | Downstream                  | 2025-08-21 16:00        |                                 |                                 |                               |                         |
| WC-17        | Upstream                    | 08-21-2025 19:58:39.789 |                                 |                                 |                               |                         |
| WC-18        | Downstream                  | 2025-06-11 16:00        |                                 |                                 |                               |                         |
| WC-18        | Upstream                    | 2025-06-12 16:00        |                                 |                                 |                               |                         |

Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Other - Bedrock Substrate % | Other - Boulder Substrate % | Other - Cobble Substrate % | Other - Gravel Substrate % | Other - Sand Substrate % | Other - Silt Substrate % |
|--------------|-----------------------------|-------------------------|-----------------------------|-----------------------------|----------------------------|----------------------------|--------------------------|--------------------------|
| WC-16        | Downstream                  | 08-21-2025 15:04:35.454 |                             |                             |                            |                            |                          |                          |
| WC-17        | Upstream                    | 2025-06-11 16:00        |                             |                             |                            |                            |                          |                          |
| WC-17        | Downstream                  | 2025-06-12 16:00        |                             |                             |                            |                            |                          |                          |
| WC-17        | Downstream                  | 2025-08-21 16:00        |                             |                             |                            |                            |                          |                          |
| WC-17        | Upstream                    | 08-21-2025 19:58:39.789 |                             |                             |                            |                            |                          |                          |
| WC-18        | Downstream                  | 2025-06-11 16:00        |                             |                             |                            |                            |                          |                          |
| WC-18        | Upstream                    | 2025-06-12 16:00        |                             |                             |                            |                            |                          |                          |



Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Other - Clay Substrate % | Other - Muck Substrate % | Other - Detritus Substrate % | Other - Total Substrate %: | Left Bank Stability: | Right Bank Stability: |
|--------------|-----------------------------|-------------------------|--------------------------|--------------------------|------------------------------|----------------------------|----------------------|-----------------------|
| WC-16        | Downstream                  | 08-21-2025 15:04:35.454 |                          |                          |                              |                            | Slightly Unstable    | Slightly Unstable     |
| WC-17        | Upstream                    | 2025-06-11 16:00        |                          |                          |                              |                            | Slightly Unstable    | Slightly Unstable     |
| WC-17        | Downstream                  | 2025-06-12 16:00        |                          |                          |                              |                            | Slightly Unstable    | Slightly Unstable     |
| WC-17        | Downstream                  | 2025-08-21 16:00        |                          |                          |                              |                            | Slightly Unstable    | Slightly Unstable     |
| WC-17        | Upstream                    | 08-21-2025 19:58:39.789 |                          |                          |                              |                            | Slightly Unstable    | Slightly Unstable     |
| WC-18        | Downstream                  | 2025-06-11 16:00        |                          |                          |                              |                            | Slightly Unstable    | Slightly Unstable     |
| WC-18        | Upstream                    | 2025-06-12 16:00        |                          |                          |                              |                            | Stable               | Stable                |



Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Left Bank Description: | Right Bank Description: | Sources of in-stream cover:                      | Total In-stream Cover %: | Undercut Banks In-stream Cover %: | Boulder In-stream Cover %: |
|--------------|-----------------------------|-------------------------|------------------------|-------------------------|--------------------------------------------------|--------------------------|-----------------------------------|----------------------------|
| WC-16        | Downstream                  | 08-21-2025 15:04:35.454 | Eroding Bank           | Eroding Bank            |                                                  |                          |                                   |                            |
| WC-17        | Upstream                    | 2025-06-11 16:00        | Vulnerable Bank        | Vulnerable Bank         | Vascular_Macrophytes                             | 45                       |                                   |                            |
| WC-17        | Downstream                  | 2025-06-12 16:00        | Vulnerable Bank        | Vulnerable Bank         | Vascular_Macrophytes,Woody_Debris,Organic_Debris | 75                       |                                   |                            |
| WC-17        | Downstream                  | 2025-08-21 16:00        | Vulnerable Bank        | Vulnerable Bank         |                                                  |                          |                                   |                            |
| WC-17        | Upstream                    | 08-21-2025 19:58:39.789 | Vulnerable Bank        | Vulnerable Bank         |                                                  |                          |                                   |                            |
| WC-18        | Downstream                  | 2025-06-11 16:00        | Vulnerable Bank        | Vulnerable Bank         | None                                             |                          |                                   |                            |
| WC-18        | Upstream                    | 2025-06-12 16:00        | Deposition Zone        | Deposition Zone         | Vascular_Macrophytes,Organic_Debris              | 90                       |                                   |                            |

Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Cobble In-stream Cover %: | Woody Debris In-Stream Cover %: | Organic Debris In-stream Cover %: | Vascular Macrophytes In-stream Cover %: | Total Overhanging Cover: |
|--------------|-----------------------------|-------------------------|---------------------------|---------------------------------|-----------------------------------|-----------------------------------------|--------------------------|
| WC-16        | Downstream                  | 08-21-2025 15:04:35.454 |                           |                                 |                                   |                                         |                          |
| WC-17        | Upstream                    | 2025-06-11 16:00        |                           |                                 |                                   | 100                                     | 60_to_89_Pct             |
| WC-17        | Downstream                  | 2025-06-12 16:00        |                           | 10                              | 30                                | 60                                      | 60_to_89_Pct             |
| WC-17        | Downstream                  | 2025-08-21 16:00        |                           |                                 |                                   |                                         |                          |
| WC-17        | Upstream                    | 08-21-2025 19:58:39.789 |                           |                                 |                                   |                                         |                          |
| WC-18        | Downstream                  | 2025-06-11 16:00        |                           |                                 |                                   |                                         | None                     |
| WC-18        | Upstream                    | 2025-06-12 16:00        |                           |                                 | 85                                | 15                                      | 90_to_100_Pct            |

Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Shore Cover Comments:                                                                                                                                 | Vegetation Types Present: | Submergent Vegetation (%): |
|--------------|-----------------------------|-------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|----------------------------|
| WC-16        | Downstream                  | 08-21-2025 15:04:35.454 |                                                                                                                                                       |                           |                            |
| WC-17        | Upstream                    | 2025-06-11 16:00        | Reed canary channel                                                                                                                                   | Emergent                  |                            |
| WC-17        | Downstream                  | 2025-06-12 16:00        | Run has less in stream cover with woody debris and some reed canary grass with very high in stream cover in the flats dominated by reed canary grass. | Emergent                  |                            |
| WC-17        | Downstream                  | 2025-08-21 16:00        |                                                                                                                                                       |                           |                            |
| WC-17        | Upstream                    | 08-21-2025 19:58:39.789 | Reed canary channel                                                                                                                                   |                           |                            |
| WC-18        | Downstream                  | 2025-06-11 16:00        | Reed                                                                                                                                                  | None                      |                            |
| WC-18        | Upstream                    | 2025-06-12 16:00        | Narrowleaf cattails                                                                                                                                   | Emergent                  |                            |

Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Predominant Submergent Species: | Floating Vegetation (%): | Predominant Floating Species: | Emergent Vegetation(%): |
|--------------|-----------------------------|-------------------------|---------------------------------|--------------------------|-------------------------------|-------------------------|
| WC-16        | Downstream                  | 08-21-2025 15:04:35.454 |                                 |                          |                               |                         |
| WC-17        | Upstream                    | 2025-06-11 16:00        |                                 |                          |                               | 100                     |
| WC-17        | Downstream                  | 2025-06-12 16:00        |                                 |                          |                               | 100                     |
| WC-17        | Downstream                  | 2025-08-21 16:00        |                                 |                          |                               |                         |
| WC-17        | Upstream                    | 08-21-2025 19:58:39.789 |                                 |                          |                               |                         |
| WC-18        | Downstream                  | 2025-06-11 16:00        |                                 |                          |                               |                         |
| WC-18        | Upstream                    | 2025-06-12 16:00        |                                 |                          |                               | 90                      |

Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Predominant Emergent Species: | Migratory Obstructions Found: | Permanent Obstructions: | Seasonal Obstructions:                                      | Spawning Critical Habitat: | Groundwater Indicators Observed: |
|--------------|-----------------------------|-------------------------|-------------------------------|-------------------------------|-------------------------|-------------------------------------------------------------|----------------------------|----------------------------------|
| WC-16        | Downstream                  | 08-21-2025 15:04:35.454 |                               | No                            |                         |                                                             | None                       | None                             |
| WC-17        | Upstream                    | 2025-06-11 16:00        | Reed canary grass             | No                            |                         |                                                             | None                       | None                             |
| WC-17        | Downstream                  | 2025-06-12 16:00        | Reed canary grass             | No                            |                         |                                                             | None                       | None                             |
| WC-17        | Downstream                  | 2025-08-21 16:00        |                               | No                            |                         | low flow                                                    | None                       | None                             |
| WC-17        | Upstream                    | 08-21-2025 19:58:39.789 |                               | No                            |                         |                                                             | None                       | None                             |
| WC-18        | Downstream                  | 2025-06-11 16:00        |                               | No                            |                         |                                                             | None                       | None                             |
| WC-18        | Upstream                    | 2025-06-12 16:00        | Narrowleaf cattails           | Yes                           |                         | No connectivity to any channel upstream, dry drainage ditch |                            |                                  |

Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Other Critical Habitat: | Potential Enhancement Opportunities:             |
|--------------|-----------------------------|-------------------------|-------------------------|--------------------------------------------------|
| WC-16        | Downstream                  | 08-21-2025 15:04:35.454 | None                    | Fix channel at road from tracks, garbage cleanup |
| WC-17        | Upstream                    | 2025-06-11 16:00        | None                    | None                                             |
| WC-17        | Downstream                  | 2025-06-12 16:00        | None                    | None                                             |
| WC-17        | Downstream                  | 2025-08-21 16:00        | None                    | None                                             |
| WC-17        | Upstream                    | 08-21-2025 19:58:39.789 | None                    | None                                             |
| WC-18        | Downstream                  | 2025-06-11 16:00        | None                    | Channel has tracks through it                    |
| WC-18        | Upstream                    | 2025-06-12 16:00        |                         |                                                  |



Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Additional Comments:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|--------------|-----------------------------|-------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| WC-16        | Downstream                  | 08-21-2025 15:04:35.454 | Spring: Feature begins as drainage feature from road runoff and from sitting at a higher elevation. The feature has a largw pool near the culvert from a vehicle driving through. The festure transitions to a small stream flowing through reed canary grass for approx 40 m which then transitions to a forest. The feature gradually drops down a moderate gradient towards the napanee river. Piled cobble causing water to pool approx 100 m downstream creating an impediment to water moving further downstream. Dry after the cobble which likely only becomes wet during high flow. Some woody debris within the forest and the feature slightly meanders. Red cedars, freeman maple, red maple, bittersweet nigjtshade, canada goldenrod, reed canary grass.likwly nit fish habitat due to gradient, low flow, and cobble impediment stopping flow. Summer: feature is completely dry. The culvert outlet area has been driven through with traxks present. Terrestrial grasses are growing throughout the feature. Approx 10m downstream a dry reed canary grass channel is present through a wooded area. Defined channel is still present. Riverbank grape covers feature further DS. |
| WC-17        | Upstream                    | 2025-06-11 16:00        | Drainage channel conveying flow down a moderate gradient from the east towards the culvert. Some water pooling to the west where the gradient is low. Channel is covered by reed canary grass throughout. Small channel defined within the reed canary grass. Likely conveying water from the recent rain and is likely dry otherwise. Likely not fish habitat. Exposed shield to the east suggests water is being coveyed from a high topographic point.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| WC-17        | Downstream                  | 2025-06-12 16:00        | The culvert outlets water into a reed canary grass channel. The flow begins as a run for approx 20 m before transitioning into a wider flat. Water is traveling down a moderate gradient towards WC-16. Channel is dominated by reed canary grass with mowed grass in the riparian area. Red Cedars on the left bank, cottonwood, buckthorn, bitter wintercress, sumac, reed canary grass. Channel follows a tree line towards county road 5. Likely not fish habitat due to impediment at WC-16. Feature conveying drainage. Moderate flow. Culvert protected by boulders. Drainage channel flowing towards WC-16. Potential FH but likely not due to impediment and gradient at WC-16.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| WC-17        | Downstream                  | 2025-08-21 16:00        | <p>The culvert outlets water into a reed canary grass channel. The flow begins as a run for approx 20 m before transitioning into a wider flat. Water is traveling down a moderate grafient towards WC-16. Channel is dominated by reed canary grass with mowed grass in the riparian area. Red Cedars on the left bank, cottonwood, buckthorn, bitter wintercress, sumac, reed canary grass. Channel follows a tree line towards county road 5. Likely not fish habitat due to impediment at WC-16. Feature conveying drainage. Moderate flow. Culvert protected by boulders. Drainage channel flowing towards WC-16. Potential FH but likely not due to impediment and gradient at WC-16.</p> <p>Summer: dry no water found in channel. Reed canarygrass drainage going into thicket forest, ROW mowed both, connects to 16 doenstrwam.</p>                                                                                                                                                                                                                                                                                                                                                      |
| WC-17        | Upstream                    | 08-21-2025 19:58:39.789 | Drainage channel conveying flow down a moderate gradient from the east towards the culvert. Some water pooling to the west where the gradient is low. Channel is covered by reed canary grass throughout. Small channel defined within the reed canary grass. Likely conveying water from the recent rain and is likely dry otherwise. Likely not fish habitat. Exposed shield to the east suggests water is being coveyed from a high topographic point. Culvert sat lower from surrounding land. Reed Canarygrass channel to the East and terrestrial vegetation west.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| WC-18        | Downstream                  | 2025-06-11 16:00        | Culvert has water in it. Approx 5m from the culvert, there is tire marks with water pooled in them. After the tires, it is damp but no water present. Direction that water drains is undefined. Reed canary grass growing throughout. There seems to be a meadow/grass area south of the fence with trees on either side. Likely drains surface water through this area. If tire marks were not there and it didnt recently rain, it would likely be damp. Likely not fish habitat. Culvert between E and W highway is present.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| WC-18        | Upstream                    | 2025-06-12 16:00        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |



Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Time Started:           | Time Finished:          | Is stream realignment required | Location of Crossing: | Latitude | Longitude | Location |
|--------------|-----------------------------|-------------------------|-------------------------|-------------------------|--------------------------------|-----------------------|----------|-----------|----------|
| WC-18        | Downstream                  | 08-19-2025 15:37:11.201 | 08-19-2025 15:37:25.942 | 08-19-2025 15:40:11.531 | Unknown                        | Highway 401 E         | 44.2723  | -76.9101  |          |
| WC-18        | Upstream                    | 08-21-2025 14:30:29.740 | 08-21-2025 14:30:41.919 | 2025-08-21 14:41        | Unknown                        | Hwy 401 W             | 44.2728  | -76.9101  |          |

Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Weather Conditions | Air Temperature (°C): | Water Temperature (°C): | Conductivity (µS/cm): | Water Velocity: | Water pH Level: | Dissolved Oxygen (mg/L): |
|--------------|-----------------------------|-------------------------|--------------------|-----------------------|-------------------------|-----------------------|-----------------|-----------------|--------------------------|
| WC-18        | Downstream                  | 08-19-2025 15:37:11.201 | overcast           | 19                    |                         |                       |                 |                 |                          |
| WC-18        | Upstream                    | 08-21-2025 14:30:29.740 | Partially cloudy   | 19                    |                         |                       |                 |                 |                          |

Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Drainage System: | MTO Chainage: | Township:       | MNRF District:                       | Surrounding Land Use: | Pollution Sources:                            |
|--------------|-----------------------------|-------------------------|------------------|---------------|-----------------|--------------------------------------|-----------------------|-----------------------------------------------|
| WC-18        | Downstream                  | 08-19-2025 15:37:11.201 |                  |               | Greater Napanee | Peterborough<br>Bancroft<br>District | Highways,Forest       | Highway runoff                                |
| WC-18        | Upstream                    | 08-21-2025 14:30:29.740 |                  |               |                 | Peterborough<br>Bancroft<br>District | Agriculture,Highways  | Hwy drainage, aggricultural related pollutant |

Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Existing Structure Type: | Existing Structure Width (m): | Existing Structure Height (m): | Section Type: | Section Type Status: | Fish Habitat     |
|--------------|-----------------------------|-------------------------|--------------------------|-------------------------------|--------------------------------|---------------|----------------------|------------------|
| WC-18        | Downstream                  | 08-19-2025 15:37:11.201 | Open Foot Culvert        | 1.2                           | 1.2                            | Channelized   | Ephemeral            | Not Fish Habitat |
| WC-18        | Upstream                    | 08-21-2025 14:30:29.740 | Open Foot Culvert        | 1.25                          | 1.25                           | Channelized   | Intermittent         | Not Fish Habitat |

Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Section Type Description:                                                                                                                                                  | Section Length: | Subsection Types | Run - Percentage of area: |
|--------------|-----------------------------|-------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|------------------|---------------------------|
| WC-18        | Downstream                  | 08-19-2025 15:37:11.201 | Drainage                                                                                                                                                                   | 20              |                  |                           |
| WC-18        | Upstream                    | 08-21-2025 14:30:29.740 | Hwy drainage ditch. Conveys surface water from agg fields ans hwy drainage southerly under hwy 401. Dry cattail catchemnt area. Narrow leaf cattails present in the ditch. | 60              |                  |                           |

Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Run - Mean wetted depth (m): | Run - Mean wetted width (m): | Run - Mean bankful depth (m): | Run - Mean bankful width (m): | Run - Substrate Type: |
|--------------|-----------------------------|-------------------------|------------------------------|------------------------------|-------------------------------|-------------------------------|-----------------------|
| WC-18        | Downstream                  | 08-19-2025 15:37:11.201 |                              |                              |                               |                               |                       |
| WC-18        | Upstream                    | 08-21-2025 14:30:29.740 |                              |                              |                               |                               |                       |



Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Run - Bedrock Substrate % | Run - Boulder Substrate % | Run - Cobble Substrate % | Run - Gravel Substrate % | Run - Sand Substrate % | Run - Silt Substrate % |
|--------------|-----------------------------|-------------------------|---------------------------|---------------------------|--------------------------|--------------------------|------------------------|------------------------|
| WC-18        | Downstream                  | 08-19-2025 15:37:11.201 |                           |                           |                          |                          |                        |                        |
| WC-18        | Upstream                    | 08-21-2025 14:30:29.740 |                           |                           |                          |                          |                        |                        |



Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Run - Clay Substrate % | Run - Muck Substrate % | Run - Detritus Substrate % | Run - Total Substrate Percentage: | Pool - Percentage of area: | Pool - Mean wetted depth (m): |
|--------------|-----------------------------|-------------------------|------------------------|------------------------|----------------------------|-----------------------------------|----------------------------|-------------------------------|
| WC-18        | Downstream                  | 08-19-2025 15:37:11.201 |                        |                        |                            |                                   |                            |                               |
| WC-18        | Upstream                    | 08-21-2025 14:30:29.740 |                        |                        |                            |                                   |                            |                               |

Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Pool - Mean wetted width (m): | Pool - Mean bankful depth (m): | Pool - Mean bankful width (m): | Pool - Substrate Type: | Pool - Bedrock Substrate % |
|--------------|-----------------------------|-------------------------|-------------------------------|--------------------------------|--------------------------------|------------------------|----------------------------|
| WC-18        | Downstream                  | 08-19-2025 15:37:11.201 |                               |                                |                                |                        |                            |
| WC-18        | Upstream                    | 08-21-2025 14:30:29.740 |                               |                                |                                |                        |                            |

Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Pool - Boulder Substrate % | Pool - Cobble Substrate % | Pool - Gravel Substrate % | Pool - Sand Substrate % | Pool - Silt Substrate % | Pool - Clay Substrate % |
|--------------|-----------------------------|-------------------------|----------------------------|---------------------------|---------------------------|-------------------------|-------------------------|-------------------------|
| WC-18        | Downstream                  | 08-19-2025 15:37:11.201 |                            |                           |                           |                         |                         |                         |
| WC-18        | Upstream                    | 08-21-2025 14:30:29.740 |                            |                           |                           |                         |                         |                         |

Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Pool - Muck Substrate % | Pool - Detritus Substrate % | Pool - Total Substrate %: | Riffle - Percentage of Area: | Riffle - Mean wetted depth (m): | Riffle - Mean wetted width (m): |
|--------------|-----------------------------|-------------------------|-------------------------|-----------------------------|---------------------------|------------------------------|---------------------------------|---------------------------------|
| WC-18        | Downstream                  | 08-19-2025 15:37:11.201 |                         |                             |                           |                              |                                 |                                 |
| WC-18        | Upstream                    | 08-21-2025 14:30:29.740 |                         |                             |                           |                              |                                 |                                 |

Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Riffle - Mean bankful depth (m): | Riffle - Mean bankful width (m): | Riffle - Substrate Type: | Riffle - Bedrock Substrate % | Riffle - Boulder Substrate % |
|--------------|-----------------------------|-------------------------|----------------------------------|----------------------------------|--------------------------|------------------------------|------------------------------|
| WC-18        | Downstream                  | 08-19-2025 15:37:11.201 |                                  |                                  |                          |                              |                              |
| WC-18        | Upstream                    | 08-21-2025 14:30:29.740 |                                  |                                  |                          |                              |                              |

Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Riffle - Cobble Substrate % | Riffle - Gravel Substrate % | Riffle - Sand Substrate % | Riffle - Silt Substrate % | Riffle - Clay Substrate % | Riffle - Muck Substrate % |
|--------------|-----------------------------|-------------------------|-----------------------------|-----------------------------|---------------------------|---------------------------|---------------------------|---------------------------|
| WC-18        | Downstream                  | 08-19-2025 15:37:11.201 |                             |                             |                           |                           |                           |                           |
| WC-18        | Upstream                    | 08-21-2025 14:30:29.740 |                             |                             |                           |                           |                           |                           |



Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Riffle - Detritus Substrate % | Riffle - Total Substrate % | Flats - Percentage of Area: | Flats - Mean wetted depth (m): | Flats - Mean wetted width (m): |
|--------------|-----------------------------|-------------------------|-------------------------------|----------------------------|-----------------------------|--------------------------------|--------------------------------|
| WC-18        | Downstream                  | 08-19-2025 15:37:11.201 |                               |                            |                             |                                |                                |
| WC-18        | Upstream                    | 08-21-2025 14:30:29.740 |                               |                            |                             |                                |                                |



Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Flats - Mean bankful depth (m): | Flats - Mean bankful width (m): | Flats - Substrate Type: | Flats - Bedrock Substrate % | Flats - Boulder Substrate % |
|--------------|-----------------------------|-------------------------|---------------------------------|---------------------------------|-------------------------|-----------------------------|-----------------------------|
| WC-18        | Downstream                  | 08-19-2025 15:37:11.201 |                                 |                                 |                         |                             |                             |
| WC-18        | Upstream                    | 08-21-2025 14:30:29.740 |                                 |                                 |                         |                             |                             |

Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Flats - Cobble Substrate % | Flats - Gravel Substrate % | Flats - Sand Substrate % | Flats - Silt Substrate % | Flats - Clay Substrate % | Flats - Muck Substrate % |
|--------------|-----------------------------|-------------------------|----------------------------|----------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| WC-18        | Downstream                  | 08-19-2025 15:37:11.201 |                            |                            |                          |                          |                          |                          |
| WC-18        | Upstream                    | 08-21-2025 14:30:29.740 |                            |                            |                          |                          |                          |                          |

Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Flats - Detritus Substrate % | Flats - Total Substrate %: | Culvert - Percentage of Area: | Culvert - Mean wetted depth (m): | Culvert - Mean wetted width (m): |
|--------------|-----------------------------|-------------------------|------------------------------|----------------------------|-------------------------------|----------------------------------|----------------------------------|
| WC-18        | Downstream                  | 08-19-2025 15:37:11.201 |                              |                            |                               |                                  |                                  |
| WC-18        | Upstream                    | 08-21-2025 14:30:29.740 |                              |                            |                               |                                  |                                  |

Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Culvert - Mean bankful depth (m): | Culvert - Mean bankful width (m): | Culvert - Substrate Type: | Culvert - Bedrock Substrate % | Culvert - Boulder Substrate % |
|--------------|-----------------------------|-------------------------|-----------------------------------|-----------------------------------|---------------------------|-------------------------------|-------------------------------|
| WC-18        | Downstream                  | 08-19-2025 15:37:11.201 |                                   |                                   |                           |                               |                               |
| WC-18        | Upstream                    | 08-21-2025 14:30:29.740 |                                   |                                   |                           |                               |                               |

Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Culvert - Cobble Substrate % | Culvert - Gravel Substrate % | Culvert - Sand Substrate % | Culvert - Silt Substrate % | Culvert - Clay Substrate % | Culvert - Muck Substrate % |
|--------------|-----------------------------|-------------------------|------------------------------|------------------------------|----------------------------|----------------------------|----------------------------|----------------------------|
| WC-18        | Downstream                  | 08-19-2025 15:37:11.201 |                              |                              |                            |                            |                            |                            |
| WC-18        | Upstream                    | 08-21-2025 14:30:29.740 |                              |                              |                            |                            |                            |                            |

Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Culvert - Detritus Substrate % | Culvert - Total Substrate %: | Other - Percentage of Area: | Other - Mean wetted depth (m): | Other - Mean wetted width (m): |
|--------------|-----------------------------|-------------------------|--------------------------------|------------------------------|-----------------------------|--------------------------------|--------------------------------|
| WC-18        | Downstream                  | 08-19-2025 15:37:11.201 |                                |                              |                             |                                |                                |
| WC-18        | Upstream                    | 08-21-2025 14:30:29.740 |                                |                              |                             |                                |                                |



Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Other - Mean bankful depth (m): | Other - Mean bankful width (m): | Other - Substrate Description | Other - Substrate Type: |
|--------------|-----------------------------|-------------------------|---------------------------------|---------------------------------|-------------------------------|-------------------------|
| WC-18        | Downstream                  | 08-19-2025 15:37:11.201 |                                 |                                 |                               |                         |
| WC-18        | Upstream                    | 08-21-2025 14:30:29.740 |                                 |                                 |                               |                         |



Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Other - Bedrock Substrate % | Other - Boulder Substrate % | Other - Cobble Substrate % | Other - Gravel Substrate % | Other - Sand Substrate % | Other - Silt Substrate % |
|--------------|-----------------------------|-------------------------|-----------------------------|-----------------------------|----------------------------|----------------------------|--------------------------|--------------------------|
| WC-18        | Downstream                  | 08-19-2025 15:37:11.201 |                             |                             |                            |                            |                          |                          |
| WC-18        | Upstream                    | 08-21-2025 14:30:29.740 |                             |                             |                            |                            |                          |                          |

Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Other - Clay Substrate % | Other - Muck Substrate % | Other - Detritus Substrate % | Other - Total Substrate %: | Left Bank Stability: | Right Bank Stability: |
|--------------|-----------------------------|-------------------------|--------------------------|--------------------------|------------------------------|----------------------------|----------------------|-----------------------|
| WC-18        | Downstream                  | 08-19-2025 15:37:11.201 |                          |                          |                              |                            | Slightly Unstable    | Slightly Unstable     |
| WC-18        | Upstream                    | 08-21-2025 14:30:29.740 |                          |                          |                              |                            | Stable               | Stable                |

Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Left Bank Description: | Right Bank Description: | Sources of in-stream cover: | Total In-stream Cover %: | Undercut Banks In-stream Cover %: | Boulder In-stream Cover %: |
|--------------|-----------------------------|-------------------------|------------------------|-------------------------|-----------------------------|--------------------------|-----------------------------------|----------------------------|
| WC-18        | Downstream                  | 08-19-2025 15:37:11.201 | Vulnerable Bank        | Vulnerable Bank         | None                        |                          |                                   |                            |
| WC-18        | Upstream                    | 08-21-2025 14:30:29.740 | Deposition Zone        | Deposition Zone         |                             |                          |                                   |                            |

Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Cobble In-stream Cover %: | Woody Debris In-Stream Cover %: | Organic Debris In-stream Cover %: | Vascular Macrophytes In-stream Cover %: | Total Overhanging Cover: |
|--------------|-----------------------------|-------------------------|---------------------------|---------------------------------|-----------------------------------|-----------------------------------------|--------------------------|
| WC-18        | Downstream                  | 08-19-2025 15:37:11.201 |                           |                                 |                                   |                                         | None                     |
| WC-18        | Upstream                    | 08-21-2025 14:30:29.740 |                           |                                 |                                   |                                         |                          |

Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Shore Cover Comments: | Vegetation Types Present: | Submergent Vegetation (%): |
|--------------|-----------------------------|-------------------------|-----------------------|---------------------------|----------------------------|
| WC-18        | Downstream                  | 08-19-2025 15:37:11.201 | Reed                  | None                      |                            |
| WC-18        | Upstream                    | 08-21-2025 14:30:29.740 | Narrowleaf cattails   |                           |                            |

Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Predominant Submergent Species: | Floating Vegetation (%): | Predominant Floating Species: | Emergent Vegetation(%): |
|--------------|-----------------------------|-------------------------|---------------------------------|--------------------------|-------------------------------|-------------------------|
| WC-18        | Downstream                  | 08-19-2025 15:37:11.201 |                                 |                          |                               |                         |
| WC-18        | Upstream                    | 08-21-2025 14:30:29.740 |                                 |                          |                               |                         |



Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Predominant Emergent Species: | Migratory Obstructions Found: | Permanent Obstructions: | Seasonal Obstructions:                                      | Spawning Critical Habitat: | Groundwater Indicators Observed: |
|--------------|-----------------------------|-------------------------|-------------------------------|-------------------------------|-------------------------|-------------------------------------------------------------|----------------------------|----------------------------------|
| WC-18        | Downstream                  | 08-19-2025 15:37:11.201 |                               | No                            |                         |                                                             | None                       | None                             |
| WC-18        | Upstream                    | 08-21-2025 14:30:29.740 |                               | Yes                           |                         | No connectivity to any channel upstream, dry drainage ditch | None                       | None                             |



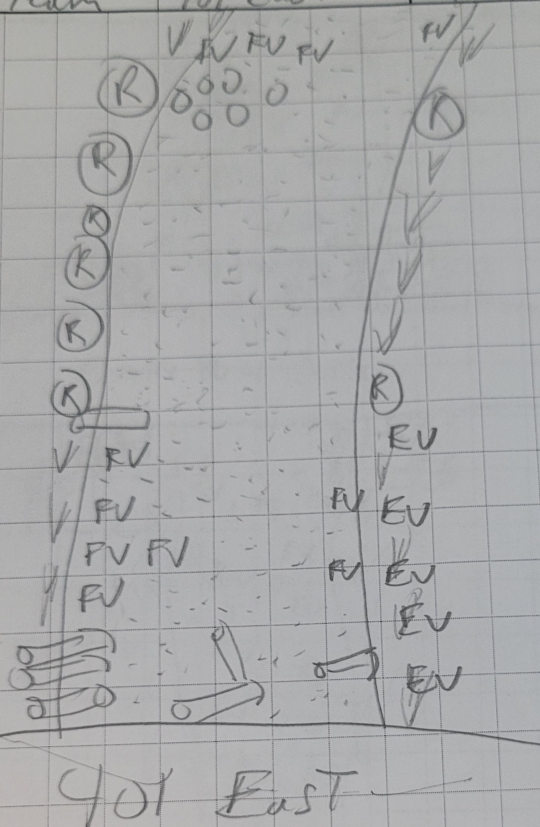
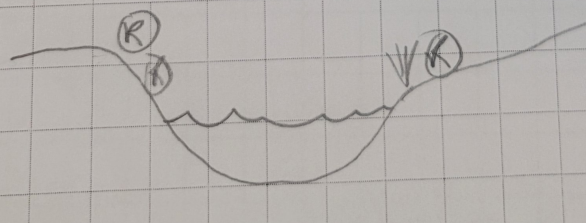
Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Other Critical Habitat: | Potential Enhancement Opportunities: |
|--------------|-----------------------------|-------------------------|-------------------------|--------------------------------------|
| WC-18        | Downstream                  | 08-19-2025 15:37:11.201 | None                    | Channel has tracks through it        |
| WC-18        | Upstream                    | 08-21-2025 14:30:29.740 | None                    |                                      |

Watercourse Survey

| Crossing ID: | Section (Reach) Identifier: | Survey Date:            | Additional Comments:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|--------------|-----------------------------|-------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| WC-18        | Downstream                  | 08-19-2025 15:37:11.201 | <p>Culvert has water in it. Approx 5m from the culvert, there is tire marks with water pooled in them. After the tires, it is damp but no water present. Direction that water drains is undefined. Reed canary grass growing throughout. There seems to be a meadow/grass area south of the fence with trees on either side. Likely drains surface water through this area. If tire marks were not there and it didnt recently rain, it would likely be damp. Likely not fish habitat. Culvert between E and W highway is present.</p> <p>Summer: dry, no water. Same conditions as spring.</p> |
| WC-18        | Upstream                    | 08-21-2025 14:30:29.740 | <p>Dry drainage ditch with cattails for approx 20 m E and W. Hedge row to the N with ag fields on the other side. Likely not fish habitat.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

| SECTION IDENTIFIER: |  | SECTION LOCATION: |             | SECTION LENGTH (m): | SCALE (cm / m):                |
|---------------------|--|-------------------|-------------|---------------------|--------------------------------|
| downStream          |  | 401 East          |             | 100m                |                                |
|                     |  |                   |             |                     | PROJECT #:                     |
|                     |  |                   |             |                     | 60734357                       |
|                     |  |                   |             |                     | MAPPER:                        |
|                     |  |                   |             |                     | Adam Lipschultz                |
|                     |  |                   |             |                     | NAME OF WATERBODY:             |
| Rapinee River       |  |                   |             |                     |                                |
|                     |  |                   |             |                     | CROSSING #:                    |
|                     |  |                   |             |                     | WC-2-13                        |
|                     |  |                   |             |                     | STATION #:                     |
|                     |  |                   |             |                     | P5                             |
|                     |  |                   |             |                     | DATE: YY-MMM-DD                |
|                     |  |                   |             |                     | 28-08-21                       |
|                     |  |                   |             |                     | LEGEND                         |
|                     |  |                   |             |                     | 10d depth (cm)                 |
|                     |  |                   |             |                     | 6w width                       |
|                     |  |                   |             |                     | → Riffle                       |
|                     |  |                   |             |                     | ⇨ Run/Glide                    |
|                     |  |                   |             |                     | ○ Pool                         |
|                     |  |                   |             |                     | ▬ Island/Bar                   |
|                     |  |                   |             |                     | ⋯ Fine Substrate               |
|                     |  |                   |             |                     | ### Gravel Substrate           |
|                     |  |                   |             |                     | oOooO Cobble/Boulder           |
|                     |  |                   |             |                     | *** Debris                     |
|                     |  |                   |             |                     | CT Cattail                     |
|                     |  |                   |             |                     | SV/FV Submergent/Float Veg     |
|                     |  |                   |             |                     | EV Emergent Vegetation         |
|                     |  |                   |             |                     | W Watercress                   |
|                     |  |                   |             |                     | Fe Iron Staining               |
|                     |  |                   |             |                     | ///// Eroded Bank              |
|                     |  |                   |             |                     | xxx Riprap/Other Stabilization |
|                     |  |                   |             |                     | ○ Instream Log/Tree            |
|                     |  |                   |             |                     | ^^^ Dam/Weir/Obstruction       |
|                     |  |                   |             |                     | Ⓡ Riparian Tree                |
|                     |  |                   |             |                     | └▶ Seep/Spring                 |
|                     |  |                   |             |                     | ----- Undercut Bank            |
|                     |  |                   |             |                     | — Barrier to Fish Movement     |
|                     |  |                   |             |                     | -S- Seasonal Barrier           |
|                     |  |                   |             |                     | -x-x- Fence line               |
|                     |  |                   |             |                     | └ Culvert                      |
| PROFILE:            |  | Horz. Scale       | Vert. Scale |                     |                                |
|                     |  |                   |             |                     |                                |
|                     |  |                   |             |                     |                                |
|                     |  |                   |             |                     |                                |
|                     |  |                   |             |                     |                                |
|                     |  |                   |             |                     |                                |

|                                                                                      |                                      |                                    |                                            |
|--------------------------------------------------------------------------------------|--------------------------------------|------------------------------------|--------------------------------------------|
| SECTION IDENTIFIER:<br><i>Map 1/2</i>                                                | SECTION LOCATION:<br><i>901 East</i> | SECTION LENGTH (m):<br><i>100m</i> | SCALE (cm / m):                            |
|     |                                      |                                    | PROJECT #:<br><i>60734357</i>              |
|   |                                      |                                    | MAPPER:<br><i>Adam Liposch</i>             |
|                                                                                      |                                      |                                    | NAME OF WATERBODY:<br><i>Napanee River</i> |
|                                                                                      |                                      |                                    | CROSSING #:<br><i>WC-2-13</i>              |
|                                                                                      |                                      |                                    | STATION #:<br><i>415</i>                   |
|                                                                                      |                                      |                                    | DATE: YY-MMM-DD<br><i>25-08-21</i>         |
|                                                                                      |                                      |                                    | LEGEND                                     |
|                                                                                      |                                      |                                    | 10d depth (cm)<br>6w width                 |
|                                                                                      |                                      |                                    | → Riffle                                   |
|                                                                                      |                                      |                                    | ⇒ Run/Glide                                |
|                                                                                      |                                      |                                    | ○ Pool                                     |
|                                                                                      |                                      |                                    | ■ Island/Bar                               |
|                                                                                      |                                      |                                    | • Fine Substrate                           |
|                                                                                      |                                      |                                    | ### Gravel Substrate                       |
|                                                                                      |                                      |                                    | oOooO Cobble/Boulder                       |
|                                                                                      |                                      |                                    | *** Debris                                 |
|                                                                                      |                                      |                                    | CT Cattail                                 |
|                                                                                      |                                      |                                    | SV/FV Submergent/Float Veg                 |
|                                                                                      |                                      |                                    | EV Emergent Vegetation                     |
|                                                                                      |                                      |                                    | W Watercress                               |
|                                                                                      |                                      |                                    | Fe Iron Staining                           |
|                                                                                      |                                      |                                    | Eroded Bank                                |
|                                                                                      |                                      |                                    | xxx Riprap/Other Stabilization             |
|                                                                                      |                                      |                                    | ○ Instream Log/Tree                        |
|                                                                                      |                                      |                                    | ^^^ Dam/Weir/Obstruction                   |
|                                                                                      |                                      |                                    | ⊗ Riparian Tree                            |
|                                                                                      |                                      |                                    | └ Seep/Spring                              |
|                                                                                      |                                      |                                    | ----- Undercut Bank                        |
|                                                                                      |                                      |                                    | — Barrier to Fish Movement                 |
|                                                                                      |                                      |                                    | -S- Seasonal Barrier                       |
|                                                                                      |                                      |                                    | -x-x- Fence line                           |
|                                                                                      |                                      |                                    | └ Culvert                                  |
| PROFILE:                                                                             | Horz. Scale                          | Vert. Scale                        |                                            |
|  |                                      |                                    |                                            |

*V grasses*

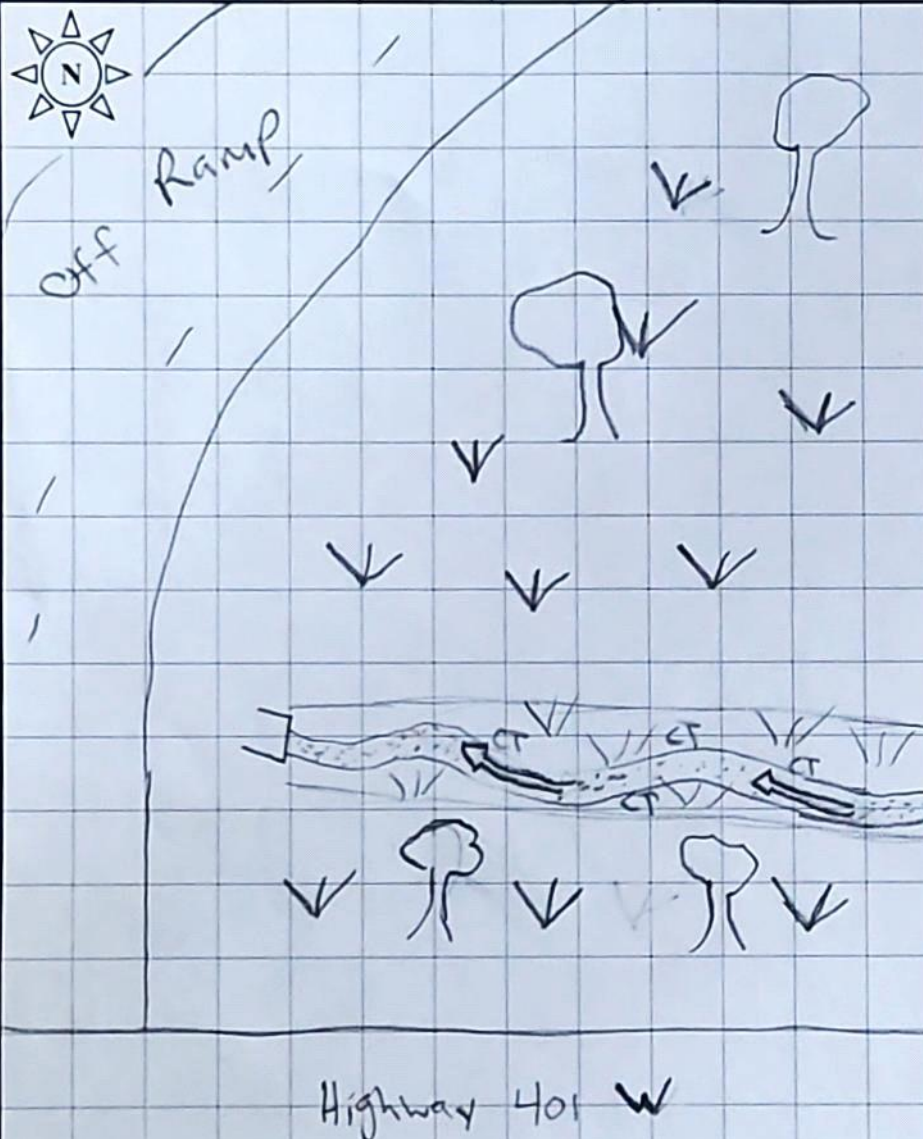
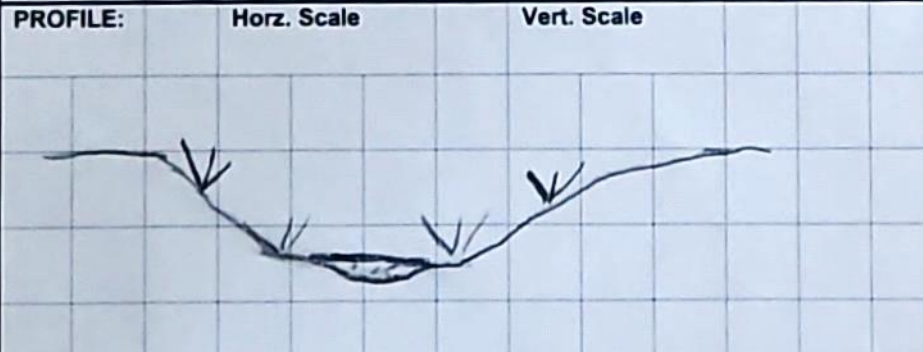




|                                    |  |                                         |             |                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|------------------------------------|--|-----------------------------------------|-------------|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SECTION IDENTIFIER:<br>WC-2-14a DS |  | SECTION LOCATION:<br>County Rd 5 off Rd |             | SECTION LENGTH (m):<br>25m | SCALE (cm / m):                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|                                    |  |                                         |             |                            | PROJECT #:<br>60734357                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|                                    |  |                                         |             |                            | MAPPER:<br>Brandon Smelt                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|                                    |  |                                         |             |                            | NAME OF WATERBODY:<br>Trib to Napanee                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|                                    |  |                                         |             |                            | CROSSING #:<br>WC-2-14a                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                                    |  |                                         |             |                            | STATION #:<br>DS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|                                    |  |                                         |             |                            | DATE: YY-MMM-DD<br>June 10 2025                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|                                    |  |                                         |             |                            | <b>LEGEND</b><br><br>10d depth (cm)<br>6w width<br>➔ Riffle<br>➞ Run/Glide<br>○ Pool<br>■ Island/Bar<br>▨ Fine Substrate<br>### Gravel Substrate<br>oOooO Cobble/Boulder<br>*** Debris<br><br>CT Cattail<br>SV/FV Submergent/Float Veg<br>EV Emergent Vegetation<br>W Watercress<br><br>Fe Iron Staining<br>///// Eroded Bank<br>xxx Riprap/Other Stabilization<br><br>○ Instream Log/Tree<br>^^^ Dam/Weir/Obstruction<br>® Riparian Tree<br><br>↳ Seep/Spring<br>— Undercut Bank<br>— Barrier to Fish Movement<br>-S- Seasonal Barrier<br>-x-x- Fence line<br>└ Culvert |
| PROFILE:                           |  | Horz. Scale                             | Vert. Scale |                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|                                    |  |                                         |             |                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

\ Tree



|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |                                           |  |                           |                                        |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-------------------------------------------|--|---------------------------|----------------------------------------|
| SECTION IDENTIFIER:<br>WC-2-14a VS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  | SECTION LOCATION:<br>County Rd 5 off ramp |  | SECTION LENGTH (m):<br>55 | SCALE (cm / m):                        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |                                           |  |                           | PROJECT #:<br>60734357                 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |                                           |  |                           | MAPPER:<br>Brandon Smelt               |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |                                           |  |                           | NAME OF WATERBODY:<br>Trib to Millrace |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |                                           |  |                           | CROSSING #:<br>WC-2-14a                |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |                                           |  |                           | STATION #:<br>VS                       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |                                           |  |                           | DATE: YY-MMM-DD<br>June 10 2026        |
| <b>LEGEND</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |                                           |  |                           |                                        |
| 10d depth (cm)<br>6w width<br>→ Riffle<br>⇨ Run/Glide<br>○ Pool<br>■ Island/Bar<br>▨ Fine Substrate<br>### Gravel Substrate<br>oOooO Cobble / Boulder<br>*** Debris<br>CT Cattail<br>SV/FV Submergent/Float Veg<br>EV Emergent Vegetation<br>W Watercress<br>Fe Iron Staining<br>///// Eroded Bank<br>xxx Riprap/Other Stabilization<br>○ Instream Log/Tree<br>^^^ Dam/Weir/Obstruction<br>® Riparian Tree<br>↳ Seep/Spring<br>— Undercut Bank<br>— Barrier to Fish Movement<br>-S- Seasonal Barrier<br>-x-x- Fence line<br>└ Culvert |  |                                           |  |                           |                                        |
| PROFILE:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  | Horz. Scale                               |  | Vert. Scale               |                                        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  |                                           |  |                           |                                        |

V grasses  
 // Reed canopy grass



|                                   |                                  |                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|-----------------------------------|----------------------------------|----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SECTION IDENTIFIER:<br>WC-2-15 DS | SECTION LOCATION:<br>County Rd 5 | SECTION LENGTH (m):<br>60m | SCALE (cm / m):<br>1/3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|                                   |                                  |                            | PROJECT #:<br>60734357                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|                                   |                                  |                            | MAPPER:<br>P. Hebert                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|                                   |                                  |                            | NAME OF WATERBODY:<br>Unnamed trib Napanee R.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|                                   |                                  |                            | CROSSING #:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|                                   |                                  |                            | STATION #:<br>WC-2-15                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| DATE: YY-MMM-DD<br>25-Jun-10      |                                  |                            | <b>LEGEND</b><br><br>10d depth (cm)<br>6w width<br>→ Riffle<br>⇨ Run/Glide<br>○ Pool<br>■ Island/Bar<br>▨ Fine Substrate<br>### Gravel Substrate<br>oOooO Cobble/Boulder<br>*** Debris<br><br>CT Cattail<br>SV/FV Submergent/Float Veg<br>EV Emergent Vegetation<br>W Watercress<br>Fe Iron Staining<br>///// Eroded Bank<br>xxx Riprap/Other Stabilization<br><br>○ Instream Log/Tree<br>^^^ Dam/Weir/Obstruction<br>® Riparian Tree<br>└ Seep/Spring<br>— Undercut Bank<br>— Barrier to Fish Movement<br>-S- Seasonal Barrier<br>-x-x- Fence line<br>└ Culvert |
| PROFILE: DS                       | Horz. Scale 2/1                  | Vert. Scale 1/1            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

Storm water  
 grasses





|                                                 |  |                                   |  |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|-------------------------------------------------|--|-----------------------------------|--|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SECTION IDENTIFIER:<br>WC-2-16 us               |  | SECTION LOCATION:<br>County Rd. 5 |  | SECTION LENGTH (m):<br>100 m | SCALE (cm / m):<br>1/4 Vertical 1/3 Horizontal                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|                                                 |  |                                   |  |                              | PROJECT #:<br>60734357                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|                                                 |  |                                   |  |                              | MAPPER:<br>P. Hebert                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|                                                 |  |                                   |  |                              | NAME OF WATERBODY:<br>Unnamed Trib. Napanee R.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|                                                 |  |                                   |  |                              | CROSSING #:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|                                                 |  |                                   |  |                              | STATION #:<br>WC-2-16                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| DATE: YY-MMM-DD<br>25-Jun-10                    |  |                                   |  |                              | <b>LEGEND</b><br><br>10d depth (cm)<br>6w width (m)<br><br>→ Riffle<br>○ Run/Glide<br>○ Pool<br>■ Island/Bar<br>. Fine Substrate<br>### Gravel Substrate<br>o o o o Cobble/Boulder<br>*** Debris<br><br>CT Cattail<br>SV/FV Submergent/Float Veg<br>EV Emergent Vegetation<br>W Watercress<br>Fe Iron Staining<br>      Eroded Bank<br>xxx Riprap/Other Stabilization<br><br>□ Instream Log/Tree<br>^^^ Dam/Weir/Obstruction<br>⊗ Riparian Tree<br>T Seep/Spring<br>- - - Undercut Bank<br>— Barrier to Fish Movement<br>-S- Seasonal Barrier<br>-x-x- Fence line<br>L Culvert |
| PROFILE: 03 Horz. Scale 2/1 Vert. Scale 2/1<br> |  |                                   |  |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |





|                                                             |  |                                   |  |                             |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |
|-------------------------------------------------------------|--|-----------------------------------|--|-----------------------------|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| SECTION IDENTIFIER:<br>WC-2-16 US                           |  | SECTION LOCATION:<br>County Rd. 5 |  | SECTION LENGTH (m):<br>100m |  | SCALE (cm / m):<br>1/3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |
|                                                             |  |                                   |  |                             |  | PROJECT #:<br>60734357                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |
|                                                             |  |                                   |  |                             |  | MAPPER:<br>P. Hebert                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |
|                                                             |  |                                   |  |                             |  | NAME OF WATERBODY:<br>Unnamed Trib. Naparoc R.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |
|                                                             |  |                                   |  |                             |  | CROSSING #:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |
|                                                             |  |                                   |  |                             |  | STATION #:<br>WC-2-16                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |
| DATE: YY-MMM-DD<br>25-Jun-10                                |  |                                   |  |                             |  | LEGEND                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |
|                                                             |  |                                   |  |                             |  | 10d depth (cm)<br>6w width<br>→ Riffle<br>⇨ Run/Glide<br>○ Pool<br>■ Island/Bar<br>... Fine Substrate<br>### Gravel Substrate<br>oOooO Cobble /Boulder<br>*** Debris<br>CT Cattail<br>SV/FV Submergent/Float Veg<br>EV Emergent Vegetation<br>W Watercress<br>Fe Iron Staining<br>///// Eroded Bank<br>xxx Riprap/Other Stabilization<br>○ Instream Log/Tree<br>^^^ Dam/Weir/Obstruction<br>® Riparian Tree<br>└▶ Seep/Spring<br>----- Undercut Bank<br>— Barrier to Fish Movement<br>-S- Seasonal Barrier<br>-x-x- Fence line<br>└ Culvert |  |
| PROFILE: US Horz. Scale 2/1 Vert. Scale 2/1<br>County Rd. 5 |  |                                   |  |                             |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |

✓ grasses  
☁ trees/shrubs



|                                   |                 |                                |  |                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-----------------------------------|-----------------|--------------------------------|--|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SECTION IDENTIFIER:<br>WC-2-17 DS |                 | SECTION LOCATION:<br>Hwy 401 W |  | SECTION LENGTH (m):<br>100 | SCALE (cm / m):<br>1/3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|                                   |                 |                                |  |                            | PROJECT #:<br>60734357                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|                                   |                 |                                |  |                            | MAPPER:<br>P. Hebert                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|                                   |                 |                                |  |                            | NAME OF WATERBODY:<br>Unnamed Drainage                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|                                   |                 |                                |  |                            | CROSSING #:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|                                   |                 |                                |  |                            | STATION #:<br>WC-2-17                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| DATE: YY-MMM-DD<br>25-Jan-12      |                 |                                |  |                            | <b>LEGEND</b><br><br>10d depth (cm)<br>6w width<br>→ Riffle<br>⇨ Run/Glide<br>○ Pool<br>■ Island/Bar<br>. Fine Substrate<br>### Gravel Substrate<br>oOooO Cobble/Boulder<br>*** Debris<br>CT Cattail<br>SV/FV Submergent/Float Veg<br>EV Emergent Vegetation<br>W Watercress<br>Fe Iron Staining<br>///// Eroded Bank<br>xxx Riprap/Other Stabilization<br>○ Instream Log/Tree<br>^^^ Dam/Weir/Obstruction<br>® Riparian Tree<br>└▶ Seep/Spring<br>----- Undercut Bank<br>— Barrier to Fish Movement<br>-S- Seasonal Barrier<br>-x-x- Fence line<br>└ Culvert |
| PROFILE: DS                       | Horz. Scale 1/2 | Vert. Scale 1/2                |  |                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

V - grasses  
P - trees/shrubs

| Crossing ID           | Survey Date:    | Survey Staff: | Time Started:           | Time Ended: | Surface Conditions | Name of Waterbody: | Location of Crossing | Latitude | Longitude | MTO Chainage: |
|-----------------------|-----------------|---------------|-------------------------|-------------|--------------------|--------------------|----------------------|----------|-----------|---------------|
| WC-13 (Napanee River) | 8/21/2025 16:00 | Brandon Smelt | 08/21/2025 18:03:13.571 |             | Calm               | WC-2-13            | Napanee River        | 44.2673  | -76.9325  |               |

| Crossing ID           | Sample Location Name | Length (m) | Air Temp. (°C) | pH Level | Dissolved Oxygen (mg/L) | Water Temp. (°C) | Conductivity (µS/cm) | Water Colour: |
|-----------------------|----------------------|------------|----------------|----------|-------------------------|------------------|----------------------|---------------|
| WC-13 (Napanee River) | Downstream           | 30         | 24             | 7072     | 7.8                     | 21.7             | 376.5                | Yellow/ Brown |

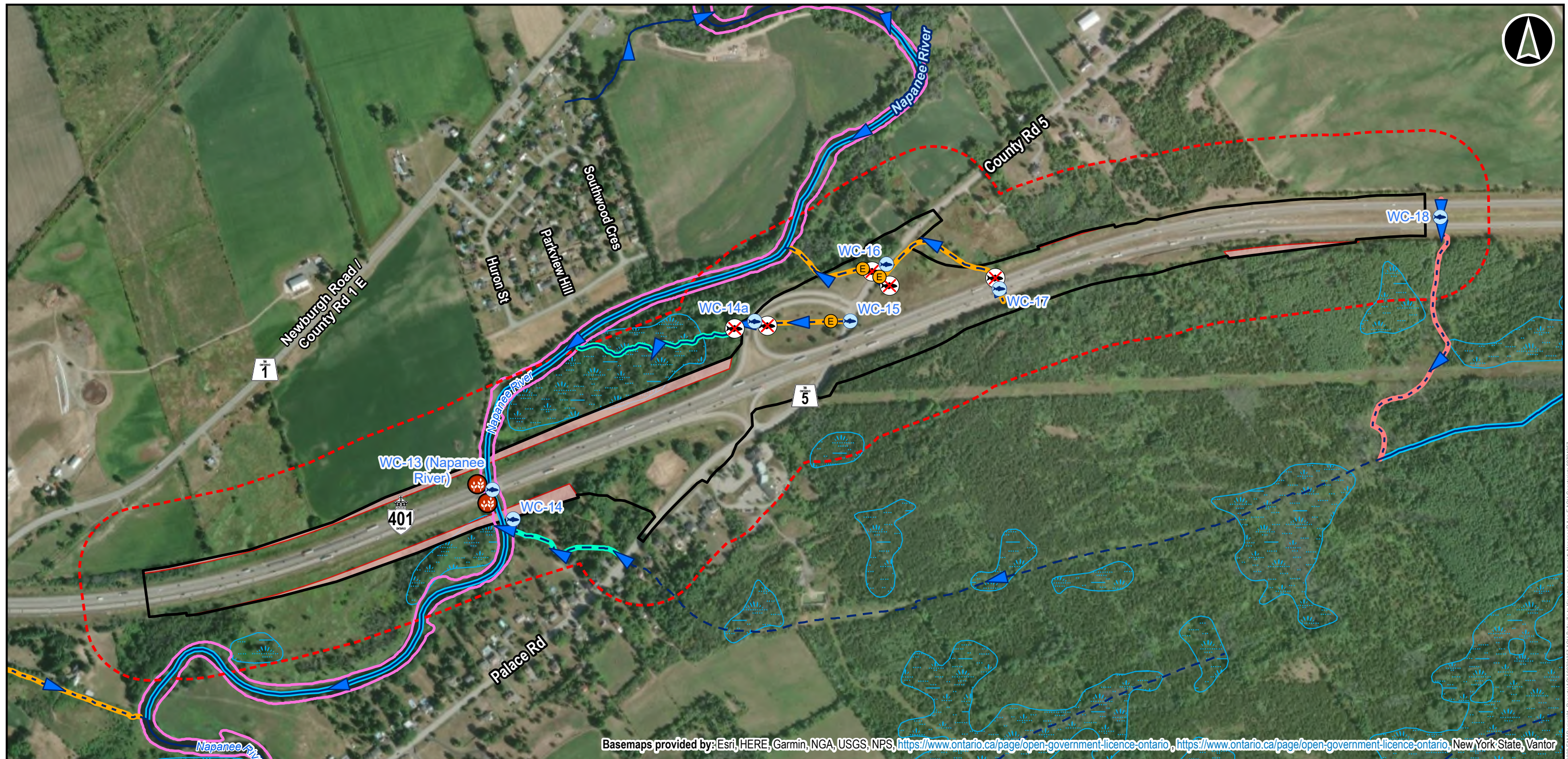
| Crossing ID           | Species Scientific/Common Name: | Species Common Name: | Number of Fish Captured: | Was Sample Kept? | Top Predator | Number of fish with blackspot: | Number of Fish with Lesions, Tumours, Maturity, etc. | Fish Length (mm) | Enter length (mm) | Age Class |
|-----------------------|---------------------------------|----------------------|--------------------------|------------------|--------------|--------------------------------|------------------------------------------------------|------------------|-------------------|-----------|
| WC-13 (Napanee River) | Bluntnose Minnow                |                      | 20                       | No               | No           | 20                             | 0                                                    |                  |                   |           |
| WC-13 (Napanee River) | Brook Silverside                |                      | 8                        | No               | No           | 0                              | 0                                                    |                  |                   |           |
| WC-13 (Napanee River) | Golden Shiner                   |                      | 1                        | No               | No           | 0                              | 0                                                    |                  |                   |           |
| WC-13 (Napanee River) | Johnny Darter                   |                      | 1                        | No               | No           | 1                              | 0                                                    |                  |                   |           |
| WC-13 (Napanee River) | Pumpkinseed                     |                      | 1                        | No               | No           | 0                              | 0                                                    | Total_length     | 97                | Adult     |
| WC-13 (Napanee River) | Pumpkinseed                     |                      | 1                        | No               | No           |                                |                                                      | Total_length     | 93                | Adult     |
| WC-13 (Napanee River) | Pumpkinseed                     |                      | 1                        | No               | No           | 0                              | 0                                                    | Total_length     | 65                | Juvenile  |
| WC-13 (Napanee River) | Pumpkinseed                     |                      | 1                        | No               | No           |                                |                                                      | Total_length     | 113               | Adult     |
| WC-13 (Napanee River) | Pumpkinseed                     |                      | 1                        | No               | No           | 0                              |                                                      |                  | 61                | Juvenile  |
| WC-13 (Napanee River) | Pumpkinseed                     |                      | 1                        | No               | No           |                                |                                                      | Total_length     | 60                | Juvenile  |
| WC-13 (Napanee River) | Pumpkinseed                     |                      | 1                        | No               | No           |                                |                                                      | Total_length     | 70                | Adult     |
| WC-13 (Napanee River) | Rock Bass                       |                      | 1                        | No               | No           | 0                              | 0                                                    | Total_length     | 67                | Juvenile  |

| Township:       | MNRF District:                 | Electrofisher Lenth (m): | Electrofisher Settings: | Electrofisher Seconds: | Nets and Traps Used | Dip Net Number: | Were Fish Kept: | Comments or Notes                                             |
|-----------------|--------------------------------|--------------------------|-------------------------|------------------------|---------------------|-----------------|-----------------|---------------------------------------------------------------|
| Greater Napanee | Peterborough Bancroft District | 30                       | 200v 60 Hz              | 392                    | Dip_Net             | 10              | No              | Fished along bank. Thalweg was too deep. Larger fish observed |

# Appendix **E**

## Constraints and Opportunities Map





**Legend**

Property Aquisition

Project Limits

Study Area

🐟 Watercourse Survey

E Erosion

✗ Impediment to Fish Passage

🌿 Invasive Plants

**Wetland Significance**

  Unevaluated Wetland

▶ Direction of Flow

**Flow Permanency**

~ Permanent

- - - Intermittent

. . . Ephemeral

**Fish Habitat**

~ Direct

~ Seasonal

~ Indirect

~ Not Fish Habitat

**Thermal Regime**

~ Warm Waterbody

**Hwy 401 / Napanee River Bridge Improvements  
PD and Class EA (WP 4039-19-01)**

Constraints and Opportunities

NAD 1983 UTM Zone 18N

**Data Sources:**  
Contains Information licensed under the Open Government License Ontario.

|            |         |            |
|------------|---------|------------|
| AECOM      |         | Ontario    |
| Jun, 2026  | 1:7,201 | Appendix E |
| P:60736705 | Rev:00  |            |



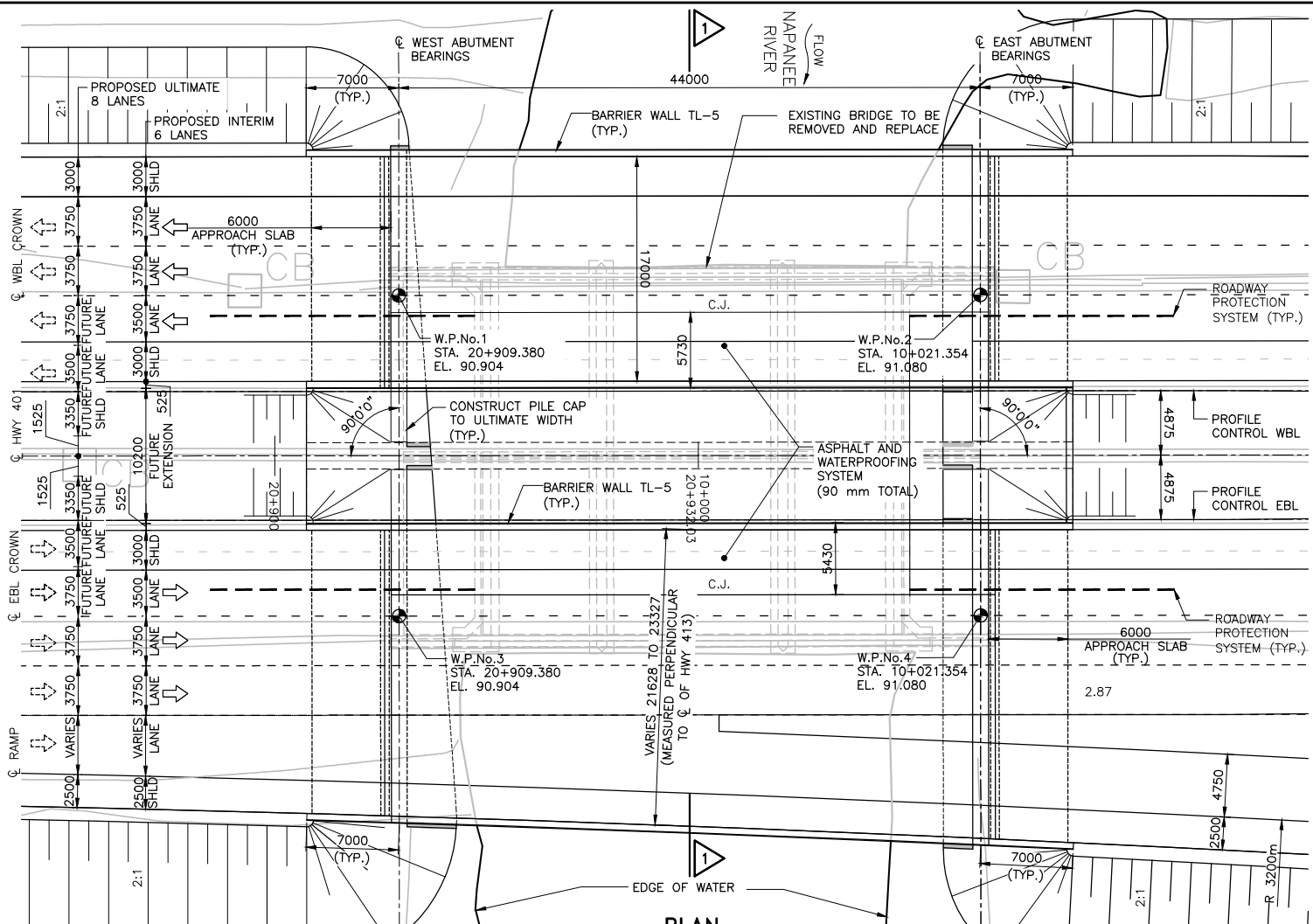
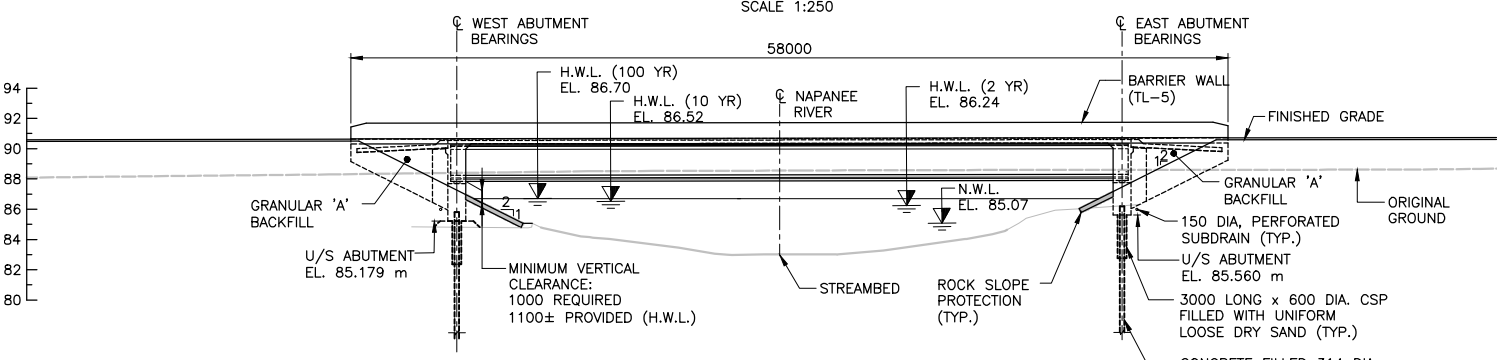
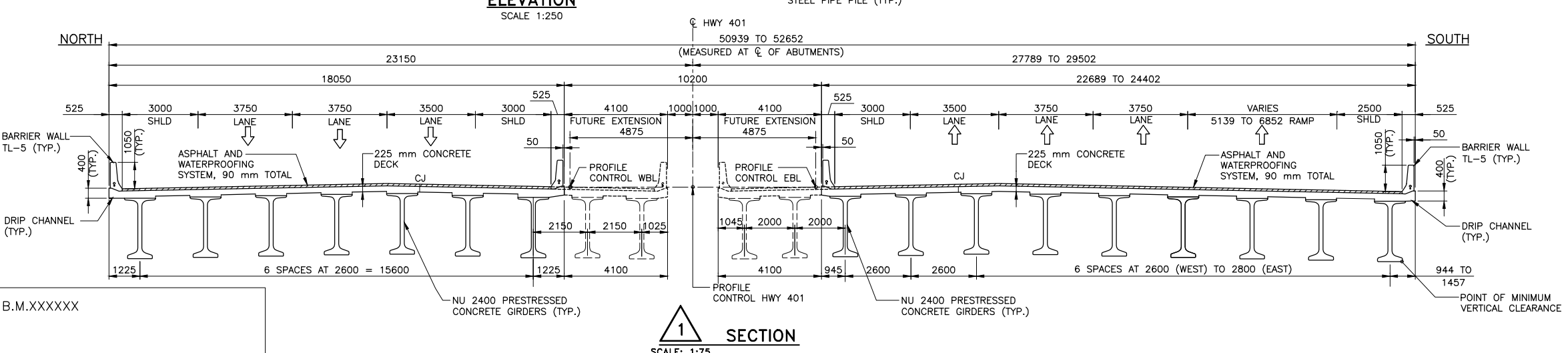
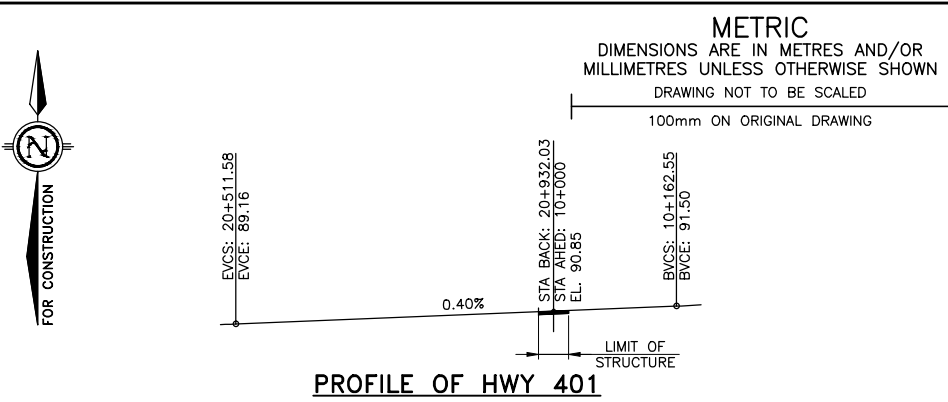
# Appendix **F**

## **Napanee River Bridge Preliminary Design**



FILE NAME: C:\Users\Kramaric\OneDrive - AECOM\02 60734357-MTO-Napanee River Bridge\25 SKETCHES\60734357-Option 1 - 1.spon (NU 2400).dwg  
MODIFIED: 2026-04-07 15:30

2017-08  
ANSI-D  
MINISTRY OF TRANSPORTATION, ONTARIO



### APPLICABLE STANDARD DRAWINGS:

|               |                                                                        |
|---------------|------------------------------------------------------------------------|
| OPSD 3000.150 | FOUNDATION, PILES, STEEL H-PILE SPLICE                                 |
| MTOD 3000.160 | FABRICATED EQUIVALENT STEEL H-PILES                                    |
| OPSD 3101.150 | WALLS, ABUTMENT, BACKFILL MINIMUM GRANULAR REQUIREMENT                 |
| OPSD 3370.100 | DECK, WATERPROOFING HOT APPLIED ASPHALT MEMBRANE WITH PROTECTION BOARD |
| OPSD 3370.101 | DECK, WATERPROOFING HOT APPLIED ASPHALT MEMBRANE AT ACTIVE CRACKS      |
| OPSD 3390.100 | GREATER THAN 2 mm WIDE AND CONSTRUCTION JOINTS                         |
| OPSD 3419.100 | DECK DRIP CHANNEL                                                      |
| MTOD 3941.210 | BARRIERS AND RAILINGS, STEEL BEAM GUIDE RAIL AND CHANNEL ANCHORAGE     |
| OPSD 3950.100 | FIGURES IN CONCRETE, SITE NUMBER AND DATE LAYOUT                       |
|               | JOINTS, CONCRETE EXPANSION AND CONSTRUCTION ON STRUCTURE               |

### LIST OF ABBREVIATIONS:

|        |                               |
|--------|-------------------------------|
| BVCE   | BEGINNING VERTICAL CURVE EL.  |
| BVCS   | BEGINNING VERTICAL CURVE STA. |
| EL.    | ELEVATION                     |
| EVCE   | END VERTICAL CURVE ELEVATION  |
| EVCS   | END VERTICAL CURVE STATION    |
| H.W.L. | HIGH WATER LEVEL              |
| HWY    | HIGHWAY                       |
| MIN.   | MINIMUM                       |
| N.T.S. | NOT TO SCALE                  |
| SCL    | SPEED CHANGE LANE             |
| SHD    | SHOULDER                      |
| STA.   | STATION                       |
| T/P    | TOP OF PAVEMENT               |
| TYP.   | TYPICAL                       |
| N.W.L. | NORMAL WATER LEVEL            |
| W.P.   | WORKING POINT                 |

### DESIGN ASSUMPTIONS

| CRITERIA                                               | DESIGN ASSUMPTION                                                                                     |
|--------------------------------------------------------|-------------------------------------------------------------------------------------------------------|
| SEISMIC IMPORTANCE CATEGORY                            | SCP1                                                                                                  |
| DESIGN LIFE OF BRIDGE                                  | 75 YEARS                                                                                              |
| DESIGN SERVICE LIFE OF BRIDGE                          | 75 YEARS                                                                                              |
| NON-REPLACEABLE COMPONENTS                             | FOUNDATIONS, ABUTMENTS, WINGWALLS, CONCRETE DECK, CONCRETE GIRDERS, APPROACH SLABS, CONCRETE BARRIERS |
| REPLACEABLE COMPONENTS AND ASSUMED DESIGN SERVICE LIFE | WATERPROOFING (30 YEARS)                                                                              |

### EXPOSURE CONDITIONS AND APPLICABLE COMPONENTS

| EXPOSURE ZONE                             | COMPONENT                                                                                         |
|-------------------------------------------|---------------------------------------------------------------------------------------------------|
| ATMOSPHERIC SHELTERED - A2                | DECK SOFFIT BETWEEN EXTERIOR GIRDERS                                                              |
| ATMOSPHERIC EXPOSED - A3                  | CONCRETE GIRDERS OVER FRESH WATER (WITHIN 3m OF NWL), OUTSIDE FACE OF WINGWALLS ABOVE FINAL GRADE |
| ATMOSPHERIC EXPOSED - A5                  | DECK SOFFIT                                                                                       |
| DEICING SALT SPRAY DIRECT - (SEVERE) - 03 | CONCRETE DECK TOP, INTERIOR, EXTERIOR, AND TOP FACES OF BARRIER WALLS, DECK FASCIA                |
| SOIL AND GROUND WATER NON-AGGRESSIVE - 01 | PILES, ABUTMENTS AND WINGWALLS BELOW GRADE APPROACH SLAB                                          |

**Ontario** Ministry of Transportation

CONT  
WP  
HWY 401 PRELIMINARY DESIGN  
NAPANEE RIVER BRIDGE  
GENERAL ARRANGEMENT

SHEET

**AECOM**

### GENERAL NOTES:

- SPECIFIED 28-DAY COMPRESSIVE STRENGTH 30 MPa.
- CLEAR COVER TO REINFORCING STEEL:

|            |                                 |
|------------|---------------------------------|
| PILE CAPS: | 100 ± 25                        |
| DECK TOP:  | 70 ± 20                         |
| BOTTOM:    | 40 ± 10                         |
| REMAINDER: | 70 ± 20 UNLESS OTHERWISE NOTED. |
- REINFORCING STEEL:

REINFORCING STEEL SHALL BE GRADE 500W.

UNLESS SHOWN OTHERWISE, TENSION LAP SPLICES FOR REINFORCING STEEL BARS SHALL CLASS B.

STAINLESS REINFORCING STEEL BARS SHALL BE TYPE 316 LN, DUPLEX 2205 OR DUPLEX 2304 AND HAVE A MINIMUM YIELD STRENGTH OF 500 MPa, UNLESS OTHERWISE SPECIFIED.

BAR MARKS WITH PREFIX 'S' DENOTE STAINLESS STEEL BARS.

GLASS FIBRE REINFORCED POLYMER REINFORCING BARS SHALL BE GRADE III AS SPECIFIED IN THE CONTRACT DRAWINGS. THE NOMINAL DIAMETER, TENSILE MODULUS OF ELASTICITY AND GUARANTEED MINIMUM TENSILE STRENGTH SHALL BE AS SPECIFIED IN THE CONTRACT DOCUMENTS.

BAR MARKS WITH PREFIX 'G' DENOTE GRADE III GLASS FIBRE REINFORCED POLYMER BARS.

BAR HOOKS SHALL HAVE STANDARD HOOK DIMENSIONS USING MINIMUM BEND DIAMETERS, WHILE STIRRUPS AND TIES SHALL HAVE MINIMUM HOOK DIMENSIONS. ALL HOOKS SHALL BE IN ACCORDANCE WITH THE STRUCTURAL STANDARD DRAWING SS112-1 UNLESS INDICATED OTHERWISE.

### CONSTRUCTION NOTES:

- THE CONTRACTOR SHALL ESTABLISH THE BEARING SEAT ELEVATIONS BY DEDUCTING THE ACTUAL BEARING THICKNESSES FROM THE TOP OF BEARING ELEVATIONS. IF THE ACTUAL BEARING THICKNESSES ARE DIFFERENT FROM THOSE GIVEN WITH THE BEARING DESIGN DATA, THE CONTRACTOR SHALL ADJUST THE REINFORCING STEEL TO SUIT.
- BACKFILL SHALL NOT BE PLACED BEHIND THE ABUTMENTS UNTIL THE DECK HAS REACHED 70% OF ITS DESIGN STRENGTH.
- BACKFILL SHALL BE PLACED SIMULTANEOUSLY BEHIND BOTH ABUTMENTS KEEPING THE HEIGHT OF BACKFILL APPROXIMATELY THE SAME. AT NO TIME SHALL THE DIFFERENCE IN ELEVATION BE GREATER THAN 500 mm.
- CONSTRUCT ABUTMENTS AND WINGWALLS TO THE BEARING SEAT ELEVATIONS. THE CONTRACTOR SHALL SUPPLY TEMPORARY LATERAL BRACING FOR THE ABUTMENTS. FORMWORK AND LATERAL BRACING SHALL NOT BE REMOVED UNTIL CONCRETE HAS REACHED 70% OF ITS SPECIFIED 28-DAY STRENGTH.
- COMPACTED FILL, MAXIMUM GRAIN SIZE 75 mm SHALL BE PLACED UP TO THE BOTTOM OF ABUTMENT ELEVATIONS PRIOR TO DRIVING PILES.
- THE CONTRACTOR SHALL VERIFY TYPES AND LOCATIONS OF EXISTING UTILITIES THAT ARE RELEVANT TO THE WORK SHOWN ON THE DRAWINGS PRIOR TO COMMENCEMENT OF THE WORK. ANY DISCREPANCIES SHALL BE REPORTED TO THE CONTRACT ADMINISTRATOR AND THE PROPOSED ADJUSTMENT OF THE WORK REQUIRED SHALL BE SUBMITTED FOR APPROVAL.
- THE CONTRACTOR IS FULLY RESPONSIBLE FOR THE ADEQUATE PROTECTION OF ALL UTILITIES, SERVICES, STRUCTURES, ROADWAYS, WATERCOURSES, ETC. DURING CONSTRUCTION OPERATIONS.
- THE CONTRACTOR SHALL ADVISE ALL UTILITY COMPANIES IN WRITING OF HIS PROPOSED WORK. THE CONTRACTOR SHALL BE RESPONSIBLE AT HIS OWN EXPENSE FOR ANY DAMAGE TO UTILITIES BY THE CONTRACTOR.

| REVISIONS | DATE | BY  | DESCRIPTION           |
|-----------|------|-----|-----------------------|
| DESIGN    | 0.2  | CHK | D.A. CODE CSA S6:25   |
| DRAWN     | V.K. | CHK | O.Z. SITE 17X-0062/B0 |
|           |      |     | LOAD CL-625-ONT       |
|           |      |     | DATE MAR. 2026        |
|           |      |     | DWG                   |
|           |      |     | RX-1                  |



**Appendix G**

**Aquatic Effects Assessment Summary Table**





TEMPLATE D3: AQUATIC EFFECTS ASSESSMENT SUMMARY TABLE

Table 1: Bridge Reconstruction, including widening, removal of existing piers, and bank protection below the HWM

| Waterbody/<br>Water crossing                       | Pathway of<br>Effect(s)        | Stressor<br>(Potential Impact)                                                                                                                                                                                                                                                                                                                                                                                                    | Mitigation Measures                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Residual Effects                                                                                                                                                                                                                                                             |
|----------------------------------------------------|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Direct Fish Habitat:</b><br>WC-13 / 17X-0062/B0 | B2-Use of industrial equipment | <ul style="list-style-type: none"><li>Use of mobile industrial equipment may promote changes to bank stability/exposed soils, re-suspension and entrainment of sediment and oil/grease/fuel leaks that can result in:<ul style="list-style-type: none"><li>potential for mortality of fish/egg/ova from equipment.</li><li>change in sediment concentration; and</li><li>change in contaminant concentration.</li></ul></li></ul> | <ul style="list-style-type: none"><li><b>O-1 – Access</b><ul style="list-style-type: none"><li>An Access Management Plan shall be created to prohibit or limit access to banks or areas adjacent to waterbodies, to the extent required to protect the structural integrity of banks or shorelines. This will include the following:<ul style="list-style-type: none"><li>MTO's Temporary crossing BMP will be adhered to and machinery fording of the watercourse will be limited to a one-time event (i.e., over, and back), and only if no alternative crossing method is available.</li><li>If repeated crossings of the watercourse are required, a temporary crossing structure shall be constructed following MTO's BMP for Temporary Watercourse Crossing</li><li>Temporary crossing structures or other practices will be utilized to cross streams or waterbodies with steep and highly erodible (e.g., dominated by organic materials and silts) banks and beds.</li><li>For fording equipment without a temporary crossing structure, stream bank and bed protection methods (e.g., swamp mats, pads) shall be used if minor rutting is likely to occur during fording.</li></ul></li></ul></li><li><b>O-3 – Timing of In-water works</b><ul style="list-style-type: none"><li>In-water works will adhere to the timing window of <b>July 16 to March 14</b> of any given year.</li><li>Additional timing considerations:<ul style="list-style-type: none"><li>Minimize duration of in-water work</li><li>Conduct in-stream work during periods of low flow to allow work in water to be isolated from flows</li><li>Schedule work to avoid wet, windy, and rainy periods that may increase erosion and sedimentation and allow for proper re-stabilization and re-vegetation as appropriate prior to winter.</li></ul></li></ul></li><li><b>M-2 – Dewatering Discharge</b><ul style="list-style-type: none"><li>Dewatering (or other) discharge water will be managed and treated to prevent erosion and/or release of sediment-laden or contaminated water to the waterbody.</li><li>Considerations:<ul style="list-style-type: none"><li>Use of appropriately designed and sited temporary settling basin, filter bag, etc. such as sediment is filtered out prior to the water entering a waterbody</li><li>Use of energy dissipation measures to prevent bank or bed erosion.</li></ul></li></ul></li><li><b>M-3 – Equipment</b><ul style="list-style-type: none"><li>Whenever possible, machinery will be operated on land above the high-water level, on ice, or from a floating barge in a manner that minimizes disturbance to the banks and bed of the waterbody</li><li>All equipment, vehicles and associated materials shall be operated, stored, and maintained (e.g., refuel, lubricate) in a manner that prevents the entry of any deleterious substance from entering the water</li><li>Any part of equipment entering the water or operating on the bank shall be free of fluid leaks, invasive species and noxious weeds and externally cleaned/degreased to prevent any deleterious substance from entering the water</li></ul></li><li><b>M-4 – Erosion and Sediment Controls</b><ul style="list-style-type: none"><li>Erosion and sediment controls shall be designed and implemented to contain/isolate the construction zone, manage site drainage/runoff and prevent erosion of exposed soils and migration of sediment to adjacent waterbody during all phases of the project.</li></ul></li></ul> | <ul style="list-style-type: none"><li>No negative residual effects are anticipated from the use of industrial equipment, provided that mitigation measures are properly implemented, monitored, and maintained throughout the duration of construction activities.</li></ul> |

| Waterbody/<br>Water crossing | Pathway of<br>Effect(s) | Stressor<br>(Potential Impact) | Mitigation Measures                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Residual Effects |
|------------------------------|-------------------------|--------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
|                              |                         |                                | <ul style="list-style-type: none"><li>Erosion and sediment control measures will be maintained until all disturbed ground has been permanently stabilized, suspended sediment has resettled to the bed of the waterbody or settling basin and runoff water is clear. The plan shall, where applicable, include:<ul style="list-style-type: none"><li>Installation of effective erosion and sediment control measures before starting work to prevent sediment from entering the waterbody</li><li>Regular inspection and maintenance of erosion and sediment control measures and structures during construction.</li><li>Repairs to erosion and sediment control measures and structures if damage occurs.</li><li>Removal of non-biodegradable erosion and sediment control materials once site is stabilized.</li></ul></li><li><b>M-6 - Fish Screens</b><ul style="list-style-type: none"><li>Fish screens will be used to avoid entrainment and impingement of fish at water intakes.</li><li>DFO's fish protection measures for design, installation, and operation of fish screens <a href="https://www.dfo-mpo.gc.ca/pnw-ppe/standards-normes/fish-screen-grillage-poisson-eng.html">https://www.dfo-mpo.gc.ca/pnw-ppe/standards-normes/fish-screen-grillage-poisson-eng.html</a> will be utilized.</li></ul></li><li><b>M-7 – Fish Transfer</b><ul style="list-style-type: none"><li>All fish shall be salvaged from within the isolated area and immediately be released as directed in the License to Collect Fish for Scientific Purposes obtained from MNR in accordance with OPSS. PROV 182 and following DFO's <i>Interim standard: Fish capture and relocation</i> (<a href="https://www.dfo-mpo.gc.ca/pnw-ppe/standards-normes/capture-relocation-relocalisation-eng.html">https://www.dfo-mpo.gc.ca/pnw-ppe/standards-normes/capture-relocation-relocalisation-eng.html</a>).</li></ul></li><li><b>M-9 – Spills</b><ul style="list-style-type: none"><li>A Spill Management Plan (including spill kit materials, instructions regarding their use, education of contract personnel, emergency contact numbers) will be on-site at all times for immediate implementation in event of accidental spill.</li></ul></li><li><b>M-10 - Temporary Flow</b><ul style="list-style-type: none"><li>Temporary in-water work zones will be isolated and designed to always maintain clean flow downstream/around the work zone. The design should:<ul style="list-style-type: none"><li>Only clean materials free of particulate matter shall be used if required for isolation measures</li><li>flow withdrawal and discharge will be managed to prevent erosion and sediment release to the waterbody</li><li>Work zones will be stabilized against the impacts of high flow events during the work period</li><li>fish will be removed from the isolated in-water work zones if necessary following DFO's interim standard: Fish capture and relocation (<a href="https://www.dfo-mpo.gc.ca/pnw-ppe/standards-normes/capture-relocation-relocalisation-eng.html">https://www.dfo-mpo.gc.ca/pnw-ppe/standards-normes/capture-relocation-relocalisation-eng.html</a>)</li></ul></li><li>DFO's standard for in-water site isolation <a href="https://www.dfo-mpo.gc.ca/pnw-ppe/standards-normes-eng.html">https://www.dfo-mpo.gc.ca/pnw-ppe/standards-normes-eng.html</a> shall be utilized.</li></ul></li><li><b>R-1 – Waterbody Bank</b><ul style="list-style-type: none"><li>Removal of natural woody debris, rocks, or other materials from below the banks or the shoreline of the waterbody will be minimized where possible.</li><li>Banks will be stabilized and/or reinforced to pre-disturbance conditions (or better) using properly designed and installed stabilization measures.</li><li>Hard engineering will be avoided where possible.</li><li>If rock reinforcement/armouring is required, appropriately sized material will be used and installed at a similar slope to the existing, maintains a uniform bank / shoreline and maintains a natural bank / shoreline alignment such that it does not interfere with fish passage.</li><li>Riparian and landscape planting, along with seeding will be detailed in a Landscape Plan. Native seed mixes and tree species will be selected, and native topsoil will be applied prior</li></ul></li></ul> |                  |



| Waterbody/<br>Water crossing                       | Pathway of<br>Effect(s)   | Stressor<br>(Potential Impact)                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Mitigation Measures                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Residual Effects                                                                                                                                                                                                                                                                                                                                                                                                             |
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|                                                    |                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <p>to seeding as per OPSS 802 – Construction Specification for Topsoil and OPSS 804 – Seed and Cover.</p> <ul style="list-style-type: none"><li>• <b>R-3 – Exposed Soils/ Surfaces</b><ul style="list-style-type: none"><li>• The ESC Plan and Landscape Plan will inform the stabilization and revegetation of exposed soils that drain to waterbodies using a combination of:<ul style="list-style-type: none"><li>▪ Targeted planting of native vegetation</li><li>▪ Rolled erosion control blankets, topsoil, seed, mulch etc.</li><li>▪ Installation of appropriately designed structural materials and vegetation, if feasible on steep slopes to maintain slope stability for the long term. Direct drainage away from slopes unless structure provided to take drainage into valley without erosion and risk of sedimentation.</li></ul></li></ul></li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Direct Fish Habitat:</b><br>WC-13 / 17X-0062/B0 | L1-Vegetation<br>Clearing | <ul style="list-style-type: none"><li>• Alteration of riparian vegetation, changes in shading, and changes to bank stability/exposed soils and the addition or removal of in-stream organic structure can result in:<ul style="list-style-type: none"><li>– changes in habitat structure and cover;</li><li>– change in water temperature;</li><li>– changes in sediment concentration;</li><li>– changes in food supply; and</li><li>– changes in nutrient concentrations.</li></ul></li></ul> | <ul style="list-style-type: none"><li>• <b>M-11 – Vegetation</b><ul style="list-style-type: none"><li>○ MTO's BMP for Riparian Vegetation Maintenance in Existing ROW will be followed (where applicable)</li><li>○ Existing trails, roads or cut lines will be used wherever possible to avoid disturbance to the riparian vegetation and prevent soil compaction</li><li>○ Clearing of riparian vegetation will be kept to a minimum and if removal is necessary use proper clearing techniques will be used and retained vegetation will be protected. Pruning or topping the vegetation instead of grubbing/uprooting will be utilized if possible</li><li>○ Selective or phased vegetation removal or species management shall be implemented to maintain or reduce shade for the management of certain species and/or to provide specialized riparian communities or habitat, such as for warmwater species at risk or coldwater species.</li><li>○ Where appropriate, seedbank materials or root mats shall be salvaged and re-instated for certain vegetation communities such as wetlands and/or to expedite re-establishment of vegetation cover.</li></ul></li><li>• <b>M-1 – Chemicals</b><ul style="list-style-type: none"><li>○ Only specified amounts and types of fertilizer shall be used in areas draining to waterbodies</li><li>○ Use of chemical dust suppressants, pesticides, and herbicides will be avoided in areas near or draining waterbodies</li><li>○ Ensure that building material used in a watercourse has been handled and treated in a manner to prevent the release or leaching of substances into the water that may be deleterious to fish</li></ul></li><li>• <b>M-4 – Erosion and Sediment Controls</b><ul style="list-style-type: none"><li>○ Erosion and sediment controls shall be designed and implemented to contain/isolate the construction zone, manage site drainage/runoff and prevent erosion of exposed soils and migration of sediment to adjacent waterbody during all phases of the project.</li><li>○ Erosion and sediment control measures shall be maintained until all disturbed ground has been permanently stabilized, suspended sediment has resettled to the bed of the waterbody, or settling basin and runoff water is clear. The plan shall, where applicable, include:<ul style="list-style-type: none"><li>▪ Installation of effective erosion and sediment control measures before starting work to prevent sediment from entering the waterbody</li><li>▪ Regular inspection and maintenance of erosion and sediment control measures and structures during construction.</li><li>▪ Repairs to erosion and sediment control measures and structures if damage occurs.</li><li>▪ Removal of non-biodegradable erosion and sediment control materials once site is stabilized.</li></ul></li></ul></li><li>• <b>R-1 – Waterbody Bank</b><ul style="list-style-type: none"><li>○ Removal of natural woody debris, rocks, or other materials from below the banks or the shoreline of the waterbody will be minimized where possible.</li></ul></li></ul> | <ul style="list-style-type: none"><li>• Approximately 453 m<sup>2</sup> of mowed grass is expected to be permanently removed as a result of bridge widening and abutment installation. However, the affected area is limited to the footprint of the new bridge within the existing right-of-way, which currently consists primarily of maintained (mowed) grass and no negative residual effects are anticipated.</li></ul> |

| Waterbody/<br>Water crossing                       | Pathway of<br>Effect(s) | Stressor<br>(Potential Impact)                                                                                                                                                                                    | Mitigation Measures                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Residual Effects                                                                                                                                                                                                                                      |
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|                                                    |                         |                                                                                                                                                                                                                   | <ul style="list-style-type: none"><li>○ Banks will be stabilized and/or reinforced to pre-disturbance conditions (or better) using properly designed and installed stabilization measures.</li><li>○ Hard engineering should be avoided where possible.</li><li>○ If rock reinforcement/armouring is required, appropriately sized material will be used and installed at a similar slope to the existing, maintains a uniform bank / shoreline and maintains a natural bank / shoreline alignment such that it does not interfere with fish passage.</li><li>○ Riparian and landscape planting, along with seeding will be detailed in a Landscape Plan. Native seed mixes and tree species will be selected, and native topsoil will be applied prior to seeding as per OPSS 802 – Construction Specification for Topsoil and OPSS 804 – Seed and Cover.</li><li>● <b>R-3 – Exposed Soils/ Surfaces</b><ul style="list-style-type: none"><li>○ An ESC Plan and Landscape Plan shall inform the stabilization and revegetation of exposed soils that drain to waterbodies using a combination of:<ul style="list-style-type: none"><li>▪ Targeted planting of native vegetation</li><li>▪ Rolled erosion control blankets, topsoil, seed, mulch etc.</li><li>▪ Installation of appropriately designed structural materials and vegetation, if feasible on steep slopes to maintain slope stability for the long term. Direct drainage away from slopes unless structure provided to take drainage into valley without erosion and risk of sedimentation.</li></ul></li></ul></li><li>● <b>R-4 – In-stream Cover</b><ul style="list-style-type: none"><li>○ Removal of natural woody debris, rocks, or other materials from below the high-water mark shall be minimized</li><li>○ Appropriate in-stream structure and cover for habitat shall be added/re-established in such a way as to not destabilize the channel through negative impacts to hydraulics. Where possible, structure/substrate type will be matched with previous or adjacent types removed, altered, or disturbed during construction<ul style="list-style-type: none"><li>▪ This may include salvage and re-instatement of existing in-stream structure such as large woody debris, boulders, or in-stream aquatic vegetation</li></ul></li></ul></li><li>● <b>R-5 – Riparian Vegetation Plantings</b><ul style="list-style-type: none"><li>○ Riparian and landscape planting, along with seeding shall be detailed in a Landscape Plan. Native seed mixes and tree species shall be selected, and native topsoil applied prior to seeding as per OPSS 802 – Construction Specification for Topsoil and OPSS 804 – Seed and Cover.</li><li>○ Considerations:<ul style="list-style-type: none"><li>▪ Design and install riparian plantings to avoid or minimize encroachment into and/or alteration of bank and bed profile.</li><li>▪ Usually includes re-instatement of native soils or replacement with topsoil/suitable planting medium.</li><li>▪ May include local seed bank or root mass/mat salvage, vegetation transplant or bioengineering (e.g., live stakes, cuttings) techniques.</li><li>▪ Use native species compatible with site conditions.</li><li>▪ Integrate provision of fish cover where feasible.</li><li>▪ Integrate appropriate techniques for interim stabilization measures such as biodegradable blanket, tackifier to maintain soil stability until vegetation becomes established.</li></ul></li></ul></li></ul> |                                                                                                                                                                                                                                                       |
| <b>Direct Fish Habitat:</b><br>WC-13 / 17X-0062/B0 | L2 - Grading            | <ul style="list-style-type: none"><li>● Alteration to bank stability/exposed soils and slope that can change landscape patterns, increase erosion potential and sediment deposition that can result in:</li></ul> | <ul style="list-style-type: none"><li>● <b>O-1 – Access</b><ul style="list-style-type: none"><li>● An Access Management Plan shall be created to prohibit or limit access to banks or areas adjacent to waterbodies, to the extent required to protect the structural integrity of banks or shorelines. This will include the following:</li></ul></li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <ul style="list-style-type: none"><li>● No negative residual effects are anticipated from grading activities provided that mitigation measures are properly implemented, monitored, and maintained throughout the duration of construction.</li></ul> |



| Waterbody/<br>Water crossing | Pathway of<br>Effect(s) | Stressor<br>(Potential Impact)                                                                                                                                            | Mitigation Measures                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Residual Effects |
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|                              |                         | <div><div>– change in habitat cover and structure;</div><div>– change in slope and land drainage patterns; and</div><div>– change in sediment concentrations.</div></div> | <div><div><div>▪ MTO's Temporary crossing BMP will be adhered to and machinery fording of the watercourse will be limited to a one-time event (i.e., over, and back), and only if no alternative crossing method is available.</div><div>▪ If repeated crossings of the watercourse are required, a temporary crossing structure shall be constructed following MTO's BMP for Temporary Watercourse Crossing</div><div>▪ Temporary crossing structures or other practices will be utilized to cross streams or waterbodies with steep and highly erodible (e.g., dominated by organic materials and silts) banks and beds.</div><div>▪ For fording equipment without a temporary crossing structure, stream bank and bed protection methods (e.g., swamp mats, pads) shall be used if minor rutting is likely to occur during fording.</div></div><div><div>• <b>D-2 – Drainage System</b></div><div><div>• Drainage systems will be designed to avoid diversion of or otherwise minimize changes in drainage to or from a waterbody. Drainage systems will not divert across watershed boundaries.</div></div><div><div>• <b>M-4 – Erosion and Sediment Controls</b></div><div><div>• Erosion and sediment controls shall be designed and implemented to contain/isolate the construction zone, manage site drainage/runoff and prevent erosion of exposed soils and migration of sediment to adjacent waterbody during all phases of the project.</div><div>• Erosion and sediment control measures shall be maintained until all disturbed ground has been permanently stabilized, suspended sediment has resettled to the bed of the waterbody, or settling basin and runoff water is clear. The plan shall, where applicable, include:<div><div>▪ Installation of effective erosion and sediment control measures before starting work to prevent sediment from entering the waterbody</div><div>▪ Regular inspection and maintenance of erosion and sediment control measures and structures during construction.</div><div>▪ Repairs to erosion and sediment control measures and structures if damage occurs.</div><div>▪ Removal of non-biodegradable erosion and sediment control materials once site is stabilized.</div></div></div></div><div><div>• <b>R-1 – Waterbody Bank</b></div><div><div>• Removal of natural woody debris, rocks, or other materials from below the banks or the shoreline of the waterbody will be minimized where possible.</div><div>• Banks will be stabilized and/or reinforced to pre-disturbance conditions (or better) using properly designed and installed stabilization measures.</div><div>• Hard engineering will be avoided where possible.</div><div>• If rock reinforcement/armouring is required, appropriately sized material will be used and installed at a similar slope to the existing, maintains a uniform bank / shoreline and maintains a natural bank / shoreline alignment such that it does not interfere with fish passage.</div><div>• Riparian and landscape planting, along with seeding will be detailed in a Landscape Plan. Native seed mixes and tree species will be selected, and native topsoil will be applied prior to seeding as per OPSS 802 – Construction Specification for Topsoil and OPSS 804 – Seed and Cover.</div></div><div><div>• <b>R-3 – Exposed Soils/ Surfaces</b></div><div><div>• An ESC Plan and Landscape Plan shall inform the stabilization and revegetation of exposed soils that drain to waterbodies using a combination of:<div><div>▪ Targeted planting of native vegetation</div><div>▪ Rolled erosion control blankets, topsoil, seed, mulch etc.</div><div>▪ Installation of appropriately designed structural materials and vegetation, if feasible on steep slopes to maintain slope stability for the long term. Direct drainage away from slopes unless structure provided to take drainage into valley without erosion and risk of sedimentation.</div></div></div></div></div></div></div></div></div> |                  |

| Waterbody/<br>Water crossing                       | Pathway of<br>Effect(s) | Stressor<br>(Potential Impact)                                                                                                                          | Mitigation Measures                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Residual Effects                                                                                                                                                                                                                                                                                                 |
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|                                                    |                         |                                                                                                                                                         | <ul style="list-style-type: none"><li>• <b>R-4 – In-stream Cover</b><ul style="list-style-type: none"><li>• Removal of natural woody debris, rocks, or other materials from below the high-water level will be minimized</li><li>• Appropriate in-stream structure and cover for habitat will be added/re-established in such a way as to not destabilize the channel through negative impacts to hydraulics. Where possible, structure/substrate type will be matched with previous or adjacent types removed, altered, or disturbed during construction<ul style="list-style-type: none"><li>▪ This may include salvage and re-instatement of existing in-stream structure such as large woody debris, boulders, or in-stream aquatic vegetation.</li></ul></li></ul></li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                  |
| <b>Direct Fish Habitat:</b><br>WC-13 / 17X-0062/B0 | L3 - Excavation         | <ul style="list-style-type: none"><li>• Change in base flow</li><li>• Change in water temperature</li><li>• Change in sediment concentrations</li></ul> | <ul style="list-style-type: none"><li>• <b>D-4 – Site Selection</b><ul style="list-style-type: none"><li>• Activities and works in the waterbody will be designed and planned such that loss or disturbance to aquatic habitat is minimized and sensitive spawning habitats are avoided</li><li>• Approaches to the waterbody will be designed and constructed in such a way that they are perpendicular to the watercourse to minimize loss or disturbance to riparian vegetation and narrow, straight channel sections will be selected to minimize requirements for piers and / or abutment fills.</li></ul></li><li>• <b>M-2 – Dewatering Discharge</b><ul style="list-style-type: none"><li>• Dewatering (or other) discharge water shall be managed and treated to prevent erosion and/or release of sediment-laden or contaminated water to the waterbody.</li><li>• Considerations:<ul style="list-style-type: none"><li>▪ Use of appropriately designed and sited temporary settling basin, filter bag, etc. such as sediment is filtered out prior to the water entering a waterbody</li><li>▪ Use of energy dissipation measures to prevent bank or bed erosion.</li></ul></li></ul></li><li>• <b>M-3 – Equipment</b><ul style="list-style-type: none"><li>• Whenever possible, machinery will be operated on land above the high-water level, on ice, or from a floating barge in a manner that minimizes disturbance to the banks and bed of the waterbody</li><li>• All equipment, vehicles and associated materials shall be operated, stored, and maintained (e.g., refuel, lubricate) in a manner that prevents the entry of any deleterious substance from entering the water</li><li>• Any part of equipment entering the water or operating on the bank shall be free of fluid leaks, invasive species and noxious weeds and externally cleaned/degreased to prevent any deleterious substance from entering the water</li></ul></li><li>• <b>M-4 – Erosion and Sediment Controls</b><ul style="list-style-type: none"><li>• Erosion and sediment controls shall be designed and implemented to contain/isolate the construction zone, manage site drainage/runoff and prevent erosion of exposed soils and migration of sediment to adjacent waterbody during all phases of the project.</li><li>• Erosion and sediment control measures shall be maintained until all disturbed ground has been permanently stabilized, suspended sediment has resettled to the bed of the waterbody, or settling basin and runoff water is clear. The plan shall, where applicable, include:<ul style="list-style-type: none"><li>▪ Installation of effective erosion and sediment control measures before starting work to prevent sediment from entering the waterbody</li><li>▪ Regular inspection and maintenance of erosion and sediment control measures and structures during construction.</li><li>▪ Repairs to erosion and sediment control measures and structures if damage occurs.</li><li>▪ Removal of non-biodegradable erosion and sediment control materials once site is stabilized.</li><li>▪ -biodegradable erosion and sediment control materials once site is stabilized.</li></ul></li></ul></li><li>• <b>M-5 – Excess Materials</b></li></ul> | <ul style="list-style-type: none"><li>• No negative residual effects are expected for construction of the new bridge abutments and removal of the existing bridge piers provided that mitigation measures are properly implemented, monitored, and maintained throughout the duration of construction.</li></ul> |

| Waterbody/<br>Water crossing | Pathway of<br>Effect(s) | Stressor<br>(Potential Impact) | Mitigation Measures                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Residual Effects |
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|                              |                         |                                | <ul style="list-style-type: none"><li>All materials used or generated (e.g. organics, soils, uprooted or cut aquatic plants, woody debris, dredging spoils, commercial logging waste, temporary stockpiles, construction waste and materials such as concrete, sheet pile, wood forms etc.) during site preparation, construction and clean-up shall be temporarily stored, handled and disposed of in a manner that prevents their entry to the waterbody, including temporarily storing and stockpiling materials a safe distance from the waterbody and stabilizing/ containing them.</li><li><b>M-6 - Fish Screens</b><ul style="list-style-type: none"><li>Fish screens will be used to avoid entrainment and impingement of fish at water intakes.</li><li>DFO's fish protection measures for design, installation, and operation of fish screens <a href="https://www.dfo-mpo.gc.ca/pnw-ppe/standards-normes/fish-screen-grillage-poisson-eng.html">https://www.dfo-mpo.gc.ca/pnw-ppe/standards-normes/fish-screen-grillage-poisson-eng.html</a> will be utilized.</li></ul></li><li><b>M-7 – Fish Transfer</b><ul style="list-style-type: none"><li>All fish shall be salvaged from within the isolated area and immediately be released as directed in the License to Collect Fish for Scientific Purposes obtained from MNR in accordance with OPSS. PROV 182 and following DFO's Interim standard: Fish capture and relocation (<a href="https://www.dfo-mpo.gc.ca/pnw-ppe/standards-normes/capture-relocation-relocalisation-eng.html">https://www.dfo-mpo.gc.ca/pnw-ppe/standards-normes/capture-relocation-relocalisation-eng.html</a>).</li></ul></li><li><b>M-9 – Spills</b><ul style="list-style-type: none"><li>A Spill Management Plan (including spill kit materials, instructions regarding their use, education of contract personnel, emergency contact numbers) will be on-site at all times for immediate implementation in event of accidental spill.</li></ul></li><li><b>M-9 – Spills</b><ul style="list-style-type: none"><li>A Spill Management Plan (including spill kit materials, instructions regarding their use, education of contract personnel, emergency contact numbers) will be on-site at all times for immediate implementation in event of accidental spill.</li></ul></li><li><b>M-10 - Temporary Flow</b><ul style="list-style-type: none"><li>Temporary in-water work zones will be isolated and designed to always maintain clean flow downstream/around the work zone. The design should:<ul style="list-style-type: none"><li>Only clean materials free of particulate matter shall be used if required for isolation measures</li><li>flow withdrawal and discharge will be managed to prevent erosion and sediment release to the waterbody</li><li>Work zones will be stabilized against the impacts of high flow events during the work period</li><li>fish will be removed from the isolated in-water work zones if necessary following DFO's interim standard: Fish capture and relocation (<a href="https://www.dfo-mpo.gc.ca/pnw-ppe/standards-normes/capture-relocation-relocalisation-eng.html">https://www.dfo-mpo.gc.ca/pnw-ppe/standards-normes/capture-relocation-relocalisation-eng.html</a>)</li></ul></li><li>DFO's standard for in-water site isolation <a href="https://www.dfo-mpo.gc.ca/pnw-ppe/standards-normes-eng.html">https://www.dfo-mpo.gc.ca/pnw-ppe/standards-normes-eng.html</a> shall been utilized.</li></ul></li><li><b>R-1 – Waterbody Bank</b><ul style="list-style-type: none"><li>Removal of natural woody debris, rocks, or other materials from below the banks or the shoreline of the waterbody will be minimized where possible.</li><li>Banks will be stabilized and/or reinforced to pre-disturbance conditions (or better) using properly designed and installed stabilization measures.</li><li>Hard engineering will be avoided where possible.</li><li>If rock reinforcement/armouring is required, appropriately sized material will be used and installed at a similar slope to the existing, maintains a uniform bank / shoreline and maintains a natural bank / shoreline alignment such that it does not interfere with fish passage.</li><li>Riparian and landscape planting, along with seeding will be detailed in a Landscape Plan. Native seed mixes and tree species will be selected, and native topsoil will be applied prior</li></ul></li></ul> |                  |



| Waterbody/<br>Water crossing                       | Pathway of<br>Effect(s)                         | Stressor<br>(Potential Impact)                                                                                                                                                                                                                                                                                                                                                                | Mitigation Measures                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Residual Effects                                                                                                                                                                                                                                                                                                               |
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|                                                    |                                                 |                                                                                                                                                                                                                                                                                                                                                                                               | <p>to seeding as per OPSS 802 – Construction Specification for Topsoil and OPSS 804 – Seed and Cover.</p> <ul style="list-style-type: none"><li>• <b>R-3 – Exposed Soils/ Surfaces</b><ul style="list-style-type: none"><li>• The ESC Plan and Landscape Plan will inform the stabilization and revegetation of exposed soils that drain to waterbodies using a combination of:<ul style="list-style-type: none"><li>▪ Targeted planting of native vegetation</li><li>▪ Rolled erosion control blankets, topsoil, seed, mulch etc.</li><li>▪ Installation of appropriately designed structural materials and vegetation, if feasible on steep slopes to maintain slope stability for the long term. Direct drainage away from slopes unless structure provided to take drainage into valley without erosion and risk of sedimentation.</li></ul></li></ul></li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                |
| <b>Direct Fish Habitat:</b><br>WC-13 / 17X-0062/B0 | W1-Placement of material or structures in water | <ul style="list-style-type: none"><li>• Changes in channel or shoreline morphology, hydraulics, aquatic macrophytes, and substrate composition can result in:<ul style="list-style-type: none"><li>– change in sediment concentrations;</li><li>– change in habitat structure and cover;</li><li>– change in food supply; and</li><li>– change in nutrient concentration.</li></ul></li></ul> | <ul style="list-style-type: none"><li>• <b>D-1 – Bridge or other in-water structures</b><ul style="list-style-type: none"><li>• Risks of constriction of flow have been reduced through structure design by widening the proposed bridge abutments beyond the high-water mark and removing the existing piers within the channel. The bridge is sited perpendicular to the watercourse, decreasing erosion potential and minimizing encroachment into watercourses and other sensitive habitat and to minimize effects to natural flow regimes.</li><li>• Additional considerations for bridges:<ul style="list-style-type: none"><li>▪ – Design deck drainage should avoid direct discharge into waterbody.</li><li>▪ – Design and construct approaches to the waterbody such that they are perpendicular to the watercourse to minimize loss or disturbance to riparian vegetation.</li><li>▪ – Consider access requirements in siting structures (e.g., need to access floodplain of deep pristine valley for construction).</li></ul></li></ul></li><li>• <b>M-10 - Temporary Flow</b><ul style="list-style-type: none"><li>• Temporary in-water work zones will be isolated and designed to always maintain clean flow downstream/around the work zone. The design should:<ul style="list-style-type: none"><li>▪ Only clean materials free of particulate matter shall be used if required for isolation measures</li><li>▪ flow withdrawal and discharge will be managed to prevent erosion and sediment release to the waterbody</li><li>▪ Work zones will be stabilized against the impacts of high flow events during the work period</li><li>▪ fish will be removed from the isolated in-water work zones if necessary following DFO's interim standard: Fish capture and relocation (<a href="https://www.dfo-mpo.gc.ca/pnw-ppe/standards-normes/capture-relocation-relocalisation-eng.html">https://www.dfo-mpo.gc.ca/pnw-ppe/standards-normes/capture-relocation-relocalisation-eng.html</a>)</li></ul></li><li>• DFO's standard for in-water site isolation <a href="https://www.dfo-mpo.gc.ca/pnw-ppe/standards-normes-eng.html">https://www.dfo-mpo.gc.ca/pnw-ppe/standards-normes-eng.html</a> shall be utilized.</li></ul></li><li>• <b>R-1 – Waterbody Bank</b><ul style="list-style-type: none"><li>• Removal of natural woody debris, rocks, or other materials from below the banks or the shoreline of the waterbody will be minimized where possible.</li><li>• Banks will be stabilized and/or reinforced to pre-disturbance conditions (or better) using properly designed and installed stabilization measures.</li><li>• Hard engineering will be avoided where possible.</li><li>• If rock reinforcement/armouring is required, appropriately sized material will be used and installed at a similar slope to the existing, maintains a uniform bank / shoreline and maintains a natural bank / shoreline alignment such that it does not interfere with fish passage.</li><li>• Riparian and landscape planting, along with seeding will be detailed in a Landscape Plan. Native seed mixes and tree species will be selected, and native topsoil will be applied prior to seeding as per OPSS 802 – Construction Specification for Topsoil and OPSS 804 – Seed and Cover.</li></ul></li></ul> | <ul style="list-style-type: none"><li>• No negative residual effects are anticipated for the placement of bank / scour protection of the bridge abutments. Rock protection has limited spatial extent (approximately 100 m<sup>2</sup>) below the high-water mark and is expected to increase habitat heterogeneity.</li></ul> |

| Waterbody/<br>Water crossing                       | Pathway of<br>Effect(s)     | Stressor<br>(Potential Impact)                                                                                                               | Mitigation Measures                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Residual Effects                                                                                                                                                                                    |
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|                                                    |                             |                                                                                                                                              | <ul style="list-style-type: none"><li>• <b>R-2 – Waterbody Bed and Substrate</b><ul style="list-style-type: none"><li>• Any portion of the waterbody bed disturbed during construction shall be restored and re-stabilized to pre-construction (or better) condition, including:<ul style="list-style-type: none"><li>▪ Restoration of the original contour and gradient</li><li>▪ Morphological elements, e.g., pools and riffles</li><li>▪ Substrates, which may include salvage and re-instatement of native materials</li></ul></li></ul></li><li>• <b>R-4 – In-stream Cover</b><ul style="list-style-type: none"><li>• Removal of natural woody debris, rocks, or other materials from below the high-water level will be minimized</li><li>• Appropriate in-stream structure and cover for habitat will be added/re-established in such a way as to not destabilize the channel through negative impacts to hydraulics. Where possible, structure/substrate type will be matched with previous or adjacent types removed, altered, or disturbed during construction<ul style="list-style-type: none"><li>▪ This may include salvage and re-instatement of existing in-stream structure such as large woody debris, boulders, or in-stream aquatic vegetation</li></ul></li></ul></li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                     |
| <b>Direct Fish Habitat:</b><br>WC-13 / 17X-0062/B0 | W6 - Fish<br>passage issues | <ul style="list-style-type: none"><li>• Change in access to habitats</li><li>• Incidental entertainment, impingement, or mortality</li></ul> | <ul style="list-style-type: none"><li>• <b>D-1 –Bridge or other in-water structures</b><ul style="list-style-type: none"><li>• Risks of constriction of flow have been reduced through structure design by widening the proposed bridge abutments beyond the high-water mark and removing the existing piers within the channel. The bridge is sited perpendicular to the watercourse, decreasing erosion potential and minimizing encroachment into watercourses and other sensitive habitat and to minimize effects to natural flow regimes.</li><li>• Additional considerations for bridges:<ul style="list-style-type: none"><li>▪ – Design deck drainage should avoid direct discharge into waterbody.</li><li>▪ – Design and construct approaches to the waterbody such that they are perpendicular to the watercourse to minimize loss or disturbance to riparian vegetation.</li><li>▪ – Consider access requirements in siting structures (e.g., need to access floodplain of deep pristine valley for construction).</li></ul></li></ul></li><li>• <b>D-3 – Fish Passage</b><ul style="list-style-type: none"><li>• Fish passage considerations have been incorporated into structure design to minimize risk for fish passing upstream or downstream of an obstruction (e.g., downstream migration diversion methods, upstream migration via fish ladders, bypass channels).</li></ul></li><li>• <b>D-5 – Stormwater Management Measures</b><ul style="list-style-type: none"><li>• Stormwater management (SWM) measures shall be incorporated into designs to manage runoff to waterbody considering discharge (e.g., velocities to avoid erosion) as well as quality (e.g., formal SWM ponds, enhanced ditches, and filtration).</li></ul></li><li>• <b>O-3 – Timing of In-water works</b><ul style="list-style-type: none"><li>• In-water works will adhere to the timing window of <b>July 16 to March 14</b> of any given year.</li><li>• Additional timing considerations:<ul style="list-style-type: none"><li>▪ Minimize duration of in-water work</li><li>▪ Conduct in-stream work during periods of low flow to allow work in water to be isolated from flows</li><li>▪ Schedule work to avoid wet, windy, and rainy periods that may increase erosion and sedimentation and allow for proper re-stabilization and re-vegetation as appropriate prior to winter.</li></ul></li></ul></li><li>• <b>M-6 - Fish Screens</b><ul style="list-style-type: none"><li>• Fish screens will be used to avoid entrainment and impingement of fish at water intakes.</li><li>• DFO’s fish protection measures for design, installation, and operation of fish screens <a href="https://www.dfo-mpo.gc.ca/pnw-ppe/codes/screen-ecran-eng.html">https://www.dfo-mpo.gc.ca/pnw-ppe/codes/screen-ecran-eng.html</a> shall be utilized.</li></ul></li><li>• <b>M-7 – Fish Transfer</b></li></ul> | <ul style="list-style-type: none"><li>• No residual effects to fish passage are anticipated as flow rates are expected to be maintained after construction of the new single-span bridge.</li></ul> |

| Waterbody/<br>Water crossing                       | Pathway of<br>Effect(s)            | Stressor<br>(Potential Impact)                                                                                                                                                                                                                       | Mitigation Measures                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Residual Effects                                                                                                                                                                                                                                                                       |
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|                                                    |                                    |                                                                                                                                                                                                                                                      | <ul style="list-style-type: none"><li>All fish shall be salvaged from within the isolated area and immediately be released as directed in the License to Collect Fish for Scientific Purposes obtained from MNR in accordance with OPSS. PROV 182 and following DFO's Interim standard: Fish capture and relocation (<a href="https://www.dfo-mpo.gc.ca/pnw-ppe/standards-normes/capture-relocation-relocalisation-eng.html">https://www.dfo-mpo.gc.ca/pnw-ppe/standards-normes/capture-relocation-relocalisation-eng.html</a>).</li><li><b>M-10 - Temporary Flow</b><ul style="list-style-type: none"><li>Temporary in-water work zones will be isolated and designed to always maintain clean flow downstream/around the work zone. The design should:<ul style="list-style-type: none"><li>Only clean materials free of particulate matter shall be used if required for isolation measures</li><li>flow withdrawal and discharge will be managed to prevent erosion and sediment release to the waterbody</li><li>Work zones will be stabilized against the impacts of high flow events during the work period</li><li>fish will be removed from the isolated in-water work zones if necessary following DFO's interim standard: Fish capture and relocation (<a href="https://www.dfo-mpo.gc.ca/pnw-ppe/standards-normes/capture-relocation-relocalisation-eng.html">https://www.dfo-mpo.gc.ca/pnw-ppe/standards-normes/capture-relocation-relocalisation-eng.html</a>)</li></ul></li><li>DFO's standard for in-water site isolation <a href="https://www.dfo-mpo.gc.ca/pnw-ppe/standards-normes-eng.html">https://www.dfo-mpo.gc.ca/pnw-ppe/standards-normes-eng.html</a> shall be utilized.</li></ul></li><li><b>M-12 – Water Flow</b><ul style="list-style-type: none"><li>Flow management (e.g., minimum flows, seasonal flow augmentation, flushing flows) for specific aquatic habitat management goals or to mitigate other effects of flow management (e.g., fish passage, fish stranding) shall be incorporated into structure design.</li></ul></li></ul>                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                        |
| <b>Direct Fish Habitat:</b><br>WC-13 / 17X-0062/B0 | W3-Organic<br>Debris<br>Management | <ul style="list-style-type: none"><li>Change in contaminant concentrations</li><li>Change in sediment concentrations</li><li>Change in habitat structure and cover</li><li>Change in nutrient concentrations</li><li>Change in food supply</li></ul> | <ul style="list-style-type: none"><li><b>R-1 – Waterbody Bank</b><ul style="list-style-type: none"><li>Removal of natural woody debris, rocks, or other materials from below the banks or the shoreline of the waterbody will be minimized where possible.</li><li>Banks will be stabilized and/or reinforced to pre-disturbance conditions (or better) using properly designed and installed stabilization measures.</li><li>Hard engineering will be avoided where possible.</li><li>If rock reinforcement/armouring is required, appropriately sized material will be used and installed at a similar slope to the existing, maintains a uniform bank / shoreline and maintains a natural bank / shoreline alignment such that it does not interfere with fish passage.</li><li>Riparian and landscape planting, along with seeding will be detailed in a Landscape Plan. Native seed mixes and tree species will be selected, and native topsoil will be applied prior to seeding as per OPSS 802 – Construction Specification for Topsoil and OPSS 804 – Seed and Cover.</li></ul></li><li><b>R-2 – Waterbody Bed and Substrate</b><ul style="list-style-type: none"><li>Any portion of the waterbody bed disturbed during construction shall be restored and re-stabilized to pre-construction (or better) condition, including:<ul style="list-style-type: none"><li>Restoration of the original contour and gradient</li><li>Morphological elements, e.g., pools and riffles</li><li>Substrates, which may include salvage and re-instatement of native materials</li></ul></li></ul></li><li><b>R-3 – Exposed Soils/ Surfaces</b><ul style="list-style-type: none"><li>An ESC Plan and Landscape Plan shall inform the stabilization and revegetation of exposed soils that drain to waterbodies using a combination of:<ul style="list-style-type: none"><li>Targeted planting of native vegetation</li><li>Rolled erosion control blankets, topsoil, seed, mulch etc.</li><li>Installation of appropriately designed structural materials and vegetation, if feasible on steep slopes to maintain slope stability for the long term. Direct drainage away from slopes unless structure provided to take drainage into valley without erosion and risk of sedimentation.</li></ul></li></ul></li></ul> | <ul style="list-style-type: none"><li>No negative residual effects are expected from removal of organic debris during construction provided that mitigation measures are properly implemented, monitored, and maintained throughout the duration of construction activities.</li></ul> |



| Waterbody/<br>Water crossing                       | Pathway of<br>Effect(s)                               | Stressor<br>(Potential Impact)                                                                                                                                                                                                                                                                                                            | Mitigation Measures                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Residual Effects                                                                                                                                                                                                                                                |
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|                                                    |                                                       |                                                                                                                                                                                                                                                                                                                                           | <ul style="list-style-type: none"><li>• <b>R-4 – In-stream Cover</b><ul style="list-style-type: none"><li>• Removal of natural woody debris, rocks, or other materials from below the high-water level shall be minimized</li><li>• Appropriate in-stream structure and cover for habitat will be added/re-established in such a way as to not destabilize the channel through negative impacts to hydraulics. Where possible, structure/substrate type will be matched with previous or adjacent types removed, altered, or disturbed during construction<ul style="list-style-type: none"><li>▪ This may include salvage and re-instatement of existing in-stream structure such as large woody debris, boulders, or in-stream aquatic vegetation</li></ul></li></ul></li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                 |
| <b>Direct Fish Habitat:</b><br>WC-13 / 17X-0062/B0 | W4-Addition or<br>Removal of<br>Aquatic<br>Vegetation | <ul style="list-style-type: none"><li>• Change in water temperature</li><li>• Change in dissolved oxygen</li><li>• Change in food supply</li><li>• Change in nutrient concentrations</li><li>• Change in habitat structure and cover</li><li>• Change in contaminant concentrations</li><li>• Change in sediment concentrations</li></ul> | <ul style="list-style-type: none"><li>• <b>M-3 – Equipment</b><ul style="list-style-type: none"><li>• Whenever possible, machinery will be operated on land above the high-water level, on ice, or from a floating barge in a manner that minimizes disturbance to the banks and bed of the waterbody</li><li>• All equipment, vehicles and associated materials shall be operated, stored, and maintained (e.g., refuel, lubricate) in a manner that prevents the entry of any deleterious substance from entering the water</li><li>• Any part of equipment entering the water or operating on the bank shall be free of fluid leaks, invasive species and noxious weeds and externally cleaned/degreased to prevent any deleterious substance from entering the water</li></ul></li><li>• <b>M-4 – Erosion and Sediment Controls</b><ul style="list-style-type: none"><li>• Erosion and sediment controls shall be designed and implemented to contain/isolate the construction zone, manage site drainage/runoff and prevent erosion of exposed soils and migration of sediment to adjacent waterbody during all phases of the project.</li><li>• Erosion and sediment control measures shall be maintained until all disturbed ground has been permanently stabilized, suspended sediment has resettled to the bed of the waterbody, or settling basin and runoff water is clear. The plan shall, where applicable, include:<ul style="list-style-type: none"><li>▪ Installation of effective erosion and sediment control measures before starting work to prevent sediment from entering the waterbody</li><li>▪ Regular inspection and maintenance of erosion and sediment control measures and structures during construction.</li><li>▪ Repairs to erosion and sediment control measures and structures if damage occurs.</li><li>▪ Removal of non-biodegradable erosion and sediment control materials once site is stabilized.</li></ul></li></ul></li><li>• <b>M-8 – In-water Turbidity Curtains or Other Appropriate Measures</b><ul style="list-style-type: none"><li>• Properly sized, anchored, and maintained in-water silt boom, turbidity curtains or other effective measures shall be used to contain suspended sediments.</li></ul></li><li>• <b>R-3 – Exposed Soils/ Surfaces</b><ul style="list-style-type: none"><li>• An ESC Plan and Landscape Plan shall inform the stabilization and revegetation of exposed soils that drain to waterbodies using a combination of:<ul style="list-style-type: none"><li>▪ Targeted planting of native vegetation</li><li>▪ Rolled erosion control blankets, topsoil, seed, mulch etc.</li><li>▪ Installation of appropriately designed structural materials and vegetation, if feasible on steep slopes to maintain slope stability for the long term. Direct drainage away from slopes unless structure provided to take drainage into valley without erosion and risk of sedimentation.</li></ul></li></ul></li><li>• <b>R-4 – In-stream Cover</b><ul style="list-style-type: none"><li>• Removal of natural woody debris, rocks, or other materials from below the high-water level will be minimized</li><li>• Appropriate in-stream structure and cover for habitat will be added/re-established in such a way as to not destabilize the channel through negative impacts to hydraulics. Where</li></ul></li></ul> | <ul style="list-style-type: none"><li>• No negative residual effect are anticipated with removal of aquatic vegetation provided that mitigation measures are properly implemented, monitored, and maintained throughout the duration of construction.</li></ul> |

| Waterbody/<br>Water crossing                       | Pathway of<br>Effect(s) | Stressor<br>(Potential Impact)                                                                                                                                                         | Mitigation Measures                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Residual Effects                                                                                                                                                                                                                                                                                                                                                                              |
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|                                                    |                         |                                                                                                                                                                                        | <div>possible, structure/substrate type will be matched with previous or adjacent types removed, altered, or disturbed during construction</div> <div><div>This may include salvage and re-instatement of existing in-stream structure such as large woody debris, boulders, or in-stream aquatic vegetation</div></div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Direct Fish Habitat:</b><br>WC-13 / 17X-0062/B0 | W7 – Structure Removal  | <div><div>Change in food supply</div><div>Change in habitat structure and cover</div><div>Change in contaminant concentrations</div><div>Change in sediment concentrations</div></div> | <div><div><b>O-1 – Access</b></div><div><div>Prohibit or limit access to banks or areas adjacent to waterbodies, to the extent required to protect the structural integrity of banks or shorelines</div><div>Limit machinery fording of the watercourse to a one-time event (i.e., over, and back), and only if no alternative crossing method is available.</div><div>If repeated crossings of the watercourse are required, construct a temporary crossing structure.</div><div>Use temporary crossing structures or other practices to cross streams or waterbodies with steep and highly erodible (e.g., dominated by organic materials and silts) banks and beds.</div><div>For fording equipment without a temporary crossing structure, use stream bank and bed protection methods (e.g., swamp mats, pads) if minor rutting is likely to occur during fording.</div></div><div><div><b>O-3 – Timing of In-water works</b></div><div><div>In-water works will adhere to the timing window of <b>July 16 to March 14</b> of any given year.</div><div>Additional timing considerations:<div><div>Minimize duration of in-water work</div><div>Conduct in-stream work during periods of low flow to allow work in water to be isolated from flows</div><div>Schedule work to avoid wet, windy, and rainy periods that may increase erosion and sedimentation and allow for proper re-stabilization and re-vegetation as appropriate prior to winter.</div></div></div></div><div><div><b>M-2 – Dewatering Discharge</b></div><div><div>Manage and treat dewatering (or other) discharge water to prevent erosion and/or release of sediment-laden or contaminated water to the waterbody.</div><div>Considerations:<div><div>Use of appropriately designed and sited temporary settling basin, filter bag, etc. such as sediment is filtered out prior to the water entering a waterbody</div><div>Use of energy dissipation measures to prevent bank or bed erosion.</div></div></div></div><div><div><b>M-4 – Erosion and Sediment Controls</b></div><div><div>Design and implement erosion and sediment controls to contain/isolate the construction zone, manage site drainage/runoff and prevent erosion of exposed soils and migration of sediment to adjacent waterbody during all phases of the project.</div><div>Erosion and sediment control measures should be maintained until all disturbed ground has been permanently stabilized, suspended sediment has resettled to the bed of the waterbody or settling basin and runoff water is clear. The plan should, where applicable, include:<div><div>Installation of effective erosion and sediment control measures before starting work to prevent sediment from entering the waterbody</div><div>Regular inspection and maintenance of erosion and sediment control measures and structures during construction.</div><div>Repairs to erosion and sediment control measures and structures if damage occurs.</div><div>Removal of non-biodegradable erosion and sediment control materials once site is stabilized.</div></div><div>all times for immediate implementation in event of accidental spill.</div></div><div><div><b>M-6 - Fish Screens</b></div><div><div>Fish screens will be used to avoid entrainment and impingement of fish at water intakes.</div></div></div></div></div></div></div></div> | <div><div>No negative residual effects are anticipated during the removal of the existing piers provided that mitigation measures are properly implemented, monitored, and maintained throughout the duration of construction.</div><div>Positive residual effects are anticipated with an increase of approximately 60 m<sup>2</sup> of fish habitat after removal of the piers.</div></div> |

| Waterbody/<br>Water crossing | Pathway of<br>Effect(s) | Stressor<br>(Potential Impact) | Mitigation Measures                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Residual Effects |
|------------------------------|-------------------------|--------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
|                              |                         |                                | <ul style="list-style-type: none"><li>DFO's fish protection measures for design, installation, and operation of fish screens <a href="https://www.dfo-mpo.gc.ca/pnw-ppe/codes/screen-ecran-eng.html">https://www.dfo-mpo.gc.ca/pnw-ppe/codes/screen-ecran-eng.html</a> shall be utilized.</li><li><b>M-7 – Fish Transfer</b><ul style="list-style-type: none"><li>All fish shall be salvaged from within the isolated area and immediately be released as directed in the License to Collect Fish for Scientific Purposes obtained from MNR in accordance with OPSS. PROV 182 and following DFO's Interim standard: Fish capture and relocation (<a href="https://www.dfo-mpo.gc.ca/pnw-ppe/standards-normes/capture-relocation-relocalisation-eng.html">https://www.dfo-mpo.gc.ca/pnw-ppe/standards-normes/capture-relocation-relocalisation-eng.html</a>).</li></ul></li><li><b>M-8 – In-water Turbidity Curtains or Other Appropriate Measures</b><ul style="list-style-type: none"><li>Properly sized, anchored, and maintained in-water silt boom, turbidity curtains or other effective measures shall be used to contain suspended sediments.</li></ul></li><li><b>M-10 - Temporary Flow</b><ul style="list-style-type: none"><li>Temporary in-water work zones will be isolated and designed to always maintain clean flow downstream/around the work zone. The design should:<ul style="list-style-type: none"><li>Only clean materials free of particulate matter shall be used if required for isolation measures</li><li>flow withdrawal and discharge will be managed to prevent erosion and sediment release to the waterbody</li><li>Work zones will be stabilized against the impacts of high flow events during the work period</li><li>fish will be removed from the isolated in-water work zones if necessary following DFO's interim standard: Fish capture and relocation (<a href="https://www.dfo-mpo.gc.ca/pnw-ppe/standards-normes/capture-relocation-relocalisation-eng.html">https://www.dfo-mpo.gc.ca/pnw-ppe/standards-normes/capture-relocation-relocalisation-eng.html</a>)</li></ul></li><li>DFO's standard for in-water site isolation <a href="https://www.dfo-mpo.gc.ca/pnw-ppe/standards-normes-eng.html">https://www.dfo-mpo.gc.ca/pnw-ppe/standards-normes-eng.html</a> shall be utilized.</li></ul></li><li><b>M-13 – Work Containment</b><ul style="list-style-type: none"><li>Design and implement containment plan to isolate all work occurring above water and keep all deleterious substances (e.g. dust, particulates, air-borne contaminants, paint, grout, poured concrete etc.) from entering the waterbody.</li><li>The design should include:<ul style="list-style-type: none"><li>Regular inspection, removal and disposal of materials generated.</li><li>Use of in-water scaffolding, floating platforms and/or barges where appropriate.</li></ul></li></ul></li><li><b>R-1 – Waterbody Bank</b><ul style="list-style-type: none"><li>Minimize the removal of natural woody debris, rocks, or other materials from below the banks or the shoreline of the waterbody</li><li>Stabilize and reinforce banks of waterbody to pre-disturbance condition (or better) using properly designed and installed stabilization measures:<ul style="list-style-type: none"><li>Avoid hard engineering (sheet pile or other vertical walls)</li><li>May include vegetation (e.g., tree and shrub plantings, bioengineering), rock/stone material (e.g., riprap, boulders).</li><li>If rock reinforcement/armouring is required, ensure that appropriately sized material is used and is installed at a similar slope to the existing, maintains a uniform bank/shoreline and maintains a natural bank/shoreline alignment such that it does not interfere with fish passage or alter the bankfull channel profile.</li><li>May incorporate temporary measures (e.g., biodegradable materials, 'nurse'-crop vegetation) to provide interim stabilization until vegetation is fully established</li></ul></li></ul></li><li><b>R-2 – Waterbody Bed and Substrate</b><ul style="list-style-type: none"><li>Restore and re-stabilize any portion of the waterbody bed disturbed during construction to pre-construction (or better) condition, including:<ul style="list-style-type: none"><li>Restoration of the original contour and gradient</li><li>Morphological elements, e.g., pools and riffles</li></ul></li></ul></li></ul> |                  |

| Waterbody/<br>Water crossing | Pathway of<br>Effect(s) | Stressor<br>(Potential Impact) | Mitigation Measures                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Residual Effects |
|------------------------------|-------------------------|--------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
|                              |                         |                                | <ul style="list-style-type: none"><li>▪ Substrates, which may include salvage and re-instatement of native materials</li><li>• <b>R-5 – Riparian Vegetation Plantings</b><ul style="list-style-type: none"><li>○ Design and implement vegetation rehabilitation plan following construction to replant riparian vegetation to pre-construction or better condition (e.g., trees for shade to cool water and provide overhead cover).</li><li>○ Considerations:<ul style="list-style-type: none"><li>▪ Design and install riparian plantings to avoid or minimize encroachment into and/or alteration of bank and bed profile.</li><li>▪ Usually includes re-instatement of native soils or replacement with topsoil/suitable planting medium.</li><li>▪ May include local seed bank or root mass/mat salvage, vegetation transplant or bioengineering (e.g., live stakes, cuttings) techniques.</li><li>▪ Use native species compatible with site conditions.</li><li>▪ Integrate provision o fish cover where feasible.</li></ul></li></ul></li><li>• Integrate appropriate techniques for interim stabilization measures such as biodegradable blanket, tackifier to maintain soil stability until vegetation becomes established.</li></ul> |                  |



# Appendix **H**

## **Fish and Fish Habitat Impact Documentation**



## TEMPLATE D4: FISH AND FISH HABITAT IMPACT DOCUMENTATION

| MTO Work Project No.                                 | Project Title                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Waterbody Name                           |
|------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|
| WP 4039-19-01                                        | Highway 401 / Napanee River Bridge Improvements Preliminary Design and Class Environmental Assessment Study                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Napanee River<br>Napanee River watershed |
| Fisheries Assessment Specialist                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Date                                     |
| Katie Easterling                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | June 8, 2026.                            |
| PROPOSED WORKS, ENVIRONMENTAL AND MANAGEMENT CONTEXT |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                          |
| <b>Proposed Works</b>                                | <p>The Project Study Area includes Highway 401 from 350 metres (m) east of County Road 1 East to 1 kilometre (km) east of Palace Road (County Road 5) for a total length of approximately 2.5 km. As the Palace Road Interchange Technically Preferred Plan advances to the detail design stage, advancement of the Napanee River Bridge (Site 17X-0062/B0) from the current Highway 401 Improvements between the City of Belleville and the City of Kingston (Study 2 [GWP 4016-21-00]) project is required due to its proximity to the Palace Road interchange. This Project will address current and future transportation needs by developing a plan for the replacement of one bridge, develop detail design for the Palace Road interchange, and establish the future footprint for an interim six lanes and ultimate eight lanes of Highway 401. The following proposed works may impact fish habitat:</p> <ul style="list-style-type: none"> <li>■ Replacement of the Napanee River Bridge</li> <li>■ Removal of 4 culverts</li> <li>■ Drainage ditch realignment and new culvert installation</li> </ul> |                                          |
| <b>Fish and Fish Habitat</b>                         | <ul style="list-style-type: none"> <li>■ All watercourses where work is proposed have a warmwater thermal regime.</li> <li>■ MNR fish community records and field surveys found a fish community comprised of baitfish and sportfish including species such as Bluntnose Minnow, Brook Silverside, Chinook Salmon, Golden Shiner, Johnny Darter, Largemouth Bass, and Northern Pike.</li> <li>■ Habitat features within the assessed area were generally non-limiting throughout.</li> <li>■ No SAR or critical habitat features were observed during field investigations.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                          |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Fish Passage</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <p>Removal of the existing piers and associated isolation measures may temporarily affect fish passage, resulting in low impacts over the construction period. These effects are expected to be short-term in duration and limited to active in-water work.</p> <p>Following construction, the replacement of the existing structure with a single-span bridge is expected to maintain existing hydraulic conditions and flow rates, thereby minimizing long-term impacts to fish passage.</p> <p>No significant permanent barriers to fish passage were identified within or surrounding the Study Area. However, seasonal low flow barriers were observed throughout the Study Area.</p> |
| <b>Fisheries Management Objectives (FMO)/In-Water Work Timing Window</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <p>No FMOs were identified for the watercourses within the Study Area. Response from MNR was received on July 6, 2026, confirming that in-water work is permitted for all crossings from July 16 to March 14.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>RESIDUAL EFFECTS</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <p><b>Are there any positive/neutral residual effects? YES <input checked="" type="checkbox"/> NO <input type="checkbox"/></b></p> <p>If yes, list all the positive/neutral residual effects findings from Template D3 Aquatic Effects Assessment Table for the waterbody(ies) here. Please describe why the resulting effects are anticipated to be positive or neutral.</p>                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <p><b>Positive/neutral residual effects:</b></p> <ul style="list-style-type: none"> <li>■ Positive residual effects are anticipated with an increase of approximately 60 m<sup>2</sup> of fish habitat after removal of the piers.</li> <li>■ Neutral residual effects are anticipated where rock protection will be installed with a limited spatial extent (approximately 100 m<sup>2</sup>) below the high-water mark and is expected to increase habitat heterogeneity.</li> <li>■ Neutral residual effects are anticipated where riparian vegetation removals (approximately 453 m<sup>2</sup>) will be limited to the footprint of the new bridge and consists primarily of maintained (mowed) grass within the existing right-of-way.</li> </ul> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <p><b>Assessment of negative residual effects:</b> List all the negative residual effects findings from Template D3 Aquatic Effects Assessment Table for the waterbody(ies) here (add additional rows as necessary)</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

**Assessment of negative residual effects:** List all the negative residual effects findings from Template D3 Aquatic Effects Assessment Table for the waterbody(ies) here (add additional rows as necessary)

1. N/A

2.

**Spatial Scale**

N/A

**Duration**

N/A

**Intensity**

N/A

**DOCUMENTATION OF FISH AND FISH HABITAT IMPACT - Rationale and Conclusions**

Considering that the severity (spatial scale, duration, intensity) of all negative residual effects, taken together, are used to determine death of fish or HADD of fish habitat, provide a brief rationale for why death of fish and/or HADD of fish habitat is or is not likely to occur by addressing the following questions below:

**1.0 Will the project result in the death of fish?**

All in-water works are to follow the appropriate BMPs for working in-water, including that all works are to be completed in the dry and that a fish salvage shall occur prior to any in-water work.

**YES**

☐

**NO**

☒



|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                |                                                          |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|----------------------------------------------------------|
| <p><b>2.0 Will the project result in harmful alteration, disruption, or destruction of fish habitat?</b></p> <p>The placement of approximately 100 m<sup>2</sup> of rock protection below the 2-year HWM, along with the removal of approximately 453 m<sup>2</sup> of riparian vegetation to accommodate the new bridge, will result in localized and permanent habitat alteration resulting from placement of the rock protection and destruction of riparian habitat. The effects are limited in scale and magnitude, and occur within a reach characterized by abundant, non-limiting instream habitat and low-quality riparian cover dominated by maintained grasses. As such, the affected features are not limited within the systems and do not support critical life stages for sensitive fish species. Additionally, there will be a temporary disruption of fish habitat for the removal of the existing piers which will result in a gain of approximately 60 m<sup>2</sup> of fish habitat. Therefore, these changes are not expected to result in a HADD of fish habitat.</p> | <p><b>YES</b><br/><input type="checkbox"/></p> | <p><b>NO</b><br/><input checked="" type="checkbox"/></p> |
| <p><b>Fisheries Assessment Specialist Recommendation:</b></p> <p><b>Check one of the boxes based on the summary of findings.</b></p> <p><input checked="" type="checkbox"/> Proceed with project with identified mitigation measures and complete MTO Project Notification Package (death of fish and/or HADD of fish habitat not likely)</p> <p><input type="checkbox"/> Recommendation to send project for review by DFO (death of fish and/or HADD of fish habitat likely or unknown)</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                |                                                          |
| <p><b>MTO Review of the Fisheries Assessment Specialist's Recommendation (to be completed by MTO):</b></p> <p>[All projects identified by the fisheries assessment specialist as likely to result in the death of fish or HADD of fish habitat require a review by MTO prior to completion of any forms or submission to DFO. Only once advised by MTO should the fisheries assessment specialist complete a DFO Request for Review Form to submit to MTO for signature and submission to DFO.]</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                |                                                          |

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# Appendix C

## Terrestrial Existing Conditions and Impact Assessment





# Terrestrial Ecosystems Existing Conditions and Impact Assessment Report

Highway 401 / Napanee River Bridge Improvements Preliminary Design and Class  
Environmental Assessment Study (WP 4039-19-01)

Ontario Ministry of Transportation

60734357

September 2026



## Statement of Qualifications and Limitations

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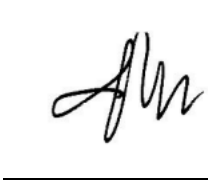
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Figure 1-1: Project Key Plan



# 1. Project Overview

## 1.1 Project Description

In 2024 the Ontario Ministry of Transportation of (MTO) initiated two Planning, Preliminary Design and Class Environmental Assessment (Class EA) Studies, Group B, to address current and future transportation needs by developing a plan for the rehabilitation and/or replacement of various bridges and culverts, determining the long-term interchange configuration at seven locations, and establishing the footprint for the interim six and ultimate eight lanes of Highway 401, between the City of Belleville and the City of Kingston. Study #1 (GWP 4022-21-00) includes Highway 401 from 4.3 km east of Highway 37 to 5 km west of County Road 41/Centre Street for a total length of approximately 26 km. Study #2 (GWP 4016-21-00) includes Highway 401 from 5 km west of County Road 41/Centre Street to 8 km west of Kingston Road 38 for a total length of approximately 29 km ("Study #2 Project").

As part of the Study #2 Project, the previously approved Palace Road Interchange Technically Preferred Plan (TPP), as documented in the *Highway 401 Interchange Improvements at Palace Road Class Environmental Assessment and Preliminary Design Study Transportation Environmental Study Report (March 2019)*, was revisited to assess compatibility with an interim and ultimate footprint of Highway 401, as well as to accommodate a potential 130 km/h design speed. Based on this review, no significant modifications to the previously approved configuration were recommended. However, as the Palace Road Interchange TPP is now moving forward to Detail Design, advancement of the Napanee River Bridge (Site 17X-0062/B0) improvements from the Study #2 Project is required due to its proximity to Palace Road. As such, the improvements to the Napanee River Bridge are being advanced as a separate Preliminary Design and Class EA Study (WP 4039-19-01) ("the Project") that will include standalone environmental reports and ultimately, documentation in a separate Transportation Environmental Study Report (TESR). The key plan for the subject Napanee River Bridge Improvements Preliminary Design (PD) and Class EA Study, Group B, (WP 4039-19-01) is illustrated in **Figure 1-1** below.

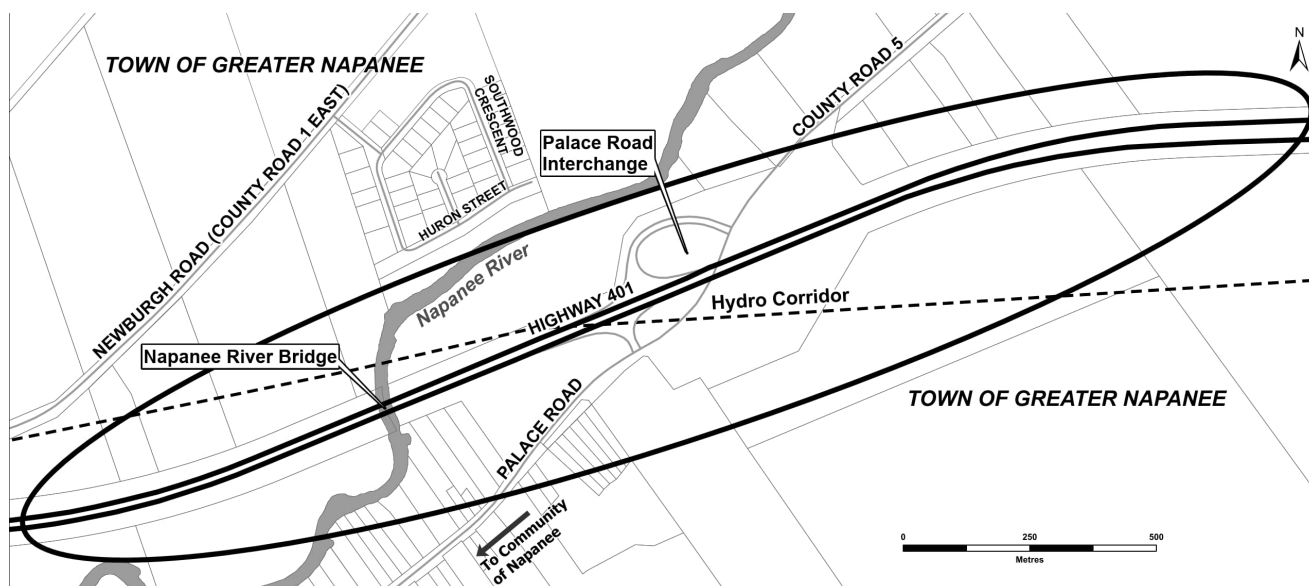


**Figure 1-1: Project Key Plan**

This report has been prepared to identify the terrestrial existing conditions and impacts associated with the Napanee River Bridge Improvements Preliminary Design and Class EA Study (WP 4039-19-01) in accordance

with the *Environmental Reference for Highway Design* (ERHD; MTO, 2013). A separate report will be prepared to address the improvements associated with the larger Study #2 Project. The aquatic existing conditions and impacts are documented in the *Fish and Fish Habitat Existing Conditions and Impact Assessment Highway 401 / Napanee River Bridge Improvements Preliminary Design and Class Environmental Assessment Study (WP 4039-19-01)* (AECOM, 2026a).

The advancement of the current Napanee River Bridge Improvements Preliminary Design and Class EA Study is intended to accommodate 8 lanes along Highway 401 and consider profile refinements to meet environmental, drainage and fluvial geomorphological requirements. While the bridge will accommodate the future 8 lanes along Highway 401 there is no timing for this widening improvement and therefore the bridge construction will consider an interim tie-in to the existing Highway 401 with consideration for 6 lanes in the future for the section stretching from west of the Napanee River Bridge to east of Palace Road.

## 1.2 Project Works

Improvements at the Napanee River Bridge Site (17X-0062/B0) generally include the following which will be reviewed and confirmed during Detail Design prior to construction:

- Highway widening to accommodate interim six lanes to ultimate eight lanes of traffic;
- Full removal of the existing Napanee River bridge, including existing piers. Replacement with a wider, single-span bridge supported by east and west abutments with a span of 44.0 m set approximately at the waters edge based on the 2-year high-water mark (HWM). Rock slope protection installed along the embankments to mitigate erosion and maintain channel stability.
- Consider profile refinements to meet environmental, drainage and fluvial geomorphology requirements.

## 1.3 Study Area

The Study Area includes a 120 metre (m) area around the Project Limits to allow for the identification of Natural Heritage Features on adjacent Lands as defined by the *Natural Heritage Reference Manual* (NHRM; Ministry of Natural Resources [MNR], 2010). The Study Area is shown on **Figure A1** in **Appendix A**. The Study Area falls within the Town of Greater Napanee and County of Lennox and Addington.

## 2. Environmental Protection Requirements

Current legislation and policies relevant to terrestrial ecosystems within the Study Area are outlined in **Table 2-1** below.

**Table 2-1: Applicable Legislation and Policies Relevant to Terrestrial Ecosystems**

| Level of Government | Legislation                                                                                   | Governing Authority                          | Relevant Information                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|---------------------|-----------------------------------------------------------------------------------------------|----------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Federal</b>      | <i>Migratory Birds Convention Act, 1994</i> (MBCA)<br>Migratory Birds Regulations, 2022 (MBR) | Environment and Climate Change Canada (ECCC) | <ul style="list-style-type: none"> <li>Prohibits the possession, destruction, and harm of migratory birds and/or their active nests.</li> <li>The nests of all migratory species are protected when they contain a live bird or a viable egg.</li> <li>Eighteen species listed on Schedule 1 of the 2022 Migratory Birds Regulation (MBR) that have high site fidelity and reuse their nests from year to year receive year-round protection. Of these, five are documented nesting in Ontario (Cadman et al., 2007) including: Great Egret (<i>Ardea alba</i>), Great Blue Heron (<i>Ardea herodias</i>), Green Heron (<i>Butorides virescens</i>), Black-crowned Night Heron (<i>Nycticorax nycticorax</i>) and Pileated Woodpecker (<i>Dryocopus pileatus</i>).</li> <li>Registration under the Abandoned Nest Registry (ECCC, 2025) and permits are required to remove potential or confirmed nests of these 18 species under Schedule 1 of the MBR, 2022 if removal is required before the end of designated wait periods for each respective species to confirm use of nest.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Federal</b>      | <i>Species at Risk Act, 2002</i> (SARA)                                                       | ECCC                                         | <ul style="list-style-type: none"> <li>SARA is federal legislation that protect species listed as Extirpated, Endangered, or Threatened under Schedule 1. It prohibits the killing, harming, harassing, or capturing of listed individuals (Section 32), and the damage or destruction of their residences (Section 33), where applicable.</li> <li>For species in Ontario, these prohibitions apply as follows: <ul style="list-style-type: none"> <li>On federal lands only (e.g., National Parks, DND lands, First Nations reserves), for most species;</li> <li>On all lands in Canada for species that are either: <ul style="list-style-type: none"> <li>MBCA protected birds listed on Schedule 1 of SARA, or</li> <li>Aquatic species, as defined under SARA.</li> </ul> </li> </ul> </li> <li>Residence protection (Section 33) applies during periods of active use (e.g., nesting, denning) and may extend year-round if the residence (e.g., nest cavity, hibernaculum) is likely to be reused — but this protection only applies off federal lands for migratory birds listed on Schedule 1 of SARA or aquatic species.</li> <li>Critical habitat identified in a recovery strategy is protected: <ul style="list-style-type: none"> <li>Automatically on federal lands;</li> <li>On non-federal lands only if a ministerial protection order is issued under Section 58(5).</li> </ul> </li> <li>A SARA permit may be required if project activities could affect listed species, their residences, or critical habitat where SARA applies. Recovery strategies and residence descriptions are published on the Species at Risk Public Registry.</li> <li>For the purposes of this report, migratory bird species listed under Schedule 1 of SARA but not listed on the Protected Species in Ontario List (PSO) under the Ontario <i>Species Conservation Act, 2025</i> (SCA) are considered Species at Risk (SAR).</li> </ul> |

| Level of Government | Legislation                                                                    | Governing Authority                                        | Relevant Information                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|---------------------|--------------------------------------------------------------------------------|------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Provincial          | <i>Species Conservation Act, 2025</i> (SCA)                                    | Ministry of the Environment, Conservation and Parks (MECP) | <ul style="list-style-type: none"> <li>In June 2025, the Province of Ontario enacted Bill 5, the <i>Protecting Ontario by Unleashing our Economy Act, 2025</i>, which laid the groundwork for the SCA. The SCA came into force March 30, 2026, and repealed the <i>Endangered Species Act, 2007</i> (ESA).</li> <li>The SCA establishes a revised legal framework for the protection and recovery of Threatened and Endangered species, including a more streamlined, registration-first approach that allows proponents to proceed with eligible activities by meeting prescribed rules and standards, while maintaining baseline environmental safeguards.</li> <li>The Act prohibits the killing, harming, capture, or possession of species listed on the Protected Species of Ontario (PSO) List, except where activities are authorized through regulation, registration, or permits.</li> <li>For this report, species listed as Threatened and Endangered on the PSO are considered Species at Risk (SAR). Special Concern species identified by Committee on the Status of Species at Risk in Ontario (COSSARO) are considered Species of Conservation Concern (SOCC); these species are not afforded protection under the SCA; however, habitat for these species are considered Significant Wildlife Habitat (SWH).</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Provincial          | <i>Planning Act, 1990</i> and <i>Provincial Planning Statement, 2024</i> (PPS) | Ministry of Municipal Affairs and Housing                  | <ul style="list-style-type: none"> <li>The PPS, 2024 came into effect on October 20, 2024, under the authority of section 3 of the <i>Planning Act</i>. The PPS, 2024 replaces both the PPS, 2020 and A Place to Grow: Growth Plan for the Greater Golden Horseshow, 2019 policy documents.</li> <li>The PPS provides municipalities with a policy framework to plan and support the development of housing while also supporting a competitive economy, protecting agricultural lands and the environment, and fostering the long-term viability of rural areas.</li> <li>The PPS identifies the following types of natural heritage features and areas to be protected for the long term. <ul style="list-style-type: none"> <li>Significant wetlands in Ecoregions 5E, 6E, 7E and in the Canadian Shield north of Ecoregions 5E, 6E, and 7E</li> <li>Significant coastal wetlands</li> <li>Significant woodlands in Ecoregions 6E and 7E (excluding islands in Lake Huron and St. Marys River)</li> <li>Significant valley lands in Ecoregions 6E and 7E (excluding islands in Lake Huron and St. Marys River)</li> <li>SWH, including habitat of SOCC</li> <li>Significant Areas of Natural and Scientific Interest (ANSI)</li> <li>Significant habitat of Endangered or Threatened species</li> <li>Fish habitat</li> </ul> </li> <li>Policies in the PPS are used to guide decision-making in land use planning. Under the PPS, development and site alteration are prohibited in significant wetlands and in significant coastal wetlands in Ecoregion 5E, 6E, and 7E. In addition, development and site alteration are not permitted in the remaining natural heritage features or on adjacent lands unless it can be shown that there will be no negative impact on the natural features or their ecological functions or permits or approvals are obtained under other provincial or federal regulations and legislations as appropriate. Of note, development does not include activities that create or maintain infrastructure, such as transit and transportation corridors, authorized under an environmental assessment process.</li> </ul> |

| Level of Government | Legislation                                     | Governing Authority                             | Relevant Information                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|---------------------|-------------------------------------------------|-------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Provincial          | <i>Invasive Species Act, 2015</i>               | Ontario Ministry of Natural Resources (MNR)     | <ul style="list-style-type: none"> <li>■ The <i>Invasive Species Act, 2015</i> regulates the prevention and management of invasive species in Ontario to prevent and control invasive species. There are two classes of invasive species regulated under the <i>Act</i>: <ul style="list-style-type: none"> <li>• Prohibited: It is illegal to import, possess, transport, or release these species anywhere in Ontario, and,</li> <li>• Restricted: It is illegal to bring them into provincial parks or conservation reserves and illegal to release them anywhere in Ontario. These include European Reed/Phragmites (<i>Phragmites australis ssp. Australis</i>), Dog-strangling Vine (<i>Vincetoxicum rossicum</i>) and Japanese Knotweed (<i>Fallopia japonica</i>).</li> </ul> </li> </ul> |
| Provincial          | <i>Weed Control Act, 1990</i>                   | Ministry of Agriculture, Food and Rural Affairs | <ul style="list-style-type: none"> <li>■ The <i>Weed Control Act, 1990</i> regulates the designation and management of noxious (harmful, destructive) weeds in Ontario. There are currently 25 species listed as noxious weeds in Ontario, including but not limited to invasive species such as Dog-strangling Vine, Common Buckthorn (<i>Rhamnus cathartica</i>), Giant Hogweed (<i>Heracleum mantegazzianum</i>) and Wild Parsnip (<i>Pastinaca sativa</i>).</li> </ul>                                                                                                                                                                                                                                                                                                                        |
| Provincial          | <i>Fish and Wildlife Conservation Act, 1997</i> | MNR                                             | <ul style="list-style-type: none"> <li>■ Provides protection and regulation (e.g., ownership and possession, sale facilities, administrative, import/export, transportation, habitat) for wildlife in Ontario.</li> <li>■ Includes protection for raptors and other bird species not protected under MBCA. Nests of these bird species can only be removed if a permit is obtained from MNR.</li> <li>■ Includes protection for dens of furbearing mammals (excluding fox and skunk) and beaver dams. Dens and beaver dams may only be damaged or destroyed if a person holds a license to trap furbearing mammals.</li> </ul>                                                                                                                                                                    |

### 3. Methods

Characterization of terrestrial ecosystem conditions was based on a combination of background desktop review and field investigations.

#### 3.1 Background Information Review

A desktop background review was completed to obtain information on known natural heritage features and species records including Species at Risk (SAR) and Species of Conservation Concern (SOCC) within the Study Area. Background information was obtained from the following secondary sources listed below.

- Ministry of Natural Resources (MNR) Natural Heritage Information Centre (NHIC) Make-a-Map feature (2026a) and MNR's Geospatial Ontario (GEO) Geohub database (2026b) for:
  - Natural Heritage features (e.g., Areas of Natural and Scientific Interest [ANSIs], wooded areas, Provincially Significant Wetlands [PSWs], locally significant wetland / unevaluated wetlands, provincial parks);
  - Wildlife habitats;
  - Aerial photography; and
  - NHIC provincially tracked species.
- Wildlife atlases and other online databases:
  - Ontario Reptile and Amphibian Atlas (ORAA; Ontario Nature, 2023);
  - Ontario Breeding Bird Atlas (OBBA; Birds Canada, 2026a);
  - Ontario Butterfly Atlas (OBA; Toronto Entomologists' Association [TEA], 2023);
  - Ontario Moth Atlas (OMA; TEA, 2026)
  - iNaturalist (2026);
  - eBird (eBird, 2026);
  - Bat Conservation International (BCI) Species Profiles and Range Maps (BCI, 2026);
  - Important Bird Areas Canada (Birds Canada, 2026b); and
  - Atlas of the Mammals of Ontario (Dobbyn, 1994).
- Planning Documents and Guidelines:
  - *Natural Heritage Reference Manual* (NHRM; MNR, 2010);
  - Protected Species in Ontario List (PSO) under the *Species Conservation Act* (SCA), 2025 (Ministry of the Environment, Conservation and Parks [MECP], 2026);
  - Species at Risk Act (SARA) Public Registry (Environment and Climate Change Canada [ECCC], 2026);
  - *Significant Wildlife Habitat (SWH) Technical Guide* (MNR, 2000);
  - *SWH Mitigation Support Tool* (MNR, 2014);
  - *SWH Criteria Schedules for Ecoregion 6E* (MNRF, 2015)
  - *County of Lennox and Addington Official Plan* (County of Lennox and Addington, 2018); and
  - *Town of Greater Napanee Official Plan* (Town of Greater Napanee, 2024).
- Previous reports applicable to the Study Area:
  - Highway 401 Interchange Improvements at Palace Road Class Environmental Assessment and Preliminary Design Study Transportation Environmental Study Report (March 2019).



- *Terrestrial Ecosystems Existing Conditions and Impact Assessment Report – Highway 401 Interchange Improvements at Palace Road (GWP 4197-13-00)* (AECOM, 2016); and
- *Draft Terrestrial Ecosystems Existing Conditions and Impact Assessment Report – Highway 401 Improvements Between City of Belleville to City of Kingston – Study 2 (GWP-4016-21-00)* (AECOM, 2026b).

## 3.2 Field Investigations

Field investigations have previously been completed within the Study Area, with the majority of work undertaken as part of the larger Study #2 Project (GWP 4016-21-00), as the Napanee River Bridge is located within that project's limits. However, given that the Napanee River Bridge Improvements PD and Class EA Study is being expedited, the findings have been synthesized and presented in this Report, separate from the reporting prepared for the Study #2 Project.

This Report also relies on a synthesis and review of existing data collected through prior field investigations completed at Palace Road, documented in the *Terrestrial Ecosystems Existing Conditions and Impact Assessment Report – Highway 401 Interchange Improvements at Palace Road (GWP 4197-13-00)* (AECOM, 2016).

**Table 3-1** provides an overview of the field investigation dates for the Study Area.

**Table 3-1: Field Investigation Dates**

| Field Investigation                                                                                                                        | Associated Project                         | Survey Dates                                |
|--------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|---------------------------------------------|
| ■ Ecological Land Classification and Botanical Plant Inventory                                                                             | ■ GWP 4197-13-00                           | ■ 2016                                      |
|                                                                                                                                            | ■ Napanee River Bridge                     | ■ July 14 – July 18, 2025                   |
| ■ Invasive Species and Noxious Weeds Mapping                                                                                               | ■ Napanee River Bridge                     | ■ July 14 – July 18, 2025                   |
| ■ Incidental Wildlife Observations, including incidental observations of Schedule 1 birds under the Migratory Bird Regulations (MBR, 2022) | ■ GWP 4197-13-00<br>■ Napanee River Bridge | ■ Concurrently with all dates listed above. |
| ■ Species at Risk Habitat Assessment                                                                                                       | ■ GWP 4197-13-00<br>■ Napanee River Bridge | ■ Concurrently with all dates listed above  |
| ■ Significant Wildlife Habitat Assessment                                                                                                  | ■ GWP 4197-13-00<br>■ Napanee River Bridge | ■ Concurrently with all dates listed above  |

The following sections describe the field investigation methods applied within the Study Area. Methods for Ecological Land Classification (ELC), plant inventories, and incidental wildlife observations were generally consistent across both projects, with primary methods derived from GWP 4016-21-00 (AECOM, 2026b).

### 3.2.1 Ecological Land Classification and Plant Inventory

Vegetation communities within the Study Area were delineated and classified in accordance with the ELC system for southern Ontario (Lee et al., 1998). This protocol is a standardized framework for mapping different ecosystems and uses a series of six nested levels (Site Region, System, Community Class, Community Series, Ecosite and Vegetation Type) to describe the ecological form and function of a vegetation community in a spatial



context, from largest to smallest scale. Vascular plant species lists were compiled for each assessed vegetation community.

### 3.2.1.1 Community Sensitivity

Vegetation community sensitivity was based on the calculation of the Mean Coefficient of Conservatism and the Floristic Quality Index for all vegetation communities present in the Study Area. These parameters are intended to be used together to assign an ecological community's sensitivity ranking based on plant species composition. The ranking is not intended to measure the overall value of a community but rather reflects the community's sensitivity to disturbance based on the grouping of plants present within the community.

#### Coefficient of Conservatism:

These values range from 0 (low) to 10 (high) and are based on species tolerance of disturbance and fidelity to a specific habitat. Vegetation species and community sensitivity were assessed through the application of Coefficient of Conservatism values, assigned to each native species in southern Ontario (Oldham et al., 1995). The occurrence of species with a Coefficient of Conservatism of 9 or 10 can be good indicators of undisturbed conditions such as mature forests, fens or bogs. General habitat values associated with the Coefficient of Conservatism values are:

- 0 to 3: species found in a wide variety of communities, including disturbed sites;
- 4 to 6: species associated with a specific community, but tolerate moderate disturbance;
- 7 to 8: species associated with a community in an advanced successional stage, tolerant of minor disturbances; and
- 9 to 10: species with a high degree of fidelity to a narrow range of synecological parameters.

#### Floristic Quality Index (FQI):

The FQI of an area is reflected in the mean value of Coefficient of Conservatism. For example, an old field or vegetation along a highway would tend to have a low mean Coefficient of Conservatism; these habitats are dominated by opportunistic species that occur in a wide range of site conditions and are tolerant of disturbance. A bog, prairie or intact forest would have a higher value, reflecting many species' specific habitat requirements and a generally undisturbed condition. A community with a FQI between 1 to 19 will be considered to be of low vegetative quality; communities with a FQI between 20 to 35 will be considered to have a high vegetative quality and communities with a FQI above 35 will be considered of "Natural Area" Quality.

### 3.2.1.2 Invasive Species and Noxious Weeds Mapping

For the purposes of data collection, invasive species and noxious weeds were defined as those listed under the *Invasive Species Act, 2015* and those defined by Ontario Regulation (O. Reg.) 248/14 of the Ontario's *Weed Control Act, 1990*. Locations of Restricted invasive species and noxious weeds were mapped when noted incidentally or during ELC investigations. Additionally, invasive species and noxious weeds were listed in the plant inventory of the vegetation community in which they were found. Locations of European Reed (*Phragmites australis* ssp. *australis*) or Phragmites were mapped as point observations for small stands and as polygon observations for larger stands. Mapping of Phragmites was limited to within the MTO Right of Way (ROW) or where Permission to Enter (PTE) was granted.

### 3.2.2 Incidental Wildlife Observations

Incidental wildlife observations as well as the identification of preferred wildlife habitat conditions were documented during the field investigations conducted by AECOM ecologists. Incidental wildlife observations included wildlife species sightings, tracks, scat, as well as any other wildlife activity. Furthermore, SAR or their habitat and SWH features were recorded if incidentally observed during all field investigations.

#### 3.2.2.1 Schedule 1 Migratory Birds

As of 2022, the nest of species listed on Schedule 1 of the 2022 *Migratory Birds Regulation* (MBR; see **Table 2-1**) are protected year-round. A preliminary habitat screening of the Study Area was completed to identify potential suitable nesting habitat for species listed on Schedule 1 of the MBR. Observations of Schedule 1 Migratory Bird species or their nests were recorded if found incidentally.

### 3.3 Species at Risk Habitat Screening

For this report, SAR are defined as species that are listed as THR, END or Extirpated (EXP) provincially on the Protected Species of Ontario (PSO) list under the current SCA, as well as migratory bird species and fish species listed as THR, END and EXP federally under SARA. The SCA came into force March 30, 2026, and repealed the *Endangered Species Act, 2007* (ESA). Under the SCA, bird species that are currently listed as THR, END and EXP under SARA that are also protected under the *Migratory Birds Convention Act, 1994* (MBCA) are excluded from the PSO list. Protection for these species is instead provided under SARA, which applies to all species listed on Schedule 1, as well as their critical habitat where applicable and their residences as defined by the Act.

SAR with potential to be in the Study Area were determined from a review of the sources listed in **Section 3.1**. SAR with ranges overlapping the Study Area or with recent occurrence records in the vicinity of the Study Area were identified and screened for probability of occurrence by comparing their habitat requirements to on-site conditions, as determined through the background information review (**Section 3.1**) and field investigations (**Section 3.2**). The potential for the species to occur within the Study Area was determined through a probability of occurrence whereby the following rankings were applied:

- **Low Probability:** no suitable habitat for the species and no occurrence of the species incidentally observed through field reconnaissance within the Study Area but there is a known species record in the general area;
- **Medium Probability:** potentially suitable SAR habitat identified within the Study Area, but no occurrence of the species incidentally observed through field reconnaissance although there is a known species record in the general area; and,
- **High Probability:** good quality SAR habitat identified within the Study Area and known species record in the Study Area (either through current field assessment or background information).

### 3.4 Significant Wildlife Habitat Assessment

The *Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E* (MNR, 2015) outline criteria, based on science and expert knowledge, for identifying SWH within Ecoregion 6E, which encompasses the Study Area. The schedules include a description of the wildlife habitat, indicator wildlife species, and criteria used for determining candidate or confirmed SWH.

SWH is divided into four broad categories, which are described as:

- Seasonal Concentration Areas;

- Rare Vegetation Communities or Specialized Habitats for Wildlife;
- Habitats of SOCC; and
- Animal Movement Corridors.

According to the NHRM (MNR, 2010), which was developed to provide technical guidance for implementing the natural heritage policies of the *Provincial Planning Statement, 2004* (PPS), SWH includes the habitat of SOCC, which consists of the following:

- Species with Provincial S-rank assigned by the NHIC as S1 (critically imperilled), S2 (imperilled) or S3 (vulnerable);
- Species listed as SC by the Committee on the Status of Species at Risk in Ontario (COSSARO); and
- Species identified as nationally Endangered (END) or Threatened (THR) by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), that are not protected under the SCA.

A desktop SWH assessment was conducted using the sources listed in **Section 3.1** and the results of the field investigations described in **Section 3.2** to determine if habitat in the Study Area met either candidate or confirmed criteria for each SWH category. Field data such as general habitat conditions and habitat features were collected to identify the presence of SWH within the Study Area based on the habitat criteria identified in the *Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E* (MNR, 2015).

Habitats of SOCC and Rare Wildlife Species were screened using the methods described above in **Section 3.3**. In most cases, SWH could only be assessed to the candidate level because species-specific surveys were not conducted to confirm species presence thresholds required to meet confirmed SWH.

## 4. Results

The following sections document the existing terrestrial conditions within the Study Area. Terrestrial ecosystems are those associated with land including, but not limited to, forests, meadows, thickets, and wetlands. Terrestrial ecosystems provide habitat for a variety of wildlife species, some of which are rare or sensitive. These ecosystems and species identified within the Study Area are described in detail below.

### 4.1 Designated Natural Areas

As per the ERD (MTO, 2013), Designated Areas are defined by resource agencies, municipalities, the government and/or the public, through legislation, policies, or approved management plans, to have special or unique value. Such areas may have a variety of ecological, recreational, and/or aesthetic features and functions that are highly valued. Designated Natural Areas include but are not limited to ANSIs, PSWs, and Environmentally Significant/Sensitive Areas.

#### 4.1.1 Background Data

A summary of designated natural areas identified within the Study Area through the background review are provided in **Table 4-1** below. Designated natural areas within and in the vicinity of the Study Area are illustrated on **Figure A2** in **Appendix A**. No ANSIs or PSWs were located in the Study Area.

**Table 4-1: Designated Natural Areas within the Study Area**

| Area Type                        | Designated Natural Area Name                                                                                         | Reference to Applicable Maps / Location Within Study Area                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|----------------------------------|----------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Wetlands</b>                  | <ul style="list-style-type: none"> <li>Unevaluated Wetlands</li> </ul>                                               | <ul style="list-style-type: none"> <li>Unevaluated wetlands were identified within the Study Area, locations of which are shown on <b>Figure 3</b> in <b>Appendix A</b>.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Policy Areas</b>              | <ul style="list-style-type: none"> <li>County of Lennox and Addington Natural Heritage Features and Areas</li> </ul> | <ul style="list-style-type: none"> <li>Schedule B of the County of Lennox and Addington's Official Plan identify selected Natural Heritage Features and Areas, including Provincially Significant Wetlands (PSWs), Areas of Natural and Scientific Interest (ANSIs) and Significant Wildlife Habitat (SWH). No PSWs, ANSIs or SWH were identified in the Study Area.</li> </ul>                                                                                                                                                                                                                                   |
|                                  | <ul style="list-style-type: none"> <li>Town of Greater Napanee Natural Heritage Features</li> </ul>                  | <ul style="list-style-type: none"> <li>Schedule B of the Town of Greater Napanee's Official Plan identifies Natural Heritage Features, which include Environmental Protection Areas (PSWs), other wetlands, Significant Woodlands, ANSIs, Deer Wintering Yards (SWH) and Watercourses (Fish Habitat).</li> </ul>                                                                                                                                                                                                                                                                                                  |
| <b>Important Bird Area (IBA)</b> | <ul style="list-style-type: none"> <li>Napanee Limestone Plain IBA</li> </ul>                                        | <ul style="list-style-type: none"> <li>The Napanee Limestone Plain Important Bird Area (IBA) overlaps the full extent of the Study Area. The Napanee Limestone Plain has been designated a nationally significant IBA under the threatened species and congregatory species categories, particularly for the Loggerhead Shrike (Birds Canada, 2026b). The IBA program is an international initiative coordinated by BirdLife International. It is a partnership of member-based organizations in over 100 countries that seeks to identify and conserve sites important to all bird species worldwide.</li> </ul> |

### 4.2 Vegetation Communities and Plants

Vegetation communities and plant species within the Study Area were documented to characterize existing terrestrial conditions and identify sensitive or significant ecological features.

#### 4.2.1 Background Data

Ecological Land Classification (ELC) was completed for the Study Area. Historical ELC completed in support of *Terrestrial Ecosystems Existing Conditions and Impact Assessment Report – Highway 401 Interchange Improvements at Palace Road (GWP 4197-13-00)* (AECOM, 2016) provided additional context. Previous ELC mapping generally identified a range of community types within the Study Area, including cultural meadows (CUM), cultural thickets (CUT), meadow marshes (MAM), deciduous swamps (SWD), deciduous forests (FOD), and cultural woodlands (CUW) and plantations (CUP), reflecting a predominantly disturbed landscape associated with agriculture, highway infrastructure and managed vegetation.

No SAR or SOCC plants or rare vegetation communities (S-Rank S1-S3) were identified in previous field investigations (AECOM, 2016).

The background review identified two SAR trees that had ranges that overlapped the Study Area, Butternut (*Juglans cinerea*) and Black Ash (*Fraxinus nigra*), discussed further in **Section 4.4**. No SOCC plant records were identified from the background review.

#### 4.2.2 Ecological Land Classification and Botanical Inventory

The Napanee River located in the Study Area, is a large, open watercourse that flows north south under Highway 401. On the north side, the Napanee River was bordered by Green Ash Mineral Deciduous Swamp (SWD2-2) to the west, and agricultural fields with soybean crops to the east. On the south side of Highway 401, the river was bordered by Green Ash Mineral Deciduous Swamp (SWD2-2) and Dry – Fresh Sugar Maple Deciduous Forest (FOD5-1). Vegetation communities around the Palace Road intersection generally included cultural vegetation communities, including Cultural Meadows (CUM), succeeding Cultural Woodlands (CUW), and Cultural Thickets (CUT) associated with residential developments along Palace Road.

Vegetation communities within the existing MTO ROW were primarily those that resulted from or have been maintained by anthropogenic disturbances (i.e., continued maintenance or mowing). ELC is delineated on **Figure A3** in **Appendix A**. A representative photographic log is provided in **Appendix B**. A complete list of vascular plant species identified within each vegetation community is provided in **Appendix C**. A total of 191 plant species were recorded; of which 124 (65%) were native and 67 (35%) were non-native.

The plant list was compiled from data collected during the July 2025 field work.

Table 4-2: ELC Community Descriptions for Study Area

| ELC Code | ELC Community                         | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|----------|---------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| AGR      | Agriculture                           | Represents agricultural fields, with varying types of crop-cover.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| CU       | Cultural                              | Represents culturally managed, manicured/mowed areas (i.e. lawns, mowed grass).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| CUM1     | Mineral Cultural Meadow Ecosite       | High level classification assigned to areas where access was limited or identified via aerial interpretation and/or full plant list was not completed.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| CUM1-1   | Dry-Moist Old Field Meadow Type       | This community lacked a canopy layer and contained some young trees in the shrub layer including Eastern Red Cedar ( <i>Juniperus virginiana</i> ), Manitoba Maple ( <i>Acer negundo</i> ), Common Buckthorn ( <i>Rhamnus cathartica</i> ) and Green Ash ( <i>Fraxinus pennsylvannica</i> ). The dense ground layer was vegetated with Kentucky Bluegrass ( <i>Poa pratensis</i> ), Smooth Brome ( <i>Bromus inermis</i> ), Reed Canary Grass ( <i>Phalaris arundinacea</i> ) and Wild Carrot ( <i>Daucus carota</i> ).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| CUT1     | Mineral Cultural Thicket Ecosite      | This community contained Manitoba Maple, Green Ash, White Elm ( <i>Ulmus americana</i> ) and Black Walnut ( <i>Juglans nigra</i> ) in the canopy. The subcanopy was vegetated with Manitoba Maple, Trembling Aspen ( <i>Populus tremuloides</i> ), Eastern Red Cedar and Black Locust ( <i>Robinia pseudoacacia</i> ). The shrub layer was dominated by Gray Dogwood ( <i>Cornus racemosa</i> ), Manitoba Maple, Common Buckthorn and Common Lilac ( <i>Syringa vulgaris</i> ).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| CUW1     | Mineral Cultural Woodland Ecosite     | This vegetation community consists of Manitoba Maple, Norway Maple ( <i>Acer platanoides</i> ), Austrian Pine ( <i>Pinus nigra</i> ), Eastern White Pine ( <i>Pinus strobus</i> ), Red Maple ( <i>Acer rubrum</i> ), Sugar Maple ( <i>Acer saccharum</i> ), Basswood ( <i>Tilia americana</i> ), Black Walnut, Eastern Red Cedar, Bur Oak ( <i>Quercus macrocarpa</i> ), Eastern Cottonwood ( <i>Populus deltoides</i> ), and Eastern White Cedar ( <i>Thuja occidentalis</i> ) within the canopy. The shrub layer included Common Buckthorn, Cottony Willow ( <i>Salix eriocephala</i> ), Common Juniper ( <i>Juniperus communis</i> ), Common Lilac, Chokecherry ( <i>Prunus virginiana</i> ), and Tatarian Honeysuckle ( <i>Lonicera tatarica</i> ). Ground cover contained Smooth Brome, Reed Canary Grass, Tufted Vetch ( <i>Vicia cracca</i> ), Orchard Grass ( <i>Dactylis glomerata</i> ), Wild Parsnip ( <i>Pastinaca sativa</i> ), Common Milkweed ( <i>Asclepias syriaca</i> ), Wild Carrot, Canada Goldenrod ( <i>Solidago canadensis</i> ), Kentucky Bluegrass, Red Clover ( <i>Trifolium pratense</i> ), and Tall Goldenrod ( <i>Solidago altissima</i> ).                                                                                                                                                   |
| CUW1-1   | Red Cedar Cultural Woodland Type      | The canopy layer of this community dominated by Eastern Red Cedar with Red Pine ( <i>Pinus resinosa</i> ), Eastern White Pine, Scots Pine ( <i>Pinus sylvestris</i> ), Eastern White Cedar, Trembling Aspen, Sugar Maple, Bur Oak, White Elm, Green Ash, and White Oak ( <i>Quercus alba</i> ). The shrub layer of this community contained Gray Dogwood, Smooth Sumac ( <i>Rhus glabra</i> ), Morrow's Honeysuckle ( <i>Lonicera morrowii</i> ), and Manitoba Maple. The ground layer was densely vegetated with Tufted Vetch, Red Clover, Smooth Brome, Common Timothy ( <i>Phleum pratense</i> ), Riverbank Grape ( <i>Vitis riparia</i> ), Kentucky Bluegrass, Eastern Poison Ivy ( <i>Toxicodendron radicans</i> var. <i>radicans</i> ), Common Viper's Bugloss ( <i>Echium vulgare</i> ), Thicket Creeper ( <i>Parthenocissus vitacea</i> ), Canada Goldenrod, Red Raspberry ( <i>Rubus idaeus</i> ), Mouse-ear Hawkweed ( <i>Pilosella officinarum</i> ), Common Dandelion ( <i>Taraxacum officinale</i> ), Red Ash, Purple Crown-vetch ( <i>Securigera varia</i> ), Elecampane ( <i>Inula helenium</i> ), Wild Carrot, Spotted Knapweed ( <i>Centaurea stoebe</i> ), Calico Aster ( <i>Symphyotrichum lateriflorum</i> ), Orchard Grass, Redtop ( <i>Agrostis gigantea</i> ), Common Milkweed, and Tall Goldenrod. |
| CUW1     | Cultural Woodland                     | Red Pine and White Pine ( <i>Pinus strobus</i> ) dominated the canopy. This plantation community exhibited signs of becoming naturalized to a Cultural Woodland (CUW1) as other species have colonized the subcanopy, understory and ground layer. The subcanopy was still mostly dominated by Red Pine and White Pine followed by Norway Maple and American Basswood ( <i>Tilia americana</i> ). The shrub layer contained Common Buckthorn, Green Ash, Black Cherry ( <i>Prunus serotina</i> ) and young Norway Maples. The ground layer was vegetated with Thicket Creeper, Yellow Avens ( <i>Geum aleppicum</i> ), Common Buckthorn seedlings and Black Cherry saplings.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| CUP3-2   | White Pine Coniferous Plantation Type | The vegetation community included Eastern White Pine, White Elm, Red Ash, Eastern Red Cedar, Norway Maple, and Sugar Maple. The shrub layer consisted Grey Dogwood, European Buckthorn, Red Ash, and Eastern Red Cedar. The ground layer included Kentucky Bluegrass, Early Goldenrod ( <i>Solidago juncea</i> ), Tufted Vetch, Wild Parsnip, Field Horsetail ( <i>Equisetum arvense</i> ), Canada Goldenrod, and Virginia Creeper ( <i>Parthenocissus quinquefolia</i> ).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |



| ELC Code | ELC Community                               | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|----------|---------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| FOC2-1   | Dry – Fresh Redcedar Coniferous Forest Type | The canopy and subcanopy was dominated by Eastern Red Cedar, interspersed with White Elm, Green Ash, Jack Pine ( <i>Pinus banksiana</i> ), Austrian Pine, Eastern White Pine, Northern Red Oak ( <i>Quercus rubra</i> ), Eastern Cottonwood, Basswood, White Spruce, Bur Oak, Sugar Maple, Balsam Poplar ( <i>Populus balsamifera</i> ), and Manitoba Maple. The shrub layer consisted Eastern Red Cedar, Grey Dogwood, Common Buckthorn, Tatarian Honeysuckle, Green Ash, Nannyberry ( <i>Viburnum lentago</i> ), Common Prickly-ash ( <i>Zanthoxylum americanum</i> ), Common Juniper, Manitoba Maple, White Elm, Red Raspberry, and Staghorn Sumac ( <i>Rhus typhina</i> ). The ground cover included Kentucky Bluegrass, Crested Sedge ( <i>Carex cristatella</i> ), Green Ash, Wild Carrot, Smooth Brome, Canada Goldenrod, Tufted Vetch, Reed Canary Grass, Narrow-leaved Cattail ( <i>Typha angustifolia</i> ), Purple Loosestrife ( <i>Lythrum salicaria</i> ), Grass-leaved Goldenrod ( <i>Euthamia graminifolia</i> ), Common Buckthorn, Eastern Poison Ivy, Arrow-leaved Aster ( <i>Symphotrichum urophyllum</i> ), Thicket Creeper, Tall Goldenrod, and Wild Parsnip. |
| FOD5-1   | Dry – Fresh Sugar Maple Deciduous Forest    | Dominant species in the canopy included Sugar Maple, Red Ash, Eastern Cottonwood, Eastern White Pine, Bitternut Hickory ( <i>Carya cordiformis</i> ), Basswood, Bur Oak, Shagbark Hickory ( <i>Carya ovata</i> ), and Black Cherry. Dominant species in the sub-canopy included Sugar Maple, Red Ash, Trembling Aspen, White Elm, Bitternut Hickory, Shagbark Hickory, Eastern White Pine, and Eastern Red Cedar. The understory included Grey Dogwood, European Buckthorn, Tatarian Honeysuckle, Red Ash, Common Prickly-ash, White Elm, Thicket Creeper, and Sugar Maple. Groundcover generally included Thicket Creeper, Canada Goldenrod, Chokecherry, and Woodland Strawberry ( <i>Fragaria vesca</i> ).                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| OA0      | Open Aquatic                                | This vegetation community represented the open water areas associated with the Napanee River. Scattered species on the edges included with Trembling Aspen, Red Maple, Manitoba Maple, Green Ash, Crack Willow ( <i>Salix fragilis</i> ), Grey Dogwood, Sandbar Willow ( <i>Salix interior</i> ), Pussy Willow ( <i>Salix discolor</i> ), and Riverbank Grape. The emergent, submerged and floating vegetation included Reed Canary grass, Watershield ( <i>Brasenia schreberi</i> ), Fragrant Water-lily ( <i>Nymphaea odorata</i> ), Reed Canarygrass, Swamp Loosestrife ( <i>Decodon verticillatus</i> ), Pickerelweed ( <i>Pontederia cordata</i> ), Glaucous Cattail ( <i>Typha x glauca</i> ), Narrow-leaved Cattail, Fowl Mannagrass ( <i>Glyceria striata</i> ), Variegated Pond-lily ( <i>Nuphar variegata</i> ), Purple Loosestrife, Spotted Joe Pye Weed ( <i>Eutrochium maculatum</i> ), Broad-leaved Cattail, and Small Duckweed ( <i>Lemna minor</i> ).                                                                                                                                                                                                             |
| MAM1     | Bedrock Meadow Marsh Ecosite                | High level classification assigned to areas where access was limited or identified via aerial interpretation and/or full plant list was not completed.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| MAM2     | Mineral Meadow Marsh Ecosite                | The shrub layer of this community contained Gray Dogwood, Green Ash and Manitoba Maple. The ground layer was densely vegetated with Common Reed ( <i>Phragmites australis</i> ), Reed Canary Grass, Hybrid Cattail ( <i>Typha x glauca</i> ) and Tall Goldenrod ( <i>Solidago altissima</i> ).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| MAM2-2   | Reed-canary Grass Mineral Meadow Marsh Type | This vegetation community typically consistent scattered species Eastern Red Cedar, Austrian Pine, White Elm, Tamarack ( <i>Larix laricina</i> ), Green Ash, European Buckthorn, Manitoba Maple, European Buckthorn, Black Elderberry ( <i>Sambucus nigra</i> ), Grey Dogwood, Nannyberry, Eastern Red Cedar, Morrow's Honeysuckle, Trembling Aspen, and Riverbank Grape. Ground layer dominated by Reed Canarygrass, with Narrow-leaved Cattail, Broad-leaved Cattail, Glaucous Cattail, and included Willowherb ( <i>Epilobium coloratum</i> ), Canada Goldenrod, Wild Parsnip, Elecampane, Smooth Brome, Wild Carrot, Kentucky Bluegrass, and Tall Goldenrod.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| SWD2-2   | Green Ash Mineral Deciduous Swamp Type      | The canopy and subcanopy was dominated by Green Ash, White Elm, Manitoba Maple, Bur Oak ( <i>Quercus macrocarpa</i> ) and Tamarack ( <i>Larix laricina</i> ). The shrub layer contained young Green Ash followed by Gray Dogwood, Common Buckthorn and Riverbank Grape ( <i>Vitis riparia</i> ). The ground layer contained Spotted Jewelweed ( <i>Impatiens capensis</i> ), Tall Goldenrod, Reed Canary Grass and Wild Black Currant ( <i>Ribes americanum</i> ).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

#### 4.2.2.1 Noxious Weeds and Invasive Species

European Reed/Phragmites, a 'Restricted' species under the *Invasive Species Act, 2015* was observed in multiple locations in the Study Area, which are shown on **Figure A4** in **Appendix A**.

Noxious plant species, as defined by O. Reg. 248/14 of Ontario's *Weed Control Act, 1990*, identified within the Study Area are listed in **Table 4-3** below. Where notable clusters of noxious weeds were observed, they were mapped on **Figure A4** in **Appendix A**.

Of these species, Wild Parsnip, and Eastern Poison Ivy are considered a concern to public health and safety due to the oils or chemical compounds present in each species, which are known to cause allergic reactions or severe dermatitis.

**Table 4-3: Invasive and Noxious Weed Species Present within the Study Area**

| Common Name                | Scientific Name                                    | <i>Invasive Species Act, 2015</i> <sup>1</sup> | <i>Weed Control Act, 1990</i> |
|----------------------------|----------------------------------------------------|------------------------------------------------|-------------------------------|
| Canada Thistle             | <i>Cirsium arvense</i>                             | -                                              | Yes                           |
| Eastern Poison Ivy         | <i>Toxicodendron radicans</i> var. <i>radicans</i> | -                                              | Yes                           |
| European Buckthorn         | <i>Rhamnus cathartica</i>                          | -                                              | Yes                           |
| European Reed (Phragmites) | <i>Phragmites australis</i> ssp. <i>australis</i>  | Restricted                                     | -                             |
| Wild Parsnip               | <i>Pastinaca sativa</i>                            | -                                              | Yes                           |

<sup>1</sup> A restricted species is a class of invasive species that includes prohibitions restricting bringing said species into a provincial park or conservation reserve or depositing or releasing said species in Ontario.

### 4.3 Wildlife

A background review and recording of incidental wildlife observations during field investigations was completed to develop an understanding of species composition, abundance, and habitat use of wildlife within the Study Area.

#### 4.3.1 Background Data

The Study Area falls within the Napanee Limestone Plain Important Bird Area (IBA), which has been recognized for its importance to grassland and alvar bird populations. Thirty or more pairs of Loggerhead Shrikes (*Lanius ludovicianus*) have been recorded on the plain, representing about 20% of the Canadian population of the nationally endangered eastern subspecies, and roughly 75% of Ontario's breeding population (Bland, 2004). The Upland Sandpiper (*Bartramia longicauda*), an SOCC, has also been recorded in nationally significant numbers, with an estimated 150 to 200 pairs present annually, accounting for approximately 2% of the Canadian population (Bland, 2004).

Additional SOCC that have been recorded within the Napanee Limestone Plain IBA include the Common Nighthawk (*Chordeiles minor*), Grasshopper Sparrow (*Ammodramus savannarum*), and Eastern Meadowlark (*Sturnella magna*) (Bland, 2004). Based on the background review of secondary sources listed in **Section 3.1**, records were found for numerous birds, butterflies, moths, insects, reptiles, amphibians and mammals to occur in or within the vicinity of the Study Area. Records of SAR and SOCC identified in or within the vicinity of the Study Area through the background review are further discussed in **Sections 4.4** and **4.5**, respectively.

Previous field investigations completed by AECOM in 2016 for the *Terrestrial Ecosystems Existing Conditions and Impact Assessment Report – Highway 401 Interchange Improvements at Palace Road (GWP 4197-13-00)* did not

identify any incidental wildlife observations, bird nests or SAR or SOCC in the Palace Road Study Area (AECOM, 2019b).

### 4.3.2 Incidental Wildlife Observations

All incidental wildlife observations during the July 2025 field investigations for the Napanee River Bridge project are listed in **Table 4-4** below.

One SAR, Eastern Meadowlark (*Sturnella magna*), and one SOCC, Monarch (*Danaus Plexippus*), was observed in the Study Area, discussed further in **Section 4.4** and **Section 4.5**, respectively.

Many of the birds incidentally observed in the Study Area receive protection under the MBCA. The remaining species observed incidentally were designated as Secure (S5) or Apparently Secure (S4) in Ontario.

Table 4-4: Incidental Wildlife Observations

| Taxon            | Common Name          | Scientific Name                | S-Rank <sup>1</sup> | On the PSO List? <sup>2</sup> | SARA Status <sup>3</sup> | MBCA Protected | Notes                                                                               |
|------------------|----------------------|--------------------------------|---------------------|-------------------------------|--------------------------|----------------|-------------------------------------------------------------------------------------|
| <b>Amphibian</b> | Green Frog           | <i>Lithobates clamitans</i>    | S5                  | -                             | No Status                | N/A            | -                                                                                   |
| <b>Birds</b>     | American Goldfinch   | <i>Spinus tristis</i>          | S5                  | -                             | No Status                | Yes            | -                                                                                   |
|                  | Common Yellowthroat  | <i>Geothlypis trichas</i>      | S5B,S3N             | -                             | No Status                | Yes            | -                                                                                   |
|                  | Cedar Waxwing        | <i>Bombycilla cedrorum</i>     | S5                  | -                             | No Status                | Yes            | -                                                                                   |
|                  | Eastern Meadowlark   | <i>Sturnella magna</i>         | S4B,S3N             | -                             | THR                      | Yes            | Two individuals were heard calling at the Palace Road and Highway 401 intersection. |
|                  | European Starling    | <i>Sturnus vulgaris</i>        | SNA                 | -                             | No Status                | No             | -                                                                                   |
|                  | House Finch          | <i>Haemorhous mexicanus</i>    | SNA                 | -                             | No Status                | Yes            | -                                                                                   |
|                  | Killdeer             | <i>Charadrius vociferus</i>    | S4B                 | -                             | No Status                | Yes            | -                                                                                   |
|                  | Red-winged Blackbird | <i>Agelaius phoeniceus</i>     | S5                  | -                             | No Status                | No             | -                                                                                   |
|                  | Song Sparrow         | <i>Melospiza melodia</i>       | S5                  | -                             | No Status                | Yes            | -                                                                                   |
|                  | Warbling Vireo       | <i>Vireo gilvus</i>            | S5B                 | -                             | No Status                | Yes            | -                                                                                   |
|                  | Yellow Warbler       | <i>Setophaga petechia</i>      | S5B                 | -                             | No Status                | Yes            | -                                                                                   |
| <b>Mammal</b>    | Meadow Vole          | <i>Microtus pennsylvanicus</i> | S5                  | -                             | No Status                | No             | -                                                                                   |
| <b>Reptile</b>   | Northern Watersnake  | <i>Nerodia sipedon sipedon</i> | S5                  | -                             | No Status                | -              | -                                                                                   |
| <b>Insects</b>   | Eastern Forktail     | <i>Ischnura verticalis</i>     | S5                  | -                             | No Status                | -              | -                                                                                   |
|                  | Monarch              | <i>Danaus plexippus</i>        | S2N,S4B             | -                             | END                      | -              | Multiple adults observed flying throughout Study Area.                              |
|                  | Orange Bluet         | <i>Enallagma signatum</i>      | S4                  | -                             | No Status                | -              | -                                                                                   |
|                  | River Jewelwing      | <i>Calopteryx aquabilis</i>    | S5                  | -                             | No Status                | -              | -                                                                                   |
|                  | Viceroy              | <i>Limenitis archippus</i>     | S5                  | -                             | No Status                | -              | -                                                                                   |

<sup>1</sup> **S-rank:** The natural heritage provincial ranking system (provincial S-rank) is used by the MNRF Natural Heritage Information Centre (NHIC) to set protection priorities for rare species and natural communities. The following status definitions were taken from NatureServe Explorer (2015)  
**SX** – Presumed Extirpated—Species or community is believed to be extirpated from the province. Not located despite intensive searches of historical sites and other appropriate habitat, and virtually no likelihood that it will be rediscovered.  
**SH**– Possibly Extirpated (Historical)—Species or community occurred historically in the province, and there is some possibility that it may be rediscovered. Its presence may not have been verified in the past 20-40 years. A species or community could become SH without such a 20–40-year delay if the only known occurrences in a province were destroyed or if it had been extensively and unsuccessfully looked for.  
**S1** – Critically Imperiled—Critically imperiled in the province because of extreme rarity (often 5 or fewer occurrences) or because of some factor(s) such as very steep declines making it especially vulnerable to extirpation from the province.  
**S2**-Imperiled—Imperiled in the province because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the province.  
**S3** – Vulnerable—Vulnerable in the province due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation.

**S4** – Apparently Secure—Uncommon but not rare; some cause for long-term concern due to declines or other factors.

**S5** – Secure—Common, widespread, and abundant in the nation or state/province.

**SNR** – Unranked—Province conservation status not yet assessed.

**SU** – Unrankable—Currently unrankable due to lack of information or due to substantially conflicting information about status or trends.

**SNA** – Not Applicable —A conservation status rank is not applicable because the species is not a suitable target for conservation activities.

**S#S#** - Range Rank —A numeric range rank (e.g., S2S3) is used to indicate any range of uncertainty about the status of the species or community. Ranges cannot skip more than one rank (e.g., SU is used rather than S1S4).

*Breeding Status Qualifiers*

**B** – Breeding—Conservation status refers to the breeding population of the species in the province.

**N** – Nonbreeding—Conservation status refers to the non-breeding population of the species in the province.

**M** – Migrant—Migrant species occurring regularly on migration at particular staging areas or concentration spots where the species might warrant conservation attention. Conservation status refers to the aggregating transient population of the species in the province.

**Note:** A breeding status is only used for species that have distinct breeding and/or non-breeding populations in the province. A breeding-status S-rank can be coupled with its complementary non-breeding-status S-rank if the species also winters in the province, and/or a migrant-status S-rank if the species occurs regularly on migration at particular staging areas or concentration spots where the species might warrant conservation attention. The two (or rarely, three) status ranks are separated by a comma (e.g., “S2B,S3N” or “SHN,S4B,S1M”).

*Other Qualifiers*

**?** -Inexact or Uncertain—Denotes inexact or uncertain numeric rank. (The “?” qualifies the character immediately preceding it in the S-rank).

<sup>2</sup>**PSO List:**

The Species Conservation Act (SCA), 2025 protects species listed as Threatened and Endangered on the Protected Species in Ontario (PSO) List on provincial and private land. The PSO includes species based on recommendations from the Committee on the Status of Species at Risk in Ontario (COSSARO), which evaluates the conservation status of species occurring in Ontario.

<sup>3</sup>**SARA Status:**

The Species at Risk Act (SARA) protects species listed as Threatened, Endangered or Extirpated on federal land. The following are the categories of at risk:

**END** (Endangered) – A species facing imminent extinction or extirpation in Canada.

**THR** (Threatened) – Any native species that, on the basis of the best available scientific evidence, is at risk of becoming endangered throughout all or a large portion of its Canadian range if the limiting factors are not reversed.

**SC** (Special Concern) – A species that may become threatened or endangered due to a combination of biological characteristics and identified threats.

**NAR** (Not at Risk) – A species that has been evaluated and found to be not at risk.

**Note:** species with “-” represents those that are not listed on Schedule 1 of SARA.

### 4.3.3 Schedule 1 Migratory Birds

ELC completed in the Study Area identified suitable nesting habitat for three of the Schedule 1 species, which included wetland habitats for Great Blue Heron (*Ardea herodias*) and Green Heron (*Butorides virescens*), and forested habitats for Pileated Woodpecker (*Dryocopus pileatus*). No nests of Green Heron or Great Blue Heron were observed incidentally in the Study Area and no cavity tree nests for Pileated Woodpecker were observed.

## 4.4 Species at Risk

This section summarizes the results of the background review for SAR records and the results of the SAR habitat screening provided in **Appendix D**.

### 4.4.1 Background Data

A total of 21 SAR were identified in or within the vicinity of the Study Area based on a review of the secondary sources listed in **Section 3.1** and listed in **Appendix E**.

### 4.4.2 Species at Risk Habitat Assessment

The SAR habitat assessment and screening exercise for all 21 SAR with records identified in the background review is presented in **Appendix D**. One SAR, Eastern Meadowlark, was confirmed in the Study Area during field investigations. No other SAR were confirmed present within the Study Area.

In addition to the one confirmed SAR, 15 SAR were determined to have high and medium probability of occurrence in the Study Area based on the presence of suitable habitat and are summarized in **Table 4-5** below. The remaining SAR were determined to have a low potential to occur within the Study Area due to lack of suitable habitat.

Confirmed and candidate SAR habitat is mapped on **Figure A5** in **Appendix A**.



**Table 4-5: SAR with High or Medium Potential of Occurrence in the Study Area**

| Taxa          | Common Name           | Scientific Name                   | On the PSO List? <sup>1</sup> | SARA Status <sup>2</sup> | Probability of Occurrence | Confirmed or Candidate Habitat                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|---------------|-----------------------|-----------------------------------|-------------------------------|--------------------------|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Bird</b>   | Bank Swallow          | <i>Riparia riparia</i>            | No                            | THR                      | Medium                    | <b>Candidate</b><br>Vertical riverbanks with suitable substrate were not observed in the Study Area, however, Bank Swallow may use any stockpiled material in the Study Area if not maintained at an angle less than 70 degrees.                                                                                                                                                                                                                                                                                                                      |
|               | Barn Swallow          | <i>Hirundo rustica</i>            | No                            | THR                      | Medium                    | <b>Candidate</b><br>Barn Swallow may nest on any suitable structures in the Study Area, including the Napanee River Bridge.                                                                                                                                                                                                                                                                                                                                                                                                                           |
|               | Bobolink              | <i>Dolichonyx oryzivorus</i>      | No                            | THR                      | Medium                    | <b>Candidate</b><br>Large (> 5 ha) Cultural Meadows and agricultural fields that may have suitable crop selection in a year (i.e., lightly grazed pastures, young hayfields, or alfalfa fields) were present in the Study Area (McCracken <i>et al.</i> , 2013). No incidental observations of Bobolink were made during field investigations.                                                                                                                                                                                                        |
|               | Eastern Meadowlark    | <i>Sturnella magna</i>            | No                            | THR                      | High                      | <b>Confirmed</b><br>Two Eastern Meadowlark were observed calling within the Study Area. Locations of the observations are shown on <b>Figure A5</b> in <b>Appendix A</b> . The areas where these individuals were heard calling is considered confirmed habitat. Other large (> 5 ha) Cultural Meadows, fallow fields, pasture and agricultural fields with suitable crop selection in a year (i.e., lightly grazed pastures, young hayfields, or alfalfa fields) are considered candidate habitat for this species (McCracken <i>et al.</i> , 2013). |
|               | Loggerhead Shrike     | <i>Lanius ludovicianus</i>        | No                            | THR                      | Medium                    | <b>Candidate</b><br>The Napanee Limestone Plain Important Bird Area (IBA), known core grassland habitat for the Loggerhead Shrike, is present in the Study Area. Succeeding Cultural Thicket (CUT) and Eastern Red Cedar Cultural Woodlands (CUW1-1) elsewhere in the Study Area may provide candidate habitat, but targeted surveys were not conducted.                                                                                                                                                                                              |
|               | Red-headed Woodpecker | <i>Melanerpes erythrocephalus</i> | No                            | END                      | Medium                    | <b>Candidate</b><br>Potentially suitable habitat found within hedgerows, forest and cultural woodland communities (FOD, SWD, CUW) in the Study Area where targeted surveys were not conducted remain candidate habitat.                                                                                                                                                                                                                                                                                                                               |
| <b>Mammal</b> | Eastern Red Bat       | <i>Lasiurus borealis</i>          | Yes (END)                     | No status                | High                      | <b>Candidate</b><br>This species lives in forested habitats, forming day roosts and maternity colonies in older forest within foliage or in high tree cavities (Humphrey and Fotherby, 2019). Forested communities (FOD, FOM, FOC SWD, CUW) with suitable roosting habitat were present within the Study Area.                                                                                                                                                                                                                                        |

| Taxa | Common Name                 | Scientific Name                  | On the PSO List? <sup>1</sup> | SARA Status <sup>2</sup> | Probability of Occurrence | Confirmed or Candidate Habitat                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|------|-----------------------------|----------------------------------|-------------------------------|--------------------------|---------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|      | Eastern Small-footed Myotis | <i>Myotis leibii</i>             | Yes (END)                     | No status                | High                      | <b>Candidate</b><br>Eastern Small-footed myotis roosts in a variety of habitats, including under rocks and bridges and in rock outcrops, caves, mines, and hollow trees. (Humphrey, 2017). This species hibernates in caves and abandoned mines, preferring colder, drier sites and showing strong hibernation site fidelity. Forested communities (FOD, FOM, FOC, SWD, SWM, CUW) with suitable roosting habitat and a potentially suitable bridge were present within the Study Area. |
|      | Hoary Bat                   | <i>Lasiurus cinereus</i>         | Yes (END)                     | No status                | High                      | <b>Candidate</b><br>This species lives in forested habitats, forming day roosts and maternity colonies in older forest within foliage or in high tree cavities. (Humphrey and Fotherby, 2019). Forested communities (FOD, FOC, SWD, CUW, CUP) with suitable roosting habitat were present within the Study Area.                                                                                                                                                                       |
|      | Little Brown Myotis         | <i>Myotis lucifugus</i>          | Yes (END)                     | END                      | High                      | <b>Candidate</b><br>Roosts and maternity colonies of Little Brown Myotis may occur in manmade structures (attics, abandoned buildings, barns), rock crevices, behind loose or flaking bark, or within tree cavities (Humphrey and Fotherby, 2019). Forested communities (FOD, FOC, SWD, CUW, CUP) with suitable roosting habitat were present within the Study Area.                                                                                                                   |
|      | Northern Myotis             | <i>Myotis septentrionalis</i>    | Yes (END)                     | END                      | High                      | <b>Candidate</b><br>This species is associated with forest habitats, roosting under loose bark or in tree cavities (Humphrey and Fotherby, 2019). Forested communities (FOD, FOC, SWD, CUW, CUP) with suitable roosting habitat were present within the Study Area.                                                                                                                                                                                                                    |
|      | Silver-haired Bat           | <i>Lasionycteris noctivagans</i> | Yes (END)                     | No status                | High                      | <b>Candidate</b><br>This species lives in forested habitats, forming day roosts and maternity colonies in older forest within foliage or in high tree cavities, occasionally also in barns or other man-made structures (Humphrey and Fotherby, 2019). Forested communities (FOD, FOC, SWD, CUW, CUP) with suitable roosting habitat were present within the Study Area.                                                                                                               |
|      | Tri-colored Bat             | <i>Perimyotis subflavus</i>      | Yes (END)                     | END                      | High                      | <b>Candidate</b><br>This species lives in forested habitats, forming day roosts and maternity colonies in older forest within foliage or in high tree cavities, occasionally also in barns or other man-made structures (Humphrey and Fotherby, 2019). Forested communities (FOD, FOC, SWD, CUW, CUP) with suitable roosting habitat were present in the Study Area.                                                                                                                   |

| Taxa    | Common Name       | Scientific Name             | On the PSO List? <sup>1</sup> | SARA Status <sup>2</sup> | Probability of Occurrence | Confirmed or Candidate Habitat                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|---------|-------------------|-----------------------------|-------------------------------|--------------------------|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Plant   | Black Ash         | <i>Fraxinus nigra</i>       | Yes (END)                     | THR                      | Medium                    | <b>Candidate</b><br>Black ash grows in open, moist to wet communities such as swamps, bogs, and riparian areas. Deciduous swamp (SWD) communities were present in the Study Area that may provide suitable habitat. No Black Ash were recorded incidentally during ELC field investigations. Targeted searches for Black Ash were not completed.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|         | Butternut         | <i>Juglans cinerea</i>      | Yes (END)                     | END                      | Medium                    | <b>Candidate</b><br>Butternut trees usually grow alone or in small groups in deciduous forests. It prefers moist, well-drained soil and is often found along streams but is also found on well-drained gravel sites and rarely on dry rocky soil (Poisson and Ursic, 2013). No Butternut were observed during ELC field investigations. Forest (FOD), and deciduous cultural woodland/hedgerow (CUW) vegetation communities observed in the Study Area may provide suitable habitat for Butternut. Targeted searches for Butternut were not completed.                                                                                                                                                                                                                                                                                                                              |
| Reptile | Blanding's Turtle | <i>Emydoidea blandingii</i> | Yes (THR)                     | END                      | Medium                    | <b>Candidate</b><br>Blanding's Turtles live in shallow water, usually in large wetlands and shallow lakes with lots of water plants (MECP, 2021). They regularly travel hundreds of metres from the nearest water body, especially while they are searching for a mate or traveling to a nesting site. Blanding's Turtle prefers aquatic habitats but utilizes terrestrial habitats during the active season. They often favour eutrophic environments with shallow water less than 2 m deep, soft organic substrates, and vegetation (MECP, 2021). Suitable aquatic habitat (OAO) with available basking sites were present within the Study Area. Suitable habitat may be present in the slower moving sections of the Napanee River, or in the adjacent swamp habitat. Blanding's Turtle individuals may also be found in the Study Area if travelling between wetland habitats. |

<sup>1,2</sup>Refer to notes under **Table 4-4**.

## 4.5 Significant Wildlife Habitat

This section presents results of the background review for SOCC records, and the results of the SWH assessment. The habitat assessment for SOCC is provided in **Appendix D** and full results of the SWH assessment are provided in **Appendix E**.

### 4.5.1 Background Data

A desktop review of the background information sources listed in **Section 3.1** produced records that indicated potential presence of the following SWH in the Study Area:

- **Habitat for SOCC:** Multiple records of SOCC were identified in the vicinity of the Study Area, listed in **Appendix D**.
- **Wildlife Concentration Areas:** NHIC data did not identify the presence of Mixed Wader Nesting Colonies or Colonial Waterbird Nesting Areas.
- No MNR deer winter congregation areas were identified in the Study Area.

### 4.5.2 Significant Wildlife Habitat Assessment

Candidate SWH types that could be present within the Study Area but could not be confirmed in the absence of targeted surveys are summarized below, with the full results of the screening provided in **Appendix E**.

#### Candidate

- **Seasonal Concentration Areas of Animals**
  - **Raptor Wintering Area** – The Study Area contained areas where forest communities were adjacent to agricultural fields, meadow, thicket and woodland communities that together could provide Raptor Winter Areas. Roosting sites are usually in mature or mixed conifer woodlands that abut windswept fields, including hayfields, pastures and meadows that support large and productive small mammal populations. Field investigations after the first accumulation of snow would be required to confirm significance.
  - **Bat Maternity Colonies** – Suitable ecosites, including deciduous forest (FOD), cultural woodland (CUW) and deciduous swamp (SWD) were present in the Study Area, where tree with cavities or loose bark may be present. Acoustic monitoring would be required to confirm SWH presence.
  - **Turtle Wintering Areas** – The Napanee River is likely deep enough that it does not freeze completely and may provide suitable turtle wintering habitat for Northern Map Turtle (*Graptemys geographica*). Targeted visual encounter surveys for turtles were not completed during preliminary design.
  - **Reptile Hibernaculum** – Candidate habitat may be present anywhere in the Study Area where reptiles can hibernate below the frost line. Northern Watersnake (*Nerodia sipedon sipedon*), an indicator species, was observed within the Study Area, but no reptile hibernaculum features were incidentally observed. Targeted visual encounter surveys for reptiles and associated hibernaculum were not completed.
- **Specialized Wildlife Habitat Considered SWH**
  - **Waterfowl Nesting Areas** – A waterfowl nesting area extends 120 m from a wetland or cluster of three or more small wetlands. Swamp (SWD) and Meadow Marsh (MAM) wetlands were identified

throughout the Study Area, and therefore the upland habitat adjacent to these wetlands were considered candidate Waterfowl Nesting Areas.

- **Bald Eagle and Osprey Nesting, Foraging and Perching Habitat** – Treed swamp and forest **communities** directly adjacent to the Napanee River were present in the Study Area that may provide candidate habitat.
- **Turtle Nesting Areas** – For an area to function as a turtle nesting area, it must provide sand and **gravel** that turtles are able to dig in, and be in open, sunny areas adjacent to suitable wetland habitat. Suitable substrate may be adjacent to the Napanee River and treed swamp (SWD2-2), but targeted surveys were not conducted.
- **Seeps and Springs** – No seeps were noted in the Study Area; however, forested communities within the Study Area where access was not granted remain candidate SWH for Seeps and Springs.
- **Amphibian Breeding Habitat (Woodland)** – Suitable ecosites were present in the Study Area (FOD, SWD), some of which may contain suitable wetlands or vernal pools that support significant amphibian breeding. Targeted marsh monitoring surveys were not completed to confirm species presence thresholds for significance.
- **Amphibian Breeding Habitat (Wetlands)** – Suitable wetland ecosites were present in the Study Area (SW, MA, OA) that may contain suitable breeding habitat. Green Frog, an indicator species, was observed incidentally in the Study Area. Targeted marsh monitoring surveys were not completed to confirm species presence thresholds for significance.

#### ■ Habitats of SOCC Considered SWH

- **Marsh Breeding Bird Habitat** – Generally, wetlands with shallow water and emergent aquatic **vegetation** were not present in the Study Area. For Green Heron, all Swamp (SW) and Marsh (MA) are considered candidate habitat.
- **Terrestrial Crayfish** – Terrestrial crayfish chimneys were not observed in the Study Area during field **investigations**. However, areas surrounding suitable wetland (SWD, MAM) communities in the Study Area are considered candidate habitat for terrestrial crayfish.
- **Special Concern and Rare Wildlife Species** – Adult Monarchs were observed flying in the Study Area, locations of which are shown on **Figure A6** in **Appendix A**. As larvae were not observed, exact **locations** of habitat were not identified, and habitats in the Study Area remain candidate only. Additionally, of all SOCC records identified in the background review and screened in **Appendix D**, those determined to have high or medium probability of occurrence in the Study Area (see **Table 4-6**) are considered to have candidate habitats in the Study Area.

#### ■ Animal Movement Corridors

- **Amphibian Movement Corridors** - Candidate Amphibian Breeding SWH (Woodland and Wetland) was identified in the Study Area. Movement corridors are likely present adjacent to candidate Amphibian Breeding SWH.

**Table 4-6: SOCC with Confirmed, High and Medium Potential to Occur within the Study Area**

| Taxa           | Common Name             | Scientific Name              | S-Rank <sup>1</sup> | COSSARO Status <sup>1</sup> | COSEWIC Status <sup>1</sup> | SARA Status | Probability of Occurrence | Species Confirmed |
|----------------|-------------------------|------------------------------|---------------------|-----------------------------|-----------------------------|-------------|---------------------------|-------------------|
| <b>Birds</b>   | Eastern Wood-pewee      | <i>Contopus virens</i>       | S4B                 | SC                          | SC                          | SC          | Medium                    | No                |
|                | Grasshopper Sparrow     | <i>Ammodramus savannarum</i> | S4B                 | SC                          | No Status                   | SC          | Medium                    | No                |
| <b>Reptile</b> | Eastern Musk Turtle     | <i>Sternotherus odoratus</i> | S3                  | SC                          | SC                          | SC          | Medium                    | No                |
|                | Northern Map Turtle     | <i>Graptemys geographica</i> | S3                  | SC                          | SC                          | SC          | Medium                    | No                |
|                | Snapping Turtle         | <i>Chelydra serpentina</i>   | S4                  | SC                          | SC                          | SC          | Medium                    | No                |
| <b>Insect</b>  | Judith's Underwing Moth | <i>Catocala judith</i>       | S2S3                | -                           | -                           | -           | Medium                    | No                |
|                | Juniper Hairstreak      | <i>Callophrys gryneus</i>    | S3                  | -                           | -                           | -           | Medium                    | No                |
|                | Monarch                 | <i>Danaus plexippus</i>      | S2N,S4B             | SC                          | END                         | END         | Medium                    | Confirmed         |
|                | Penitent Underwing Moth | <i>Catocala piatrix</i>      | S3                  | -                           | -                           | -           | Medium                    | No                |
|                | Walnut Caterpillar Moth | <i>Datana integerrima</i>    | S3S4                | -                           | -                           | -           | Medium                    | No                |

<sup>1</sup>Notes: Refer to notes under **Table 4-4**

## 5. Determination of Significance

This section summarizes features within the Study Area that are considered ecologically significant, based on the ERD, provincial and federal legislation, and current technical guidance (e.g., MNR's *Significant Wildlife Habitat Criteria Schedules*). Significance was assessed based on the rarity, condition, and ecological function of each feature, as well as their role within the broader landscape.

Where applicable, significance determinations have been informed by background records, field investigations, and professional judgment. Additional targeted surveys during Detail Design may be recommended where significance could not be confirmed.

### 5.1 Designated Natural Areas

No ANSIs or PSWs were identified in the Study Area. Unevaluated wetlands were present in the Study Area, identified through ELC. The Study Area also fell within the Napanee Limestone Plain IBA.

In accordance with the ERD, designated natural areas are considered significant due to their formal recognition under provincial planning policies, regulatory frameworks, and conservation authority regulations. Their ecological functions, such as providing habitat, maintaining hydrological connectivity, and supporting biodiversity, contribute to their inherent value and significance in land use planning and environmental assessment.

### 5.2 Vegetation Communities and Plants

Vegetation communities identified during field investigations were considered regionally common, well-represented in the surrounding landscape, and in varying condition. No provincially rare vegetation communities were recorded within the Study Area. No SAR or SOCC plants were identified in the Study Area. Suitable habitats for Black Ash and Butternuts were identified in the Study Area, but targeted surveys were not completed to confirm presence or absence.

Phragmites, a Restricted Invasive under the *Invasive Species Act, 2015* was identified in the Study Area. Noxious weeds under the *Weed Control Act, 1990* were also identified in the Study Area (**Figure A4** in **Appendix A**).

### 5.3 Wildlife and Significant Wildlife Habitat

Wildlife habitat significance was assessed based on species diversity, structures features (snags, wetlands, cavity trees, etc.) and potential to support significant functions (e.g., movement corridors, breeding, foraging) in accordance with SWH guidance documents.

The preliminary screening of the Study Area identified suitable nesting habitat for three of the Schedule 1 species, which included wetland habitats for Green Heron and Great Blue Heron and forested habitats for Pileated Woodpecker. However, no nests of those species were observed. MBCA-protected birds were identified in the Study Area and could be found nesting in any suitable habitat and/or man-made structures within the Study Area in any year.

One SOCC, Monarch, was observed within the Study Area. These observations were flyover only, and no larvae were observed.

Candidate SWH types that could be present within the Study Area but could not be confirmed in the absence of targeted surveys included:

- Raptor Wintering Area;



- Bat Maternity Colonies;
- Turtle Wintering Areas;
- Reptile Hibernaculum;
- Waterfowl Nesting Areas;
- Bald Eagle and Osprey Nesting, Foraging and Perching Habitat;
- Turtle Nesting Areas;
- Seeps and Springs;
- Amphibian Breeding Habitat (Woodland);
- Amphibian Breeding Habitat (Wetlands);
- Marsh Breeding Bird Habitat;
- Terrestrial Crayfish;
- Special Concern and Rare Wildlife Species; and
- Amphibian Movement Corridors.

The Napanee River provides an important crossing opportunity for wildlife, including herpetofauna (i.e., turtles and amphibians), by functioning as a north–south movement corridor beneath Highway 401. The site represents an existing natural crossing location within a riparian valley and likely serves as a wildlife movement corridor. The bridge offers high clearance, making it potentially suitable for large mammal movement; however, studies have not confirmed movements. When water levels are low, dry crossing opportunities are available along the edges of the bridge, although these areas become submerged during periods of high water.

## 5.4 Species at Risk

Significance is based on the presence of Schedule 1 SARA migratory birds and PSO-listed species and their protected or regulated habitat.

One Schedule 1 SARA migratory bird, Eastern Meadowlark, was confirmed in the Study Area.

The presence/absence of the following species could not be confirmed as targeted surveys were not performed; however, suitable or candidate habitat was identified within the Study Area for:

- Bank Swallow (*Riparia riparia*);
- Barn Swallow (*Hirundo rustica*);
- Bobolink (*Dolichonyx oryzivorus*);
- Black Ash;
- Blanding’s Turtle (*Emydoidea blandingii*);
- Butternut;
- Eastern Red Bat (*Lasiurus borealis*);
- Eastern Small-footed Myotis (*Myotis leibii*);
- Hoary Bat (*Lasiurus cinereus*);
- Little Brown Myotis (*Myotis lucifugus*);
- Loggerhead Shrike;
- Northern Myotis (*Myotis septentrionalis*);
- Silver-haired Bat (*Lasionycteris noctivagans*);
- Tri-colored Bat (*Perimyotis subflavus*); and

- Red-headed Woodpecker (*Melanerpes erythrocephalus*).

## 6. Impact Assessment

The proposed works for the Project are described in **Section 1.2**. For the purposes of the terrestrial ecosystems impact assessment, it is assumed that the Project will impact all natural features delineated within the Project Limits as shown on **Figure A1** in **Appendix A**. However, as noted, the Palace Road Interchange Technically Preferred Plan (TPP) as illustrated in **Figure A1** in **Appendix A**, has already been assessed and approved under the Palace Road Class EA. As part of the current Class EA the previously approved Palace Road TPP was revisited only to assess compatibility with an interim and ultimate footprint of Highway 401, as well as accommodation of a potential 130 km/h design speed of Highway 401. Based on this review, no significant modifications to the previously approved configuration are being recommended. The bridge will accommodate 8 lanes along Highway 401 and consider profile refinements to meet environmental, drainage and fluvial geomorphological requirements. While the bridge will accommodate a future 8 lanes along Highway 401 there is no timing for this widening improvement and therefore the bridge construction will consider an interim tie-in to the existing Highway 401 west of the Napanee River Bridge to east of the Palace Road interchange, with consideration for 6 lanes in the future. In addition, impacts associated with property acquisition has been identified in a number of locations that will result in a minor footprint change beyond the existing ROW. Primary impacts resulting from this project relate to the replacement of the Napanee River bridge and the noted property acquisition.

Following an evaluation of improvement alternatives and the receipt of input from Indigenous Communities, agencies, key stakeholders, and the public, the Recommended Plan for the Napanee River Bridge involves the replacement of the existing structure with a 44 m long single span Precast Concrete NU Girder structure, as shown in **Appendix F**. The structure will satisfy hydraulic and fluvial geomorphology requirements and will result in a profile raise along Highway 401 to meet freeboard water level requirements. No pier construction will be required in the Napanee River; however, existing piers will need to be removed. This option was preferred as it minimizes impacts to the Napanee River while enhancing constructability and reducing cost.

During the Detail Design phase to follow, the design will be further refined and impacts confirmed in the development of the a final construction footprint. The potential impacts associated with the Project include:

- Loss or degradation of vegetation cover, wildlife habitat, SWH and SAR habitat
- Disturbance to wildlife, including SAR and SOCC through noise or possible mortality; and
- Possible injury and mortality of wildlife, including SOCC and SAR, during construction.

A general discussion of the potential impacts and the mitigation measures recommended to avoid or minimize these potential impacts is provided in the following sections.

### 6.1 Assessment of Potential Impacts

The discussion and assessment of impacts, including during the construction phase and operational phase, are provided in the sections below.

#### 6.1.1 Designated Natural Areas, Vegetation Communities and Plants

Impacts to natural areas, vegetation communities and plants are anticipated to be limited to the areas adjacent to the existing MTO ROW, and existing Napanee River Bridge. Areas adjacent to highways are typically already highly disturbed due to past construction, ongoing maintenance, mowing, soil compaction, and exposure to pollutants such as road salt and vehicle emissions. As a result, vegetation communities in these locations are often dominated by tolerant, common, or non-native species rather than sensitive or high-quality natural habitats. Given the already altered condition and reduced ecological integrity of these environments, incremental impacts

associated with the Project Limits are expected to be limited. However, the acquisition of new properties by MTO may result in localized vegetation clearing within previously undisturbed or less disturbed areas, which could lead to the removal of existing vegetation communities and associated plant species within those lands.

#### 6.1.1.1 Construction Phase

- **Loss of and/or damage to vegetation, ELC communities and Designated Areas:** Total area (ha) of each vegetation community anticipated to be removed in the Limits of Proposed Work are summarized in **Table 6-1** below. Of the total 74.48 ha of vegetation communities in the Study Area, 13.86 ha are anticipated to be cleared within the Project Limits.

**Table 6-1: Vegetation Removal by ELC Community in Study Area**

| ELC Code                         | ELC Description                               | Total Area (ha) in Study Area | Total Impacted Area (ha) in Project Limits |
|----------------------------------|-----------------------------------------------|-------------------------------|--------------------------------------------|
| <b>Cultural Meadow</b>           |                                               |                               |                                            |
| CUM1                             | Mineral Cultural Meadow Ecosite               | 4.30                          | 1.25                                       |
| CUM1-1                           | Dry – Moist Old Field Meadow Type             | 7.62                          | 4.34                                       |
| <b>Cultural Plantation</b>       |                                               |                               |                                            |
| CUP3-2                           | White Pine Coniferous Plantation Type         | 5.12                          | 0.14                                       |
| <b>Cultural Thicket</b>          |                                               |                               |                                            |
| CUT1                             | Mineral Cultural Thicket Ecosite              | 3.60                          | 1.52                                       |
| <b>Cultural Woodland</b>         |                                               |                               |                                            |
| CUW                              | Cultural Woodland                             | 0.61                          | -                                          |
| CUW1                             | Mineral Cultural Woodland Ecosite             | 4.37                          | 0.31                                       |
| CUW1-1                           | Red Cedar Cultural Woodland Type              | 11.98                         | 1.03                                       |
| <b>Forest</b>                    |                                               |                               |                                            |
| FOC2-1                           | Dry – Fresh Red Cedar Coniferous Forest Type  | 1.80                          | -                                          |
| FOD5-1                           | Dry – Fresh Sugar Maple Deciduous Forest Type | 2.55                          | 0.55                                       |
| <b>Marsh</b>                     |                                               |                               |                                            |
| MAM1                             | Bedrock Meadow Marsh Ecosite                  | 0.43                          | 0.38                                       |
| MAM2                             | Mineral Meadow Marsh Ecosite                  | 1.15                          | 0.75                                       |
| MAM2-2                           | Reed-canary Grass Mineral Meadow Marsh Type   | 3.83                          | 0.68                                       |
| <b>Swamp</b>                     |                                               |                               |                                            |
| SWD2-2                           | Green Ash Mineral Deciduous Swamp Type        | 10.44                         | 1.75                                       |
| <b>Open Water</b>                |                                               |                               |                                            |
| OA0                              | Open Water (Inclusions)                       | 3.14                          | 0.29                                       |
| <b>Anthropogenic Communities</b> |                                               |                               |                                            |
| AGR                              | Agricultural                                  | 12.50                         | 0.40                                       |
| CU                               | Cultural (Manicured)                          | 1.04                          | 0.47                                       |
| <b>Total Area</b>                |                                               |                               |                                            |
|                                  |                                               | 74.48                         | 13.86                                      |

ELC communities and Designated Natural Areas adjacent to the Project Limits may also be inadvertently damaged or indirectly affected, as described below, if not appropriately mitigated:

- **Indirect loss and/or damage to vegetation communities:** Incidental intrusion into the adjacent vegetation communities surrounding the Project Limits may occur.
- **Fill and sediment transport from disturbed areas to undisturbed areas:** During grubbing or grading of the site, fill and sediment runoff from the active construction area may enter adjacent, undisturbed vegetation communities and adjacent watercourses, if not appropriately controlled.
- **Soil or water contamination:** Oil, gasoline, grease and other materials from construction equipment, materials, storage and handling may enter vegetation communities and adjacent watercourses, if not appropriately managed.
- **Dust accumulation:** Vegetation clearing, including clearing, grubbing, and grading activities, may result in increased dust generation due to soil disturbance, removal of vegetative cover, and increased exposure of exposed soils. Construction activities such as the operation of heavy equipment, site traffic, and stockpiling of materials may contribute to localized airborne dust deposition on adjacent vegetation communities. Elevated dust accumulation may temporarily impair air quality and alter surface soil conditions within areas adjacent to the Project Limits.
- **Introduction or spread of invasive species** – Invasive species can outcompete and displace native plants, leading to the formation of monocultural stands that negatively affect the vegetation community structure and function. Vegetation clearing and grubbing or grading and movement of construction equipment may perpetuate the establishment of invasive species in new areas, including beyond the Study Area, and further spread in already established areas if control measures are not implemented. Phragmites was present throughout the Study Area, which could be easily spread.

The potential effects on vegetation, ELC communities and Designated Areas described above are anticipated to be negligible and further reduced if mitigation measures described in **Section 6.2** are implemented.

#### 6.1.1.2 Operational Phase

- **Edge effects on woodlands:** Increased fragmentation, altered micro-climates (increased light and wind exposure), and increase in human activity may result in reduced ecological connectivity within the greater landscape leading to greater instances of invasive species, noise, and light pollution on vegetation communities adjacent to the MTO ROW.
- **Soil and water contamination:** Oil, gasoline, grease, road salt and other materials from highway usage may result in contaminants entering adjacent vegetation communities if not appropriately managed.
- **Changes in drainage patterns:** Increased permanent impervious surfaces (e.g., paved roadway and shoulders) and compacted subgrades may reduce infiltration capacity and increase surface runoff volumes. These long-term alterations to grading and drainage may modify local drainage patterns, potentially resulting in localized ponding on the roadway surface and increased erosion potential within adjacent roadside ditches and downstream drainage features.

#### 6.1.2 Wildlife and Wildlife Habitat

The vegetation in the ROW adjacent to the existing bridge, is already highly disturbed but may provide habitats for various wildlife including SOCC and/or birds protected under the MBCA. Migratory birds including SAR may also use the existing bridge for nesting. The potential impacts on wildlife and wildlife habitats as a result of the proposed works are described as follows:

### 6.1.2.1 Construction Phase

The potential impacts on wildlife and wildlife habitats as a result of the proposed works during the construction phase are described as follows:

- **Incidental wildlife injury or mortality** – Wildlife, including SAR and SOCC may enter the construction work area and may become susceptible to accidental injury or mortality associated with construction equipment or machinery if not properly mitigated. In addition, wildlife may be injured or killed by increased vehicular use during construction phases.
- **Disturbance or displacement of migratory birds and destruction of their nests:**  
Vegetation removal and bridge works has the potential to disturb or displace nesting birds, including SAR and SOCC and/or species protected under the MBCA, and destroy their active nests if activities are conducted during the overall bird nesting period of **April 1 to August 31**.
  - Treed habitats (FOD, SWD) may host nest cavities of Pileated Woodpecker, a Schedule 1 species under the MBR. Removal of trees with nest cavities may result in the destruction of Pileated Woodpecker nests.
- **Loss of and/or damage to wildlife habitat, including SWH:** Vegetation removal may result in the direct or indirect loss of general wildlife habitat and candidate SWH (refer to full list in **Section 5.3**).
- **Disturbance to turtle wintering habitat:** Candidate turtle wintering habitat in the Napanee River may be disturbed if in-water works occur between **October 31 to April 1**.

### 6.1.2.2 Operational Phase

- **Disturbance to wildlife from lighting, noise and vibration during operation:** Operation of the new bridge and interchange and associated roadway infrastructure may contribute to increased disturbance to wildlife through a combination of sensory effects, including noise, vibration, and human activity. These factors can alter wildlife behaviour, movement patterns, and habitat use, potentially leading to avoidance of areas near the roadway and contributing to habitat fragmentation or increased collision risk. While the expansion of the bridge, Highway 401 lanes, and off-ramps will slightly increase the overall roadway footprint, the Project is not anticipated to result in a substantive change in disturbance levels relative to existing baseline conditions.
- **Wildlife mortality through vehicle collisions (large mammals):** The existing Highway 401 already represents a source of wildlife-vehicle collisions in the Study Area. While expansion of the off-ramps will slightly increase the physical footprint of roadway infrastructure, the Project is not anticipated to result in a substantive change to traffic volumes, speeds, or patterns relative to baseline conditions. As a result, no measurable increase in deer mortality beyond existing baseline conditions is expected.

### 6.1.3 Species at Risk

Candidate bat SAR habitat and confirmed habitat for Eastern Meadowlark was present in the Study Area.

#### 6.1.3.1 Construction Phase

- **Removal of candidate bat SAR habitat and possible disturbance, mortality or injury:** A total of 3.91 ha of candidate bat SAR habitat identified within the Cultural Woodland (CUW1), White Pine Coniferous Plantation Type (CUP3-2), Dry-Fresh Sugar Maple Deciduous Forest Ecosite (FOD5), Dry-Fresh Sugar Maple Deciduous Forest type (FOD5-1), and Green Ash Mineral Deciduous Swamp Type (SWD2-2) communities are anticipated to be removed. Individual SAR bats may also be inadvertently killed or

injured as a result of the removal or accidental damage of potential roost trees if vegetation clearing occurs during the bat roosting season between **March 15 and November 30**.

- **Removal of candidate Red-headed Woodpecker (*Melanerpes erythrocephalus*) habitat:** The same 3.77 ha of treed habitat noted as candidate bat SAR habitat above may also provide candidate habitat for Red-headed Woodpecker. If vegetation removal occurs between **April 1 and August 31**, individual Red-headed Woodpecker, their nests and young may be incidentally killed or harmed by vegetation clearing activities.
- **Removal of confirmed Eastern Meadowlark habitat and possible disturbance, mortality or injury:** The Project Limits overlaps approximately 3.45 ha of confirmed Eastern Meadowlark habitat, and 0.12 ha of candidate habitat as shown on **Figure A5 in Appendix A**. If vegetation removal occurs between **April 1 and August 31**, individual Eastern Meadowlark, their nests and young may be incidentally killed or harmed by vegetation clearing activities.
- **Removal of candidate Loggerhead Shrike habitat and possible disturbance, mortality or injury:** The Project Limits overlaps approximately 2.54 ha of candidate Loggerhead Shrike habitat, as shown on **Figure A5 in Appendix A**. If vegetation removal occurs between **April 1 and August 31**, individual Loggerhead Shrike, their nests and young may be incidentally killed or harmed by vegetation clearing activities.
- **Removal of candidate Blanding's Turtle habitat and possible disturbance, mortality or injury:** The Napanee River provides candidate Blanding's Turtle, as shown on **Figure A5 in Appendix A**. In-water work may impact overwintering Blanding's Turtle if conducted between **November 1 and March 31**. Blanding's Turtles are known to travel long distances between habitats, resulting in potential encounters with construction activities, machinery, and site traffic if not mitigated.
- **Removal of candidate Black Ash and candidate Butternut habitat.** Vegetation clearing may result in the removal of 1.75 ha of candidate Black Ash habitat, and 0.86 ha of Butternut habitat. No Butternut or Black Ash were observed in the Study Area, although targeted surveys were not conducted.
- **Indirect disturbance of bat activity due to construction lighting:** The lights along the highway are already pointing down and away from natural areas, which is a mitigation measure to reduce impacts to bat species. Given the highway is already well lit for safety requirements, the increase in luminescence is not anticipated to significantly change baseline lighting conditions. While bats may be temporarily disturbed or modify their behaviour as a result of the lighting change from baseline, it is likely they will be able to adapt to the new lighting levels over time and no adverse impacts are anticipated.

#### 6.1.3.2 Operational Phase

- SAR Wildlife Road Mortality
  - Injury or mortality of wildlife, including bat and bird SAR, may occur as a result of vehicle collisions during movement, foraging, or migration, particularly where individuals cross or travel along the roadway from adjacent suitable habitats. While some risk of road mortality is inherent to existing roadway conditions, the Project is not anticipated to result in a measurable increase in this risk. The Project is not expected to substantially alter existing traffic patterns, volumes, or roadway conditions; therefore, wildlife–vehicle collision risk is expected to remain consistent with current baseline conditions.



## 6.2 Mitigation Measures

Proposed mitigation and avoidance measure for the potential impacts on specific terrestrial features as identified in the previous section are described below. To assist in mitigating potential impacts, the following MTO Provisions should be utilized at a minimum:

### Vegetation

- Ontario Provincial Standard Specification (OPSS)-201: Construction Specification for Clearing, Close Cut Clearing, Grubbing and Removal of Surface and Piled Boulders
  - Vegetation removal, grading and soil compaction should be kept to a minimum. Further analysis of the required limits of work should be completed during the Detail Design phase to assess if impacts to certain vegetation communities located within the proposed ROW can be avoided.
- OPSS-801: Construction Specification for the Protection of Trees
  - Trees not designated for removal will not be damaged and will be protected from flooding and sediment deposits from construction operations. Construction materials and earth will not be stockpiled within the dripline of any tree not designated for removal. Barriers for tree protection will be installed at the dripline of trees or woodlot edges within the work area.
- OPSS-803: Construction Specification for Vegetative Cover
  - To the extent feasible, affected areas shall be re-seeded and re-vegetated and restored to pre-disturbance conditions, using native species appropriate for the community type disturbed.
  - Seeded mixes that include Common Milkweed (*Asclepias syriaca*) and native flowering plants should be used to rehabilitate or restore areas of herbaceous vegetation temporarily disturbed during proposed works.
- Non-Standard Special Provision (NSSP) - Invasive and Noxious Vegetation Spraying and Cutting
- Description of controlling the spread of invasive and noxious vegetation. Soil from areas impacted by invasive and noxious vegetation shall not be stockpiled for reuse. Debris and invasive and noxious vegetation material attached to the outside surfaces of equipment is prohibited from entering the working area. Equipment coming on site shall be inspected for debris, and if present debris shall be completely removed and shall be collected and managed as specified.
- NSSP - Invasive and Noxious Vegetation Disposal and Burial
- Contractors shall provide a *Phragmites Management Plan* that addresses procedures including treatment and disposal methods, and equipment cleaning protocols. Soil from areas impacted by Phragmites shall not be stockpiled on site for reuse. Excavated Phragmites material must be securely contained, to ensure seeds or other viable plant parts do not escape while on route to the disposal site.
  - All machinery, construction equipment and vehicles arriving on-site should be in clean condition (e.g., free of fluid leaks, soils containing seeds of plant material from invasive species) and be inspected and washed in accordance with the *Clean Equipment Protocol for Industry* (Halloran et al., 2013) prior to arriving and leaving the construction site in order to prevent the spread of invasive species to other locations.
- Access routing and constructions staging be planned to align with the existing road and disturbed areas in the ROW in order to reduce the extent of disturbance in vegetation communities.

### Soil Management

- OPSS-180: General Specification for the Management of Excess Materials

- Construction material should be stored within an authorized location, and any soil stockpiles should only be located within a suitable sediment fenced and protected location.
- If stockpiles of gravel and sandy substrates or the removal of these substrates in the vicinity of turtle habitat are required during the active turtle season (**April 1 to October 15**), turtle exclusion fencing should be installed in accordance with the *Reptile and Amphibian Exclusion Fencing Best Management Practices* (MECP, 2025) around stockpiles or area of disturbance prior to April 1. Fencing should be installed immediately after stockpiles are created if after April 1.
- Stockpiles should be maintained in accordance with the *Best Management Practices for the Protection, Creation and Maintenance of Bank Swallow Habitat in Ontario* (MNR, 2017). The slope of stockpiles should be maintained at 70 degrees or less to discourage MBCA species from nesting. Alternatively, exclusion methods such as geotextiles, plastic covers or tarps can be used to cover stockpiles to prevent nesting.
- Maintain the outermost limit of soil storage locations (including toes any grading or access disturbance) outside of the driplines of forests and with a minimum setback of 30 m from the edges of wetlands and fish habitat watercourses.

### **Sedimentation and Contamination**

- OPSS-506: Dust Suppressant
  - To mitigate dust deposition, a dust suppressant (water) must be applied to areas of exposed soils to reduce dust generation during construction.
- OPSS-182: General Specification for Environmental Protection for Construction in Waterbodies and on Waterbody Banks
- OPSS-804 and OPSS-805: Construction Specification for Temporary Erosion and Sediment Control Measures
  - Erosion and Sediment Control (ESC) measures should be installed in accordance with the Project's associated ESC plan.
  - ESC measures should be installed outside of forest driplines and at a minimum of 30 m setback from the limits of wetlands and watercourses. ESC measures should be installed along the limits of work.
- OPSS-517 – Dewatering and Temporary Flow Passage Systems: Design and implement an in-water work area isolation plan to maintain clean flow around the work area where in-water work is proposed (as per OPSS 804, 805 and OPSS 517). The design shall:
  - Use only clean materials free of particle matter for temporary cofferdams
  - Manage flow withdrawal and discharge to prevent erosion and the release of sediment to a waterbody, and
  - Ensure work zones are stabilized against high flows at the end of each workday.
  - A Spills Management Plan should be prepared and shall include materials, instructions, education and emergency numbers. The Plan should be kept onsite at all times, communicated to work crews and be properly implemented in the event of accidental spills.
- Special Provision (SP) 199S56 Control of Emissions During Structural Work
- Watercourse banks disturbed by any activity associated with the Project should be immediately stabilized to prevent erosion and/or sedimentation, and re-vegetated with native species suitable for the site.

### **Wildlife Habitat**

- **NSSP: Operational Constraint – Migratory Bird Protection:**
  - Schedule vegetation removal to occur outside of the overall bird nesting period of April 1 to August 31 to avoid disturbance to breeding migratory birds including SAR and/or damage/destruction of their nests. If vegetation removal must occur within this time period, active nest searches must be conducted prior to vegetation removal by a qualified biologist within 'simple habitats' (e.g., manicured lawn) or if minor vegetation clearing is required, to ensure that no active nests of breeding migratory birds or bird SAR are destroyed, in order to prevent contravention of the MBCA and/or SARA.
  - Potential nesting features such as bridges, culverts and other structures were present within the Study Area. These structures likely to be affected by construction may provide suitable nesting habitat for MBCA and/or SARA protected birds (i.e., Barn Swallow [*Hirundo rustica*]) in the future. As such, it is recommended that potential nesting structures be examined to confirm the presence or absence of migratory bird nests prior to the commencement of construction activities if during the active nesting season (**April 1 to August 31**). If birds are observed nesting in, under or on the structure prior to or during rehabilitation or replacement, a qualified biologist should be consulted to determine the appropriate steps taken to reduce impacts to wildlife and avoid a potential contravention of the MBCA. Recommended mitigation may include the installation of bird exclusion netting, or timing restrictions to avoid disturbance during the active nesting period
- **Wildlife Crossings and Wildlife Exclusion Fencing** – The Highway 401 is a known barrier to wildlife movement in the Study Area. The Napanee River riparian corridor that runs north-south under the Napanee River Bridge may serve as a natural crossing location for wildlife, including White-tailed Deer. Targeted surveys for wildlife movement and wildlife mortality were not completed during Preliminary Design. There is currently no wildlife fencing adjacent to the crossing, and the installation of such fencing could help direct animals toward this location and thus reduce wildlife-vehicle collisions. Incorporating terrestrial shelves into the design of the Napanee River Bridge could enhance dry crossing opportunities, particularly for small or medium mammals, given dry shoulders become submerged during periods of high water. Additional improvements, such as providing natural cover beneath the structure and extending the bridge to the longest feasible span, may further increase terrestrial crossing opportunities. High-level recommendations for this location are included in the *Wildlife Crossing Memorandum - Highway 401 from City of Belleville to City of Kingston (GWP 4016-21-00)* (AECOM, 2026c). Wildlife crossing design enhancements, and any associated fencing, will need to consider the species for which it is designed, and should be completed during Detail Design phase.
- For areas adjacent to natural heritage features (i.e., woodlands and wetlands), conduct construction activities during daylight hours for increased visibility (i.e., avoid wildlife strikes) and to avoid light pollution effects during the night, whenever possible.
- If during construction any wildlife are observed within the Limits of Work:
  - Under no circumstances will any wildlife be knowingly harmed, harassed or otherwise disturbed. If an animal is encountered, it will be permitted to move away on its own.
  - If wildlife is observed within the work area, a Qualified Biologist or environmental monitor will determine if there is a concern about the significance of the species observed.
  - If the species is identified as SAR:
    - A Qualified Biologist shall contact MECP immediately to determine next steps. In accordance with the SCA, no Threatened or Endangered species can be handled or relocated without the proper approvals/permitting and authorization from MECP unless handling is considered necessary to address an imminent risk to human health and safety or to the animal. In that case, the Qualified Biologist shall document the circumstances and ensure any actions taken are consistent with applicable legislative requirements.

- If the species is not identified as SAR:
  - The species will be permitted to move away on its own. If it does not move, a Qualified Biologist shall be contacted for guidance.
  - If the animal is injured or orphaned, a Qualified Biologist will be notified to transport the animal to a wildlife rehabilitation centre that is considered to be an approved Wildlife Custodian by the MNR or a member of the College of Veterinarians of Ontario.
  - For SOCC (e.g., a Snapping Turtle [*Chelydra serpentina*]) or other non-SAR wildlife, it may be appropriate to request that a Qualified Biologist move the species for the safety of both the onsite personnel and the species.
  - If any non-SAR amphibians or reptiles are unearthed during their hibernation, a Qualified Biologist will be notified to transport the animal to a suitable wildlife rehabilitation centre.

### **Species at Risk**

- SP 100S14 Unexpected Species at Risk Occurrence
  - Should SAR be encountered within the work area, construction activities will cease and MTO and MECP will be contacted for next steps.
- Schedule vegetation (trees, shrubs, ground cover) removal to occur outside of the overall bird nesting period of **April 1 to August 31** to avoid disturbance to breeding migratory birds including SAR and/or damage/destruction of their nests
  - Mowing grasses in the areas of meadow habitat in the MTO ROW prior to **April 1** can deter migratory birds, including Bobolink and Eastern Meadowlark, from nesting during the breeding bird season.
- All vegetation removal within suitable habitat for bat SAR shall occur outside of the bat roosting season between **March 15 and November 30** and can only proceed upon registration under the SCA.
- During the bat roosting season between **March 15 and November 30**, any construction activities within 30 m of suitable maternity roost habitat will be restricted to daylight hours when possible, to minimize duration of disturbance.
- If a Butternut or Black Ash is observed within the Study Area, vegetation clearing surrounding the tree(s) will cease, and MTO and MECP will be contacted for next steps. A “qualified Butternut professional” and “qualified Black Ash professional” as defined by the SCA will be required to assess the health of the tree(s). Targeted surveys for Black Ash and Butternut should be completed during Detail Design.
- Schedule in-water works and dewatering activities outside of the Blanding's Turtle hibernation period of **November 1 to April 1** of any year (MNRF, 2015).
- **Nocturnal Light Pollution Mitigation:**
  - Construction activities should be limited to daylight hours (i.e., 7 am to 7 pm) to reduce the amount of noise and light disturbance to nocturnal species (e.g. bats).
  - Avoid the use of high-pressure sodium and Light-emitting Diode (LED) lights immediately adjacent to woodlands as these types of lighting have been noted to negatively affect bat activity.
  - Shield any corridor illumination to reduce light spill within bat SAR habitat and any restoration areas. If construction at night cannot be avoided, lights will be pointed away from the wooded areas and suitable habitat to reduce impacts to bat SAR.

- The need for additional plans (i.e., wildlife management, wildlife monitoring, ecological restoration, environmental management, Invasive Species management, Ministry Salt Management Plan) to support the proposed works should be determined during Detail Design.
- SAR Awareness training to construction staff prior to onset of construction focusing on species identification and encounter/reporting protocols. Construction personnel will be notified of the presence of the known potential SAR if present, and any new individuals that may be identified during construction, and the required protection measures while it remains active.

### **Significant Wildlife Habitat**

- Temporary reptile and amphibian exclusion fencing will be installed prior to the onset of construction and before the commencement of seasonal amphibian and turtle movements (generally prior to **April 1**), in accordance with *the Reptile and Amphibian Exclusion Fencing Best Management Practices* (MECP, 2025). Fencing will be implemented where construction activities occur within a minimum of 100 m of confirmed significant turtle wintering areas or amphibian breeding habitats (e.g., wetlands or woodlands), with the extent and tie-ins refined based on site-specific conditions. If an active turtle nests or confirmed nesting activity is found, a buffer area will be implemented around the nest or nesting activity. The radius of the buffer will range depending on the species, level of disturbance and landscape context which will be confirmed by a Qualified Biologist but will be protected by a minimum of 30 m surrounding the nest.
- If reptile hibernacula features are incidentally identified during construction activities, work should be completed outside of the reptile overwintering period (**October 31 to April 1**), whenever possible.
- To minimize impacts to Monarch, meadow habitats with Milkweed should be removed in the fall/winter to avoid the Monarch breeding period. Pre-mowing meadow communities prior to **April 1** can also minimize Milkweed growing in the CDA and attracting Monarchs. Collecting and redistributing Milkweed seed pods where feasible can increase available habitat for Monarch. Any disturbed areas should be re-seeded with a native pollinator mix that includes Milkweed.

Additional mitigation specific to SAR will be confirmed through MECP consultation, and permitting processes as outlined in **Section 7**.

## **6.3 Net Effects**

Effects are expected to be minimized through the implementation of avoidance and mitigation measures identified in **Section 6.2**. Vegetation removal or disturbance will be limited to areas within the proposed Limits of Work, and some areas will be temporary in nature (e.g., soil storage location). Given the utilization of agricultural land for much of the surrounding landscape, the overall functionality of the adjacent tracts of habitat for wildlife including SAR and SOCC is not expected to be adversely impaired or eliminated. Disturbance or possible mortality of wildlife including SAR and SOCC will be minimized by restricting nighttime work, installing wildlife exclusion fencing, and scheduling vegetation clearing outside the bird nesting and bat roosting seasons. The mitigation measures prescribed in **Section 6.2** are intended to minimize or avoid effects to SAR; however, registration under the SCA is anticipated as works are set to occur in and adjacent to general habitat protections for bat SAR and Blanding's Turtle. With respect to birds, all migratory birds are protected under the MBCA, including Eastern Meadowlark. Authorization would only be required if active migratory bird nests are identified and proposed to be removed or disturbed during construction, or if unoccupied nests of Schedule 1 species under the MBR, 2022 (e.g., Pileated Woodpecker) are identified during additional surveys completed at the Detailed Design stage and require removal or relocation. **Section 7** provides a summary of the anticipated permits and approvals required prior to the onset of construction activities.

## 7. Anticipated Permits and Approvals and Next Steps

**Table 7-1** below summarizes anticipated permits and approvals and additional surveys that may be required during the Detail Design phase of this project.



**Table 7-1: Summary of Anticipated Next Steps, Permits and Approvals**

| Level of Government | Legislation                                       | Policies / Regulations                               | Governing Authority                          | Anticipated Permit and Approval Requirements                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|---------------------|---------------------------------------------------|------------------------------------------------------|----------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Federal             | <i>Migratory Bird Convention Act, 1994</i> (MBCA) | Migratory Birds Regulations (MBR), 2022              | Environment and Climate Change Canada (ECCC) | <ul style="list-style-type: none"> <li>Green Heron, Blue Heron and Pileated Woodpecker are listed under Schedule 1 of the MBR and nests are protected year-round unless confirmed abandoned. If a nest of these species is identified within the Limits of Work, removal or destruction may only occur without authorization if ECCC has been notified through the Abandoned Nest Registry and has remained unoccupied for a minimum of 36 consecutive months, as prescribed in Schedule 1 of the MBR. <ul style="list-style-type: none"> <li>Where the required abandonment waiting period and registry process cannot be accommodated within the Project schedule, a permit under section 70 of the MBR (Damage or Danger Permit) would be required prior to the removal or destruction of the nesting cavity, subject to ECCC's permitting criteria.</li> <li>Targeted surveys should be completed to confirm there are no Schedule 1 MBR bird nests in the Limits of Work.</li> </ul> </li> <li>Contravention of the MBCA is not anticipated provided vegetation removal occurs outside of the breeding bird season (<b>April 1 to August 31</b>). <ul style="list-style-type: none"> <li>Should vegetation removal be required during the active bird nesting season, a nest survey will be conducted by a qualified Avian Biologist no more than 48 hours prior to vegetation removal and should only be considered for simple habitats as defined by ECCC (2019) and determined by the qualified Biologist.</li> </ul> </li> <li><b>No permit anticipated.</b></li> </ul> |
|                     | <i>Species at Risk Act, 2002</i> (SARA)           | N/A                                                  | ECCC                                         | <ul style="list-style-type: none"> <li>Confirmed habitat for Eastern Meadowlark was identified in the Study Area.</li> <li>Contravention of the SARA is not anticipated provided any vegetation removal occurs outside of the breeding bird season (<b>April 1 to August 31</b>). <ul style="list-style-type: none"> <li>Should vegetation removal be required during the active bird nesting season, a nest survey will be conducted by a qualified Avian Biologist no more than 48 hours prior to vegetation removal and should only be considered for simple habitats as defined by ECCC (2019) and determined by the qualified Biologist.</li> </ul> </li> <li><b>No permit anticipated.</b></li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|                     | <i>Species Conservation Act, 2025</i> (SCA)       | Ontario Regulation 61/26<br>Ontario Regulation 75/26 | Government of Ontario                        | <ul style="list-style-type: none"> <li>Candidate bat SAR habitat was identified within the Study Area (<b>Figure A5 in Appendix A</b>) and 3.91 ha is anticipated to be removed.</li> <li>Candidate habitat for Butternut and Black Ash was identified in the Study Area. Targeted surveys for these species should be completed during Detail Design.</li> <li><b>Registration under the SCA is anticipated for removal of bat SAR habitat and potential impacts to Blanding's Turtle.</b> Registration requires the preparation and implementation of a Conservation Plan, which must demonstrate that: <ul style="list-style-type: none"> <li>Reasonable measures are taken to avoid and minimize impacts to bat SAR and their habitats;</li> </ul> </li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |



| Level of Government | Legislation                                            | Policies / Regulations    | Governing Authority                         | Anticipated Permit and Approval Requirements                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|---------------------|--------------------------------------------------------|---------------------------|---------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                     |                                                        |                           |                                             | <ul style="list-style-type: none"> <li>○ Habitat compensation, restoration, or creation measures are identified where adverse effects on the species and habitat is unavoidable;</li> <li>○ Measures are in place to maintain or improve species viability, including timing restrictions, habitat enhancements, and the provision of alternative roosting opportunities; and</li> <li>○ Monitoring and adaptive management commitments are established to confirm the effectiveness of mitigation and compensation measures over time.</li> </ul>                                                                                                                           |
|                     | <i>Fish and Wildlife Conservation Act, 1997 (FWCA)</i> | Ontario Regulation 666/98 | Ontario Ministry of Natural Resources (MNR) | <ul style="list-style-type: none"> <li>■ Wildlife and fish rescues, requiring the collection and transportation of wildlife may be required around the existing abutments within the Napanee River, and will require an authorization from the MNR (i.e., Wildlife Scientific Collection Authorization [WSCA]) to avoid contravention of the FWCA. No specially protected raptors nests were identified within the Study Area and therefore no contravention of the FWCA is anticipated for specially protected raptors under the FWCA.</li> <li>■ <b>A WSCA is anticipated under the FWCA for collection and relocation of wildlife during wildlife rescues.</b></li> </ul> |

## 8. Limitation of the Report

This assessment is based on a synthesis of field data collected as part of two separate projects conducted at different times and for different purposes. While these studies collectively cover the Study Area, variations in survey timing, scope, methods, and level of effort may result in differences in data coverage. The observations and results obtained during the terrestrial investigations are representative of conditions observed up to and including 2025 only. No new field investigations were completed for this Project; therefore, current conditions may differ due to changes in vegetation communities, land use, or wildlife presence over time.

Targeted surveys were not completed for all SAR across the full Study Area; as such, identified habitats remain candidate only. Habitat conditions (including vegetation communities, Significant Wildlife Habitat, and SAR habitat) are dynamic and may become more or less suitable over time. In addition, changes to legislation or policy may affect the status or protection of species, habitats, or designated areas. The mitigation measures and recommendations provided in this report are based on legislation current at the time of writing and may require revision to remain compliant with future regulatory changes. AECOM has applied best professional judgment in interpreting available data and synthesizing results to support accurate and reasonable conclusions.

## 9. References

- AECOM, 2016. *Terrestrial Ecosystems Existing Conditions and Impact Assessment Report – Highway 401 Interchange Improvements at Palace Road (GWP 4107-13-00)*.
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# Appendix A. Figures

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**Figure A1 Study Area**

**Figure A2 Designated Natural Areas**

**Figure A3 Ecological Land Classification**

**Figure A4 Invasive Species and Noxious Weeds**

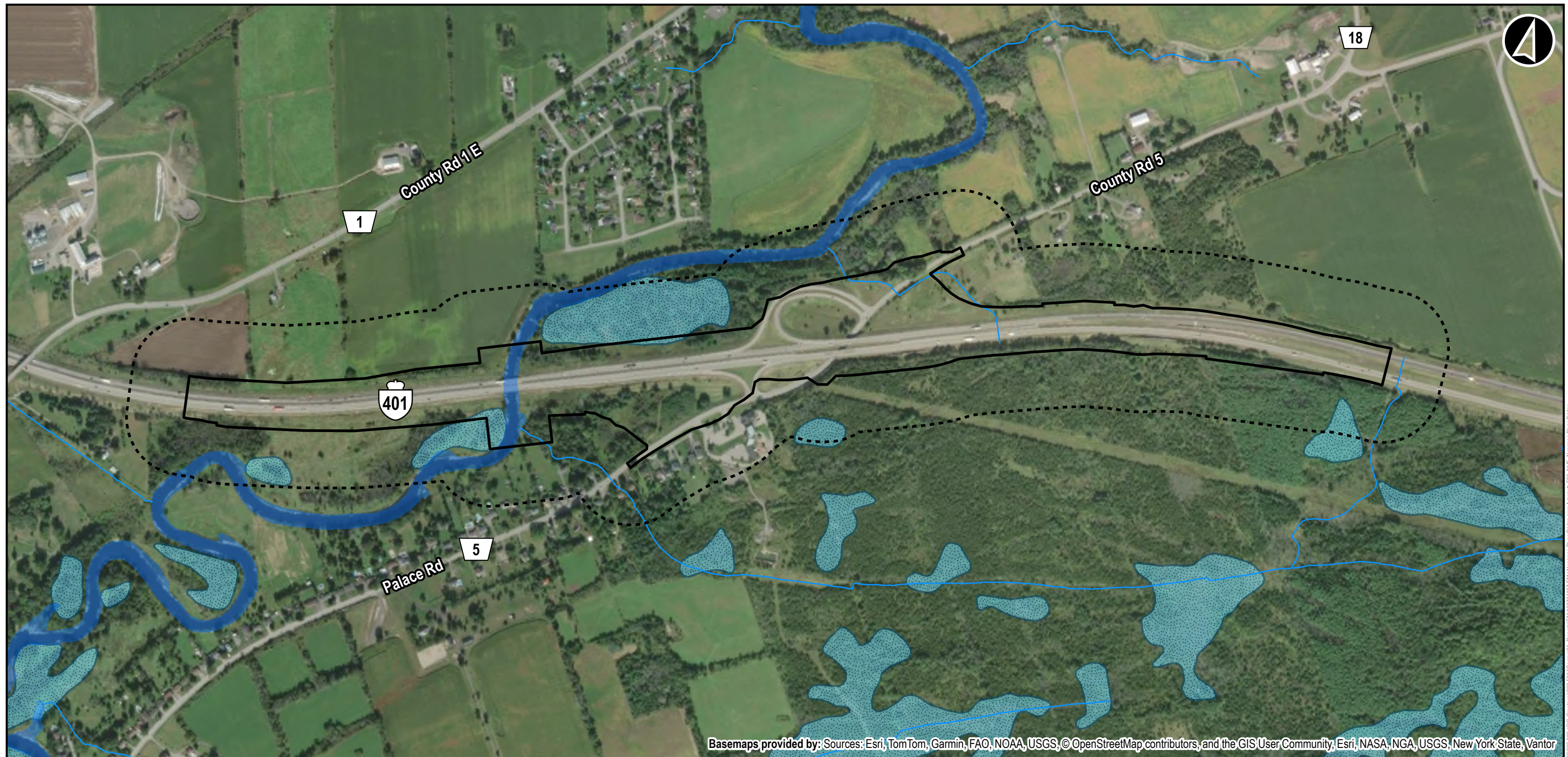
**Figure A5 Candidate and Confirmed Species at Risk Habitat**

**Figure A6 Confirmed Significant Wildlife Habitat**









**Legend**

- Limits of Proposed Work
- Study Area (120 m)
- Wetland**
  - Unevaluated Wetland
- General Features**
  - Watercourse
  - Waterbody

**Replacement/Rehabilitation of Napanee River Bridge**

**Natural Heritage Features**

0 100 200 300 400 500 Meters

NAD 1983 UTM Zone 18N

**Data Sources:**  
Contains Information licensed under the Open Government License Ontario.

**AECOM**

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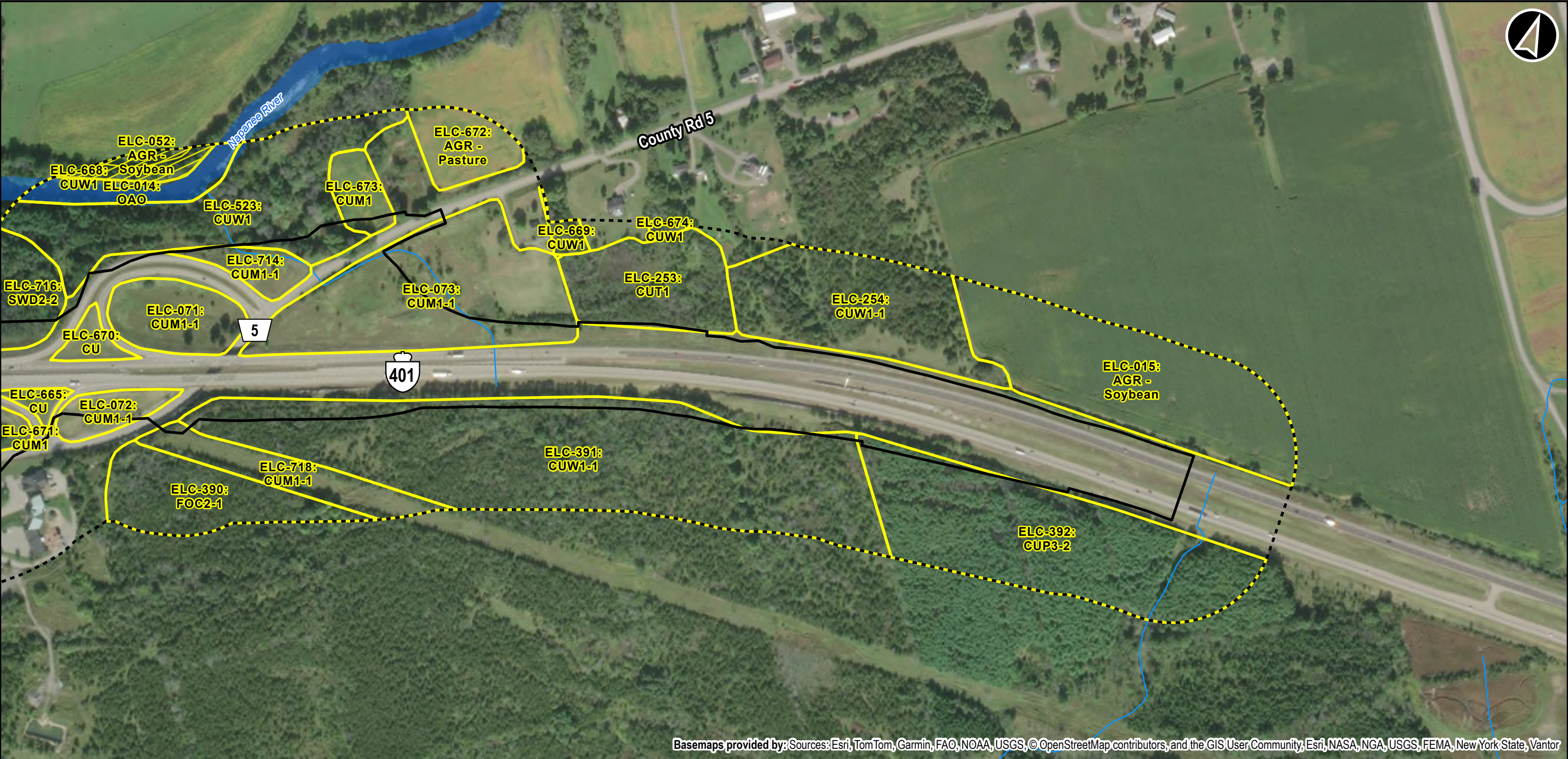
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**Figure 2**









Basemaps provided by: Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community, Esri, NASA, NGA, USGS, FEMA, New York State, Vantor







Basemaps provided by: Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community, Esri, NASA, NGA, USGS, New York State, Vantor

**Legend**

Limits of Proposed Work

Study Area (120 m)

**Noxious Weeds – Weed Control Act, 1990**

Canada Thistle (*Cirsium arvense*)

Eastern Poison Ivy (*Toxicodendron radicans*)

Wild Parsnip (*Pastinaca sativa*)

Eastern Poison Ivy (*Toxicodendron radicans*)

Wild Parsnip (*Pastinaca sativa*)

**Restricted Invasive Species – Invasive Species Act, 2015**

European Reed (*Phragmites australis* ssp. *australis*)

European Reed (*Phragmites australis* ssp. *australis*)

**Replacement/Rehabilitation of Napanee River Bridge**

**Invasive Species and Noxious Weeds**

0100200300400500

Meters

NAD 1983 UTM Zone 18N

Data Sources:  
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**Figure: 4**

Map Extents

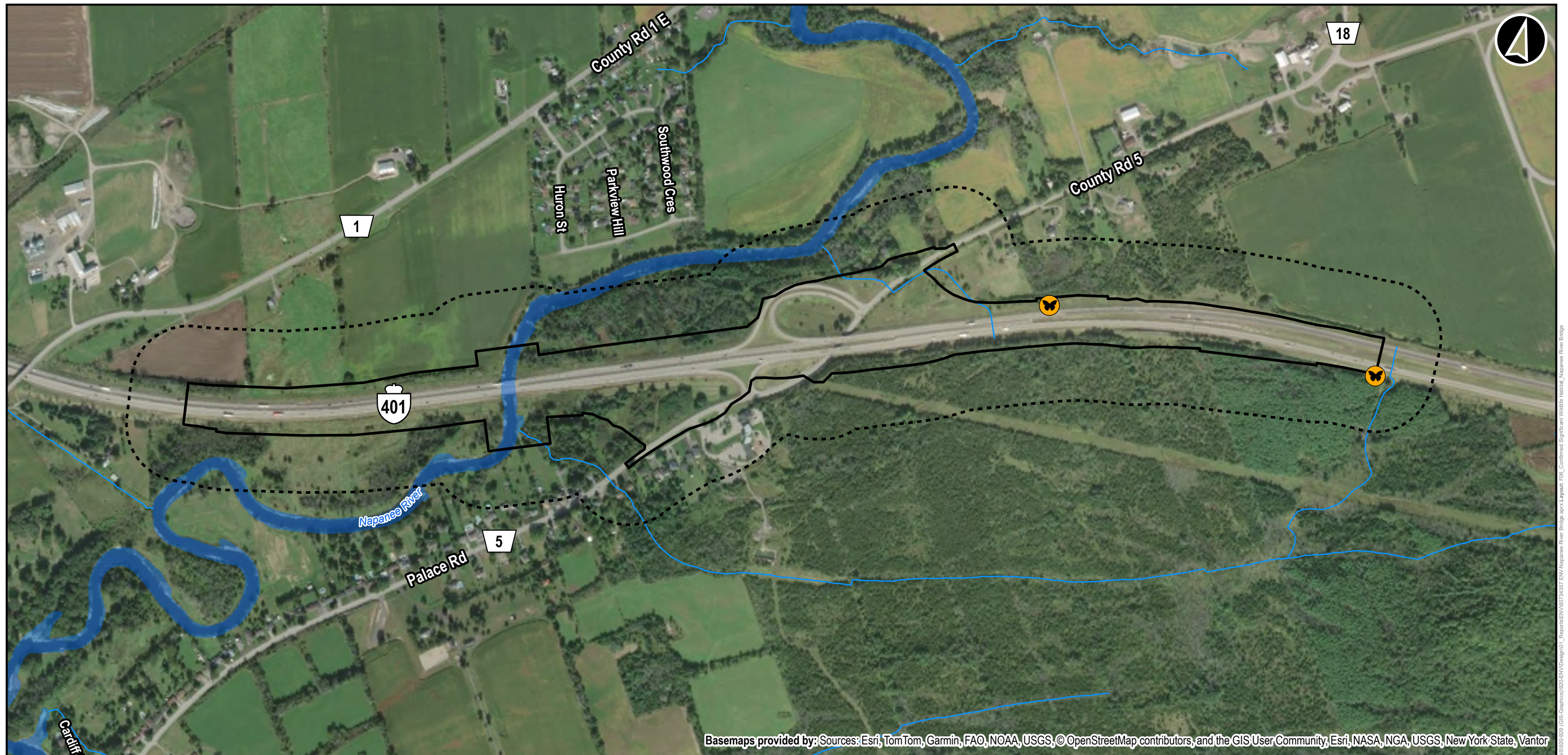
Project Location: Via aecomnet.com/AMER/WorkItem-CACON/IDCS/GIS/Projects/6073437/000-CAD\_GIS/2020-029 [GIS-Graphic]1020-ENV/Design/01\_Report/VIEW/6073437-ENV-Napanee River Bridge.aprx Layout: F04\_Invasive Species and Noxious Weeds\_Napanee River Bridge

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**Legend**

- Limits of Proposed Work
- Study Area (120 m)

**Species of Conservation Concern Occurrences**

- Monarch (Adult) (*Danaus plexippus*)

**General Features**

- Watercourse
- Waterbody

**Map Extents**

**Replacement/Rehabilitation of Napanee River Bridge**

**Confirmed Significant Wildlife Habitat**

0 100 200 300 400 500 Meters  
NAD 1983 UTM Zone 18N

**Data Sources:**  
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**AECOM**

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**Figure: 6**



# Appendix B. Terrestrial Photolog

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|                                                           |                                                                                                                                                                                                                  |                                |
|-----------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|
| <b>Client Name:</b><br>Ontario Ministry of Transportation | <b>Report Name</b><br>Terrestrial Ecosystems Existing Conditions and Impact Assessment Report - Highway 401 Improvements Between City of Belleville and City of Kingston – Napanee River Bridge (GWP 4040-20-00) | <b>Project No.</b><br>60734357 |
|-----------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|



**Photograph 1. ↑**

CUM1-1: Dry-Moist Old Field Meadow Type



**Photograph 2. ↑**

CUM1-1: Dry-Moist Old Field Meadow Type



**Photograph 3. ↑**

CUW1- Mineral Cultural Woodland / CUP3-1: Red Pine Coniferous Plantation Type



**Photograph 4. ↑**

CUW1 – Mineral Cultural Woodland / CUP3-1- Red Pine Coniferous Plantation Type and existing HONI corridor



|                                                           |                                                                                                                                                                                                                  |                                |
|-----------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|
| <b>Client Name:</b><br>Ontario Ministry of Transportation | <b>Report Name</b><br>Terrestrial Ecosystems Existing Conditions and Impact Assessment Report - Highway 401 Improvements Between City of Belleville and City of Kingston – Napanee River Bridge (GWP 4040-20-00) | <b>Project No.</b><br>60734357 |
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**Photograph 5. ↑**

CUT1: Mineral Cultural Thicket Ecosite



**Photograph 6. ↑**

CUT1: Mineral Cultural Thicket Ecosite



**Photograph 7. ↑**

MAM1: Bedrock Meadow Marsh Ecosite



**Photograph 8. ↑**

Phragmites (*Phragmites australis* subsp. *australis*) on the north side of Highway 401 between Napanee River and Palace Road.



|                                                           |                                                                                                                                                                                                                  |                                |
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| <b>Client Name:</b><br>Ontario Ministry of Transportation | <b>Report Name</b><br>Terrestrial Ecosystems Existing Conditions and Impact Assessment Report - Highway 401 Improvements Between City of Belleville and City of Kingston – Napanee River Bridge (GWP 4040-20-00) | <b>Project No.</b><br>60734357 |
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**Photograph 9. ↑**

SWD2-2: Green Ash Mineral Deciduous Swamp Type



**Photograph 10. ↑**

SWD2-2: Green Ash Mineral Deciduous Swamp Type



**Photograph 11. ↑**

MAM2-2: Reed-canary Grass Mineral Meadow Marsh Type located on south side of Highway 401, west of the Napanee River Bridge.



**Photograph 12. ↑**

FOD5-1: Dry – Fresh Sugar Maple Deciduous Forest Type on south side of Highway 401, east of the Napanee River.



|                                                           |                                                                                                                                                                                                                  |                                |
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| <b>Client Name:</b><br>Ontario Ministry of Transportation | <b>Report Name</b><br>Terrestrial Ecosystems Existing Conditions and Impact Assessment Report - Highway 401 Improvements Between City of Belleville and City of Kingston – Napanee River Bridge (GWP 4040-20-00) | <b>Project No.</b><br>60734357 |
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**Photograph 13. ↑**

CUM1-1 Dry-Fresh Old Field Meadow Type on north side of Highway 401, east of Palace Road Interchange.



**Photograph 14. ↑**

OAO – Open Aquatic area of the Napanee River.



**Photograph 15. ↑**

CUW1-1 Red Cedar Cultural Woodland Type



**Photograph 16. ↑**

CUW1-1 Red Cedar Cultural Woodland Type



|                                                           |                                                                                                                                                                                                                  |                                |
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| <b>Client Name:</b><br>Ontario Ministry of Transportation | <b>Report Name</b><br>Terrestrial Ecosystems Existing Conditions and Impact Assessment Report - Highway 401 Improvements Between City of Belleville and City of Kingston – Napanee River Bridge (GWP 4040-20-00) | <b>Project No.</b><br>60734357 |
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**Photograph 17. ↑**

CUP3-2 White Pine Coniferous Plantation Type



**Photograph 18. ↑**

FOC2-1 Dry – Fresh Red Cedar Coniferous Forest Type



**Photograph 19. ↑**

CUW1 Mineral Cultural Woodland Ecosite



**Photograph 20. ↑**

Large patch of Wild Parsnip growing on south side of Highway 401, east of the Napanee River bridge.



|                                                           |                                                                                                                                                                                                                  |                                |
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| <b>Client Name:</b><br>Ontario Ministry of Transportation | <b>Report Name</b><br>Terrestrial Ecosystems Existing Conditions and Impact Assessment Report - Highway 401 Improvements Between City of Belleville and City of Kingston – Napanee River Bridge (GWP 4040-20-00) | <b>Project No.</b><br>60734357 |
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**Photograph 21. ↑**

Large patch of Wild Parsnip growing on north side of Highway 401, east of County Road 5.



**Photograph 22. ↑**

Large patch of Wild Parsnip growing on north side of Highway 401, within the County Road 5 cloverleaf.



**Photograph 23. ↑**

Large patch of Wild Parsnip growing on north side of Highway 401, west of the County Road 5 cloverleaf.



**Photograph 24. ↑**

Large patch of Milkweed growing northwest side of the Palace Road (County Road 5) interchange.



|                                                           |                                                                                                                                                                                                                  |                                |
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| <b>Client Name:</b><br>Ontario Ministry of Transportation | <b>Report Name</b><br>Terrestrial Ecosystems Existing Conditions and Impact Assessment Report - Highway 401 Improvements Between City of Belleville and City of Kingston – Napanee River Bridge (GWP 4040-20-00) | <b>Project No.</b><br>60734357 |
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**Photograph 25. ↑**

View of downstream section of the Napanee River facing south.



**Photograph 26. ↑**

View of Napanee River Bridge from the downstream part of the Napanee River facing north.



**Photograph 27. ↑**

View of upstream section of the Napanee River facing north.



**Photograph 27. ↑**

View of the Napanee River Bridge from the upstream part of the Napanee River facing southeast.

## Appendix C. Plant List

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Appendix C: Vascular Plant List

| Botanical Name                   |                                                   |                  | Plant Species Information |           |           |              |                      |                          |                                  |       |         |          |           |        |      |      |        |        |        |        |     |      |        |        |
|----------------------------------|---------------------------------------------------|------------------|---------------------------|-----------|-----------|--------------|----------------------|--------------------------|----------------------------------|-------|---------|----------|-----------|--------|------|------|--------|--------|--------|--------|-----|------|--------|--------|
| Common Name                      | Scientific Name                                   | Family           | CC (2023)                 | CW (2023) | Native St | Invasive (Y) | Invasive Species Act | Ontario Weed Control Act | Ontario Invasive Species Council | SRANK | COSEWIC | PSO List | ELC Code: | CUM1-1 | CUT1 | CUW1 | CUW1-1 | CUP3-2 | FOD5-1 | FOC2-1 | OAO | MAM2 | MAM2-2 | SWD2-2 |
| American Black Currant           | <i>Ribes americanum</i>                           | Grossulariaceae  | 4                         | -3        | N         | N            |                      |                          |                                  | S5    |         |          |           |        |      |      |        |        |        |        |     | X    |        | X      |
| Norway Maple                     | <i>Acer platanoides</i>                           | Aceraceae        |                           | 5         | I         | Y            |                      |                          | Cat 2                            | SE5   |         |          |           | X      | X    | X    | X      | X      |        | X      |     |      |        |        |
| American Water-horehound         | <i>Lycopus americanus</i>                         | Lamiaceae        | 4                         | -5        | N         | N            |                      |                          |                                  | S5    |         |          |           |        |      |      |        | X      |        |        | X   |      |        |        |
| Amur Maple                       | <i>Acer ginnala</i>                               | Aceraceae        |                           | 5         | I         | N            |                      |                          | Cat 4                            | SE1   |         |          |           |        |      |      | X      |        |        |        |     |      |        |        |
| Austrian Pine                    | <i>Pinus nigra</i>                                | Pinaceae         |                           | 5         | I         | N            |                      |                          |                                  | SE3   |         |          |           |        | X    | X    | X      |        |        | X      |     |      | X      |        |
| Autumn Olive                     | <i>Elaeagnus umbellata</i>                        | Elaeagnaceae     |                           | 3         | I         | Y            |                      |                          | Cat 1                            | SE3   |         |          |           |        |      |      |        |        |        | X      |     |      |        |        |
| (Acer rubrum X Acer saccharinum) | <i>Acer x freemanii</i>                           | Aceraceae        | 6                         | -5        | N         | N            |                      |                          |                                  | SNA   |         |          |           |        | X    | X    |        |        |        |        |     |      |        | X      |
| Common Yarrow                    | <i>Achillea millefolium</i>                       | Asteraceae       |                           | 3         | I         | N            |                      |                          |                                  | 0SE5? |         |          |           |        |      |      | X      |        |        |        |     | X    |        |        |
| Red Baneberry                    | <i>Actaea rubra</i>                               | Ranunculaceae    | 6                         | 3         | N         | N            |                      |                          |                                  | 0S5   |         |          |           |        |      |      |        |        |        | X      |     |      |        |        |
| Basswood                         | <i>Tilia americana</i>                            | Tiliaceae        | 4                         | 3         | N         | N            |                      |                          |                                  | S5    |         |          |           | X      |      | X    | X      |        | X      | X      |     |      |        |        |
| Grey Alder                       | <i>Alnus incana</i>                               | Betulaceae       | 6                         | -3        | N         | N            |                      |                          |                                  | 0S5   |         |          |           |        |      |      |        |        |        |        |     |      |        |        |
| Bitternut Hickory                | <i>Carya cordiformis</i>                          | Juglandaceae     | 6                         | 0         | N         | N            |                      |                          |                                  | S5    |         |          |           |        |      |      |        | X      |        |        |     |      |        |        |
| Tall Anemone                     | <i>Anemone virginiana</i>                         | Ranunculaceae    | 4                         | 3         | N         | N            |                      |                          |                                  | 0S5   |         |          |           |        |      |      |        |        |        | X      |     |      |        |        |
| Black Cherry                     | <i>Prunus serotina</i>                            | Rosaceae         | 3                         | 3         | N         | N            |                      |                          |                                  | S5    |         |          |           |        |      |      | X      | X      | X      | X      |     |      |        |        |
| Hemp Dogbane                     | <i>Apocynum cannabinum</i> var. <i>cannabinum</i> | Apocynaceae      | 3                         | 0         | N         | N            |                      |                          |                                  | 0S5   |         |          |           | X      |      | X    | X      | X      | X      | X      |     |      |        |        |
| Black Medick                     | <i>Medicago lupulina</i>                          | Fabaceae         |                           | 3         | I         | N            |                      |                          | Cat 4                            | SE5   |         |          |           | X      |      |      |        |        |        |        |     |      |        |        |
| Black Raspberry                  | <i>Rubus occidentalis</i>                         | Rosaceae         | 2                         | 5         | N         | N            |                      |                          |                                  | S5    |         |          |           |        |      | X    |        |        |        |        |     |      |        | X      |
| Common Goatsbeard                | <i>Aruncus dioicus</i>                            | Rosaceae         |                           | 3         | I         | N            |                      |                          |                                  | 0SE1  |         |          |           |        |      |      | X      |        |        |        |     |      |        |        |
| Black Walnut                     | <i>Juglans nigra</i>                              | Juglandaceae     | 5                         | 3         | N         | N            |                      |                          |                                  | S4?   |         |          |           | X      |      | X    | X      |        | X      |        |     |      |        |        |
| Swamp Milkweed                   | <i>Asclepias incarnata</i>                        | Apocynaceae      | 6                         | -5        | N         | N            |                      |                          |                                  | 0S5   |         |          |           |        | X    | X    |        |        |        |        |     |      |        |        |
| Blue Spruce                      | <i>Picea pungens</i>                              | Pinaceae         |                           | 3         | I         | N            |                      |                          |                                  | SE1   |         |          |           |        |      |      | X      | X      |        |        |     |      |        |        |
| Common Lady Fern                 | <i>Athyrium filix-femina</i>                      | Dryopteridaceae  | 4                         | 0         | N         | N            |                      |                          |                                  | 0S5   |         |          |           |        |      |      |        |        |        | X      |     |      |        |        |
| Blue-stemmed Goldenrod           | <i>Solidago caesia</i>                            | Asteraceae       | 5                         | 3         | N         | N            |                      |                          |                                  | S5    |         |          |           |        |      |      |        |        | X      |        |     |      |        |        |
| Devil's Beggarticks              | <i>Bidens frondosa</i>                            | Asteraceae       | 3                         | -3        | N         | N            |                      |                          |                                  | 0S5   |         |          |           |        |      |      |        |        |        |        |     | X    | X      |        |
| Rye Brome                        | <i>Bromus secalinus</i>                           | Poaceae          |                           | 5         | I         | N            |                      |                          |                                  | 0SE4  |         |          |           |        |      |      |        |        |        | X      |     |      |        |        |
| Broad-leaved Cattail             | <i>Typha latifolia</i>                            | Typhaceae        | 1                         | -5        | N         | N            |                      |                          |                                  | S5    |         |          |           | X      | X    | X    | X      |        |        | X      | X   |      | X      |        |
| Spiny Plumelless Thistle         | <i>Carduus acanthoides</i>                        | Asteraceae       |                           | 5         | I         | N            |                      |                          |                                  | 0SE5  |         |          |           |        |      |      |        |        |        | X      |     |      |        |        |
| Bebb's Sedge                     | <i>Carex bebbii</i>                               | Cyperaceae       | 3                         | -5        | N         | N            |                      |                          |                                  | 0S5   |         |          |           |        |      | X    |        |        |        |        |     |      |        |        |
| Crested Sedge                    | <i>Carex cristatella</i>                          | Cyperaceae       | 3                         | -3        | N         | N            |                      |                          |                                  | 0S5   |         |          |           |        |      | X    |        |        |        | X      |     |      |        |        |
| Broad-leaved Enchanter's Nights  | <i>Circaea canadensis</i>                         | Onagraceae       | 2                         | 3         | N         | N            |                      |                          |                                  | S5    |         |          |           |        |      | X    |        |        |        |        |     |      |        |        |
| Eastern Red Cedar                | <i>Juniperus virginiana</i>                       | Cupressaceae     | 4                         | 3         | N         | N            |                      |                          |                                  | S5    |         |          |           | X      | X    | X    | X      | X      | X      | X      |     |      | X      | X      |
| Bur Oak                          | <i>Quercus macrocarpa</i>                         | Fagaceae         | 5                         | 3         | N         | N            |                      |                          |                                  | S5    |         |          |           |        |      | X    | X      | X      | X      | X      |     |      |        | X      |
| Calico Aster                     | <i>Symphiotrichum lateriflorum</i>                | Asteraceae       | 3                         | 0         | N         | N            |                      |                          |                                  | S5    |         |          |           |        |      |      | X      |        |        |        |     |      |        |        |
| Retrorsed Sedge                  | <i>Carex retrorsa</i>                             | Cyperaceae       | 5                         | -5        | N         | N            |                      |                          |                                  | 0S5   |         |          |           |        |      | X    |        |        |        |        |     |      |        |        |
| Fox Sedge                        | <i>Carex vulpinoidea</i>                          | Cyperaceae       | 3                         | -5        | N         | N            |                      |                          |                                  | 0S5   |         |          |           |        |      | X    |        |        |        |        |     |      |        |        |
| Canada Anemone                   | <i>Anemonastrum canadense</i>                     | Ranunculaceae    | 3                         | -3        | N         | N            |                      |                          |                                  | S5    |         |          |           |        |      |      |        |        | X      | X      |     |      |        |        |
| Canada Goldenrod                 | <i>Solidago canadensis</i>                        | Asteraceae       | 1                         | 3         | N         | N            |                      |                          |                                  | S5    |         |          |           | X      | X    | X    | X      | X      | X      | X      | X   |      | X      |        |
| Common Lamb's-quarters           | <i>Chenopodium album</i>                          | Chenopodiaceae   |                           | 3         | I         | N            |                      |                          |                                  | 0SE5  |         |          |           |        |      |      | X      |        |        |        |     |      | X      |        |
| Canada Thistle                   | <i>Cirsium arvense</i>                            | Asteraceae       |                           | 3         | I         | Y            |                      | Yes                      | Cat 1                            | SE5   |         |          |           | X      |      |      | X      |        |        |        |     |      | X      |        |
| Bulbous Water-hemlock            | <i>Cicuta bulbifera</i>                           | Apiaceae         | 5                         | -5        | N         | N            |                      |                          |                                  | 0S5   |         |          |           |        |      |      |        |        |        |        | X   |      |        |        |
| Chokecherry                      | <i>Prunus virginiana</i>                          | Rosaceae         | 2                         | 3         | N         | N            |                      |                          |                                  | 0S5   |         |          |           | X      |      | X    | X      | X      | X      | X      |     |      |        |        |
| Field Bindweed                   | <i>Convolvulus arvensis</i>                       | Convolvulaceae   |                           | 5         | I         | N            |                      |                          | Cat 3                            | SE5   |         |          |           | X      | X    |      |        |        |        |        |     |      |        |        |
| Common Apple                     | <i>Malus pumila</i>                               | Rosaceae         |                           | 5         | I         | N            |                      |                          |                                  | SE4   |         |          |           | X      |      |      | X      |        |        |        |     |      |        |        |
| Common Boneset                   | <i>Eupatorium perfoliatum</i>                     | Asteraceae       | 2                         | -3        | N         | N            |                      |                          |                                  | S5    |         |          |           |        |      |      |        |        |        |        | X   |      |        |        |
| Orchard Grass                    | <i>Dactylis glomerata</i>                         | Poaceae          |                           | 3         | I         | N            |                      |                          | Cat 3                            | SE5   |         |          |           | X      |      | X    | X      |        |        |        |     |      |        |        |
| Poverty Oatgrass                 | <i>Danthonia spicata</i>                          | Poaceae          | 5                         | 5         | N         | N            |                      |                          |                                  | 0S5   |         |          |           |        |      |      | X      |        |        |        |     |      |        |        |
| Common Dandelion                 | <i>Taraxacum officinale</i>                       | Asteraceae       |                           | 3         | I         | N            |                      |                          |                                  | SE5   |         |          |           | X      | X    | X    | X      |        |        | X      |     |      |        | X      |
| Swamp Loosestrife                | <i>Decodon verticillatus</i>                      | Lythraceae       | 7                         | -5        | N         | N            |                      |                          |                                  | 0S5   |         |          |           |        |      |      |        |        |        |        | X   |      |        |        |
| Common Teasel                    | <i>Dipsacus fullonum</i>                          | Dipsacaceae      |                           | 3         | I         | Y            |                      |                          | Cat 3                            | SE5   |         |          |           | X      |      |      | X      |        |        |        |     |      |        |        |
| Common Lilac                     | <i>Syringa vulgaris</i>                           | Oleaceae         |                           | 5         | I         | Y            |                      |                          | Cat 2                            | SE5   |         |          |           | X      | X    | X    | X      |        |        |        |     |      |        |        |
| Wild Cucumber                    | <i>Echinocystis lobata</i>                        | Cucurbitaceae    | 3                         | -3        | N         | N            |                      |                          |                                  | 0S5   |         |          |           |        |      | X    |        |        |        |        |     |      | X      |        |
| Common Milkweed                  | <i>Asclepias syriaca</i>                          | Apocynaceae      | 0                         | 5         | N         | N            |                      |                          |                                  | S5    |         |          |           | X      | X    | X    | X      | X      |        | X      |     |      | X      |        |
| Purple-veined Willowherb         | <i>Epilobium coloratum</i>                        | Onagraceae       | 3                         | -5        | N         | N            |                      |                          |                                  | 0S5   |         |          |           |        |      |      |        |        |        |        |     |      | X      |        |
| Hairy Willowherb                 | <i>Epilobium hirsutum</i>                         | Onagraceae       |                           | -3        | I         | Y            |                      |                          |                                  | 0SE5  |         |          |           | X      |      |      |        |        |        |        |     |      |        |        |
| Common Mullein                   | <i>Verbascum thapsus</i>                          | Scrophulariaceae |                           | 5         | I         | N            |                      |                          |                                  | SE5   |         |          |           | X      |      | X    |        |        |        |        |     |      |        |        |
| Annual Fleabane                  | <i>Erigeron annuus</i>                            | Asteraceae       | 0                         | 3         | N         | N            |                      |                          |                                  | 0S5   |         |          |           |        |      |      | X      |        |        |        |     |      | X      |        |
| Common Timothy                   | <i>Phleum pratense</i>                            | Poaceae          |                           | 3         | I         | N            |                      |                          |                                  | SE5   |         |          |           |        | X    | X    | X      |        |        |        |     |      |        |        |
| Common Viper's Bugloss           | <i>Echium vulgare</i>                             | Boraginaceae     |                           | 5         | I         | N            |                      |                          |                                  | SE5   |         |          |           | X      |      |      | X      |        |        | X      |     |      | X      |        |
| Cottony Willow                   | <i>Salix eriocephala</i>                          | Salicaceae       | 4                         | -3        | N         | N            |                      |                          |                                  | S5    |         |          |           |        |      | X    |        |        |        |        |     |      | X      |        |
| Hard Fescue                      | <i>Festuca trachyphylla</i>                       | Poaceae          |                           | 5         | I         | N            |                      |                          |                                  | 0SE4  |         |          |           |        |      |      | X      |        |        |        |     |      |        |        |
| Woodland Strawberry              | <i>Fragaria vesca</i>                             | Rosaceae         | 4                         | 3         | N         | N            |                      |                          |                                  | 0S5   |         |          |           |        |      | X    | X      | X      | X      | X      |     |      |        |        |
| Crack Willow                     | <i>Salix euxina</i>                               | Salicaceae       |                           | 0         | I         | N            |                      |                          |                                  | SE    |         |          |           | X      |      |      | X      |        |        |        | X   |      |        |        |
| Cranberry Viburnum               | <i>Viburnum opulus</i>                            | Caprifoliaceae   | 5                         | -3        | I         | Y            |                      |                          |                                  | SE3?  |         |          |           |        |      |      |        |        |        | X      |     |      |        |        |
| Curled Dock                      | <i>Rumex crispus</i>                              | Polygonaceae     |                           | 0         | I         | N            |                      |                          |                                  | SE5   |         |          |           | X      | X    | X    | X      |        |        |        |     |      | X      | X      |
| Dark-green Bulrush               | </                                                |                  |                           |           |           |              |                      |                          |                                  |       |         |          |           |        |      |      |        |        |        |        |     |      |        |        |



Appendix C: Vascular Plant List

| Common Name                     | Scientific Name                                    | Family          | CC (2023) | CW (2023) | Native S | Invasive (Y | Invasive Species Act | Ontario Weed Control Act | Ontario Invasive Species Council | SRANK | COSEWIC | PSO List | ELC Code: | CUM1-1 | CUT1 | CJW1 | CJW1-1 | CUP3-2 | FOD5-1 | FOC2-1 | OAO | MAM2 | MAM2-2 | SWD2-2 |
|---------------------------------|----------------------------------------------------|-----------------|-----------|-----------|----------|-------------|----------------------|--------------------------|----------------------------------|-------|---------|----------|-----------|--------|------|------|--------|--------|--------|--------|-----|------|--------|--------|
| European Reed                   | <i>Phragmites australis ssp. australis</i>         | Poaceae         |           | -3        | I        | Y           | Restricted Invasive  |                          | Cat 1                            | SE5   |         |          |           | X      |      |      |        | X      | X      |        |     |      |        |        |
| Field Horsetail                 | <i>Equisetum arvense</i>                           | Equisetaceae    | 0         | 0         | N        | N           |                      |                          |                                  | S5    |         |          |           |        |      |      |        | X      |        |        |     |      | X      |        |
| Field Peppergrass               | <i>Lepidium campestre</i>                          | Brassicaceae    |           | 5         | I        | N           |                      |                          |                                  | 0     | SE5     |          |           |        |      |      |        | X      |        |        |     |      | X      |        |
| European Gromwell               | <i>Lithospermum officinale</i>                     | Boraginaceae    |           | 5         | I        | N           |                      |                          |                                  | 0     | SE5     |          |           |        |      |      |        |        |        |        |     | X    |        |        |
| Maack's Honeysuckle             | <i>Lonicera maackii</i>                            | Caprifoliaceae  |           | 5         | I        | Y           |                      |                          | Cat 1                            | SE2   |         |          |           |        |      |      | X      |        |        |        |     |      |        |        |
| Fowl Mannagrass                 | <i>Glyceria striata</i>                            | Poaceae         | 3         | -5        | N        | N           |                      |                          |                                  | S5    |         |          |           |        |      | X    |        |        |        |        | X   |      |        |        |
| Garden Bird's-foot Trefoil      | <i>Lotus corniculatus</i>                          | Fabaceae        |           | -3        | I        | Y           |                      |                          | Cat 2                            | SE5   |         |          |           | X      | X    | X    | X      |        |        |        |     |      |        |        |
| Garlic Mustard                  | <i>Alliaria petiolata</i>                          | Brassicaceae    |           | 0         | I        | Y           |                      |                          | Cat 1                            | SE5   |         |          |           |        |      | X    |        |        |        |        |     |      |        | X      |
| Fringed Yellow Loosestrife      | <i>Lysimachia ciliata</i>                          | Primulaceae     | 4         | -3        | N        | N           |                      |                          |                                  | 0     | S5      |          |           |        |      |      | X      |        |        |        |     |      |        |        |
| Grass-leaved Goldenrod          | <i>Euthamia graminifolia</i>                       | Asteraceae      | 2         | 0         | N        | N           |                      |                          |                                  | S5    |         |          |           | X      | X    | X    | X      | X      |        | X      | X   |      |        |        |
| Wild Lily-of-the-valley         | <i>Maianthemum canadense</i>                       | Liliaceae       | 5         | -3        | N        | N           |                      |                          |                                  | 0     | S5      |          |           |        |      |      |        |        |        |        |     |      |        |        |
| Grey Dogwood                    | <i>Cornus racemosa</i>                             | Cornaceae       | 2         | 0         | N        | N           |                      |                          |                                  | S5    |         |          |           |        | X    | X    | X      | X      | X      | X      | X   | X    | X      | X      |
| White Sweet-clover              | <i>Melilotus albus</i>                             | Fabaceae        |           | -3        | I        | Y           |                      |                          | Cat 2                            | SE5   |         |          |           | X      | X    | X    | X      |        |        | X      |     |      | X      |        |
| Yellow Sweet-clover             | <i>Melilotus officinalis</i>                       | Fabaceae        |           | -3        | I        | Y           |                      |                          | Cat 2                            | SE5   |         |          |           |        |      | X    |        |        |        |        |     |      |        |        |
| Variegated Pond-lily            | <i>Nuphar variegata</i>                            | Nymphaeaceae    | 7         | -5        | N        | N           |                      |                          |                                  | 0     | S5      |          |           |        |      |      |        |        |        |        | X   |      | X      |        |
| Fragrant Water-lily             | <i>Nymphaea odorata</i>                            | Nymphaeaceae    | 5         | -5        | N        | N           |                      |                          |                                  | 0     | S5      |          |           |        |      |      |        |        |        |        | X   |      | X      |        |
| Water Smartweed                 | <i>Persicaria amphibia</i>                         | Polygonaceae    | 5         | -5        | N        | N           |                      |                          |                                  | 0     | S5      |          |           |        |      |      |        |        |        |        |     |      | X      |        |
| Highbush Cranberry              | <i>Viburnum opulus var. americanum</i>             | Caprifoliaceae  | 5         | -3        | N        | N           |                      |                          |                                  | S5    |         |          |           |        |      | X    |        |        | X      |        |     |      |        |        |
| Kentucky Bluegrass              | <i>Poa pratensis</i>                               | Poaceae         | 0         | -3        | N        | N           |                      |                          | Cat 2                            | S5    |         |          |           | X      | X    | X    | X      | X      |        | X      |     |      | X      |        |
| Large-leaved Aster              | <i>Eurybia macrophylla</i>                         | Asteraceae      | 5         | 5         | N        | N           |                      |                          |                                  | S5    |         |          |           |        |      |      |        | X      |        |        |     |      |        |        |
| Large-toothed Aspen             | <i>Populus grandidentata</i>                       | Salicaceae      | 5         | 5         | N        | N           |                      |                          |                                  | S5    |         |          |           | X      |      |      |        | X      |        |        |     |      |        |        |
| Mouse-ear Hawkweed              | <i>Pilosella officinarum</i>                       | Asteraceae      |           | 5         | I        | N           |                      |                          |                                  | 0     | SE5     |          |           | X      |      |      | X      |        | X      |        |     |      |        |        |
| Jack Pine                       | <i>Pinus banksiana</i>                             | Pinaceae        | 5         | -3        | N        | N           |                      |                          |                                  | 0     | S5      |          |           |        |      | X    | X      |        |        | X      |     |      |        |        |
| Manitoba Maple                  | <i>Acer negundo</i>                                | Aceraceae       | 0         | 0         | N        | Y           |                      |                          | Cat 1*                           | S5    |         |          |           | X      | X    | X    | X      |        |        | X      | X   | X    | X      | X      |
| Morrow's Honeysuckle            | <i>Lonicera morrowii</i>                           | Caprifoliaceae  |           | -3        | I        | Y           |                      |                          | Cat 1                            | SE3   |         |          |           |        |      | X    | X      |        |        | X      |     |      | X      |        |
| Nannyberry                      | <i>Viburnum lentago</i>                            | Caprifoliaceae  | 4         | 0         | N        | N           |                      |                          |                                  | S5    |         |          |           |        |      | X    | X      |        |        | X      |     |      | X      |        |
| Narrow-leaved Cattail           | <i>Typha angustifolia</i>                          | Typhaceae       |           | -5        | I        | Y           |                      |                          |                                  | SE5   |         |          |           | X      |      | X    |        |        |        | X      | X   |      | X      |        |
| Pickereleweed                   | <i>Pontederia cordata</i>                          | Pontederiaceae  | 7         | -5        | N        | N           |                      |                          |                                  | 0     | S5      |          |           |        |      |      |        |        |        |        | X   |      |        |        |
| New England Aster               | <i>Symphyotrichum novae-angliae</i>                | Asteraceae      | 2         | -3        | N        | N           |                      |                          |                                  | S5    |         |          |           | X      | X    | X    | X      |        |        |        | X   |      |        |        |
| Balsam Poplar                   | <i>Populus balsamifera</i>                         | Salicaceae      | 4         | -3        | N        | N           |                      |                          |                                  | 0     | S5      |          |           |        |      |      |        |        |        | X      |     |      |        |        |
| Northern Dewberry               | <i>Rubus flagellaris</i>                           | Rosaceae        | 4         | -3        | N        | N           |                      |                          |                                  | S4    |         |          |           |        |      |      |        |        |        |        |     |      |        |        |
| Northern Red Oak                | <i>Quercus rubra</i>                               | Fagaceae        | 6         | -3        | N        | N           |                      |                          |                                  | S5    |         |          |           | X      |      |      | X      |        | X      |        |     |      |        |        |
| Northern Water-horehound        | <i>Lycopus uniflorus</i>                           | Lamiaceae       | 5         | -5        | N        | N           |                      |                          |                                  | S5    |         |          |           |        |      |      |        |        |        |        |     |      |        |        |
| Common Self-heal                | <i>Prunella vulgaris</i>                           | Lamiaceae       | 0         | 0         | N        | N           |                      |                          |                                  | 0     | S5      |          |           |        |      |      |        | X      |        | X      |     |      |        | X      |
| Norway Spruce                   | <i>Picea abies</i>                                 | Pinaceae        |           | 5         | I        | N           |                      |                          |                                  | SE3   |         |          |           |        |      | X    | X      | X      |        | X      |     |      |        | X      |
| Oxeye Daisy                     | <i>Leucanthemum vulgare</i>                        | Asteraceae      |           | 5         | I        | N           |                      |                          |                                  | SE5   |         |          |           | X      |      |      | X      |        |        | X      |     |      |        |        |
| Paper Birch                     | <i>Betula papyrifera</i>                           | Betulaceae      | 2         | -3        | N        | N           |                      |                          |                                  | S5    |         |          |           |        |      |      |        |        |        |        |     |      |        | X      |
| Philadelphia Fleabane           | <i>Erigeron philadelphicus</i>                     | Asteraceae      | 1         | -3        | N        | N           |                      |                          |                                  | S5    |         |          |           | X      |      |      |        |        |        |        |     |      |        | X      |
| Chinquapin Oak                  | <i>Quercus muehlenbergii</i>                       | Fagaceae        | 7         | -3        | N        | N           |                      |                          |                                  | 0     | S4      |          |           |        |      | X    |        |        |        |        |     |      |        |        |
| Purple Loosestrife              | <i>Lythrum salicaria</i>                           | Lythraceae      |           | -5        | I        | Y           |                      |                          | Cat 1                            | SE5   |         |          |           | X      | X    | X    | X      |        |        | X      | X   |      | X      |        |
| Common Buttercup                | <i>Ranunculus acris</i>                            | Ranunculaceae   |           | 0         | I        | N           |                      |                          |                                  | 0     | SE5     |          |           |        |      |      | X      |        |        | X      |     |      |        | X      |
| Smooth Sumac                    | <i>Rhus glabra</i>                                 | Anacardiaceae   | 7         | 5         | N        | N           |                      |                          |                                  | 0     | S5      |          |           |        |      | X    | X      |        |        |        |     |      |        |        |
| Quackgrass                      | <i>Elymus repens</i>                               | Poaceae         |           | -3        | I        | N           |                      |                          | Cat 3                            | SE5   |         |          |           | X      | X    | X    |        |        |        |        |     |      |        |        |
| European Red Currant            | <i>Ribes rubrum</i>                                | Grossulariaceae |           | 5         | I        | N           |                      |                          |                                  | 0     | SE5     |          |           |        |      |      | X      |        |        |        |     |      |        |        |
| Black Locust                    | <i>Robinia pseudoacacia</i>                        | Fabaceae        |           | -3        | I        | Y           |                      |                          | Cat 2                            | SE5   |         |          |           |        | X    |      |        |        |        |        |     |      |        |        |
| Multiflora Rose                 | <i>Rosa multiflora</i>                             | Rosaceae        |           | -3        | I        | Y           |                      |                          | Cat 1                            | SE5   |         |          |           |        |      |      | X      |        |        |        |     |      |        |        |
| Red Ash                         | <i>Fraxinus pennsylvanica</i>                      | Oleaceae        | 3         | -3        | N        | N           |                      |                          |                                  | S4    |         |          |           | X      | X    | X    | X      | X      | X      | X      | X   | X    | X      | X      |
| Red Clover                      | <i>Trifolium pratense</i>                          | Fabaceae        |           | -3        | I        | N           |                      |                          | Cat 4                            | SE5   |         |          |           | X      |      |      | X      |        |        |        |     |      |        |        |
| Red Maple                       | <i>Acer rubrum</i>                                 | Aceraceae       | 4         | 0         | N        | N           |                      |                          |                                  | S5    |         |          |           | X      |      | X    |        |        |        |        | X   |      |        |        |
| Red Pine                        | <i>Pinus resinosa</i>                              | Pinaceae        | 8         | -3        | N        | N           |                      |                          |                                  | S5    |         |          |           |        |      | X    |        |        |        | X      |     |      |        | X      |
| Red Raspberry                   | <i>Rubus idaeus</i>                                | Rosaceae        | 2         | -3        | N        | N           |                      |                          |                                  | S5    |         |          |           | X      | X    | X    | X      |        | X      | X      |     | X    |        | X      |
| Black-eyed Susan                | <i>Rudbeckia hirta</i>                             | Asteraceae      | 0         | -3        | N        | N           |                      |                          |                                  | 0     | S5      |          |           |        |      | X    |        |        |        |        |     | X    |        |        |
| Red-osier Dogwood               | <i>Cornus sericea</i>                              | Cornaceae       | 2         | -3        | N        | N           |                      |                          |                                  | S5    |         |          |           |        |      |      |        |        |        |        |     |      |        | X      |
| Broad-leaved Arrowhead          | <i>Sagittaria latifolia</i>                        | Alismataceae    | 4         | -5        | N        | N           |                      |                          |                                  | 0     | S5      |          |           |        |      |      |        |        |        |        |     |      | X      |        |
| Redtop                          | <i>Agrostis gigantea</i>                           | Poaceae         |           | -3        | I        | Y           |                      |                          |                                  | SE5   |         |          |           |        |      | X    | X      |        |        |        |     |      |        |        |
| Reed Canarygrass                | <i>Phalaris arundinacea</i>                        | Poaceae         | 0         | -3        | N        | Y           |                      |                          |                                  | S5    |         |          |           | X      | X    | X    | X      | X      |        | X      | X   | X    | X      | X      |
| Pussy Willow                    | <i>Salix discolor</i>                              | Salicaceae      | 3         | -3        | N        | N           |                      |                          |                                  | 0     | S5      |          |           |        |      |      |        |        |        | X      | X   |      |        |        |
| Riverbank Grape                 | <i>Vitis riparia</i>                               | Vitaceae        | 0         | 0         | N        | N           |                      |                          |                                  | S5    |         |          |           | X      | X    | X    | X      |        | X      | X      |     |      | X      | X      |
| Rough-stemmed Goldenrod         | <i>Solidago rugosa</i>                             | Asteraceae      | 4         | 0         | N        | N           |                      |                          |                                  | S5    |         |          |           |        |      | X    |        |        |        |        |     |      | X      |        |
| (Salix alba X Salix babylonica) | <i>Salix x sepulcralis</i>                         | Salicaceae      |           |           | I        | N           |                      |                          |                                  | 0     | SNA     |          |           |        |      |      |        |        |        |        |     |      | X      |        |
| Sandbar Willow                  | <i>Salix interior</i>                              | Salicaceae      | 1         | -3        | N        | N           |                      |                          |                                  | S5    |         |          |           |        |      |      |        |        |        |        | X   |      |        |        |
| Soft-stemmed Bulrush            | <i>Schoenoplectus tabernaemontani</i>              | Cyperaceae      | 5         | -5        | N        | N           |                      |                          |                                  | 0     | S5      |          |           |        |      | X    |        |        |        |        |     |      |        |        |
| Scots Pine                      | <i>Pinus sylvestris</i>                            | Pinaceae        |           | -3        | I        | Y           |                      |                          | Cat 2                            | SE5   |         |          |           | X      |      | X    | X      |        |        | X      |     |      |        | X      |
| Common Woolly Bulrush           | <i>Scirpus cyperinus</i>                           | Cyperaceae      | 4         | -5        | N        | N           |                      |                          |                                  | 0     | S5      |          |           |        |      |      | X      |        |        |        |     |      | X      |        |
| Purple Crown-vetch              | <i>Securigera varia</i>                            | Fabaceae        |           | 5         | I        | Y           |                      |                          | Cat 1                            | SE5   |         |          |           |        | X    | X    | X      |        |        |        |     | X    |        |        |
| Bladder Campion                 | <i>Silene vulgaris</i>                             | Caryophyllaceae |           | 5         | I        | N           |                      |                          |                                  | 0     | SE5     |          |           |        |      | X    |        |        |        |        |     |      |        |        |
| Bittersweet Nightshade          | <i>Solanum dulcamara</i>                           | Solanaceae      |           | 0         | I        | Y           |                      |                          | Cat 3                            | SE5   |         |          |           |        | X    | X    |        |        |        |        |     |      |        |        |
| Shagbark Hickory                | <i>Carya ovata</i>                                 | Juglandaceae    | 6         | -3        | N        | N           |                      |                          |                                  | S5    |         |          |           |        |      |      | X      |        | X      |        |     |      |        | X      |
| Silver Maple                    | <i>Acer saccharinum</i>                            | Aceraceae       | 5         | -3        | N        | N           |                      |                          |                                  | S5    |         |          |           | X      |      |      | X      |        |        | X      |     |      |        |        |
| Early Goldenrod                 | <i>Solidago juncea</i>                             | Asteraceae      | 3         | 5         | N        | N           |                      |                          |                                  | 0     | S5      |          |           |        |      |      | X      | X      |        | X      |     |      |        |        |
| Grey-stemmed Goldenrod          | <i>Solidago nemoralis</i>                          | Asteraceae      | 2         | 5         | N        | N           |                      |                          |                                  | 0     | S5      |          |           |        |      |      | X      |        |        | X      |     |      |        |        |
| Slippery Elm                    | <i>Ulmus rubra</i>                                 | Ulmaceae        | 6         | 0         | N        | N           |                      |                          |                                  | S5    |         |          |           |        |      |      |        |        |        |        |     |      |        |        |
| Small Duckweed                  | <i>Lemna minor</i>                                 | Lemnaceae       | 5         | -5        | N        | N           |                      |                          |                                  | S5?   |         |          |           |        |      |      |        |        |        |        | X   |      | X      |        |
| Smooth Brome                    | <i>Bromus inermis</i>                              | Poaceae         |           | 5         | I        | Y           |                      |                          | Cat 4                            | SE5   |         |          |           | X      | X    | X    | X      |        |        | X      | X   | X    | X      | X      |
| Spotted Jewelweed               | <i>Impatiens capensis</i>                          | Balsaminaceae   | 4         | -3        | N        | N           |                      |                          |                                  | S5    |         |          |           |        |      |      |        |        |        | X      | X   | X    | X      | X      |
| Spotted Joe Pye Weed            | <i>Eutrochium maculatum</i>                        | Asteraceae      | 3         | -5        | N        | N           |                      |                          |                                  | S5    |         |          |           | X      |      |      |        |        |        |        | X   |      | X      |        |
| Spreading Dogbane               | <i>Apocynum androsaemifolium</i>                   | Apocynaceae     | 3         | 5         | N        | N           |                      |                          |                                  | S5    |         |          |           |        |      | X    | X      |        |        |        |     |      |        |        |
| Eastern Panicle Aster           | <i>Symphyotrichum lanceolatum ssp. lanceolatum</i> | Asteraceae      | 3         | -3        | N        | N           |                      |                          |                                  | 0     | S5      |          |           |        |      | X    | X      |        |        | X      |     |      |        |        |
| Staghorn Sumac                  | <i>Rhus typhina</i>                                | Anacardiaceae   | 1         | -3        | N        | N           |                      |                          |                                  | S5    |         |          |           | X      | X    | X    | X      |        |        | X      |     |      |        |        |
| Sugar Maple                     | <i>Acer saccharum</i>                              | Aceraceae       | 4         | -3        | N        | N           |                      |                          |                                  | S5    |         |          |           |        | X    | X    | X      | X      | X      | X      |     |      |        |        |
| Arrow-leaved Aster              | <i>Symphyotrichum urophyllum</i>                   | Asteraceae      | 6         | 5         | N        | N           |                      |                          |                                  | 0     | S4      |          |           |        |      | X    | X      |        |        | X      |     |      |        |        |
| Common Comfrey                  | <i>Symphytum officinale</i>                        | Boraginaceae    |           | 5         | I        | N           |                      |                          |                                  | 0     | SE5     |          |           |        |      |      |        |        |        |        |     | X    |        |        |

Appendix C: Vascular Plant List

| Common Name                            | Scientific Name                    | Family         | CC (2023) | CW (2023) | Native S | Invasive (Y | Invasive Species Act | Ontario Weed Control Act | Ontario Invasive Species Council | SRANK | COSEWIC | PSO List | ELC Code: | CUM1-1 | CUT1 | CJW1 | CJW1-1 | CUP3-2 | FOD5-1 | FOC2-1 | OAO | MAM2 | MAM2-2 | SWD2-2 |
|----------------------------------------|------------------------------------|----------------|-----------|-----------|----------|-------------|----------------------|--------------------------|----------------------------------|-------|---------|----------|-----------|--------|------|------|--------|--------|--------|--------|-----|------|--------|--------|
| Tall Goldenrod                         | <i>Solidago altissima</i>          | Asteraceae     | 1         | 3         | N        | N           |                      |                          |                                  | S5    |         |          |           | X      | X    | X    | X      |        |        | X      |     | X    | X      | X      |
| Tamarack                               | <i>Larix laricina</i>              | Pinaceae       | 7         | -3        | N        | N           |                      |                          |                                  | S5    |         |          |           |        |      |      |        |        |        |        |     | X    | X      | X      |
| Tatarian Honeysuckle                   | <i>Lonicera tatarica</i>           | Caprifoliaceae |           | 3         | I        | Y           |                      |                          | Cat 1                            | SE5   |         |          |           |        | X    | X    | X      | X      | X      | X      |     | X    |        | X      |
| Thicket Creeper                        | <i>Parthenocissus vitacea</i>      | Vitaceae       | 4         | 3         | N        | N           |                      |                          |                                  | S5    |         |          |           | X      |      | X    | X      |        | X      | X      |     | X    |        | X      |
| Little-leaved Linden                   | <i>Tilia cordata</i>               | Tiliaceae      |           | 5         | I        | N           |                      |                          |                                  | 0 SE1 |         |          |           |        |      |      | X      |        |        |        |     |      |        |        |
| Trembling Aspen                        | <i>Populus tremuloides</i>         | Salicaceae     | 2         | 0         | N        | N           |                      |                          |                                  | S5    |         |          |           | X      | X    | X    | X      | X      | X      | X      | X   |      | X      | X      |
| Yellow Goatsbeard                      | <i>Tragopogon dubius</i>           | Asteraceae     |           | 5         | I        | N           |                      |                          |                                  | 0 SE5 |         |          |           |        |      |      | X      |        |        |        |     |      |        |        |
| Yellow Clover                          | <i>Trifolium aureum</i>            | Fabaceae       |           | 5         | I        | N           |                      |                          |                                  | 0 SE5 |         |          |           | X      |      |      | X      |        |        |        |     |      |        |        |
| Tufted Vetch                           | <i>Vicia cracca</i>                | Fabaceae       |           | 5         | I        | Y           |                      |                          | Cat 2                            | SE5   |         |          |           | X      | X    | X    | X      | X      |        | X      |     | X    | X      |        |
| White Clover                           | <i>Trifolium repens</i>            | Fabaceae       |           | 3         | I        | N           |                      |                          | Cat 4                            | SE5   |         |          |           | X      |      |      | X      |        |        |        |     |      |        |        |
| Virginia Creeper                       | <i>Parthenocissus quinquefolia</i> | Vitaceae       | 6         | 3         | N        | N           |                      |                          |                                  | S4?   |         |          |           |        |      | X    |        | X      |        |        |     |      |        |        |
| White Ash                              | <i>Fraxinus americana</i>          | Oleaceae       | 4         | 3         | N        | N           |                      |                          |                                  | S4    |         |          |           | X      |      | X    | X      |        | X      | X      |     |      | X      |        |
| (Typha angustifolia X Typha latifolia) | <i>Typha x glauca</i>              | Typhaceae      |           | -5        | N        | Y           |                      |                          |                                  | SNA   |         |          |           |        | X    |      |        |        |        |        | X   | X    | X      |        |
| White Elm                              | <i>Ulmus americana</i>             | Ulmaceae       | 3         | -3        | N        | N           |                      |                          |                                  | S5    |         |          |           | X      | X    | X    | X      | X      | X      | X      |     | X    | X      | X      |
| White Heath Aster                      | <i>Symphyotrichum ericoides</i>    | Asteraceae     | 4         | 3         | N        | N           |                      |                          |                                  | S5    |         |          |           | X      |      |      |        |        |        | X      |     |      |        |        |
| Stinging Nettle                        | <i>Urtica dioica</i>               | Urticaceae     |           | 0         | N        | N           |                      |                          |                                  | 0 S5  |         |          |           |        |      |      |        |        |        |        | X   |      |        | X      |
| Watershield                            | <i>Brasenia schreberi</i>          | Cabombaceae    | 7         | -5        | N        | N           |                      |                          |                                  | 0 S5  |         |          |           |        |      |      |        |        |        |        | X   |      | X      |        |
| White Meadowsweet                      | <i>Spiraea alba</i>                | Rosaceae       | 3         | -3        | N        | N           |                      |                          |                                  | S5    |         |          |           |        |      |      |        | X      |        |        |     |      |        |        |
| White Oak                              | <i>Quercus alba</i>                | Fagaceae       | 6         | 3         | N        | N           |                      |                          |                                  | S5    |         |          |           | X      |      |      | X      |        | X      | X      |     |      |        |        |
| White Poplar                           | <i>Populus alba</i>                | Salicaceae     |           | 5         | I        | Y           |                      |                          | Cat 2                            | SE5   |         |          |           |        |      |      |        |        |        | X      |     |      |        |        |
| White Spruce                           | <i>Picea glauca</i>                | Pinaceae       | 6         | 3         | N        | N           |                      |                          |                                  | S5    |         |          |           |        |      |      | X      | X      |        |        |     |      |        | X      |
| Wild Carrot                            | <i>Daucus carota</i>               | Apiaceae       |           | 5         | I        | N           |                      |                          |                                  | SE5   |         |          |           | X      | X    | X    | X      | X      |        | X      |     | X    | X      |        |
| Wild Chicory                           | <i>Cichorium intybus</i>           | Asteraceae     |           | 5         | I        | N           |                      |                          |                                  | SE5   |         |          |           | X      |      | X    | X      |        |        | X      |     |      | X      |        |
| Wild Parsnip                           | <i>Pastinaca sativa</i>            | Apiaceae       |           | 5         | I        | Y           |                      | Yes                      | Cat 3                            | SE5   |         |          |           | X      | X    | X    | X      | X      |        | X      | X   | X    | X      |        |
| Wild Strawberry                        | <i>Fragaria virginiana</i>         | Rosaceae       | 2         | 3         | N        | N           |                      |                          |                                  | S5    |         |          |           |        |      |      | X      |        |        |        |     |      |        |        |
| Downy Arrowwood                        | <i>Viburnum rafinesqueanum</i>     | Caprifoliaceae | 7         | 5         | N        | N           |                      |                          |                                  | 0 S5  |         |          |           |        |      |      |        |        | X      |        |     |      |        |        |
| Yellow Avens                           | <i>Geum aleppicum</i>              | Rosaceae       | 2         | 0         | N        | N           |                      |                          |                                  | S5    |         |          |           |        |      |      |        |        |        |        |     |      |        | X      |
| Zigzag Goldenrod                       | <i>Solidago flexicaulis</i>        | Asteraceae     | 6         | 3         | N        | N           |                      |                          |                                  | S5    |         |          |           |        |      |      |        |        | X      | X      |     |      |        |        |
| Common Prickly-ash                     | <i>Zanthoxylum americanum</i>      | Rutaceae       | 3         | 3         | N        | N           |                      |                          |                                  | S5    |         |          |           | X      | X    | X    | X      | X      | X      | X      |     |      |        |        |

| Floristic Summary and Analysis for Entire Study Area  |                      |     |     |
|-------------------------------------------------------|----------------------|-----|-----|
| Summary                                               |                      |     |     |
| Total Species:                                        | 191                  |     |     |
| Native Species:                                       | 124                  | 65% |     |
| Introduced Species:                                   | 67                   | 35% |     |
| Invasive Species:                                     | 32                   | 17% |     |
| ESA Status                                            |                      |     |     |
| END                                                   | 0                    | 0%  |     |
| THR                                                   | 0                    | 0%  |     |
| SC                                                    | 0                    | 0%  |     |
| COSEWIC Status                                        |                      |     |     |
| END                                                   | 0                    | 0%  |     |
| THR                                                   | 0                    | 0%  |     |
| SC                                                    | 0                    | 0%  |     |
| Provincially Rare (S-rank of S1-S3)                   |                      |     |     |
| S1                                                    | 0                    | 0%  |     |
| S1?                                                   | 0                    | 0%  |     |
| S1S2                                                  | 0                    | 0%  |     |
| S1S3                                                  | 0                    | 0%  |     |
| S2                                                    | 0                    | 0%  |     |
| S2?                                                   | 0                    | 0%  |     |
| S2S3                                                  | 0                    | 0%  |     |
| S2S4                                                  | 0                    | 0%  |     |
| S3                                                    | 0                    | 0%  |     |
| S3?                                                   | 0                    | 0%  |     |
| S3S4                                                  | 0                    | 0%  |     |
| Total S1-S3:                                          | 0                    | 0%  |     |
| Co-efficient of Conservatism and Floral Quality Index |                      |     |     |
| Co-efficient of Conservatism (CC)                     | 3.75                 |     |     |
| CC 0 to 3                                             | lowest sensitivity   | 54  | 44% |
| CC 4 to 6                                             | moderate sensitivity | 59  | 48% |
| CC 7 to 8                                             | high sensitivity     | 10  | 8%  |
| CC 9 to 10                                            | highest sensitivity  | 0   | 0%  |
| Floral Quality Index (FQI)                            |                      |     |     |
| FQI:                                                  | 41.74                |     |     |
| Presence of Wetland Species                           |                      |     |     |
| Wetness Value (CW) (average):                         | 0.86                 |     |     |
| upland                                                | 5                    | 42  | 22% |
| facultative upland                                    | 2 to 4               | 62  | 32% |
| facultative                                           | 1 to -1              | 27  | 14% |
| facultative wetland                                   | -2 to -4             | 31  | 16% |
| obligate wetland                                      | -5                   | 28  | 15% |

| Summary                             |    |    |    |     |    |    |  |    |    |    |    |
|-------------------------------------|----|----|----|-----|----|----|--|----|----|----|----|
| Total Species:                      | 70 | 48 | 95 | 100 | 33 | 37 |  | 32 | 25 | 59 | 38 |
| Native Species:                     | 34 | 25 | 63 | 55  | 23 | 34 |  | 27 | 14 | 38 | 29 |
| Introduced Species:                 | 36 | 23 | 32 | 45  | 10 | 3  |  | 5  | 11 | 21 | 9  |
| Invasive Species:                   | 19 | 17 | 22 | 20  | 7  | 3  |  | 7  | 10 | 13 | 7  |
| ESA Status                          |    |    |    |     |    |    |  |    |    |    |    |
| END                                 | 0  | 0  | 0  | 0   | 0  | 0  |  | 0  | 0  | 0  | 0  |
| THR                                 | 0  | 0  | 0  | 0   | 0  | 0  |  | 0  | 0  | 0  | 0  |
| SC                                  | 0  | 0  | 0  | 0   | 0  | 0  |  | 0  | 0  | 0  | 0  |
| COSEWIC Status                      |    |    |    |     |    |    |  |    |    |    |    |
| END                                 | 0  | 0  | 0  | 0   | 0  | 0  |  | 0  | 0  | 0  | 0  |
| THR                                 | 0  | 0  | 0  | 0   | 0  | 0  |  | 0  | 0  | 0  | 0  |
| SC                                  | 0  | 0  | 0  | 0   | 0  | 0  |  | 0  | 0  | 0  | 0  |
| Provincially Rare (S-rank of S1-S3) |    |    |    |     |    |    |  |    |    |    |    |
| S1                                  | 0  | 0  | 0  | 0   | 0  | 0  |  | 0  | 0  | 0  | 0  |
| S1?                                 | 0  | 0  | 0  | 0   | 0  | 0  |  | 0  | 0  | 0  | 0  |
| S1S2                                | 0  | 0  | 0  | 0   | 0  | 0  |  | 0  | 0  | 0  | 0  |
| S1S3                                | 0  | 0  | 0  | 0   | 0  | 0  |  | 0  | 0  | 0  | 0  |
| S2                                  | 0  | 1  | 1  | 0   | 0  | 0  |  | 0  | 0  | 0  | 0  |
| S2?                                 | 0  | 0  | 0  | 0   | 0  | 0  |  | 0  | 0  | 0  | 0  |
| S2S3                                | 0  | 0  | 0  | 0   | 0  | 0  |  | 0  | 0  | 0  | 0  |
| S2S4                                | 0  | 0  | 0  | 0   | 0  | 0  |  | 0  | 0  | 0  | 0  |
| S3                                  | 0  | 0  | 0  | 0   | 0  | 0  |  | 0  | 0  | 0  | 0  |
| S3?                                 | 0  | 0  | 0  | 0   | 0  | 0  |  | 0  | 0  | 0  | 0  |
| S3S4                                | 0  | 0  | 0  | 0   | 0  | 0  |  | 0  | 0  | 0  | 0  |
| Total S1-S3:                        | 0  | 1  | 1  | 0   | 0  | 0  |  | 0  | 0  | 0  | 0  |
| Local Rank                          |    |    |    |     |    |    |  |    |    |    |    |

|                             |       |       |       |       |       |       |  |       |      |       |       |
|-----------------------------|-------|-------|-------|-------|-------|-------|--|-------|------|-------|-------|
| Co-efficient of Co          | 2,66  | 2,50  | 3,30  | 3,15  | 2,61  | 3,91  |  | 3,24  | 2,14 | 2,87  | 3,07  |
| CC 0 to 3                   | 21    | 17    | 35    | 30    | 16    | 13    |  | 15    | 10   | 22    | 16    |
| CC 4 to 6                   | 14    | 6     | 25    | 23    | 6     | 20    |  | 6     | 4    | 13    | 10    |
| CC 7 to 8                   | 0     | 0     | 3     | 2     | 1     | 1     |  | 4     | 0    | 3     | 2     |
| CC 9 to 10                  | 0     | 1     | 1     | 0     | 0     | 0     |  | 0     | 0    | 0     | 0     |
| Floral Quality Index (FQI)  |       |       |       |       |       |       |  |       |      |       |       |
| FQI:                        | 15,49 | 12,50 | 26,17 | 23,33 | 12,51 | 22,81 |  | 16,84 | 8,02 | 17,68 | 16,54 |
| Presence of Wetland Species |       |       |       |       |       |       |  |       |      |       |       |
| Wetness Value (C            | 1,74  | 1,46  | 1,01  | 2,30  | 1,88  | 1,70  |  | -2,50 | 0,96 | -0,52 | 0,66  |
| upland                      | 17    | 11    | 17    | 28    | 8     | 3     |  | 2     | 7    | 9     | 3     |
| facultative upland          | 29    | 19    | 36    | 44    | 13    | 21    |  | 1     | 6    | 12    | 13    |
| facultative                 | 10    | 8     | 17    | 16    | 7     | 8     |  | 8     | 3    | 10    | 13    |
| facultative wetland         | 10    | 4     | 14    | 9     | 4     | 5     |  | 6     | 8    | 12    | 8     |
| obligate wetland            | 4     | 6     | 11    | 3     | 1     | 0     |  | 15    | 1    | 15    | 1     |

# Appendix D. Species at Risk and Species of Conservation Concern Habitat Assessment

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| SAR (1)<br>and SOCC<br>(2) | Taxonomy | Common Name                                            | Scientific Name<br>(updated 04-16-2026) | <sup>1</sup> S-Rank<br>(02-20-26) | COSSARO<br>(04-17-26) | On the PSO List<br>(Yes/No) | <sup>3</sup> SARA Sched 1<br>Status<br>(04-17-26) | MBCA Status | <sup>4</sup> COSEWIC<br>Status<br>(04-17-26) | <sup>5</sup> Habitat Requirements                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <sup>5</sup> Known Species Range                                                                                                                                                                                                                                                                                 | <sup>6</sup> Source Identifying<br>Species Record | Suitable Habitat<br>Presence and<br>Quality (Absent,<br>Low Quality, High<br>Quality) | Species<br>Observed<br>using Suitable<br>Habitat (Yes,<br>No, Flyover<br>Only) | Probability of<br>Occurring in the<br>Study Area | Rationale                                                                                                                                                                                                     |
|----------------------------|----------|--------------------------------------------------------|-----------------------------------------|-----------------------------------|-----------------------|-----------------------------|---------------------------------------------------|-------------|----------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|---------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|--------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1                          | Birds    | Bank Swallow                                           | <i>Riparia riparia</i>                  | S4B                               | THR                   | No                          | THR                                               | Yes         | THR                                          | Breeds colonially in vertical banks near waterbodies composed of exposed and unconsolidated silt or sand deposits. Forages over open areas and wetlands for flying insects.                                                                                                                                                                                                                                                                                                                                                              | Widespread across Ontario; highest densities near major rivers and Great Lakes.                                                                                                                                                                                                                                  | eBird                                             | Low Quality                                                                           | No                                                                             | Medium                                           | Vertical river banks with suitable substrate were not observed in the Study Area, however, Bank Swallow may use any stockpiled material in the Study Area if not maintained at an angle less than 70 degrees. |
| 1                          | Birds    | Barn Swallow                                           | <i>Hirundo rustica</i>                  | S4B                               | SC                    | No                          | THR                                               | Yes         | SC                                           | Nests in barns or hollow trees in open habitats like pastures and croplands. Forages at night in grasslands and overwinters in warm, sheltered cavities in southern parts of Ontario or migrates.                                                                                                                                                                                                                                                                                                                                        | Found in southwestern Ontario, mostly near Lake Erie and Lake Ontario.                                                                                                                                                                                                                                           | OBBA                                              | High Quality                                                                          | No                                                                             | Medium                                           | Barn Swallow may nest on any suitable structures in the Study Area, including the Napanee River Bridge.                                                                                                       |
| 1                          | Birds    | Bobolink                                               | <i>Dolichonyx oryzivorus</i>            | S4B                               | THR                   | No                          | THR                                               | Yes         | SC                                           | Commonly nests in hayfields, pastures and grasslands; prefers dense (60-80% cover) tall grasses (at least 50 cm high) for ground nesting and can also inhabit various grasslands, including pastures, wet prairies, peatlands, and restored sites, but are less common in short-grass prairies, Alfalfa fields, or row crop monoculture such as winterwheat (ALUS Canada, 2016). Generally requires at least 5 ha of suitable habitat (McCracken et. al., 2013) but may nest in smaller sized habitats if no other habitat is available. | Found throughout Ontario where suitable habitat exists but most common south of the boreal forest.                                                                                                                                                                                                               | OBBA                                              | High Quality                                                                          | No                                                                             | Medium                                           | Potentially suitable meadow and hayfield habitat within Study Area.                                                                                                                                           |
| 1                          | Birds    | Canada Warbler                                         | <i>Cardellina canadensis</i>            | S5B                               | Barn Swallow+D19      | No                          | THR                                               | Yes         | SC                                           | Occurs variably in wet deciduous, coniferous, and mixed forests with dense shrub layers for breeding, often nesting on or near the ground in concealed areas like mossy logs or stream banks. It also thrives in riparian shrub forests, old-growth forests with canopy openings, and regenerating stands after disturbances.                                                                                                                                                                                                            | Its primary breeding range is in the Boreal Shield, extending north into the Hudson Plains and south into the Mixedwood Plains. Although the Canada Warbler breeds at low densities across its range, in Ontario, it is most abundant along the Southern Shield. Migratory in southern and southwestern Ontario. | ebird                                             | Low Quality                                                                           | No                                                                             | Low                                              | Potentially suitable habitat in the dense SWD communities present in the Study Area, however, the Study Area is outside primary breeding range (Boreal Shield).                                               |
| 1                          | Birds    | Chimney Swift                                          | <i>Chaetura pelagica</i>                | S3B                               | THR                   | No                          | THR                                               | Yes         | THR                                          | Nest and roost in chimneys and other manmade structures in urban areas, though some still use hollow trees. They prefer habitats close to water where flying insects are abundant and favor sites with stable ambient temperatures in the northern breeding range.                                                                                                                                                                                                                                                                       | Widespread across southern Ontario with higher densities in urban centers.                                                                                                                                                                                                                                       | OBBA                                              | Absent                                                                                | No                                                                             | Low                                              | Structures with suitable chimneys may be present in the Study Area, but were not present in the ROW or area adjacent to the Napanee River Bridge.                                                             |
| 1                          | Birds    | Eastern Meadowlark                                     | <i>Sturnella magna</i>                  | S4B,S3N                           | THR                   | No                          | THR                                               | Yes         | THR                                          | Breed primarily in moderately tall grasslands, such as pastures and hayfields, but are also found in alfalfa fields, weedy borders of croplands, roadsides, orchards, airports, shrubby overgrown fields, or other open areas. Small trees, shrubs, or fence posts are used as elevated song perches.                                                                                                                                                                                                                                    | Common in agricultural landscapes across southern and eastern Ontario.                                                                                                                                                                                                                                           | NHIC, OBBA and eBird                              | High Quality                                                                          | Yes                                                                            | Confirmed                                        | Observations of Eastern Meadowlark were confirmed in the Cultural Meadows at the Highway 401 and Palace Road intersection.                                                                                    |
| 1                          | Birds    | Eastern Whip-poor-will                                 | <i>Antrostomus vociferus</i>            | S4B                               | SC                    | No                          | THR                                               | Yes         | SC                                           | The Eastern Whip-poor-will inhabits areas with a mix of open and forested regions, such as savannahs, open woodlands, and mature forests. It nests on the forest floor and prefers semi-open forests or patchy forests with clearings, avoiding both wide-open spaces and dense forests. The species forages in open areas and feeds in nearby shrubby pastures or wetlands.                                                                                                                                                             | The Eastern Whip-poor-will's breeding range includes two widely separate areas. It breeds throughout much of eastern North America, reaching as far north as southern Canada. In Ontario they breed as far north as the shore of Lake Superior.                                                                  | OBBA                                              | Low Quality                                                                           | No                                                                             | Low                                              | Suitable mature forests with semi-open clearings not present in Study Area.                                                                                                                                   |
| 1                          | Birds    | King Rail                                              | <i>Rallus elegans</i>                   | S1B                               | END                   | No                          | END                                               | Yes         | END                                          | Breeds in large freshwater marshes with tall emergent vegetation, interspersed with open water. Forages on aquatic invertebrates and small vertebrates. Winters in the southern U.S.                                                                                                                                                                                                                                                                                                                                                     | Found in southwestern Ontario, particularly in wetlands bordering Lake St. Clair and Lake Erie.                                                                                                                                                                                                                  | IBA                                               | Absent                                                                                | No                                                                             | Low                                              | Suitable wetland habitat not present within Study Area.                                                                                                                                                       |
| 1                          | Birds    | Loggerhead Shrike                                      | <i>Lanius ludovicianus</i>              | S1B                               | END                   | No                          | END                                               | Yes         | END                                          | Breeds in open grasslands and alvars with scattered shrubs or short trees. Hunts from low perches and nests in dense shrub particularly located in areas with Hawthorne. Overwinters in the southeastern U.S.                                                                                                                                                                                                                                                                                                                            | Breeding populations in Ontario are limited to the Carden Alvar and Napanee Plain.                                                                                                                                                                                                                               | IBA                                               | Low Quality                                                                           | No; targeted surveys not conducted                                             | Medium                                           | Potential suitable thicket habitat found within Study Area.                                                                                                                                                   |
| 1                          | Birds    | Red-headed Woodpecker                                  | <i>Melanerpes erythrocephalus</i>       | S3                                | END                   | No                          | END                                               | Yes         | END                                          | Breeds in open deciduous forests, parklands, and savannas with standing dead trees for nesting and foraging. Requires habitat patches >10 ha with limited understory and abundant snags.                                                                                                                                                                                                                                                                                                                                                 | Found in southern Ontario and near Lake of the Woods; population declining in most areas.                                                                                                                                                                                                                        | OBBA                                              | High Quality                                                                          | No; targeted surveys not conducted                                             | Medium                                           | FOD and CUW communities may provide suitable habitat.                                                                                                                                                         |
| 1                          | Birds    | Short-eared Owl                                        | <i>Asio flammeus</i>                    | S4?B,S2S3N                        | THR                   | Yes                         | SC                                                | No          | THR                                          | Breeds in open grasslands, marshes, and tundra with low vegetation and high prey abundance. Nests on the ground in large patches >30 ha with minimal human disturbance. Forages in open habitat at dusk.                                                                                                                                                                                                                                                                                                                                 | Widespread in open habitats across Ontario; most common in the north and during migration.                                                                                                                                                                                                                       | ebird                                             | Low Quality                                                                           | No                                                                             | Low                                              | Suitable, unfragmented, grassland areas 50-100 ha in size suitable for breeding were not present in the Study Area.                                                                                           |
| 1                          | Birds    | Wood Thrush                                            | <i>Hylocichla mustelina</i>             | S4B                               | SC                    | No                          | THR                                               | Yes         | THR                                          | Breeds in large tracts of mature deciduous or mixed forest with a moist understory and closed canopy. Prefers forests >30 ha in size with rich leaf litter for foraging. Winters in Central America.                                                                                                                                                                                                                                                                                                                                     | Common in forested areas across southern Ontario; declines linked to fragmentation.                                                                                                                                                                                                                              | OBBA, eBird                                       | Low Quality                                                                           | No                                                                             | Low                                              | Suitable deciduous forest (FOD) > 30 ha in size not present in the Study Area.                                                                                                                                |
| 1                          | Mammals  | Eastern Red Bat                                        | <i>Lasiurus borealis</i>                | S3                                | END                   | Yes                         | No Status                                         | N/A         | END                                          | Wide diversity of deciduous and coniferous forests, of any age class. Trees used as maternity roosts tend to be large diameter and tall, reaching or exceeding the height of the surrounding canopy. They typically roost among the foliage of trees and occasionally shrubs. They forage in both forested and non-forested habitats, often foraging over open spaces including wetlands, grasslands and fields.                                                                                                                         | Found throughout Ontario north to the Hudson Bay Lowlands.                                                                                                                                                                                                                                                       | BCI                                               | High Quality                                                                          | No; targeted surveys not conducted                                             | Medium                                           | All FOD, CUW, SWD community may provide suitable habitat.                                                                                                                                                     |
| 1                          | Mammals  | Eastern Small-footed Myotis (Eastern Small-footed Bat) | <i>Myotis leibii</i>                    | S2S3                              | END                   | Yes                         | Not Listed                                        | N/A         | -                                            | Roosts in a variety of habitats, including in or under rocks, in rock outcrops, in buildings, under bridges, or in caves, mines, or hollow trees. In the winter, these bats hibernate, most often in caves and abandoned mines. They seem to choose colder and drier sites than similar bats and will return to the same spot each year.                                                                                                                                                                                                 | Found from south of Georgian Bay to Lake Erie and east to the Pembroke area. There are also records from the Bruce Peninsula, the Espanola area, and Lake Superior Provincial Park.                                                                                                                              | BCI                                               | High Quality                                                                          | No; targeted surveys not conducted                                             | High                                             | All FOD, CUW, SWD community may provide suitable habitat.                                                                                                                                                     |
| 1                          | Mammals  | Little Brown Myotis (Little Brown Bat)                 | <i>Myotis lucifugus</i>                 | S3                                | END                   | Yes                         | END                                               | N/A         | END                                          | Roost in trees and buildings. They often select attics, abandoned buildings, large diameter trees and barns for summer colonies where they can raise their young. Little Brown Bats hibernate in caves or abandoned mines that are humid and remain above freezing. Foraging occurs over water, along waterways, and forest edges. Large open fields or clearcuts generally are avoided.                                                                                                                                                 | Widespread in Ontario and found as far north as Moose Factory and Favourable Lake.                                                                                                                                                                                                                               | BCI                                               | High Quality                                                                          | No; targeted surveys not conducted                                             | High                                             | All FOD, CUW, SWD community may provide suitable habitat.                                                                                                                                                     |
| 1                          | Mammals  | Northern Myotis (Northern Long-eared Bat)              | <i>Myotis septentrionalis</i>           | S3                                | END                   | Yes                         | END                                               | N/A         | END                                          | Northern Long-eared Bats are associated with boreal forests, choosing to roost under loose bark and in the cavities of trees. These bats hibernate from October or November to March or April. The Northern Long-eared Bat overwinters in cold and humid hibernacula (caves/mines). Females establish summer maternity colonies in buildings or large-diameter trees. Foraging occurs along waterways, forest edges, and in gaps in the forest. Large open fields or clearcuts generally are avoided.                                    | Found throughout forested areas in Ontario, north to the north shore of Lake Superior and occasionally as far north as Moosonee, and west to Lake Nipigon.                                                                                                                                                       | BCI                                               | High Quality                                                                          | No; targeted surveys not conducted                                             | High                                             | All FOD, CUW, SWD community may provide suitable habitat.                                                                                                                                                     |
| 1                          | Mammals  | Silver-haired Bat                                      | <i>Lasionycteris noctivagans</i>        | S3                                | END                   | Yes                         | No Status                                         | N/A         | END                                          | Silver-haired Bats occupy a wide diversity of habitats across their geographic range. They roost in a variety of large diameter coniferous and deciduous trees. Roosting occurs primarily under peeling bark and in the cavities of trees, and occasionally in anthropogenic structures (e.g., buildings). They forage in young and old forest, as well as forest openings (canopy gaps), but are typically concentrated along forest edges and intact forest.                                                                           | Found throughout Ontario north to the Hudson Bay Lowlands.                                                                                                                                                                                                                                                       | BCI                                               | High Quality                                                                          | No; targeted surveys not conducted                                             | High                                             | All FOD, CUW, SWD community may provide suitable habitat.                                                                                                                                                     |

| SAR (1)<br>and SOCC<br>(2) | Taxonomy | Common Name                                               | Scientific Name<br>(updated 04-16-2026) | <sup>1</sup> S-Rank<br>(02-20-26) | COSSARO<br>(04-17-26) | On the PSO List<br>(Yes/No) | <sup>3</sup> SARA Sched 1<br>Status<br>(04-17-26) | MBCA Status | <sup>4</sup> COSEWIC<br>Status<br>(04-17-26) | <sup>5</sup> Habitat Requirements                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <sup>5</sup> Known Species Range                                                                                                                          | <sup>6</sup> Source Identifying<br>Species Record | Suitable Habitat<br>Presence and<br>Quality (Absent,<br>Low Quality, High<br>Quality) | Species<br>Observed<br>using Suitable<br>Habitat (Yes,<br>No, Flyover<br>Only) | Probability of<br>Occurring in the<br>Study Area | Rationale                                                                                                                                     |
|----------------------------|----------|-----------------------------------------------------------|-----------------------------------------|-----------------------------------|-----------------------|-----------------------------|---------------------------------------------------|-------------|----------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|---------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|--------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| 1                          | Mammals  | Tri-colored Bat                                           | <i>Perimyotis subflavus</i>             | S3?                               | END                   | Yes                         | END                                               | N/A         | END                                          | Variety of forested habitats. It forms day roosts and maternity colonies in older forest with large diameter trees and occasionally in barns or other structures. They forage over water and along streams in the forest. At the end of the summer they travel to a location where they swarm; it is generally near the cave or underground location where they will overwinter in cold and humid hibernacula (caves/mines). Foraging occurs over water, along waterways, and forest edges. Large open fields or clearcuts generally are avoided. | Found in southern and central Ontario, extending as far north as Lake Nipissing and Algonquin Provincial Park.                                            | BCI                                               | High Quality                                                                          | No; targeted surveys not conducted                                             | High                                             | All FOD, CUW, SWD community may provide suitable habitat.                                                                                     |
| 1                          | Plants   | Butternut                                                 | <i>Juglans cinerea</i>                  | S2?                               | END                   | Yes                         | END                                               | N/A         | END                                          | Prefers moist, well-drained soils in deciduous forests and riparian areas. Intolerant of shade; reproduces by seed. Severely impacted by Butternut Canker.                                                                                                                                                                                                                                                                                                                                                                                        | Widespread in southern and central Ontario; populations declining.                                                                                        | OTAP                                              | High Quality                                                                          | No; targeted surveys not conducted                                             | Medium                                           | Suitable habitat may be present in the FOD community. No Butternut were observed during ELC investigations.                                   |
| 1                          | Plants   | Black Ash                                                 | <i>Fraxinus nigra</i>                   | S4                                | END                   | Yes                         | No Status                                         | N/A         | THR                                          | Prefers swampy lowlands and streambanks in cold, poorly drained organic soils. Reproduces by seed and root suckers; highly susceptible to Emerald Ash Borer.                                                                                                                                                                                                                                                                                                                                                                                      | Widespread across central and southern Ontario, especially in wet lowland areas and riparian zones.                                                       | OTAP                                              | High Quality                                                                          | No; targeted surveys not conducted                                             | High                                             | Suitable habitat may be present in the SWD2-2 community. No Black Ash were observed during ELC investigations.                                |
| 1                          | Reptiles | Blanding's Turtle (Great Lakes / St. Lawrence population) | <i>Emydoidea blandingii</i>             | S3                                | THR                   | Yes                         | END                                               | N/A         | END                                          | Prefers shallow wetlands with abundant aquatic vegetation and soft substrates. Uses vernal pools, marshes, and shrub swamps for foraging and overwintering; nests in nearby sandy or open uplands.                                                                                                                                                                                                                                                                                                                                                | Primarily found in central and southern Ontario, including the Georgian Bay area and southern Shield region.                                              | ORAA                                              | Low Quality                                                                           | No; targeted surveys not conducted                                             | Medium                                           | The Napanee River may provide suitable habitat in slower moving sections. Adjacent swamp (SWD) communities may also provide suitable habitat. |
| 2                          | Birds    | Blue-winged Teal                                          | <i>Spatula discors</i>                  | S3B,S4M                           | -                     | No                          | Not Listed                                        | Yes         | -                                            | Nests in grasses or herbaceous cover and forage in shallow ponds or pond-marsh habitats. During their flightless molt, they use prairie potholes and large marshes. Migrants rely on vegetated wetlands and rice fields, wintering mainly in fresh or brackish wetlands.                                                                                                                                                                                                                                                                          | Breeding range in Ontario extends from southern Ontario north to Lake Nipigon, with a disjunct breeding population occurring inland of western James Bay. | OBBA                                              | Absent                                                                                | No                                                                             | Low                                              | Suitable wetland habitat with dense emergent vegetation not present within Study Area.                                                        |
| 2                          | Birds    | Caspian Tern                                              | <i>Hydroprogne caspia</i>               | S3B,S5M                           | -                     | No                          | No Status                                         | Yes         | NAR                                          | Breeds along ocean coasts, barrier islands, interior lakes, and rivers where flat, open areas with little vegetation are present for nesting. Frequent all large bodies of freshwater during migration.                                                                                                                                                                                                                                                                                                                                           | In Ontario, occurs in the southern region of the province, extending north-east along the St Lawrence within Ecoregions 7E and 6E.                        | ebird                                             | Absent                                                                                | No                                                                             | Low                                              | The Napanee River is not large and open enough, and does not have adjacent flat areas for nesting.                                            |
| 2                          | Birds    | Common Nighthawk                                          | <i>Chordeiles minor</i>                 | S4B                               | SC                    | No                          | SC                                                | Yes         | SC                                           | The Common Nighthawk inhabits open areas with minimal ground vegetation, such as logged regions, forest clearings, rock barrens, and lakeshores. It nests in diverse environments, including dunes, beaches, grasslands, marshes, and riverbanks, as well as mixed and coniferous forests. The species benefited from habitats created by deforestation and the advent of gravel roofs in North America.                                                                                                                                          | Widespread throughout Ontario, especially in open or disturbed habitats.                                                                                  | OBBA, eBird                                       | Absent                                                                                | No                                                                             | Low                                              | Natural areas interspersed with areas of little to no ground vegetation were not present in the Study Area.                                   |
| 2                          | Birds    | Eastern Wood-pewee                                        | <i>Contopus virens</i>                  | S4B                               | SC                    | No                          | SC                                                | Yes         | SC                                           | Breeds in deciduous and mixedwood forests, especially in mature stands with open mid-canopy. Forages for insects by fly-catching and migrates to South America.                                                                                                                                                                                                                                                                                                                                                                                   | Widespread across forested regions in Ontario, especially southern and central parts.                                                                     | OBBA, eBird                                       | High Quality                                                                          | No; targeted surveys not conducted                                             | Medium                                           | Forest (FOD, CUW) and treed swamp (SWD) communities were present in the Study Area.                                                           |
| 2                          | Birds    | Grasshopper Sparrow                                       | <i>Ammodramus savannarum</i>            | S4B                               | SC                    | No                          | SC                                                | Yes         | SC                                           | Breeds in dry, open grasslands (>10 ha) with sparse vegetation and well-drained soils. Nests on the ground and forages for insects and seeds in short-stature grasses. Winters in the southern U.S. and Central America.                                                                                                                                                                                                                                                                                                                          | Found in southern and eastern Ontario, especially in remnant prairie and lightly grazed pastures.                                                         | OBBA                                              | Low Quality                                                                           | No; targeted surveys not conducted                                             | Medium                                           | Potential suitable meadow and hayfield habitat within Study Area.                                                                             |
| 2                          | Birds    | Peregrine Falcon                                          | <i>Falco peregrinus</i>                 | S4                                | SC                    | No                          | Not at Risk                                       | No          | NAR                                          | Breeds on tall cliffs, ledges, or tall urban structures near water. Hunts over open landscapes and wetlands for birds. Some overwinter in southern Ontario.                                                                                                                                                                                                                                                                                                                                                                                       | Re-established in cities and cliffs across southern and central Ontario.                                                                                  | ebird                                             | Absent                                                                                | No                                                                             | Low                                              | Suitable tall structures or cliffs adjacent to the Napanee River were not present in the Study Area.                                          |
| 2                          | Birds    | Upland Sandpiper                                          | <i>Bartramia longicauda</i>             | S2B                               | -                     | No                          | Not Listed                                        | Yes         | -                                            | Inhabits grassy prairies, open meadows, and fields, preferring native grasslands with tall grasses and broad-leafed weeds for nesting. It frequently uses airports. During migration it stops in open pastures and lawns, avoiding mudflats and other typical shorebird habitats.                                                                                                                                                                                                                                                                 | Occurs in grassland habitats across southern Ontario.                                                                                                     | IBA                                               | Low Quality                                                                           | No                                                                             | Low                                              | Potentially suitable habitat within agricultural lands, pastures and meadows present within the Study Area.                                   |
| 2                          | Insects  | Judith's Underwing Moth                                   | <i>Catocala judith</i>                  | S4?                               | -                     | No                          | Not Listed                                        | N/A         | -                                            | Deciduous woods; larvae on oaks; adults midsummer on tree trunks.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Found across southern Ontario.                                                                                                                            | OMA                                               | Low Quality                                                                           | No; targeted surveys not conducted                                             | Medium                                           | Suitable deciduous forest (FOD) with potential for its host plants Hickory and Walnut found within the Study Area.                            |
| 2                          | Insects  | Juniper Hairstreak                                        | <i>Callophrys gryneus</i>               | S3                                | -                     | No                          | Not Listed                                        | N/A         | -                                            | Occurs in glades and old fields where there are eastern red cedar trees. Adults perch in the cedar trees, their wings folded above the back, blending beautifully with the cedar boughs. It's in the cedars where the males wait for females, and the females deposit their eggs. These hairstreaks never venture very far from cedar trees.                                                                                                                                                                                                      | Found across southern Canada.                                                                                                                             | OMA                                               | High Quality                                                                          | No; targeted surveys not conducted                                             | Medium                                           | Suitable habitat may be present in the FOC2-1 and CUW1-1 communities, dominated by Eastern Red Cedar.                                         |
| 2                          | Insects  | Monarch                                                   | <i>Danaus plexippus</i>                 | S4B,S2N                           | SC                    | No                          | END                                               | N/A         | END                                          | Requires open areas with milkweed for larval development and wildflowers for adult nectar. Roosts during migration occur in trees along the Great Lakes.                                                                                                                                                                                                                                                                                                                                                                                          | Common throughout southern Ontario; migratory populations overwinter in Mexico.                                                                           | OBA                                               | High Quality                                                                          | Yes                                                                            | Confirmed                                        | Adult Monarchs were observed flying in Study Area. Suitable meadow habitat with Milkweed was observed within the Study Area.                  |
| 2                          | Insects  | Penitent Underwing Moth                                   | <i>Catocala piatrix</i>                 | S3                                | -                     | No                          | Not Listed                                        | N/A         | -                                            | Deciduous forests, riparian woodlands, and sometimes suburban areas near host trees.                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Southern Ontario.                                                                                                                                         | OMA                                               | High Quality                                                                          | No; targeted surveys not conducted                                             | Medium                                           | Suitable habitat may be present in the deciduous forests (FOD) and cultural woodlands (CUW) adjacent to the Napanee River.                    |
| 2                          | Insects  | Walnut Caterpillar Moth                                   | <i>Datana integerrima</i>               | S4                                | -                     | No                          | Not Listed                                        | N/A         | -                                            | Occurs where walnut, butternut, hickory and pecan grow; larvae can defoliate host trees; widespread in eastern North America including southern Ontario.                                                                                                                                                                                                                                                                                                                                                                                          | Found across southern and central Ontario.                                                                                                                | OMA                                               | High Quality                                                                          | No; targeted surveys not conducted                                             | Medium                                           | Suitable deciduous forest (FOD) and cultural woodland (CUW) for its host plants Hickory and Walnut found within the Study Area.               |
| 2                          | Reptiles | Eastern Musk Turtle (Stinkpot)                            | <i>Sternotherus odoratus</i>            | S3                                | SC                    | No                          | SC                                                | N/A         | SC                                           | Inhabits shallow, slow-moving waters such as ponds, marshes, and bays with soft mud bottoms. Nests on exposed shorelines with well-drained soils and basking logs.                                                                                                                                                                                                                                                                                                                                                                                | Widespread in southern Ontario, especially along the Great Lakes and St. Lawrence River shoreline.                                                        | NHIC                                              | High Quality                                                                          | No                                                                             | Low                                              | Suitable habitat may be preseth within the Napanee River.                                                                                     |
| 2                          | Reptiles | Northern Map Turtle                                       | <i>Graptemys geographica</i>            | S3                                | SC                    | No                          | SC                                                | N/A         | SC                                           | Found in large rivers and lakes with rocky or sandy bottoms. Basks on logs and rocks; nests on exposed sandy or gravelly shorelines.                                                                                                                                                                                                                                                                                                                                                                                                              | Southern Ontario throughout the Great Lakes and St. Lawrence River systems.                                                                               | ORAA                                              | High Quality                                                                          | No                                                                             | Low                                              | Suitable habitat may be present within the Napanee River.                                                                                     |
| 2                          | Reptiles | Snapping Turtle                                           | <i>Chelydra serpentina</i>              | S4                                | SC                    | No                          | SC                                                | N/A         | SC                                           | Prefers slow-moving or still waters including marshes, lakes, ponds, and rivers with soft bottoms and aquatic vegetation. Nests in sunny, well-drained soils close to water.                                                                                                                                                                                                                                                                                                                                                                      | Widespread across southern, central, and parts of northern Ontario.                                                                                       | NHIC, ORAA                                        | High Quality                                                                          | No                                                                             | Low                                              | Suitable habitat may be present within the Napanee River.                                                                                     |

# Appendix E. Significant Wildlife Habitat Assessment

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Appendix E. Significant Wildlife Habitat Assessment

Terrestrial Ecosystems Existing Conditions and Impact Assessment - Highway 401 Improvements Between City of Belleville and City of Kingston – Napanee River Bridge (GWP 4040-20-00)



Significant Wildlife Habitat (SWH) Ecoregion 6E Criterion Schedule (MNR, 2015)

| Significant Wildlife Habitat Category   | Wildlife Habitat                                                                                                                                                                                  | Listed or Indicator Species                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Candidate SWH – ELC Ecosite Codes                                                                                                                               | Candidate SWH - Habitat Criteria <sup>1</sup>                                                                                                                                                                                                                                                                                                                                                                                                                             | Confirmed SWH - Defining Criteria <sup>2</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Presence Within the Study Area                          | Rationale                                                                                                                                     |
|-----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| Seasonal Concentration Areas of Animals | <b>Waterfowl Stopover and Staging Areas (Terrestrial)</b><br><b>Rationale:</b><br>Habitat important to migrating waterfowl.                                                                       | <ul style="list-style-type: none"><li>American Black Duck</li><li>Wood Duck</li><li>Green-winged Teal</li><li>Blue-winged Teal</li><li>Mallard</li><li>Northern Pintail</li><li>Northern Shoveler</li><li>American Wigeon</li><li>Gadwall</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                    | <ul style="list-style-type: none"><li>CUM1 and CUT1.</li><li>Plus evidence of annual spring flooding from melt water or runoff within these Ecosites.</li></ul> | <ul style="list-style-type: none"><li>Fields with sheet water during Spring (mid March to May).</li><li>Fields flooding during spring melt and runoff provide important invertebrate foraging habitat for migrating waterfowl.</li><li>Agricultural fields with waste grains are commonly used by waterfowl, these are not considered SWH unless they have spring sheet water available.</li></ul>                                                                        | <ul style="list-style-type: none"><li>Any mix of listed species aggregations of 100 or more individuals required.</li><li>The flooded field ecosite habitat plus a 100 to 300 m radius area, dependant on local site conditions and adjacent land use is the significant wildlife habitat.</li></ul>                                                                                                                                                                                                                                                                     | <ul style="list-style-type: none"><li>Absent.</li></ul> | <ul style="list-style-type: none"><li>Ecosite(s) were present but specific supporting habitat feature(s) were absent or unsuitable.</li></ul> |
| Seasonal Concentration Areas of Animals | <b>Waterfowl Stopover and Staging Areas (Aquatic)</b><br><b>Rationale:</b><br>Important for local and migrant waterfowl populations during the spring or fall migration or both periods combined. | <ul style="list-style-type: none"><li>Canada Goose</li><li>Cackling Goose</li><li>Snow Goose</li><li>American Black Duck</li><li>Northern Pintail</li><li>Northern Shoveler</li><li>American Wigeon</li><li>Gadwall</li><li>Green-winged Teal</li><li>Blue-winged Teal</li><li>Hooded Merganser</li><li>Common Merganser</li><li>Lesser Scaup</li><li>Greater Scaup</li><li>Long-tailed Duck</li><li>Surf Scoter</li><li>White-winged Scoter</li><li>Black Scoter</li><li>Ring-necked Duck</li><li>Common Goldeneye</li><li>Bufflehead</li><li>Redhead</li><li>Ruddy Duck</li><li>Red-breasted Merganser</li><li>Brant</li><li>Canvasback</li><li>Ruddy Duck</li></ul> | <ul style="list-style-type: none"><li>MAS1, MAS2, MAS3, SAS1, SAM1, SAF1, SWD1, SWD2, SWD3, SWD4, SWD5, SWD6 and SWD7.</li></ul>                                | <ul style="list-style-type: none"><li>Ponds, marshes, lakes, bays, coastal inlets, and watercourses used during migration. Sewage treatment ponds and stormwater ponds do not qualify as a SWH, however a reservoir managed as a large wetland or pond/lake does qualify.</li><li>These habitats have an abundant food supply (mostly aquatic invertebrates and vegetation in shallow water).</li></ul>                                                                   | <ul style="list-style-type: none"><li>Aggregations of 100 or more of listed species for 7 days, results in &gt;700 waterfowl use days.</li><li>Areas with annual staging of ruddy ducks, canvasbacks, and redheads are SWH.</li><li>The combined area of the ELC ecosites and a 100 m radius area is the SWH.</li><li>Wetland area and shorelines associated with sites identified within the Significant Wildlife Habitat Technical Guide (MNR, 2000) Appendix K are significant wildlife habitat.</li></ul>                                                            | <ul style="list-style-type: none"><li>Absent.</li></ul> | <ul style="list-style-type: none"><li>Ecosite(s) were present but specific supporting habitat feature(s) were absent or unsuitable.</li></ul> |
| Seasonal Concentration Areas of Animals | <b>Shorebird Migratory Stopover Area</b><br><b>Rationale:</b><br>High quality shorebird stopover habitat is extremely rare and typically has a long history of use.                               | <ul style="list-style-type: none"><li>Greater Yellowlegs</li><li>Lesser Yellowlegs</li><li>Marbled Godwit</li><li>Hudsonian Godwit</li><li>Black-bellied Plover</li><li>American Golden-Plover</li><li>Semipalmated Plover</li><li>Solitary Sandpiper</li><li>Spotted Sandpiper</li><li>Semipalmated Sandpiper</li><li>Pectoral Sandpiper</li><li>White-rumped Sandpiper</li><li>Baird’s Sandpiper</li><li>Least Sandpiper</li><li>Purple Sandpiper</li><li>Stilt Sandpiper</li><li>Short-billed Dowitcher</li><li>Red-necked Phalarope</li><li>Whimbrel</li><li>Ruddy Turnstone</li><li>Sanderling</li><li>Dunlin</li></ul>                                           | <ul style="list-style-type: none"><li>BBO1, BBO2, BBS1, BBS2, BBT1, BBT2, SDO1, SDS2, SDT1, MAM1, MAM2, MAM3, MAM4 and MAM5.</li></ul>                          | <ul style="list-style-type: none"><li>Shorelines of lakes, rivers and wetlands, including beach areas, bars and seasonally flooded, muddy and un-vegetated shoreline habitats.</li><li>Great Lakes coastal shorelines, including groynes and other forms of armour rock lakeshores, are extremely important for migratory shorebirds in May to mid-June and early July to October.</li><li>Sewage treatment ponds and stormwater ponds do not qualify as a SWH.</li></ul> | <ul style="list-style-type: none"><li>Presence of 3 or more of listed species and &gt; 1000 shorebird use days during spring or fall migration period. (shorebird use days are the accumulated number of shorebirds counted per day over the course of the fall or spring migration period)</li><li>Whimbrel stop briefly (&lt;24 hrs) during spring migration, any site with &gt;100 Whimbrel used for 3 years, or more is significant.</li><li>The area of significant shorebird habitat includes the mapped ELC shoreline ecosites plus a 100 m radius area</li></ul> | <ul style="list-style-type: none"><li>Absent.</li></ul> | <ul style="list-style-type: none"><li>Ecosite(s) were present but specific supporting habitat feature(s) were absent or unsuitable.</li></ul> |



Appendix E. Significant Wildlife Habitat Assessment

Terrestrial Ecosystems Existing Conditions and Impact Assessment - Highway 401 Improvements Between City of Belleville and City of Kingston – Napanee River Bridge (GWP 4040-20-00)



| Significant Wildlife Habitat Category   | Wildlife Habitat                                                                                                                                                                | Listed or Indicator Species                                                                                                                                                                                                                                                            | Candidate SWH – ELC Ecosite Codes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Candidate SWH - Habitat Criteria <sup>1</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Confirmed SWH - Defining Criteria <sup>2</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Presence Within the Study Area | Rationale                                                                                                                                                     |
|-----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Seasonal Concentration Areas of Animals | <b>Raptor Wintering Area</b><br><b>Rationale:</b><br>Sites used by multiple species, a high number of individuals and used annually are most significant                        | <ul style="list-style-type: none"><li>■ Rough-legged Hawk</li><li>■ Red-tailed Hawk</li><li>■ Northern Harrier</li><li>■ American Kestrel</li><li>■ Snowy Owl</li></ul> <b>Special Concern:</b> <ul style="list-style-type: none"><li>■ Short-eared Owl</li><li>■ Bald Eagle</li></ul> | <b>Hawks/Owls:</b> <ul style="list-style-type: none"><li>■ Combination of ELC Community Series: need to have present one Community Series from each land class:<ul style="list-style-type: none"><li>– Forest: FOD, FOM and FOC.</li><li>– Upland: CUM, CUT, CUS and CUW.</li></ul></li></ul> <b>Bald Eagle:</b> <ul style="list-style-type: none"><li>■ Forest community Series:<ul style="list-style-type: none"><li>– FOD, FOM, FOC, SWD, SWM or SWC on shoreline areas adjacent to large rivers or adjacent to lakes with open water (hunting area).</li></ul></li></ul> | <ul style="list-style-type: none"><li>■ The habitat provides a combination of fields and woodlands that provide roosting, foraging and resting habitats for wintering raptors.</li><li>■ Raptor wintering sites (hawk/owl) need to be &gt;20 ha, with a combination of forest and upland.</li><li>■ Least disturbed sites, idle/fallow or lightly grazed field/meadow (&gt;15 ha) with adjacent woodlands.</li><li>■ Field area of the habitat is to be wind swept with limited snow depth or accumulation.</li><li>■ Eagle sites have open water, large trees and snags available for roosting.</li></ul>                                                                                                                                 | <ul style="list-style-type: none"><li>■ One or more Short-eared Owls or: One or more Bald Eagles or: At least 10 individuals and two of the listed hawk/owl species.</li><li>■ To be significant a site must be used regularly (3 in 5 years) for a minimum of 20 days by the above number of birds.</li><li>■ The habitat area for an Eagle winter site is the shoreline forest ecosites directly adjacent to the prime hunting area.</li></ul>                                                                                                                                                                                                                                                                                                            | ■ Candidate SWH.               | ■ Fields (CUM), forest (FOD) and woodlands (CUW) were present in the Study Area that together were greater than 20 ha and may provide suitable habitat.       |
| Seasonal Concentration Areas of Animals | <b>Bat Hibernacula</b><br><b>Rationale:</b><br>Bat hibernacula are rare habitats in all Ontario landscapes.                                                                     | <ul style="list-style-type: none"><li>■ Big Brown Bat</li></ul>                                                                                                                                                                                                                        | <ul style="list-style-type: none"><li>■ Bat Hibernacula may be found in these ecosites:<ul style="list-style-type: none"><li>– CCR1, CCR2, CCA1 and CCA2 (Note: buildings are not considered to be SWH)</li></ul></li></ul>                                                                                                                                                                                                                                                                                                                                                  | <ul style="list-style-type: none"><li>■ Hibernacula may be found in caves, mine shafts, underground foundations and Karsts.</li><li>■ Active mine sites should not be considered as SWH.</li><li>■ The locations of bat hibernacula are relatively poorly known.</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <ul style="list-style-type: none"><li>■ All sites with confirmed hibernating bats are SWH.</li><li>■ The habitat area includes a 200 m radius around the entrance of the hibernaculum, for most development types and 1,000 m for wind farms.</li><li>■ Studies are to be conducted during the peak swarming period (August – September).</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                         | ■ Absent.                      | ■ Ecosite(s) for this SWH were absent from Study Area.                                                                                                        |
| Seasonal Concentration Areas of Animals | <b>Bat Maternity Colonies</b><br><b>Rationale:</b><br>Known locations of forested bat maternity colonies are extremely rare in all Ontario landscapes.                          | <ul style="list-style-type: none"><li>■ Big Brown Bat</li><li>■ Silver-haired Bat</li></ul>                                                                                                                                                                                            | <ul style="list-style-type: none"><li>■ Maternity colonies considered SWH are found in forested Ecosites.</li><li>■ All ELC Ecosites in ELC Community Series:<ul style="list-style-type: none"><li>– FOD, FOM, SWD and SWM</li></ul></li></ul>                                                                                                                                                                                                                                                                                                                               | <ul style="list-style-type: none"><li>■ Maternity colonies can be found in tree cavities, vegetation and often in buildings (buildings are not considered to be SWH).</li><li>■ Maternity roosts are not found in caves and mines in Ontario.</li><li>■ Maternity colonies located in Mature deciduous or mixed forest stands, with &gt;10/ha large diameter (&gt;25 cm diameter at breast height [dbh]) wildlife trees.</li><li>■ Female Bats prefer wildlife tree (snags) in early stages of decay, class 1-3 or class 1 or 2.</li><li>■ Silver-haired Bats prefer older mixed or deciduous forest and form maternity colonies in tree cavities and small hollows. Older forest areas with at least 21 snags/ha are preferred.</li></ul> | <ul style="list-style-type: none"><li>■ Maternity Colonies with confirmed use by:<ul style="list-style-type: none"><li>– &gt;10 Big Brown Bats</li><li>– &gt;5 Adult Female Silver-haired Bats</li></ul></li><li>■ The area of the habitat includes the entire woodland or a forest stand ELC Ecosite or an Eco-element containing the maternity colonies.</li></ul>                                                                                                                                                                                                                                                                                                                                                                                        | ■ Candidate SWH.               | ■ FOD and SWD Ecosites were present in the Study Area that may provide suitable snag/cavity trees. Acoustic monitoring was not completed to confirm presence. |
| Seasonal Concentration Areas of Animals | <b>Turtle Wintering Areas</b><br><b>Rationale:</b><br>Generally, sites are the only known sites in the area. Sites with the highest number of individuals are most significant. | <ul style="list-style-type: none"><li>■ Midland Painted Turtle</li></ul> <b>Special Concern:</b> <ul style="list-style-type: none"><li>■ Northern Map Turtle</li><li>■ Snapping Turtle</li></ul>                                                                                       | <ul style="list-style-type: none"><li>■ Midland Painted Turtles: ELC Community.</li><li>■ Classes: SW, MA, OA and SA, ELC Community Series: FEO and BOO.</li><li>■ Northern Map Turtle: Open Water areas such as deeper rivers or streams and lakes with current can also be used as over-wintering habitat.</li></ul>                                                                                                                                                                                                                                                       | <ul style="list-style-type: none"><li>■ For most turtles, wintering areas are in the same general area as their core habitat. Water has to be deep enough not to freeze and have soft mud substrates.</li><li>■ Over-wintering sites are permanent water bodies, large wetlands, and bogs or fens with adequate Dissolved Oxygen.</li><li>■ Man-made ponds such as sewage lagoons or stormwater ponds should not be considered SWH.</li></ul>                                                                                                                                                                                                                                                                                              | <ul style="list-style-type: none"><li>■ Presence of 5 over-wintering Midland Painted Turtles is significant.</li><li>■ One or more Northern Map Turtle or Snapping Turtle over-wintering within a wetland is significant.</li><li>■ The mapped ELC ecosite area with the over wintering turtles is the SWH. If the hibernation site is within a stream or river, the deep-water pool where the turtles are over wintering is the SWH.</li><li>■ Over wintering areas may be identified by searching for congregations (Basking Areas) of turtles on warm, sunny days during the fall (September – October) or spring (March – May).</li><li>■ Congregation of turtles is more common where wintering areas are limited and therefore significant.</li></ul> | ■ Candidate SWH.               | ■ The Napanee River is likely deep that is does not freeze completely and may provide suitable turtle wintering for the Northern Map Turtle.                  |

Appendix E. Significant Wildlife Habitat Assessment

Terrestrial Ecosystems Existing Conditions and Impact Assessment - Highway 401 Improvements Between City of Belleville and City of Kingston – Napanee River Bridge (GWP 4040-20-00)



| Significant Wildlife Habitat Category   | Wildlife Habitat                                                                                                                                                                                                   | Listed or Indicator Species                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Candidate SWH – ELC Ecosite Codes                                                                                                                                                                                                                                                                                                                                                                                                              | Candidate SWH - Habitat Criteria <sup>1</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Confirmed SWH - Defining Criteria <sup>2</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Presence Within the Study Area | Rationale                                                                                                                                                                                                                                                |
|-----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Seasonal Concentration Areas of Animals | <b>Reptile Hibernaculum</b><br><b>Rationale:</b><br>Generally, sites are the only known sites in the area. Sites with the highest number of individuals are most significant.                                      | <b>Snakes:</b> <ul style="list-style-type: none"><li>■ Eastern Gartersnake</li><li>■ Northern Watersnake</li><li>■ Northern Red-bellied Snake</li><li>■ Northern Brownsnake</li><li>■ Smooth Green Snake</li><li>■ Northern Ring-necked Snake</li></ul> <b>Special Concern:</b> <ul style="list-style-type: none"><li>■ Milksnake</li><li>■ Eastern Ribbonsnake</li></ul> <b>Lizard:</b><br><b>Special Concern</b> <ul style="list-style-type: none"><li>■ Common Five-lined Skink (Southern Shield population)</li></ul> | <ul style="list-style-type: none"><li>■ For all snakes, habitat may be found in any ecosite other than very wet ones. Talus, Rock Barren, Crevice, Cave, and Alvar sites may be directly related to these habitats.</li><li>■ Observations or congregations of snakes on sunny warm days in the spring or fall is a good indicator.</li><li>■ For Five-lined Skink, ELC Community Series of FOD and FOM and Ecosites: FOC1 and FOC3.</li></ul> | <ul style="list-style-type: none"><li>■ For snakes, hibernation takes place in sites located below frost lines (at least 1 m below ground) in burrows, rock crevices and other natural or naturalized locations. The existence of features that go below frost line: such as rock piles or slopes, old stone fences, and abandoned crumbling foundations assist in identifying candidate SWH.</li><li>■ Areas of broken and fissured rock are particularly valuable since they provide access to subterranean sites below the frost line (at least 1 m below ground).</li><li>■ Wetlands can also be important over-wintering habitat in conifer or shrub swamps and swales, poor fens, or depressions in bedrock terrain with sparse trees or shrubs with sphagnum moss or sedge hummock ground cover.</li><li>■ Five-lined skink prefer mixed forests with rock outcrop openings providing cover rock overlaying granite bedrock with fissures.</li></ul> | <ul style="list-style-type: none"><li>■ Presence of snake hibernacula used by a minimum of five individuals of a snake sp. Or: individuals of two or more snake spp.</li><li>■ Congregations of a minimum of five individuals of a snake sp. or: individuals of two or more snake spp. near potential hibernacula (e.g., foundation or rocky slope) on sunny warm days in Spring (Apr/May) and Fall (Sept/Oct).</li><li>■ <u>Note:</u> If there are Special Concern Species present, then site is SWH.</li><li>■ <u>Note:</u> Sites for hibernation possess specific habitat parameters (e.g., temperature, humidity, etc.) and consequently are used annually, often by many of the same individuals of a local population (i.e., strong hibernation site fidelity). Other critical life processes (e.g., mating) often take place in close proximity to hibernacula. The feature in which the hibernacula is located plus a 30 m radius area is the SWH.</li><li>■ Presence of any active hibernaculum for skink is significant.</li></ul> | ■ Candidate SWH.               | ■ Northern Watersnake, an indicator species, was observed incidentally in the Study Area. The varying landscape including forest (FOD), swamp (SWD) and meadow marsh (MAM) likely provides opportunities for reptiles to hibernate below the frost line. |
| Seasonal Concentration Areas of Animals | <b>Colonially -Nesting Bird Breeding Habitat (Bank and Cliff)</b><br><b>Rationale:</b><br>Historical use and number of nests in a colony make this habitat significant.                                            | <ul style="list-style-type: none"><li>■ Cliff Swallow</li><li>■ Northern Rough-winged Swallow (this species is not colonial but can be found in Cliff Swallow colonies).</li></ul>                                                                                                                                                                                                                                                                                                                                        | <ul style="list-style-type: none"><li>■ Eroding banks, sandy hills, borrow pits, steep slopes, and sand piles.</li><li>■ Cliff faces, bridge abutments, silos and barns.</li><li>■ Habitat found in the following ecosites:<ul style="list-style-type: none"><li>– CUM1, CUT1, CUS1, BLO1, BLS1, BLT1, CLO1, CLS1 and CLT1.</li></ul></li></ul>                                                                                                | <ul style="list-style-type: none"><li>■ Any site or areas with exposed soil banks, undisturbed or naturally eroding that is not a licensed/permitted aggregate area.</li><li>■ Does not include man-made structures (bridges or buildings) or recently (2 years) disturbed soil areas, such as berms, embankments, soil or aggregate stockpiles.</li><li>■ Does not include a licensed/permitted Mineral Aggregate Operation.</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <ul style="list-style-type: none"><li>■ Presence of 1 or more nesting sites with 8 or more cliff swallow pairs and/or rough-winged swallow pairs during the breeding season.</li><li>■ A colony identified as SWH will include a 50 m radius habitat area from the peripheral nests.</li><li>■ Field surveys to observe and count swallow nests are to be completed during the breeding season.</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | ■ Absent.                      | ■ Vertical banks with exposed soil were not observed along the Napanee River.                                                                                                                                                                            |
| Seasonal Concentration Areas of Animals | <b>Colonially -Nesting Bird Breeding Habitat (Tree/Shrubs)</b><br><b>Rationale:</b><br>Large colonies are important to local bird population, typically sites are only known colony in area and are used annually. | <ul style="list-style-type: none"><li>■ Great Blue Heron</li><li>■ Black-crowned Night-Heron</li><li>■ Great Egret</li><li>■ Green Heron</li></ul>                                                                                                                                                                                                                                                                                                                                                                        | <ul style="list-style-type: none"><li>■ SWM2, SWM3, SWM5, SWM6, SWD1, SWD2, SWD3, SWD4, SWD5, SWD6, SWD7 and FET1.</li></ul>                                                                                                                                                                                                                                                                                                                   | <ul style="list-style-type: none"><li>■ Nests in live or dead standing trees in wetlands, lakes, islands, and peninsulas. Shrubs and occasionally emergent vegetation may also be used.</li><li>■ Most nests in trees are 11 to 15 m from ground, near the top of the tree.</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | <ul style="list-style-type: none"><li>■ Presence of 5 or more active nests of Great Blue Heron or other listed species.</li><li>■ The habitat extends from the edge of the colony and a minimum 300 m radius or extent of the Forest Ecosite containing the colony or any island &lt;15.0 ha with a colony is the SWH.</li><li>■ Confirmation of active heronries are to be achieved through site visits conducted during the nesting season (April to August) or by evidence such as the presence of fresh guano, dead young and/or eggshells.</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | ■ Candidate SWH.               | ■ Treed swamp (SWD2-2) may provide suitable habitat in the Study Area However, no nests were observed and no indicator species were observed during field investigations.                                                                                |
| Seasonal Concentration Areas of Animals | <b>Colonially -Nesting Bird Breeding Habitat (Ground)</b><br><b>Rationale:</b><br>Colonies are important to local bird population, typically sites are only known colony in area and are used annually.            | <ul style="list-style-type: none"><li>■ Herring Gull</li><li>■ Great Black-backed Gull</li><li>■ Little Gull</li><li>■ Ring-billed Gull</li><li>■ Common Tern</li><li>■ Caspian Tern</li><li>■ Brewer's Blackbird</li></ul>                                                                                                                                                                                                                                                                                               | <ul style="list-style-type: none"><li>■ Any rocky island or peninsula (natural or artificial) within a lake or large river (two-lined on a 1:50,000 NTS map).</li><li>■ Close proximity to watercourses in open fields or pastures with scattered trees or shrubs (Brewer's Blackbird).</li><li>■ MAM1-6, MAS1-3, CUM, CUT and CUS.</li></ul>                                                                                                  | <ul style="list-style-type: none"><li>■ Nesting colonies of gulls and terns are on islands or peninsulas associated with open water or in marshy areas.</li><li>■ Brewer's Blackbird colonies are found loosely on the ground in low bushes in close proximity to streams and irrigation ditches within farmlands.</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <ul style="list-style-type: none"><li>■ Presence of &gt;25 active nests for Herring Gulls or Ring-billed Gulls, &gt;5 active nests for Common Tern or &gt;2 active nests for Caspian Tern.</li><li>■ Presence of 5 or more pairs for Brewer's Blackbird.</li><li>■ Any active nesting colony of one or more Little Gull, and Great Black-backed Gull is significant.</li><li>■ The edge of the colony and a minimum 150 m radius area of habitat, or the extent of the ELC ecosites containing the colony or any island &lt;3.0 ha with a colony is the SWH.</li><li>■ Studies would be done during May/June when actively nesting.</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                | ■ Absent.                      | ■ Ecosite(s) for this SWH were absent from Study Area.                                                                                                                                                                                                   |

Appendix E. Significant Wildlife Habitat Assessment

Terrestrial Ecosystems Existing Conditions and Impact Assessment - Highway 401 Improvements Between City of Belleville and City of Kingston – Napanee River Bridge (GWP 4040-20-00)



| Significant Wildlife Habitat Category   | Wildlife Habitat                                                                                                                                                  | Listed or Indicator Species                                                                    | Candidate SWH – ELC Ecosite Codes                                                                                                                                                                                                                                                                                                                                                           | Candidate SWH - Habitat Criteria <sup>1</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Confirmed SWH - Defining Criteria <sup>2</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Presence Within the Study Area                            | Rationale                                                                                                                          |
|-----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|
| Seasonal Concentration Areas of Animals | <b>Migratory Butterfly Stopover Areas</b>                                                                                                                         | <ul style="list-style-type: none"><li>■ Painted Lady</li><li>■ Red Admiral</li></ul>           | <ul style="list-style-type: none"><li>■ Combination of ELC Community Series: need to have present one Community Series from each land class:<ul style="list-style-type: none"><li>– Field: CUM, CUT and CUS.</li><li>– Forest: FOC, FOD, FOM and CUP.</li></ul></li><li>■ Anecdotally, a candidate site for butterfly stopover will have a history of butterflies being observed.</li></ul> | <ul style="list-style-type: none"><li>■ A butterfly stopover area will be a minimum of 10 ha in size with a combination of field and forest habitat present, and will be located within 5 km of Lake Ontario<ul style="list-style-type: none"><li>– The habitat is typically a combination of field and forest, and provides the butterflies with a location to rest prior to their long migration south.</li><li>– The habitat should not be disturbed, fields/meadows with an abundance of preferred nectar plants and woodland edge providing shelter are requirements for this habitat.</li><li>– Staging areas usually provide protection from the elements and are often spits of land or areas with the shortest distance to cross the Great Lakes.</li></ul></li></ul> | <ul style="list-style-type: none"><li>■ The presence of Monarch Use Days (MUD) during fall migration (Aug/Oct). MUD is based on the number of days a site is used by Monarchs, multiplied by the number of individuals using the site. Numbers of butterflies can range from 100-500/day, significant variation can occur between years and multiple years of sampling should occur.</li><li>■ Observational studies are to be completed and need to be done frequently during the migration period to estimate MUD.</li><li>■ MUD of &gt;5,000 <b>or</b> &gt;3,000 with the presence of Painted Ladies or Red Admiral's is to be considered significant.</li></ul> | <ul style="list-style-type: none"><li>■ Absent.</li></ul> | <ul style="list-style-type: none"><li>■ The Study Area is not within 5 km of Lake Ontario.</li></ul>                               |
|                                         | <b>Rationale:</b><br>Butterfly stopover areas are extremely rare habitats and are biologically important for butterfly species that migrate south for the winter. | <b>Special Concern</b> <ul style="list-style-type: none"><li>■ Monarch</li></ul>               |                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                           |                                                                                                                                    |
| Seasonal Concentration Areas of Animals | <b>Landbird Migratory Stopover Areas</b>                                                                                                                          | <ul style="list-style-type: none"><li>■ All migratory songbirds and migrant raptors.</li></ul> | <ul style="list-style-type: none"><li>■ All Ecosites associated with these ELC Community Series:<ul style="list-style-type: none"><li>– FOC, FOM, FOD, SWC, SWM and SWD.</li></ul></li></ul>                                                                                                                                                                                                | <ul style="list-style-type: none"><li>■ Woodlots need to be &gt;10 ha in size and within 5 km of Lake Ontario.<ul style="list-style-type: none"><li>– If multiple woodlands are located along the shoreline those Woodlands &lt;2 km from Lake Ontario are more significant</li><li>– Sites have a variety of habitats: forest, grassland and wetland complexes.</li><li>– The largest sites are more significant</li><li>– Woodlots and forest fragments are important habitats to migrating birds, these features located along the shore and located within 5 km of Lake Ontario are Candidate SWH.</li></ul></li></ul>                                                                                                                                                     | <ul style="list-style-type: none"><li>■ Use of the habitat by &gt;200 birds/day and with &gt;35 spp. with at least 10 bird spp. recorded on at least 5 different survey dates. This abundance and diversity of migrant bird species is considered above average and significant.</li><li>■ Studies should be completed during spring (Apr/May) and fall (Aug/Oct) migration using standardized assessment techniques.</li></ul>                                                                                                                                                                                                                                     | <ul style="list-style-type: none"><li>■ Absent.</li></ul> | <ul style="list-style-type: none"><li>■ The Study Area is not within 5 km of Lake Ontario.</li></ul>                               |
| Seasonal Concentration Areas of Animals | <b>Deer Yarding Areas</b>                                                                                                                                         | <ul style="list-style-type: none"><li>■ White-tailed Deer</li></ul>                            | <ul style="list-style-type: none"><li>■ Note: MNR to determine this habitat.</li><li>■ ELC Community Series providing a thermal cover component for a deer yard would include: FOM, FOC, SWM and SWC.</li><li>■ Or these ELC Ecosites:<ul style="list-style-type: none"><li>– CUP2, CUP3, FOD3 and CUT.</li></ul></li></ul>                                                                 | <ul style="list-style-type: none"><li>■ <b>MNR determines deer yards following methods outlined in “Selected Wildlife and Habitat Features: Inventory Manual”</b></li><li>■ Woodlots with high densities of deer due to artificial feeding are not significant.</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <ul style="list-style-type: none"><li>■ Deer Yards are mapped by MNR District offices. Locations of Core or Stratum 1 and Stratum 2 Deer yards considered significant by MNR will be available at local MNR offices or via Land Information Ontario (LIO).</li><li>■ If a SWH is determined for Deer Wintering Area or if a proposed development is within Stratum II yarding area then Movement Corridors are to be considered.</li></ul>                                                                                                                                                                                                                          | <ul style="list-style-type: none"><li>■ Absent.</li></ul> | <ul style="list-style-type: none"><li>■ No MNR mapped Deer Yards were present within the Study Area.</li></ul>                     |
| Seasonal Concentration Areas of Animals | <b>Deer Winter Congregation Areas</b>                                                                                                                             | <ul style="list-style-type: none"><li>■ White-tailed Deer</li></ul>                            | <ul style="list-style-type: none"><li>■ All Forested Ecosites with these ELC Community Series:<ul style="list-style-type: none"><li>– FOC, FOM, FOD, SWC, SWM and SWD.</li></ul></li><li>■ Conifer plantations much smaller than 50 ha may also be used.</li></ul>                                                                                                                          | <ul style="list-style-type: none"><li>■ Deer management is an MNR responsibility, deer winter congregation areas considered significant will be mapped by MNR.</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | <ul style="list-style-type: none"><li>■ Deer management is an MNR responsibility, deer winter congregation areas considered significant will be mapped by MNR.</li><li>■ If a SWH is determined for Deer Wintering Area or if a proposed development is within Stratum II yarding area then Movement Corridors are to be considered as outlined in Table 1.4.1 of this Schedule.</li></ul>                                                                                                                                                                                                                                                                          | <ul style="list-style-type: none"><li>■ Absent.</li></ul> | <ul style="list-style-type: none"><li>■ No MNR Mapped Deer Winter Congregation areas were present within the Study Area.</li></ul> |
| Rare Vegetation Communities             | <b>Cliffs and Talus Slopes</b>                                                                                                                                    | <ul style="list-style-type: none"><li>■ Not applicable.</li></ul>                              | <ul style="list-style-type: none"><li>■ Any ELC Ecosite within Community Series:<ul style="list-style-type: none"><li>– TAO, TAS, TAT, CLO, CLS and CLT</li></ul></li></ul>                                                                                                                                                                                                                 | <ul style="list-style-type: none"><li>■ Most cliff and talus slopes occur along the Niagara Escarpment.</li><li>■ A Cliff is vertical to near vertical bedrock &gt;3 m in height.</li><li>■ A Talus Slope is rock rubble at the base of a cliff made-up of coarse rocky debris.</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <ul style="list-style-type: none"><li>■ Confirm any ELC Vegetation Type for Cliffs or Talus Slopes.</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | <ul style="list-style-type: none"><li>■ Absent.</li></ul> | <ul style="list-style-type: none"><li>■ Ecosite(s) for this SWH were absent from Study Area.</li></ul>                             |



Appendix E. Significant Wildlife Habitat Assessment

Terrestrial Ecosystems Existing Conditions and Impact Assessment - Highway 401 Improvements Between City of Belleville and City of Kingston – Napanee River Bridge (GWP 4040-20-00)



| Significant Wildlife Habitat Category | Wildlife Habitat                                                                                                                                                                                                                | Listed or Indicator Species                                                                                                                                                                                                                                                               | Candidate SWH – ELC Ecosite Codes                                                                                                                                                                         | Candidate SWH - Habitat Criteria <sup>1</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Confirmed SWH - Defining Criteria <sup>2</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Presence Within the Study Area | Rationale                                                                         |
|---------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|-----------------------------------------------------------------------------------|
| Rare Vegetation Communities           | <b>Sand Barren</b><br><b>Rationale:</b><br>Sand barrens are rare in Ontario and support rare species.                                                                                                                           | ■ Not applicable.                                                                                                                                                                                                                                                                         | ■ ELC Ecosites:<br>– SBO1, SBS1 and SBT1.<br>■ Vegetation cover varies from patchy and barren to continuous meadow (SBO1), thicket-like (SBS1), or more closed and treed (SBT1). Tree cover always < 60%. | ■ A sand barren area >0.5 ha in size.<br>■ Sand Barrens typically are exposed sand, generally sparsely vegetated and caused by lack of moisture, periodic fires and erosion. Usually located within other types of natural habitat such as forest or savannah. Vegetation can vary from patchy and barren to tree covered, but less than 60%.                                                                                                                                                                                                                                                                                                                       | ■ Confirm any ELC Vegetation Type for Sand Barrens.<br>■ Site must not be dominated by exotic or introduced species (<50% vegetative cover are exotic sp.).                                                                                                                                                                                                                                                                                                                                                                         | ■ Absent.                      | ■ Ecosite(s) for this SWH were absent from Study Area.                            |
| Rare Vegetation Communities           | <b>Alvar</b><br><b>Rationale:</b><br>Alvars are extremely rare habitats in Ecoregion 6E.                                                                                                                                        | <b>Five Alvar Indicator Species:</b><br>1. <i>Carex crawei</i><br>2. <i>Panicum philadelphicum</i><br>3. <i>Eleocharis compressa</i><br>4. <i>Scutellaria parvula</i><br>5. <i>Trichostema brachiatum</i><br><br>These indicator species are very specific to Alvars within Ecoregion 6E. | ■ ALO1, ALS1, ALT1, FOC1, FOC2, CUM2, CUS2, CUT2-1 and CUW2.                                                                                                                                              | ■ An alvar site > 0.5 ha in size.<br>■ An alvar is typically a level, mostly unfractured calcareous bedrock feature with a mosaic of rock pavements and bedrock overlain by a thin veneer of soil. The hydrology of alvars is complex, with alternating periods of inundation and drought. Vegetation cover varies from sparse lichen-moss associations to grasslands and shrublands and comprising a number of characteristic or indicator plants. Undisturbed alvars can be phyto- and zoogeographically diverse, supporting many uncommon or are relict plant and animal species. Vegetation cover varies from patchy to barren with a less than 60% tree cover. | ■ Field studies that identify four of the five <b>Alvar Indicator Species</b> at a Candidate Alvar site is Significant.<br>■ Site must not be dominated by exotic or introduced species (<50% vegetative cover are exotic sp.).<br>■ The alvar must be in excellent condition and fit in with surrounding landscape with few conflicting land uses.                                                                                                                                                                                 | ■ Absent.                      | ■ Ecosite(s) for this SWH were absent from Study Area.                            |
| Rare Vegetation Communities           | <b>Old Growth Forest</b><br><b>Rationale:</b><br>Due to historic logging practices, extensive old growth forest is rare in the Ecoregion. Interior habitat provided by old growth forests is required by many wildlife species. | ■ Not applicable.                                                                                                                                                                                                                                                                         | ■ Forest Community Series:<br>– FOD, FOC, FOM, SWD, SWC and SWM.                                                                                                                                          | ■ Woodland areas 30 ha or greater in size or with at least 10 ha interior habitat assuming 100 m buffer at edge of forest.<br>■ Old Growth forests are characterized by heavy mortality or turnover of over-storey trees resulting in a mosaic of gaps that encourage development of a multi-layered canopy and an abundance of snags and downed woody debris.                                                                                                                                                                                                                                                                                                      | ■ If dominant trees species of the are >140 years old, then the area containing these trees is Significant Wildlife Habitat.<br>■ The forested area containing the old growth characteristics will have experienced no recognizable forestry activities (cut stumps will not be present).<br>■ The area of forest ecosites combined or an eco-element within an ecosite that contains the old growth characteristics is the SWH.<br>■ Determine ELC vegetation types for the forest area containing the old growth characteristics. | ■ Absent.                      | ■ No interior forest habitat with old growth trees was present in the Study Area. |
| Rare Vegetation Communities           | <b>Savannah</b><br><b>Rationale:</b><br>Savannahs are extremely rare habitats in Ontario.                                                                                                                                       | ■ Refer to Table N-2 in Appendix N of the Significant Wildlife Habitat Technical Guide (MNR, 2000) for <b>Ecoregion 6E</b> as applicable.                                                                                                                                                 | ■ TPS1, TPS2, TPW1, TPW2 and CUS2.                                                                                                                                                                        | ■ No minimum size to site. Site must be a restored or a natural site. Remnant sites such as railway right of ways are not considered to be SWH.<br>■ A Savannah is a tallgrass prairie habitat that has tree cover between 25 and 60%.                                                                                                                                                                                                                                                                                                                                                                                                                              | ■ Field studies confirm one or more of the Savannah indicator species listed in Appendix N should be present. Note: Savannah plant spp. list from Ecoregion 6E should be used.<br>– Area of the ELC Ecosite is the SWH.<br>– Site must not be dominated by exotic or introduced species (<50% vegetative cover are exotic sp.).                                                                                                                                                                                                     | ■ Absent.                      | ■ Ecosite(s) for this SWH were absent from Study Area.                            |
| Rare Vegetation Communities           | <b>Tallgrass Prairie</b><br><b>Rationale:</b><br>Tallgrass Prairies are extremely rare habitats in Ontario.                                                                                                                     | ■ Refer to Table N-2 in Appendix N of the Significant Wildlife Habitat Technical Guide (MNR, 2000) for <b>Ecoregion 6E</b> as applicable.                                                                                                                                                 | ■ TPO1 and TPO2.                                                                                                                                                                                          | ■ No minimum size to site. Site must be restored or a natural site. Remnant sites such as railway right of ways are not considered to be SWH.<br>■ A Tallgrass Prairie has ground cover dominated by prairie grasses. An open Tallgrass Prairie habitat has <25% tree cover.                                                                                                                                                                                                                                                                                                                                                                                        | ■ Field studies confirm one or more of the Prairie indicator species listed in Appendix N of Significant Wildlife Habitat Technical Guide (MNR, 2000) should be present. Note: Prairie plant spp. list from Ecoregion 6E should be used:<br>– Area of the ELC Ecosite is the SWH.<br>– Site must not be dominated by exotic or introduced species (<50% vegetative cover are exotic sp.).                                                                                                                                           | ■ Absent.                      | ■ Ecosite(s) for this SWH were absent from Study Area.                            |



Appendix E. Significant Wildlife Habitat Assessment

Terrestrial Ecosystems Existing Conditions and Impact Assessment - Highway 401 Improvements Between City of Belleville and City of Kingston – Napanee River Bridge (GWP 4040-20-00)



| Significant Wildlife Habitat Category       | Wildlife Habitat                                                                                                                                                                                                                                                                                           | Listed or Indicator Species                                                                                                                                                                                                                          | Candidate SWH – ELC Ecosite Codes                                                                                                                                                                                                                                                                                                                                                 | Candidate SWH - Habitat Criteria <sup>1</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Confirmed SWH - Defining Criteria <sup>2</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Presence Within the Study Area                                 | Rationale                                                                                                                                                                                                        |
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| Rare Vegetation Communities                 | <b>Other Rare Vegetation Communities</b><br><b>Rationale:</b><br>Plant communities that often contain rare species which depend on the habitat for survival.                                                                                                                                               | <ul style="list-style-type: none"><li>Not applicable.</li></ul>                                                                                                                                                                                      | <ul style="list-style-type: none"><li>Provincially Rare S1, S2 and S3 vegetation communities are listed in Appendix M of the Significant Wildlife Habitat Technical Guide (MNR, 2000). Any ELC Ecosite Code that has a possible ELC Vegetation Type that is Provincially Rare is Candidate SWH.</li></ul>                                                                         | <ul style="list-style-type: none"><li>ELC Ecosite codes that have the potential to be a rare ELC Vegetation Type as outlined in Appendix M.</li><li>The MNR/NHIC will have up to date listing for rare vegetation communities.</li></ul>                                                                                                                                                                                                                                                                                                                                                                          | <ul style="list-style-type: none"><li>Field studies should confirm if an ELC Vegetation Type is a rare vegetation community based on listing within Appendix M of Significant Wildlife Habitat Technical Guide (MNR, 2000).<ul style="list-style-type: none"><li>Area of the ELC Vegetation Type polygon is the SWH.</li></ul></li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <ul style="list-style-type: none"><li>Absent.</li></ul>        | <ul style="list-style-type: none"><li>No rare vegetation communities were identified during ELC field investigations.</li></ul>                                                                                  |
| Specialized Wildlife Habitat Considered SWH | <b>Waterfowl Nesting Area</b><br><b>Rationale:</b><br>Important to local waterfowl populations, sites with greatest number of species and highest number of individuals are significant.                                                                                                                   | <ul style="list-style-type: none"><li>American Black Duck</li><li>Northern Pintail</li><li>Northern Shoveler</li><li>Gadwall</li><li>Blue-winged Teal</li><li>Green-winged Teal</li><li>Wood Duck</li><li>Hooded Merganser</li><li>Mallard</li></ul> | <ul style="list-style-type: none"><li>All upland habitats located adjacent to these wetland ELC Ecosites are Candidate SWH:<ul style="list-style-type: none"><li>MAS1, MAS2, MAS3, SAS1, SAM1, SAF1, MAM1, MAM2, MAM3, MAM4, MAM5, MAM6, SWT1, SWT2, SWD1, SWD2, SWD3 and SWD4.</li></ul></li><li><b>Note: includes adjacency to Provincially Significant Wetlands.</b></li></ul> | <ul style="list-style-type: none"><li>A waterfowl nesting area extends 120 m from a wetland (&gt; 0.5 ha) or a wetland (&gt;0.5 ha) and any small wetlands (0.5 ha) within 120 m or a cluster of 3 or more small (&lt;0.5 ha) wetlands within 120 m of each individual wetland where waterfowl nesting is known to occur.</li><li>Upland areas should be at least 120 m wide so that predators such as racoons, skunks, and foxes have difficulty finding nests.</li><li>Wood Ducks and Hooded Mergansers utilize large diameter trees (&gt;40 cm dbh) in woodlands for cavity nest sites.</li></ul>              | <ul style="list-style-type: none"><li>Presence of 3 or more nesting pairs for listed species excluding Mallards, or:</li><li>Presence of 10 or more nesting pairs for listed species including Mallards.</li><li>Any active nesting site of an American Black Duck is considered significant.</li><li>Nesting studies should be completed during the spring breeding season (April – June).</li><li>A field study confirming waterfowl nesting habitat will determine the boundary of the waterfowl nesting habitat for the SWH, this may be greater or less than 120 m from the wetland and will provide enough habitat for waterfowl to successfully nest.</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                     | <ul style="list-style-type: none"><li>Candidate SWH.</li></ul> | <ul style="list-style-type: none"><li>Suitable habitat may be present in the SWD and MAM ecosites adjacent to the Napanee River.</li></ul>                                                                       |
| Specialized Wildlife Habitat Considered SWH | <b>Bald Eagle and Osprey Nesting, Foraging and Perching Habitat</b><br><b>Rationale:</b><br>Nest sites are fairly uncommon in Eco-region 6E and are used annually by these species. Many suitable nesting locations may be lost due to increasing shoreline development pressures and scarcity of habitat. | <ul style="list-style-type: none"><li>Osprey</li></ul> <b>Special Concern</b> <ul style="list-style-type: none"><li>Bald Eagle</li></ul>                                                                                                             | <ul style="list-style-type: none"><li>ELC Forest Community Series: FOD, FOM, FOC, SWD, SWM and SWC directly adjacent to riparian areas – rivers, lakes, ponds and wetlands.</li></ul>                                                                                                                                                                                             | <ul style="list-style-type: none"><li>Nests are associated with lakes, ponds, rivers or wetlands along forested shorelines, islands, or on structures over water.<ul style="list-style-type: none"><li>Osprey nests are usually at the top a tree whereas Bald Eagle nests are typically in super canopy trees in a notch within the tree’s canopy.</li><li>Nests located on man-made objects are not to be included as SWH (e.g., telephone poles and constructed nesting platforms).</li></ul></li></ul>                                                                                                        | <ul style="list-style-type: none"><li>One or more active Osprey or Bald Eagle nests in an area.</li><li>Some species have more than one nest in a given area and priority is given to the primary nest with alternate nests included within the area of the SWH.</li><li>For an Osprey, the active nest and a 300 m radius around the nest or the contiguous woodland stand is the SWH, maintaining undisturbed shorelines with large trees within this area is important.</li><li>For a Bald Eagle the active nest and a 400 to 800 m radius around the nest is the SWH. Area of the habitat from 400 to 800 m is dependent on site lines from the nest to the development and inclusion of perching and foraging habitat.</li><li>To be significant a site must be used annually. When found inactive, the site must be known to be inactive for &gt;3 years or suspected of not being used for &gt;5 years before being considered not significant.</li><li>Observational studies to determine nest site use, perching sites and foraging areas need to be done from mid-March to mid-August.</li></ul> | <ul style="list-style-type: none"><li>Candidate SWH.</li></ul> | <ul style="list-style-type: none"><li>Suitable habitat may be present in the SWD and FOD ecosites adjacent to the Napanee River. No nests of either species were observed during field investigations.</li></ul> |
| Specialized Wildlife Habitat Considered SWH | <b>Woodland Raptor Nesting Habitat</b><br><b>Rationale:</b><br>Nests sites for these species are rarely identified: these area sensitive habitats and are often used annually by:                                                                                                                          | <ul style="list-style-type: none"><li>Northern Goshawk</li><li>Cooper’s Hawk</li><li>Sharp-shinned Hawk</li><li>Red-shouldered Hawk</li><li>Barred Owl</li><li>Broad-winged Hawk</li></ul>                                                           | <ul style="list-style-type: none"><li>May be found in all forested ELC Ecosites.</li><li>May also be found in SWC, SWM, SWD and CUP3.</li></ul>                                                                                                                                                                                                                                   | <ul style="list-style-type: none"><li>All natural or conifer plantation woodland/forest stands &gt;30 ha with &gt;10 ha of interior habitat, Interior habitat determined with a 200 m buffer.<ul style="list-style-type: none"><li>Stick nests found in a variety of intermediate-aged to mature coniferous, deciduous or mixed forests within tops or crotches of trees. Species such as Coopers hawk nest along forest edges sometimes on peninsulas or small off-shore islands.</li><li>In disturbed sites, nests may be used again, or a new nest will be in close proximity to old nest.</li></ul></li></ul> | <ul style="list-style-type: none"><li>Presence of 1 or more active nests from species list is considered significant.</li><li>Red-shouldered Hawk and Northern Goshawk – A 400 m radius around the nest or 28 ha area of habitat is the SWH (the 28 ha habitat area would be applied where optimal habitat is irregularly shaped around the nest).</li><li>Barred Owl – A 200 m radius around the nest is the SWH.</li><li>Broad-winged Hawk and Coopers Hawk – A 100 m radius around the nest is the SWH.</li><li>Sharp-Shinned Hawk – A 50 m radius around the nest is the SWH.</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <ul style="list-style-type: none"><li>Absent.</li></ul>        | <ul style="list-style-type: none"><li>Interior habitat &gt; 10 ha was not present within the Study Area.</li></ul>                                                                                               |

Appendix E. Significant Wildlife Habitat Assessment

Terrestrial Ecosystems Existing Conditions and Impact Assessment - Highway 401 Improvements Between City of Belleville and City of Kingston – Napanee River Bridge (GWP 4040-20-00)



| Significant Wildlife Habitat Category       | Wildlife Habitat                                                                                                                                                                                                                         | Listed or Indicator Species                                                                                                                                                                                       | Candidate SWH – ELC Ecosite Codes                                                                                                                                                                                                                                                                                                                                                         | Candidate SWH - Habitat Criteria <sup>1</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Confirmed SWH - Defining Criteria <sup>2</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Presence Within the Study Area                                 | Rationale                                                                                                                                                                                                  |
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|                                             |                                                                                                                                                                                                                                          |                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <ul style="list-style-type: none"><li>Conduct field investigations from mid-March to end of May. The use of call broadcasts can help in locating territorial (courting/nesting) raptors and facilitate the discovery of nests by narrowing down the search area.</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                |                                                                                                                                                                                                            |
| Specialized Wildlife Habitat Considered SWH | <b>Turtle Nesting Areas</b><br><b>Rationale:</b><br>These habitats are rare and when identified will often be the only breeding site for local populations of turtles.                                                                   | <ul style="list-style-type: none"><li>Midland Painted Turtle</li></ul> <b>Special Concern Species</b> <ul style="list-style-type: none"><li>Northern Map Turtle</li><li>Snapping Turtle</li></ul>                 | <ul style="list-style-type: none"><li>Exposed mineral soil (sand or gravel) areas adjacent (&lt;100 m) or within the following ELC Ecosites:<ul style="list-style-type: none"><li>MAS1, MAS2, MAS3, SAS1, SAM1, SAF1 and BOO1</li></ul></li></ul>                                                                                                                                         | <ul style="list-style-type: none"><li>Best nesting habitat for turtles are close to water and away from roads and sites less prone to loss of eggs by predation from skunks, raccoons or other animals.</li><li>For an area to function as a turtle-nesting area, it must provide sand and gravel that turtles are able to dig in and are located in open, sunny areas. Nesting areas on the sides of municipal or provincial road embankments and shoulders are not SWH.</li><li>Sand and gravel beaches adjacent to undisturbed shallow weedy areas of marshes, lakes, and rivers are most frequently used.</li></ul> | <ul style="list-style-type: none"><li>Presence of 5 or more nesting Midland Painted Turtles.</li><li>One or more Northern Map Turtle or Snapping Turtle nesting is a SWH.</li><li>The area or collection of sites within an area of exposed mineral soils where the turtles nest, plus a radius of 30 to 100 m around the nesting area dependant on slope, riparian vegetation and adjacent land use is the SWH.</li><li>Travel routes from wetland to nesting area are to be considered within the SWH as part of the 30 to 100 m area of habitat.</li><li>Field investigations should be conducted in prime nesting season typically late spring to early summer. Observational studies observing the turtles nesting is a recommended method.</li></ul> | <ul style="list-style-type: none"><li>Candidate SWH.</li></ul> | <ul style="list-style-type: none"><li>Suitable sandy substrates adjacent to the Napanee River may be present in the Study Area.</li></ul>                                                                  |
| Specialized Wildlife Habitat Considered SWH | <b>Seeps and Springs</b><br><b>Rationale:</b><br>Seeps/Springs are typical of headwater areas and are often at the source of coldwater streams.                                                                                          | <ul style="list-style-type: none"><li>Wild Turkey</li><li>Ruffed Grouse</li><li>Spruce Grouse</li><li>White-tailed Deer</li><li>Salamander spp.</li></ul>                                                         | <ul style="list-style-type: none"><li>Seeps/Springs are areas where groundwater comes to the surface. Often they are found within headwater areas within forested habitats. Any forested Ecosite within the headwater areas of a stream could have seeps/springs.</li></ul>                                                                                                               | <ul style="list-style-type: none"><li>Any forested area (with &lt;25% meadow/field/pasture) within the headwaters of a stream or river system.<ul style="list-style-type: none"><li>Seeps and springs are important feeding and drinking areas especially in the winter will typically support a variety of plant and animal species.</li></ul></li></ul>                                                                                                                                                                                                                                                               | <ul style="list-style-type: none"><li>Presence of a site with 2 or more seeps/springs should be considered SWH.</li><li>The area of an ELC forest ecosite or an Eco-element within ecosite containing the seeps/springs is the SWH. The protection of the recharge area considering the slope, vegetation, height of trees and groundwater condition need to be considered in delineation the habitat.</li></ul>                                                                                                                                                                                                                                                                                                                                           | <ul style="list-style-type: none"><li>Candidate SWH.</li></ul> | <ul style="list-style-type: none"><li>Forest communities in the Study Area may provide seeps/springs. Targeted surveys were not completed.</li></ul>                                                       |
| Specialized Wildlife Habitat Considered SWH | <b>Amphibian Breeding Habitat (Woodland).</b><br><b>Rationale:</b><br>These habitats are extremely important to amphibian biodiversity within a landscape and often represent the only breeding habitat for local amphibian populations. | <ul style="list-style-type: none"><li>Eastern Newt</li><li>Blue-spotted Salamander</li><li>Spotted Salamander</li><li>Gray Treefrog</li><li>Spring Peeper</li><li>Western Chorus Frog</li><li>Wood Frog</li></ul> | <ul style="list-style-type: none"><li>All Ecosites associated with these ELC Community Series:<ul style="list-style-type: none"><li>FOC, FOM, FOD, SWC, SWM and SWD</li></ul></li><li>Breeding pools within the woodland or the shortest distance from forest habitat are more significant because they are more likely to be used due to reduced risk to migrating amphibians.</li></ul> | <ul style="list-style-type: none"><li>Presence of a wetland, pond or woodland pool (including vernal pools) &gt;500 m<sup>2</sup> (about 25 m diameter) within or adjacent (within 120 m) to a woodland (no minimum size). Some small wetlands may not be mapped and may be important breeding pools for amphibians.</li><li>Woodlands with permanent ponds or those containing water in most years until mid-July are more likely to be used as breeding habitat.</li></ul>                                                                                                                                            | <ul style="list-style-type: none"><li>Presence of breeding population of 1 or more of the listed newt/salamander species or 2 or more of the listed frog species with at least 20 individuals (adults or eggs masses) or 2 or more of the listed frog species with Call Level Codes of 3.</li><li>A combination of observational study and call count surveys will be required during the spring (March-June) when amphibians are concentrated around suitable breeding habitat within or near the woodland/wetlands.</li><li>The habitat is the wetland area plus a 230 m radius of woodland area. If a wetland area is adjacent to a woodland, a travel corridor connecting the wetland to the woodland is to be included in the habitat.</li></ul>      | <ul style="list-style-type: none"><li>Candidate SWH.</li></ul> | <ul style="list-style-type: none"><li>Suitable habitat may be present in the FOD and SWD ecosites in the Study Area. Targeted surveys were not conducted to confirm species presence thresholds.</li></ul> |

Appendix E. Significant Wildlife Habitat Assessment

Terrestrial Ecosystems Existing Conditions and Impact Assessment - Highway 401 Improvements Between City of Belleville and City of Kingston – Napanee River Bridge (GWP 4040-20-00)



| Significant Wildlife Habitat Category                      | Wildlife Habitat                                                                                                                                                                                                  | Listed or Indicator Species                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Candidate SWH – ELC Ecosite Codes                                                                                                                                                                                                                                                                                                   | Candidate SWH - Habitat Criteria <sup>1</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Confirmed SWH - Defining Criteria <sup>2</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Presence Within the Study Area                                   | Rationale                                                                                                                                                                                                                                                                                                 |
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| Specialized Wildlife Habitat Considered SWH                | <b>Amphibian Breeding Habitat (Wetlands)</b><br><b>Rationale:</b><br>Wetlands supporting breeding for these amphibian species are extremely important and fairly rare within Central Ontario landscapes.          | <ul style="list-style-type: none"><li>■ Eastern Newt</li><li>■ American Toad</li><li>■ Spotted Salamander</li><li>■ Four-toed Salamander</li><li>■ Blue-spotted Salamander</li><li>■ Gray Treefrog</li><li>■ Western Chorus Frog</li><li>■ Northern Leopard Frog</li><li>■ Pickerel Frog</li><li>■ Green Frog</li><li>■ Mink Frog</li><li>■ American Bullfrog</li></ul>                                                                                                             | <b>ELC Community</b> <ul style="list-style-type: none"><li>■ Classes SW, MA, FE, BO, OA and SA.</li><li>■ Typically, these wetland ecosites will be isolated (&gt;120 m) from woodland ecosites, however larger wetlands containing predominantly aquatic species (e.g., American Bullfrog) may be adjacent to woodlands.</li></ul> | <ul style="list-style-type: none"><li>■ Wetlands&gt;500 m<sup>2</sup> (about 25 m diameter), supporting high species diversity are significant: some small or ephemeral habitats may not be identified on MNR mapping and could be important amphibian breeding habitats.</li><li>■ Presence of shrubs and logs increase significance of pond for some amphibian species because of available structure for calling, foraging, escape and concealment from predators.</li><li>■ American Bullfrogs require permanent water bodies with abundant emergent vegetation.</li></ul>                                                              | <ul style="list-style-type: none"><li>■ Presence of breeding population of 1 or more of the listed newt/salamander species or 2 or more of the listed frog/toad species with at least 20 individuals (adults or eggs masses) or 2 or more of the listed frog/toad species with Call Level Codes of 3.<b>or:</b> Wetland with confirmed breeding American Bullfrogs are significant.</li><li>■ The ELC ecosite wetland area and the shoreline are the SWH.</li><li>■ A combination of observational study and call count surveys will be required during the spring (March-June) when amphibians are concentrated around suitable breeding habitat within or near the wetlands.</li><li>■ If a SWH is determined for Amphibian Breeding Habitat (Wetlands) then Movement Corridors are to be considered.</li></ul> | <ul style="list-style-type: none"><li>■ Candidate SWH.</li></ul> | <ul style="list-style-type: none"><li>■ Suitable habitat may be present in the SWD and MAM ecosites in the Study Area. Targeted surveys were not conducted to confirm species presence thresholds.</li></ul>                                                                                              |
| Specialized Wildlife Habitat Considered SWH                | <b>Woodland Area-Sensitive Bird Breeding Habitat</b><br><b>Rationale:</b><br>Large, natural blocks of mature woodland habitat within the settled areas of Southern Ontario are important habitats.                | <ul style="list-style-type: none"><li>■ Yellow-bellied Sapsucker</li><li>■ Red-breasted Nuthatch</li><li>■ Veery</li><li>■ Blue-headed Vireo</li><li>■ Northern Parula</li><li>■ Black-throated Green Warbler</li><li>■ Blackburnian Warbler</li><li>■ Black-throated Blue Warbler</li><li>■ Ovenbird</li><li>■ Scarlet Tanager</li><li>■ Winter Wren</li></ul> <b>Special Concern:</b> <ul style="list-style-type: none"><li>■ Cerulean Warbler</li><li>■ Canada Warbler</li></ul> | <ul style="list-style-type: none"><li>■ All Ecosites</li><li>■ associated with these ELC Community Series:</li><li>■ FOC, FOM, FOD, SWC, SWM and SWD.</li></ul>                                                                                                                                                                     | <ul style="list-style-type: none"><li>■ Habitats where interior forest breeding birds are breeding, typically large mature (&gt;60 yrs. old) forest stands or woodlots &gt;30 ha.</li><li>■ Interior forest habitat is at least 200 m from forest edge habitat.</li></ul>                                                                                                                                                                                                                                                                                                                                                                   | <ul style="list-style-type: none"><li>■ Presence of nesting or breeding pairs of 3 or more of the listed wildlife species.</li><li>■ Note: any site with breeding Cerulean Warblers or Canada Warblers is to be considered SWH.</li><li>■ Conduct breeding bird surveys in spring and early summer when birds are singing and defending their territories.</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                              | <ul style="list-style-type: none"><li>■ Absent.</li></ul>        | <ul style="list-style-type: none"><li>■ Interior forest habitats with large mature trees were not present in the Study Area.</li></ul>                                                                                                                                                                    |
| Habitats of Species of Conservation Concern considered SWH | <b>Marsh Breeding Bird Habitat</b><br><b>Rationale:</b><br>Wetlands for these bird species are typically productive and fairly rare in Southern Ontario landscapes.                                               | <ul style="list-style-type: none"><li>■ American Bittern</li><li>■ Virginia Rail</li><li>■ Sora</li><li>■ Common Moorhen</li><li>■ American Coot</li><li>■ Pied-billed Grebe</li><li>■ Marsh Wren</li><li>■ Sedge Wren</li><li>■ Common Loon</li><li>■ Sandhill Crane</li><li>■ Green Heron</li><li>■ Trumpeter Swan</li></ul> <b>Special Concern:</b> <ul style="list-style-type: none"><li>■ Black Tern</li><li>■ Yellow Rail</li></ul>                                           | <ul style="list-style-type: none"><li>■ MAM1, MAM2, MAM3, MAM4, MAM5, MAM6, SAS1, SAM1, SAF1, FEO1 and BOO1</li><li>■ For Green Heron:<ul style="list-style-type: none"><li>– All SW, MA and CUM1 sites.</li></ul></li></ul>                                                                                                        | <ul style="list-style-type: none"><li>■ Nesting occurs in wetlands.</li><li>■ All wetland habitat is to be considered as long as there is shallow water with emergent aquatic vegetation present.</li><li>■ For Green Heron, habitat is at the edge of water such as sluggish streams, ponds and marshes sheltered by shrubs and trees. Less frequently, it may be found in upland shrubs or forest a considerable distance from water.</li></ul>                                                                                                                                                                                           | <ul style="list-style-type: none"><li>■ Presence of 5 or more nesting pairs of Sedge Wren or Marsh Wren or 1 pair of Sandhill Cranes: <b>or</b> breeding by any combination of 5 or more of the listed species.</li><li>■ Note: any wetland with breeding of 1 or more Black Terns, Trumpeter Swan, Green Heron or Yellow Rail is SWH.</li><li>■ Area of the ELC ecosite is the SWH.</li><li>■ Conduct breeding bird surveys in May/June when these species are actively nesting in wetland habitats.</li></ul>                                                                                                                                                                                                                                                                                                   | <ul style="list-style-type: none"><li>■ Candidate SWH.</li></ul> | <ul style="list-style-type: none"><li>■ Shallow water with emergent vegetation was generally not present in the SWD and MAM ecosites. However, suitable habitat may be present for Green Heron. No indicator species or their nests were observed incidentally or during breeding bird surveys.</li></ul> |
| Habitats of Species of Conservation Concern considered SWH | <b>Open Country Bird Breeding Habitat</b><br><b>Rationale:</b><br>This habitat is declining throughout Ontario. Upland Sandpiper have declined significantly the past 40 years based on CWS (2004) trend records. | <ul style="list-style-type: none"><li>■ Upland Sandpiper</li><li>■ Grasshopper Sparrow</li><li>■ Vesper Sparrow</li><li>■ Northern Harrier</li><li>■ Savannah Sparrow</li></ul> <b>Special Concern</b> <ul style="list-style-type: none"><li>■ Short-eared Owl</li></ul>                                                                                                                                                                                                            | <ul style="list-style-type: none"><li>■ CUM1 and CUM2</li></ul>                                                                                                                                                                                                                                                                     | <ul style="list-style-type: none"><li>■ Large grassland areas (includes natural and cultural fields and meadows) &gt;30 ha.</li><li>■ Grasslands not Class 1 or 2 agricultural lands and not being actively used for farming (i.e., no row cropping or intensive hay or livestock pasturing in the last 5 years).</li><li>■ Grassland sites considered significant should have a history of longevity, either abandoned fields, mature hayfields and pasturelands that are at least 5 years or older.</li><li>■ The Indicator bird species are area sensitive requiring larger grassland areas than the common grassland species.</li></ul> | <ul style="list-style-type: none"><li>■ Presence of nesting or breeding of 2 or more of the listed species.</li><li>■ A field with 1 or more breeding Short-eared Owls is to be considered SWH.</li><li>■ The area of SWH is the contiguous ELC ecosite field areas.</li><li>■ Conduct breeding bird surveys in the most likely areas in spring and early summer when birds are singing and defending their territories.</li></ul>                                                                                                                                                                                                                                                                                                                                                                                | <ul style="list-style-type: none"><li>■ Absent.</li></ul>        | <ul style="list-style-type: none"><li>■ Large grassland areas &gt;30 ha in size were not present in the Study Area.</li></ul>                                                                                                                                                                             |



Appendix E. Significant Wildlife Habitat Assessment

Terrestrial Ecosystems Existing Conditions and Impact Assessment - Highway 401 Improvements Between City of Belleville and City of Kingston – Napanee River Bridge (GWP 4040-20-00)



| Significant Wildlife Habitat Category                      | Wildlife Habitat                                                                                                                                                                                                                | Listed or Indicator Species                                                                                                                                                                                                                                                                                                                                                                                                    | Candidate SWH – ELC Ecosite Codes                                                                                                                                                                                                                           | Candidate SWH - Habitat Criteria <sup>1</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Confirmed SWH - Defining Criteria <sup>2</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Presence Within the Study Area                                   | Rationale                                                                                                                                                                                                                                                                                                                                                     |
|------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Habitats of Species of Conservation Concern considered SWH | <b>Shrub/Early Successional Bird Breeding Habitat</b><br><b>Rationale:</b><br>This habitat is declining throughout Ontario. Brown Thrasher has declined significantly over the past 40 years based on CWS (2004) trend records. | <b>Indicator Spp.:</b> <ul style="list-style-type: none"><li>■ Brown Thrasher</li><li>■ Clay-coloured Sparrow</li></ul> <b>Common Spp.:</b> <ul style="list-style-type: none"><li>■ Field Sparrow</li><li>■ Black-billed Cuckoo</li><li>■ Eastern Towhee</li><li>■ Willow Flycatcher</li></ul> <b>Special Concern:</b> <ul style="list-style-type: none"><li>■ Yellow-breasted Chat,</li><li>■ Golden-winged Warbler</li></ul> | <ul style="list-style-type: none"><li>■ CUT1, CUT2, CUS1, CUS2, CUW1 and CUW2</li><li>■ Patches of shrub ecosites can be complexed into a larger habitat for some bird species.</li></ul>                                                                   | <ul style="list-style-type: none"><li>■ Large field areas succeeding to shrub and thicket habitats&gt;10 ha in size.<ul style="list-style-type: none"><li>– Shrub land or early successional fields, not class 1 or 2 agricultural lands, not being actively used for farming (i.e., no row-cropping, haying or live-stock pasturing in the last 5 years).</li><li>– Shrub thicket habitats (&gt;10 ha) are most likely to support and sustain a diversity of these species.</li><li>– Shrub and thicket habitat sites considered significant should have a history of longevity, either abandoned fields or pasturelands.</li></ul></li></ul> | <ul style="list-style-type: none"><li>■ Presence of nesting or breeding of 1 of the indicator species and at least 2 of the common species.</li><li>■ A habitat with breeding Yellow-breasted Chat or Golden-winged Warbler is to be considered as Significant Wildlife Habitat.</li><li>■ The area of the SWH is the contiguous ELC ecosite field/thicket area.</li><li>■ Conduct breeding bird surveys in the most likely areas in spring and early summer when birds are singing and defending their territories.</li></ul>                                                                                                                                                                          | <ul style="list-style-type: none"><li>■ Absent.</li></ul>        | <ul style="list-style-type: none"><li>■ Large succeeding fields &gt;10 ha in size were not present in the Study Area.</li></ul>                                                                                                                                                                                                                               |
| Habitats of Species of Conservation Concern considered SWH | <b>Terrestrial Crayfish</b><br><b>Rationale:</b><br>Terrestrial Crayfish are only found within southwestern Ontario in Canada and their habitats are very rare.                                                                 | <ul style="list-style-type: none"><li>■ Chimney or Digger Crayfish (<i>Fallicambarus fodiens</i>)</li><li>■ Devil Crayfish or Meadow Crayfish (<i>Cambarus diogenes</i>)</li></ul>                                                                                                                                                                                                                                             | <ul style="list-style-type: none"><li>■ MAM1, MAM2, MAM3, MAM4, MAM5, MAM6, MAS1, MAS2, MAS3, SWD, SWT, SWM and CUM1 with inclusions of above meadow marsh or swamp ecosites can be used by terrestrial crayfish.</li></ul>                                 | <ul style="list-style-type: none"><li>■ Wet meadow and edges of shallow marshes (no minimum size) should be surveyed for terrestrial crayfish.<ul style="list-style-type: none"><li>– Constructs burrows in marshes, mudflats, meadows, the ground can't be too moist. Can often be found far from water.</li><li>– Both species are a semi-terrestrial burrower which spends most of its life within burrows consisting of a network of tunnels. Usually the soil is not too moist so that the tunnel is well formed.</li></ul></li></ul>                                                                                                     | <ul style="list-style-type: none"><li>■ Presence of 1 or more individuals of species listed or their chimneys (burrows) in suitable meadow marsh, swamp or moist terrestrial sites.</li><li>■ Area of ELC ecosite or an Eco-element area of meadow marsh or swamp within the larger ecosite area is the SWH.</li><li>■ Surveys should be done April to August in temporary or permanent water. Note the presence of burrows or chimneys are often the only indicator of presence, observance or collection of individuals is very difficult.</li></ul>                                                                                                                                                  | <ul style="list-style-type: none"><li>■ Candidate SWH.</li></ul> | <ul style="list-style-type: none"><li>■ Suitable habitat may be present in the MAM and SWD ecosites. Targeted surveys were not conducted to confirm presence.</li></ul>                                                                                                                                                                                       |
| Habitats of Species of Conservation Concern considered SWH | <b>Special Concern and Rare Wildlife Species</b><br><b>Rationale:</b><br>These species are quite rare or have experienced significant population declines in Ontario.                                                           | <ul style="list-style-type: none"><li>■ All Special Concern and Provincially Rare (S1-S3, SH) plant and animal species. Lists of these species are tracked by the Natural Heritage Information Centre.</li></ul>                                                                                                                                                                                                               | <ul style="list-style-type: none"><li>■ All plant and animal element occurrences (EO) within a 1 or 10 km grid.</li><li>■ Older element occurrences were recorded prior to GPS being available, therefore location information may lack accuracy.</li></ul> | <ul style="list-style-type: none"><li>■ When an element occurrence is identified within a 1 or 10 km grid for a Special Concern or provincially Rare species: linking candidate habitat on the site needs to be completed to ELC Ecosites.</li></ul>                                                                                                                                                                                                                                                                                                                                                                                           | <ul style="list-style-type: none"><li>■ Assessment/inventory of the site for the identified special concern or rare species needs to be completed during the time of year when the species is present or easily identifiable.</li><li>■ The area of the habitat to the finest ELC scale that protects the habitat form and function is the SWH: this must be delineated through detailed field studies. The habitat needs be easily mapped and cover an important life stage component for a species (e.g., specific nesting habitat or foraging habitat).</li></ul>                                                                                                                                    | <ul style="list-style-type: none"><li>■ Candidate SWH.</li></ul> | <ul style="list-style-type: none"><li>■ Adult Monarchs, an SOCC, were observed flying in the Study Area. As Monarch larvae were not observed, exact habitats remain candidate only. Other SOCC identified in the background review with high and medium probability of occurrence are also considered to have candidate habitats in the Study Area.</li></ul> |
| Animal Movement Corridors                                  | <b>Amphibian Movement Corridors</b><br><b>Rationale:</b><br>Movement corridors for amphibians moving from their terrestrial habitat to breeding habitat can be extremely important for local populations.                       | <ul style="list-style-type: none"><li>■ Eastern Newt</li><li>■ American Toad</li><li>■ Spotted Salamander</li><li>■ Four-toed Salamander</li><li>■ Blue-spotted Salamander</li><li>■ Gray Treefrog</li><li>■ Western Chorus Frog</li><li>■ Northern Leopard Frog</li><li>■ Pickerel Frog</li><li>■ Green Frog</li><li>■ Mink Frog</li><li>■ American Bullfrog</li></ul>                                                        | <ul style="list-style-type: none"><li>■ Corridors may be found in all ecosites associated with water.</li><li>■ Corridors will be determined based on identifying the significant breeding habitat for these species.</li></ul>                             | <ul style="list-style-type: none"><li>■ Movement corridors between breeding habitat and summer habitat.</li><li>■ Movement corridors must be determined when <b>Amphibian Breeding Habitat – Wetland</b> is confirmed as SWH of this Schedule.</li></ul>                                                                                                                                                                                                                                                                                                                                                                                       | <ul style="list-style-type: none"><li>■ Field Studies must be conducted at the time of year when species are expected to be migrating or entering breeding sites.</li><li>■ Corridors should consist of native vegetation, with several layers of vegetation.</li><li>■ Corridors unbroken by roads, waterways or bodies, and undeveloped areas are most significant.</li><li>■ Corridors should have at least 15 m of vegetation on both sides of waterway or be up to 200 m wide of woodland habitat and with gaps &lt;20 m.</li><li>■ Shorter corridors are more significant than longer corridors: however, amphibians must be able to get to and from their summer and breeding habitat.</li></ul> | <ul style="list-style-type: none"><li>■ Candidate SWH.</li></ul> | <ul style="list-style-type: none"><li>■ Suitable corridors may be present between the wetland and upland habitats in the Study Area.</li></ul>                                                                                                                                                                                                                |



Appendix E. Significant Wildlife Habitat Assessment

Terrestrial Ecosystems Existing Conditions and Impact Assessment - Highway 401 Improvements Between City of Belleville and City of Kingston – Napanee River Bridge (GWP 4040-20-00)



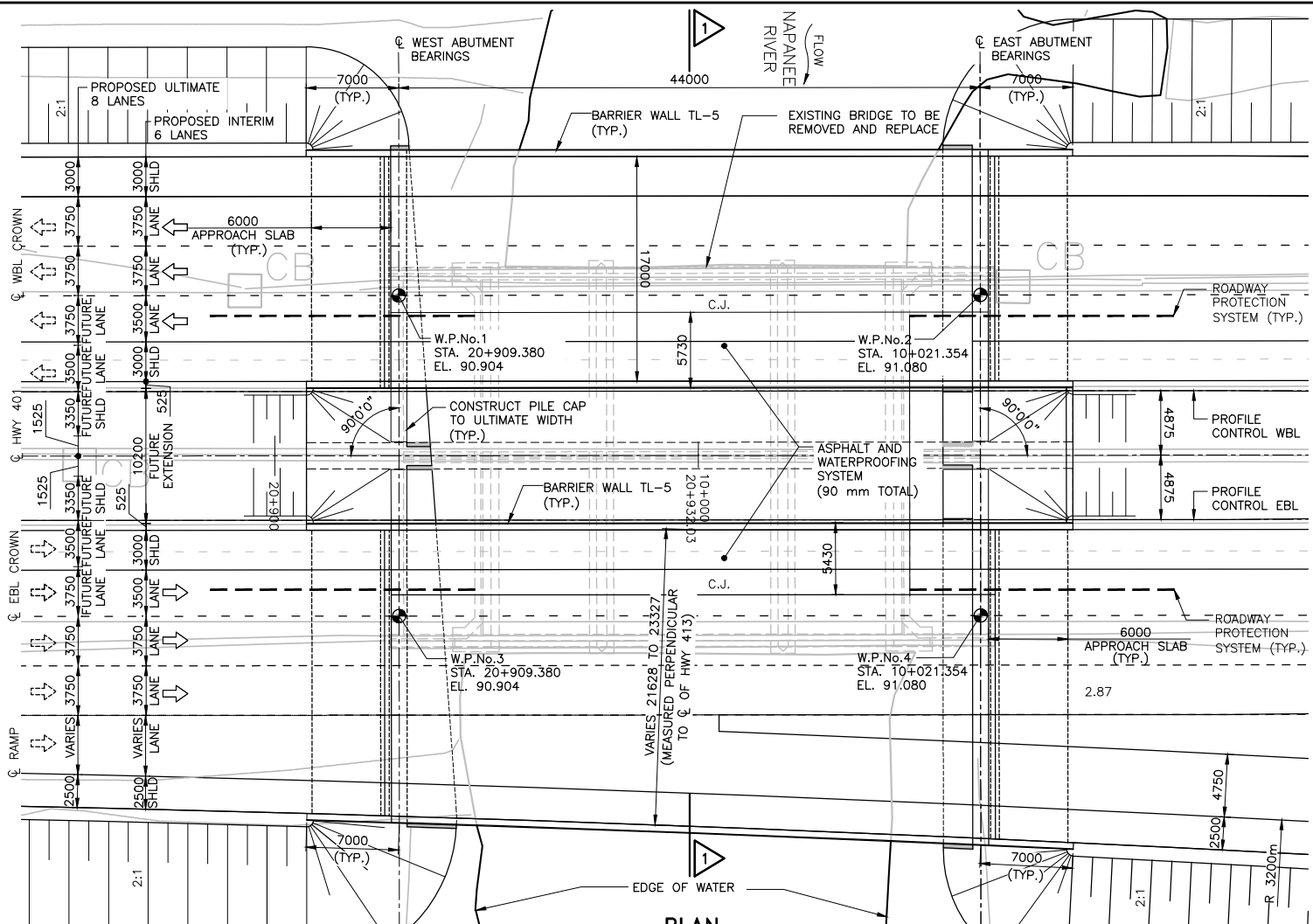
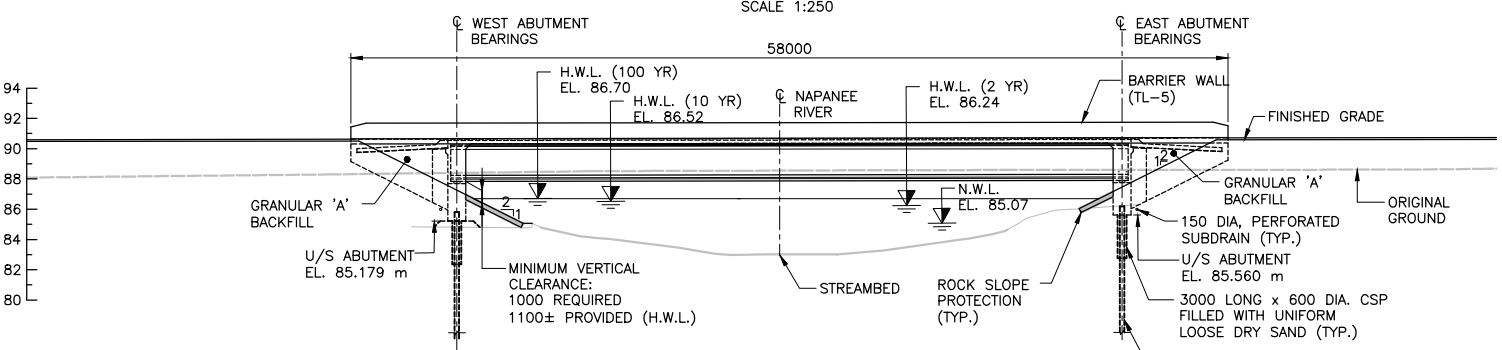
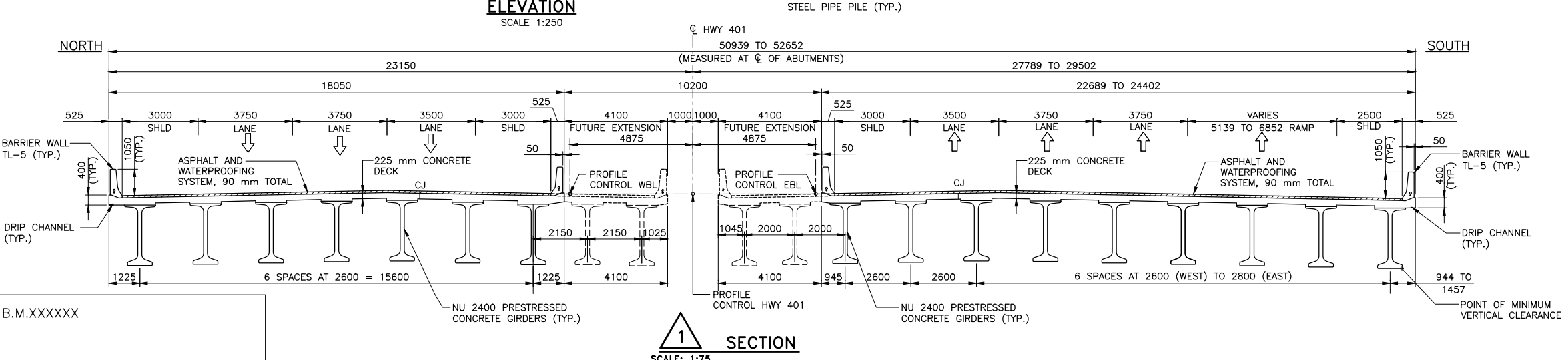
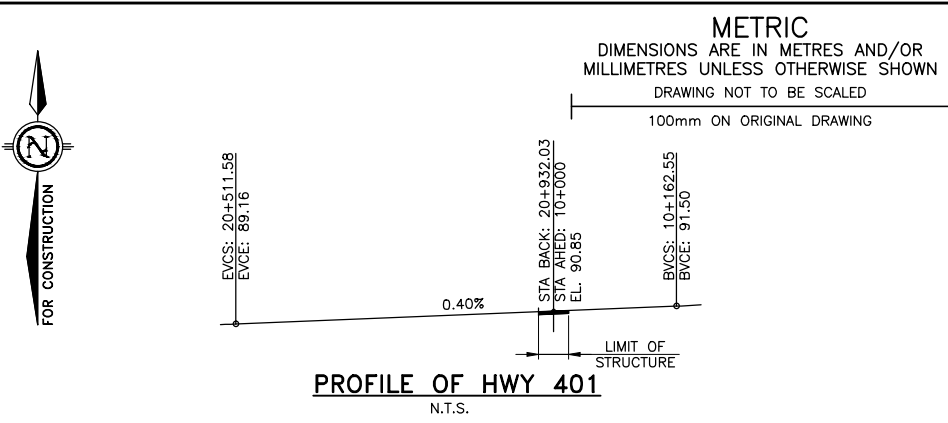
| Significant Wildlife Habitat Category           | Wildlife Habitat                                                                                                                                                                                                                                                 | Listed or Indicator Species | Candidate SWH – ELC Ecosite Codes                                                                                                                | Candidate SWH - Habitat Criteria <sup>1</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Confirmed SWH - Defining Criteria <sup>2</sup>                                                                                                                                                                                                                                                                                                                                                                                                               | Presence Within the Study Area | Rationale                                                                                                                                               |
|-------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|
| Animal Movement Corridors                       | <b>Deer Movement Corridors</b><br><b>Rationale:</b><br>Corridors important for all species to be able to access seasonally important life-cycle habitats or to access new habitat for dispersing individuals by minimizing their vulnerability while travelling. | ■ White-tailed Deer         | ■ Corridors may be found in all forested ecosites.<br>■ A Project Proposal in Stratum II Deer Wintering Area has potential to contain corridors. | ■ Movement corridor must be determined when <b>Deer Wintering Habitat</b> is confirmed as SWH from Table 1.1 of this schedule.<br>– A deer wintering habitat identified by the MNR as SWH in Table 1.1 of this Schedule will have corridors that the deer use during fall migration and spring dispersion.<br>– Corridors typically follow riparian areas, woodlots, areas of physical geography (ravines, or ridges).                                                                                                 | ■ Studies must be conducted at the time of year when deer are migrating or moving to and from winter concentration areas.<br>■ Corridors that lead to a deer wintering habitat should be unbroken by roads and residential areas.<br>■ Corridors should be at least 200 m wide with gaps <20 m and if following riparian area with at least 15 m of vegetation on both sides of waterway.<br>■ Shorter corridors are more significant than longer corridors. | ■ Absent.                      | ■ No Deer Wintering Areas were present in the Study Area. However, the riparian area associated with the Napanee River may be a Deer Movement Corridor. |
| Exceptions for Ecodistricts within EcoRegion 6E | <b>6E-14 Mast Producing Areas</b><br><b>Rationale:</b><br>The Bruce Peninsula has an isolated and distinct population of black bears. Maintenance of large woodland tracts with mast-producing tree species is important for bears.                              | ■ Black Bear                | ■ All Forested habitat represented by ELC Community Series:<br>– FOM and FOD                                                                     | ■ Woodland ecosites >30 ha with mast-producing tree species, either soft (cherry) or hard (oak and beech).                                                                                                                                                                                                                                                                                                                                                                                                             | ■ All woodlands > 30 ha with a 50% composition of these ELC Vegetation Types are considered significant:<br>– FOM1-1, FOM2-1, FOM3-1, FOD1-1, FOD1-2, FOD2-1, FOD2-2, FOD2-3, FOD2-4, FOD4-1, FOD5-2, FOD5-3, FOD5-7 and FOD6-5.                                                                                                                                                                                                                             | ■ Absent.                      | ■ The Study Area is not located on the Bruce Peninsula.                                                                                                 |
| Exceptions for Ecodistricts within EcoRegion 6E | <b>6E- 17 Lek</b><br><b>Rationale:</b><br>Sharp-tailed grouse only occur on Manitoulin Island in Eco-region 6E, Leks are an important habitat to maintain their population.                                                                                      | ■ Sharp-tailed Grouse       | ■ CUM, CUS and CUT                                                                                                                               | ■ Grasslands (field/meadow) are to be >15 ha when adjacent to shrubland and >30 ha when adjacent to deciduous woodland.<br>– Grasslands are to be undisturbed with low intensities of agriculture (light grazing or late haying)<br>– Leks will be used annually if not destroyed by cultivation or invasion by woody plants or tree planting<br>– Leks are typically a grassy field/meadow >15 ha with adjacent shrublands and >30 ha with adjacent deciduous woodland. Conifer trees within 500 m are not tolerated. | ■ Studies confirming lek habitat are to be completed from late March to June.<br>– Any site confirmed with sharp-tailed grouse courtship activities is considered significant.<br>– The field/meadow ELC ecosites plus a 200 m radius area with shrub or deciduous woodland is the lek habitat.                                                                                                                                                              | ■ Absent.                      | ■ The Study Area is not located on Manitoulin Island.                                                                                                   |

# Appendix F. Napanee River Bridge Design

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FILE NAME: C:\Users\Kramaric\OneDrive - AECOM\02 60734357-MTO-Napanee River Bridge\25 SKETCHES\60734357-Option 1 - 1.spon (NU 2400).dwg  
MODIFIED: 2026-04-07 15:30

2017-08  
ANSI-D  
MINISTRY OF TRANSPORTATION, ONTARIO



APPLICABLE STANDARD DRAWINGS:

|               |                                                                                                                  |
|---------------|------------------------------------------------------------------------------------------------------------------|
| OPSD 3000.150 | FOUNDATION, PILES, STEEL H-PILE SPLICE                                                                           |
| MTOD 3000.160 | FABRICATED EQUIVALENT STEEL H-PILES                                                                              |
| OPSD 3101.150 | WALLS, ABUTMENT, BACKFILL MINIMUM GRANULAR REQUIREMENT                                                           |
| OPSD 3370.100 | DECK, WATERPROOFING HOT APPLIED ASPHALT MEMBRANE WITH PROTECTION BOARD                                           |
| OPSD 3370.101 | DECK, WATERPROOFING HOT APPLIED ASPHALT MEMBRANE AT ACTIVE CRACKS GREATER THAN 2 mm WIDE AND CONSTRUCTION JOINTS |
| OPSD 3390.100 | DECK DRIP CHANNEL                                                                                                |
| OPSD 3419.100 | BARRIERS AND RAILINGS, STEEL BEAM GUIDE RAIL AND CHANNEL ANCHORAGE                                               |
| MTOD 3941.210 | FIGURES IN CONCRETE, SITE NUMBER AND DATE LAYOUT                                                                 |
| OPSD 3950.100 | JOINTS, CONCRETE EXPANSION AND CONSTRUCTION ON STRUCTURE                                                         |

LIST OF ABBREVIATIONS:

|        |                               |
|--------|-------------------------------|
| BVCE   | BEGINNING VERTICAL CURVE EL.  |
| BVCS   | BEGINNING VERTICAL CURVE STA. |
| EL.    | ELEVATION                     |
| EVCE   | END VERTICAL CURVE ELEVATION  |
| EVCS   | END VERTICAL CURVE STATION    |
| H.W.L. | HIGH WATER LEVEL              |
| HWY    | HIGHWAY                       |
| MIN.   | MINIMUM                       |
| N.T.S. | NOT TO SCALE                  |
| SCL    | SPEED CHANGE LANE             |
| SHD    | SHOULDER                      |
| STA.   | STATION                       |
| T/P    | TOP OF PAVEMENT               |
| TYP.   | TYPICAL                       |
| N.W.L. | NORMAL WATER LEVEL            |
| W.P.   | WORKING POINT                 |

DESIGN ASSUMPTIONS

| CRITERIA                                               | DESIGN ASSUMPTION                                                                                     |
|--------------------------------------------------------|-------------------------------------------------------------------------------------------------------|
| SEISMIC IMPORTANCE CATEGORY                            | SCP1                                                                                                  |
| DESIGN LIFE OF BRIDGE                                  | 75 YEARS                                                                                              |
| DESIGN SERVICE LIFE OF BRIDGE                          | 75 YEARS                                                                                              |
| NON-REPLACEABLE COMPONENTS                             | FOUNDATIONS, ABUTMENTS, WINGWALLS, CONCRETE DECK, CONCRETE GIRDERS, APPROACH SLABS, CONCRETE BARRIERS |
| REPLACEABLE COMPONENTS AND ASSUMED DESIGN SERVICE LIFE | WATERPROOFING (30 YEARS)                                                                              |

EXPOSURE CONDITIONS AND APPLICABLE COMPONENTS

| EXPOSURE ZONE                             | COMPONENT                                                                                         |
|-------------------------------------------|---------------------------------------------------------------------------------------------------|
| ATMOSPHERIC SHELTERED - A2                | DECK SOFFIT BETWEEN EXTERIOR GIRDERS                                                              |
| ATMOSPHERIC EXPOSED - A3                  | CONCRETE GIRDERS OVER FRESH WATER (WITHIN 3m OF NWL), OUTSIDE FACE OF WINGWALLS ABOVE FINAL GRADE |
| ATMOSPHERIC EXPOSED - A5                  | DECK SOFFIT                                                                                       |
| DEICING SALT SPRAY DIRECT - (SEVERE) - 03 | CONCRETE DECK TOP, INTERIOR, EXTERIOR, AND TOP FACES OF BARRIER WALLS, DECK FASCIA                |
| SOIL AND GROUND WATER NON-AGGRESSIVE - 01 | PILES, ABUTMENTS AND WINGWALLS BELOW GRADE APPROACH SLAB                                          |

Ontario

Ministry of Transportation

CONT  
WP  
HWY 401 PRELIMINARY DESIGN  
NAPANEE RIVER BRIDGE  
GENERAL ARRANGEMENT

SHEET

AECOM

GENERAL NOTES:

- SPECIFIED 28-DAY COMPRESSIVE STRENGTH 30 MPa.
- CLEAR COVER TO REINFORCING STEEL:

|            |                                 |
|------------|---------------------------------|
| PILE CAPS: | 100 ± 25                        |
| DECK TOP:  | 70 ± 20                         |
| REMAINDER: | 40 ± 10                         |
|            | 70 ± 20 UNLESS OTHERWISE NOTED. |
- REINFORCING STEEL:

REINFORCING STEEL SHALL BE GRADE 500W.

UNLESS SHOWN OTHERWISE, TENSION LAP SPLICES FOR REINFORCING STEEL BARS SHALL CLASS B.

STAINLESS REINFORCING STEEL BARS SHALL BE TYPE 316 LN, DUPLEX 2205 OR DUPLEX 2304 AND HAVE A MINIMUM YIELD STRENGTH OF 500 MPa, UNLESS OTHERWISE SPECIFIED.

BAR MARKS WITH PREFIX 'S' DENOTE STAINLESS STEEL BARS.

GLASS FIBRE REINFORCED POLYMER REINFORCING BARS SHALL BE GRADE III AS SPECIFIED IN THE CONTRACT DRAWINGS. THE NOMINAL DIAMETER, TENSILE MODULUS OF ELASTICITY AND GUARANTEED MINIMUM TENSILE STRENGTH SHALL BE AS SPECIFIED IN THE CONTRACT DOCUMENTS.

BAR MARKS WITH PREFIX 'G' DENOTE GRADE III GLASS FIBRE REINFORCED POLYMER BARS.

BAR HOOKS SHALL HAVE STANDARD HOOK DIMENSIONS USING MINIMUM BEND DIAMETERS, WHILE STIRRUPS AND TIES SHALL HAVE MINIMUM HOOK DIMENSIONS. ALL HOOKS SHALL BE IN ACCORDANCE WITH THE STRUCTURAL STANDARD DRAWING SS112-1 UNLESS INDICATED OTHERWISE.

CONSTRUCTION NOTES:

- THE CONTRACTOR SHALL ESTABLISH THE BEARING SEAT ELEVATIONS BY DEDUCTING THE ACTUAL BEARING THICKNESSES FROM THE TOP OF BEARING ELEVATIONS. IF THE ACTUAL BEARING THICKNESSES ARE DIFFERENT FROM THOSE GIVEN WITH THE BEARING DESIGN DATA, THE CONTRACTOR SHALL ADJUST THE REINFORCING STEEL TO SUIT.
- BACKFILL SHALL NOT BE PLACED BEHIND THE ABUTMENTS UNTIL THE DECK HAS REACHED 70% OF ITS DESIGN STRENGTH.
- BACKFILL SHALL BE PLACED SIMULTANEOUSLY BEHIND BOTH ABUTMENTS KEEPING THE HEIGHT OF BACKFILL APPROXIMATELY THE SAME. AT NO TIME SHALL THE DIFFERENCE IN ELEVATION BE GREATER THAN 500 mm.
- CONSTRUCT ABUTMENTS AND WINGWALLS TO THE BEARING SEAT ELEVATIONS. THE CONTRACTOR SHALL SUPPLY TEMPORARY LATERAL BRACING FOR THE ABUTMENTS. FORMWORK AND LATERAL BRACING SHALL NOT BE REMOVED UNTIL CONCRETE HAS REACHED 70% OF ITS SPECIFIED 28-DAY STRENGTH.
- COMPACTED FILL, MAXIMUM GRAIN SIZE 75 mm SHALL BE PLACED UP TO THE BOTTOM OF ABUTMENT ELEVATIONS PRIOR TO DRIVING PILES.
- THE CONTRACTOR SHALL VERIFY TYPES AND LOCATIONS OF EXISTING UTILITIES THAT ARE RELEVANT TO THE WORK SHOWN ON THE DRAWINGS PRIOR TO COMMENCEMENT OF THE WORK. ANY DISCREPANCIES SHALL BE REPORTED TO THE CONTRACT ADMINISTRATOR AND THE PROPOSED ADJUSTMENT OF THE WORK REQUIRED SHALL BE SUBMITTED FOR APPROVAL.
- THE CONTRACTOR IS FULLY RESPONSIBLE FOR THE ADEQUATE PROTECTION OF ALL UTILITIES, SERVICES, STRUCTURES, ROADWAYS, WATERCOURSES, ETC. DURING CONSTRUCTION OPERATIONS.
- THE CONTRACTOR SHALL ADVISE ALL UTILITY COMPANIES IN WRITING OF HIS PROPOSED WORK. THE CONTRACTOR SHALL BE RESPONSIBLE AT HIS OWN EXPENSE FOR ANY DAMAGE TO UTILITIES BY THE CONTRACTOR.

| REVISIONS | DATE | BY  | DESCRIPTION                         |
|-----------|------|-----|-------------------------------------|
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# Appendix D

## Noise Impact Assessment





# Noise Impact Assessment Report

Highway 401 / Napanee River Bridge Improvements Preliminary Design and Class  
Environmental Assessment Study (WP 4039-19-01)  
Ontario Ministry of Transportation

Project number: 60734357

September 2026

## Statement of Qualifications and Limitations

The attached Report (the "Report") has been prepared by AECOM Canada ULC. ("AECOM") for the benefit of the Client ("Client") in accordance with the agreement between AECOM and Client, including the scope of work detailed therein (the "Agreement").

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- was prepared for the specific purposes described in the Report and the Agreement; and
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## Revision History

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# 1. Introduction

In 2024 the Ontario Ministry of Transportation (MTO) initiated two Planning, Preliminary Design and Class Environmental Assessment (Class EA) Studies, Group B, to address current and future transportation needs by developing a plan for the rehabilitation and/or replacement of various bridges and culverts, determining the long-term interchange configuration at seven locations, and establishing the footprint for the interim six and ultimate eight lanes of Highway 401, between the City of Belleville and the City of Kingston. Study #1 (GWP 4022-21-00) includes Highway 401 from 4.3 km east of Highway 37 to 5 km west of County Road 41/Centre Street for a total length of approximately 26 km. Study #2 (GWP 4016-21-00) includes Highway 401 from 5 km west of County Road 41/Centre Street to 8 km west of Kingston Road 38 for a total length of approximately 29 km.

As part of the Study #2 project, the previously approved Palace Road Interchange Technically Preferred Plan, as documented in the *Highway 401 Interchange Improvements at Palace Road Class Environmental Assessment and Preliminary Design Study Transportation Environmental Study Report (March 2019)*, was revisited to assess compatibility with an interim and ultimate footprint of Highway 401, as well as to accommodate a potential 130 km/h design speed. Based on this review, no significant modifications to the previously approved configuration are recommended. However, as the Palace Road Interchange Technically Preferred Plan is now moving forward to Detail Design, advancement of the Napanee River Bridge (Site 17X-0062/B0) improvements from the current Study #2 project is required due to its proximity to Palace Road. As such, the improvements to the Napanee River Bridge are being advanced as a separate Preliminary Design and Class EA Study (WP 4039-19-01) that will include standalone environmental reports and ultimately, documentation in a separate Transportation Environmental Study Report (TESR). The key plan for the subject Napanee River Bridge Improvements Preliminary Design and Class EA Study, Group B, (WP 4039-19-01) is illustrated in **Figure 1** below.

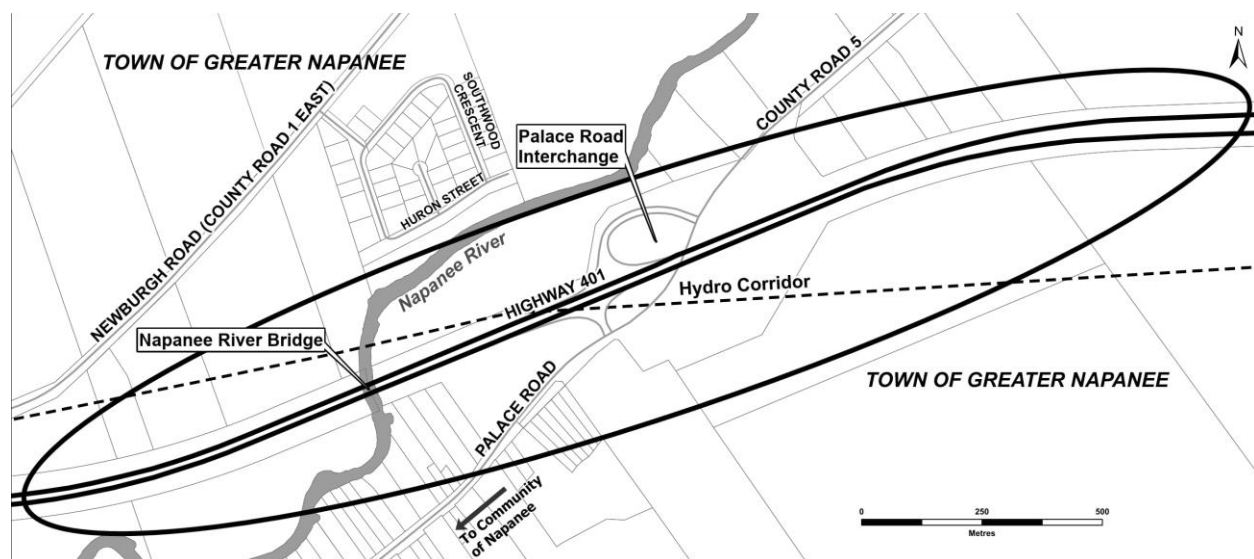


**Figure 1: Project Key Plan**

This traffic noise impact assessment has been prepared to inform the Napanee River Bridge Improvements Preliminary Design and Class EA Study (WP 4039-19-01) and therefore focuses solely on the planned improvements associated with that study. A separate report will be prepared to address the improvements associated with larger Study #2 study area.

The advancement of the current Napanee River Bridge Improvements Preliminary Design and Class EA Study is intended to accommodate 8 lanes along Highway 401 and consider profile refinements to meet environmental, drainage and fluvial geomorphological requirements. While the bridge will accommodate the future 8 lanes along Highway 401 there is no timing for this widening improvement and therefore the bridge construction will consider an

interim tie-in to the existing Highway 401 with consideration for 6 lanes in the future for the section stretching from west of the Napanee River Bridge to east of Palace Road.

As per MTO instruction, this noise assessment considers the full widening to 8 lanes, however, it will review (if applicable) a 6 lane configuration if mitigation is warranted in the 8 lane full build out.

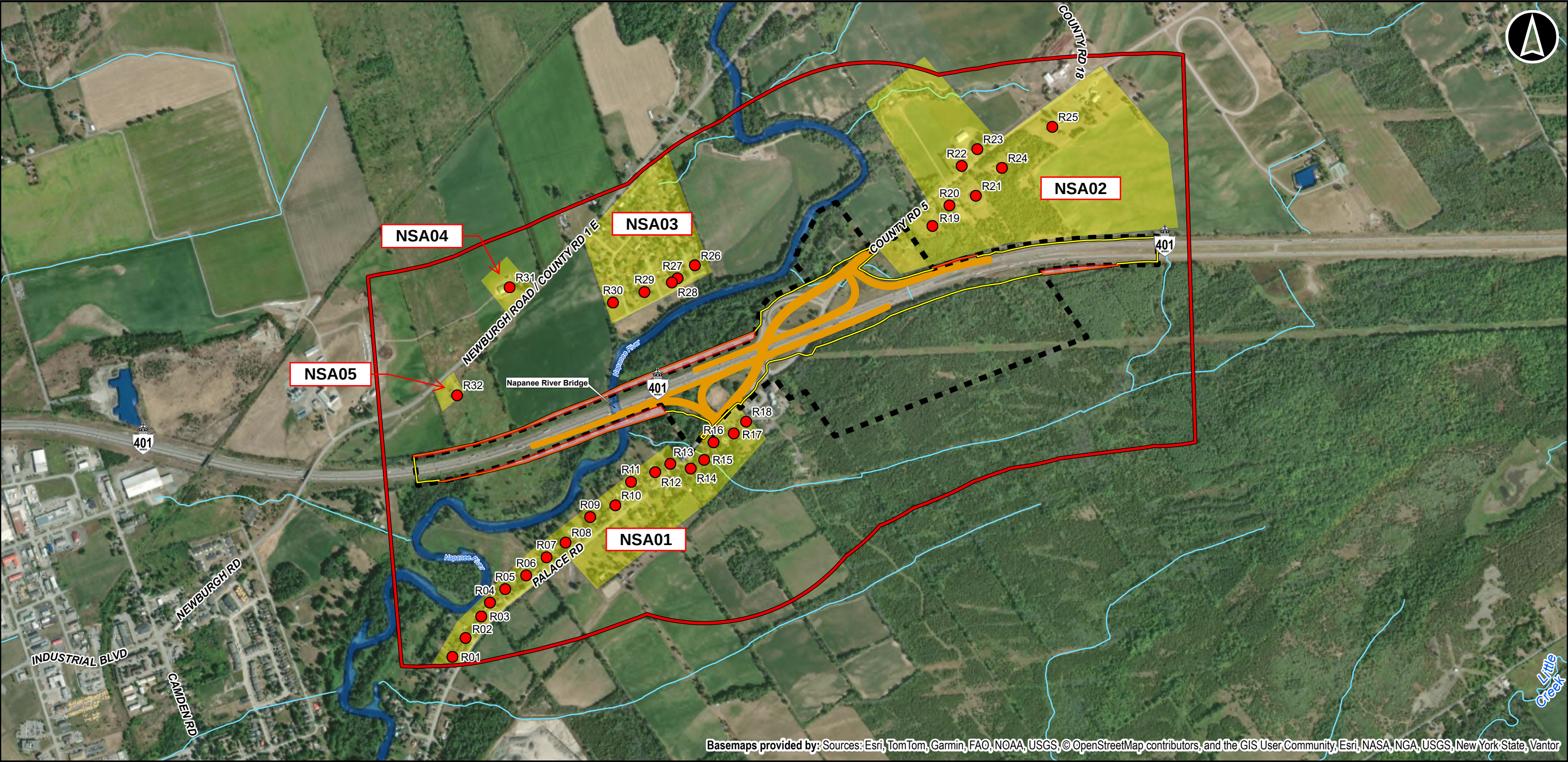
This report has been prepared in accordance with the methods and procedures recommended in the MTO Environmental Guide for Noise (2022; herein referred as the MTO Guide). Relevant guidelines from the Ontario Ministry of the Environment, Conservation, and Parks (MECP), and the local municipal noise control bylaw are also considered in this assessment.

The noise study area/area of investigation as defined in the MTO Guide must be determined using one of the following methods:

- Using 5-decibel contour lines extending from the source to an NSA where there is no increase above the Future No-Build sound level;
- An NSA where there is no increase above the Future No-Build sound level; or
- A perpendicular distance of 600 m from the closest edge of pavement and 100 m from the ends of the pavement.

As the area of investigation was required to be defined prior to the calculation of future noise levels, the area of investigation was defined as the area within the 600 meters (m) perpendicular to the edge of Project's pavement, extending longitudinally 100 m along the alignment from the end of Project's pavement. The study area with the Noise Sensitive Areas (NSAs – see **Section 3**) within the study area is depicted on **Figure 2**.





Basemaps provided by: Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community, Esri, NASA, NGA, USGS, New York State, Vantor

**Legend**

Project Limits

2019 Approved Palace Road Interchange Technically Preferred Plan (GWP 4197-13-00)

Existing MTO ROW

Property Aquisition

Representative Noise Receptor

Noise Sensitive Area

Noise Study Area

Waterbody

Watercourse



**Hwy 401 / Napanee River Bridge  
Improvements PD  
and Class EA (WP 4039-19-01)  
Noise Impact Assessment**

Location of Noise Sensitive Receptors  
and Sensitive Areas

0 100 200 300 400 500 600 700 800 900  
Meters

NAD 1983 UTM Zone 18N

Data Sources:  
Contains Information licensed under the Open Government License Ontario.

Jun, 2026  
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**Figure: 2**

Project Location: Z:\Kierneer\CAKCH\11025\GIS\Projects\60736705\00-CAD\_GIS\Graphics\020-ENV\Design\01\_Report\NOISE\0724357\_NOISE.aprx Layout: 60724357\_NOISE\_NSAs  
Date Saved: 6/15/2026 10:16 AM User: michael.vcollins



## 2. Environmental Noise Guidelines

### 2.1 Provincial Noise Guidelines

#### 2.1.1 MTO Guidelines

##### 2.1.1.1 Traffic Noise

This assessment has been completed in accordance with the MTO Guide published in 2022. Under the MTO Guide, the “noise impact” is defined as the difference between the “No Project” and the “With Project” noise levels during the subject year of assessment (Horizon Year), which is typically 10 years post-construction. The horizon year of 2044 was used as the basis of this assessment.

The location of assessment is an outdoor location associated with the representative receptor. Where the future noise level with the proposed improvements in the Outdoor Living Area (OLA) results in equal or greater than 5 dB increase over the future noise level without the proposed improvements; or the projected noise level is equal to or is greater than 65 dBA, the following must occur:

- noise control measures must be investigated within the right-of-way; and
- if a minimum attenuation of 5 dB can be achieved in the OLA averaged over first row receivers, the feasibility of the selected measures within the right-of-way are to be investigated.

The OLA can be situated on any side of a noise sensitive area, which accommodates outdoor living activities and is generally taken to be the backyard. The assessment location is 3 metres (m) from the façade with a height of 1.5 m above ground level as per the MTO Guide. Other examples include outdoor swimming pools/tennis courts for hotels/motels.

Where predicted noise levels trigger mitigation investigation, the mitigation efforts to be applied for the predicted change in noise level above the ambient and the projected noise level with the proposed improvements are shown **Table 1**.

**Table 1: Mitigation Effort Required**

| Change in Noise Level Above Future Ambient / Projected Noise Levels with Proposed Improvements | Mitigation Effort Required                                                                                                                                                                                                                                                                                                                                                                |
|------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| < 5 dB Change<br>AND<br><65 dBA Overall                                                        | <ul style="list-style-type: none"> <li>• None</li> </ul>                                                                                                                                                                                                                                                                                                                                  |
| ≥ 5 dB Change<br>OR<br>≥ 65 dBA Overall                                                        | <ul style="list-style-type: none"> <li>• Investigate noise control measures on right of way</li> <li>• Introduce noise control measures within right of way and mitigate to ambient if technically, economically, and administratively feasible.</li> <li>• Noise control measures, where introduced, should achieve a minimum of 5 dBA attenuation, over first row receivers.</li> </ul> |

The determination of whether mitigation is provided must be based on the review of technical, economical, and administrative feasibility:

<sup>1</sup> Noise impact



- **Technical Feasibility:** Review the constructability of the noise mitigation (i.e. design of wall, roadside safety, shadow effect, topography, achieve a minimum 5 dBA reduction, ability to provide a continuous barrier);
- **Economic Feasibility:** Carry out a cost/benefit assessment of the noise mitigation (i.e., determine cost per benefited receiver); and
- **Administrative Feasibility:** Determine the ability to locate the noise mitigation on lands within public ownership (i.e., provincial, or municipal right-of-way).

Where traffic noise is not the controlling source of noise in the future “No Project” scenario, background sound levels can be assumed. The assumptions are based on the area classifications defined in MECP’s NPC300 Environmental Noise Guideline. The sound levels are:

- Class 1 Area (urban) – 50 dBA
- Class 2 Area (suburban) – 45 dBA
- Class 3 Area (rural) – 40 dBA
- Class 4 Area (as defined by local land use planning authority) – 55 dBA

### 2.1.1.2 Construction Noise

The MTO Guide requirements for construction noise are documented in Section 7.5 of the MTO Guide, which states the following must be undertaken with regards to construction noise:

- Noise Sensitive Areas (NSAs) must be identified during the project planning stage. For each NSA:
  - Identify a single, worst case dwelling
  - State the approximate number of dwellings in each NSA, and
  - Illustrate the location of each NSA and Receptor location on a map
- Potential noise impacts of construction equipment on NSAs must be identified. These might include impacts resulting from hours or type of operation or proximity of equipment.
- Potential mitigation of noise impacts from construction equipment must be identified. These might include measures such as timing constraints, setbacks of certain operations from NSAs, or quieter equipment.
- The technical and economic feasibility of various alternatives must be evaluated in order to select the appropriate construction noise control measures.
- In certain situations, a contract may require work that does not align with municipal noise control bylaws. Municipal noise bylaws do not apply to provincial transportation projects including MTO, its agencies or its agents (i.e., contractors) and as such, MTO is not required to obtain noise exemption bylaw permits. Although noise exemption bylaw permits are not required, MTO will ensure clear and frequent communication with the municipality, address local concerns on a project by project basis, strive to work within the spirit of the municipal noise bylaw, and apply best practices to reduce noise impacts to the community during construction.
- In the event that MTO has work that does not align with municipal noise control bylaws that would normally require a noise bylaw exemption (e.g., project may create noise in the evening/night as defined in the local municipal noise bylaw), the following best practices shall be considered:
  - Consider and implement, as appropriate, mitigation measures to reduce the impact of construction noise on the local community.
  - Provide advertising/notification of the project prior to commencement of any work advising local residents and businesses of the project timeframe and that the project may create noise in the evening and/or night. Timing should be consistent with the timelines the local municipality would normally require in a noise bylaw exemption for a project of this scope/magnitude (typically 2-4 weeks prior to work commencing and 2-4 weeks prior to work recommencing each spring).
  - Provide notification to property owners adjacent to the worksite prior to work commencing advising of the project timeframe and that the project may create noise in the evening and/or night (e.g., door to door flyers). Timing should be consistent with the timelines the local municipality would normally require in the

noise bylaw exemption for a project of this scope/magnitude (typically 2-4 weeks prior to work commencing and 2-4 weeks prior to work recommencing each spring)

- Provide a contact number to the local municipality for residents to call if they have any concerns or questions (typically the contract administrator or contract services administrator).

Despite compliance with any noise control measures identified in the contract documents, a persistent complaint must require a field investigation to determine noise level emissions. If noise level emissions for the construction equipment used exceed the sound level criteria for construction equipment contained in the Ministry of the Environment (now MECP) Model Municipal Noise Control bylaw, MTO requires the contractor to comply with the sound level criteria where quieter alternative equipment is reasonably available.

## 2.1.2 MECP Guidelines

For construction noise, the MECP sets out sound emission standards for various types of construction equipment in their publications NPC-115 and NPC-118. The sound emission standards outlined in NPC-115 and NPC-118, for typical construction equipment and vehicles, are reproduced in the tables below (**Table 2 to Table 6**). Please see NPC-103 for measurement procedures.

**Table 2: NPC-115 Quiet Zone and Residential Area Sound Emission Standards for Excavation Equipment, Dozers, Loaders, Backhoes or Other Equipment Capable of Being used for Similar Application**

| Maximum Sound Level (dBA) as determined using Publication NPC-103 – Procedures Section 6 |                 |                  |
|------------------------------------------------------------------------------------------|-----------------|------------------|
| Date of Manufacture                                                                      | Power Rating    |                  |
|                                                                                          | Less than 75 kW | 75 kW and Larger |
| January 1, 1979 to December 31, 1980                                                     | 85              | 88               |
| January 1, 1981 and after                                                                | 83              | 85               |

Source: NPC-115 table 115-1

**Table 3: NPC-115 Sound Emission Standards for Pneumatic Pavement Breakers**

| Standard                        | Date of Manufacture                  | Maximum Sound Level (dBA) as measured using Publication NPC-103 |
|---------------------------------|--------------------------------------|-----------------------------------------------------------------|
| Quiet Zone Sound Emission       | January 1, 1979 and after            | 85                                                              |
| Residential Area Sound Emission | January 1, 1979 to December 31, 1980 | 90                                                              |
|                                 | January 1, 1981 and after            | 85                                                              |

Source: NPC-115 table 115-2

**Table 4: NPC-115 Sound Emission Standards for Portable Air Compressors**

| Standard                        | Date of Manufacture                  | Maximum Sound Level (dBA) as measured using Publication NPC-103 |
|---------------------------------|--------------------------------------|-----------------------------------------------------------------|
| Quiet Zone Sound Emission       | January 1, 1979 to December 31, 1980 | 76                                                              |
|                                 | January 1, 1981 and after            | 70                                                              |
| Residential Area Sound Emission | January 1, 1979 and after            | 76                                                              |

Source: NPC-115 table 115-3

**Table 5: NPC-115 Sound Emission Standards for Tracked Drills**

| Standard                                       | Date of Manufacture       | Maximum Sound Level (dBA) as measured using Publication NPC-103, Section 6 |
|------------------------------------------------|---------------------------|----------------------------------------------------------------------------|
| Quiet Zone and Residential Area Sound Emission | January 1, 1981 and after | 100                                                                        |

Source: NPC-115 table 115-4

**Table 6: NPC-118 Sound Emission Standards for Heavy Vehicles with Governed Diesel Engines**

| Date of Manufacture       | Maximum Sound Level (dBA) as measured using Publication NPC-103, Section 9 |
|---------------------------|----------------------------------------------------------------------------|
| Prior to January 1, 1979  | 100                                                                        |
| January 1, 1979 and after | 95                                                                         |

Source: NPC-118 table 118-1

## 2.2 Municipal Noise Bylaw

As per the MTO Guide, Municipal noise bylaws do not apply to provincial transportation projects including the MTO, its agencies or its agents (i.e. contractors) and as such, the MTO is not required to obtain noise exemption bylaw permits. Although noise exemption bylaw permits are not required, the MTO will maintain clear and frequent communication with the applicable municipalities, address local concerns on a project-by-project basis, strive to work within the spirit of the municipal noise bylaw, and apply best practices to reduce noise impacts to the community during construction.

A general recommendation is to provide a notice of works letter to the applicable municipalities prior to construction work outside of normal bylaw hours, which will allow the municipality to notify area residents.

### 2.2.1 Town of Greater Napanee

The Project is located within the Town of Greater Napanee, and noise within the Town of Greater Napanee is regulated by Noise By-law 2023-0043. As with most municipal noise bylaws and guidelines, the bylaw concentrates mainly on typical residential and commercial concerns and addresses those in a qualitative manner. The relevant sections of the bylaw are presented below:

#### General prohibitions

- No person shall at any time ring any bell, blow any horn, shout or make any unusual noise or noise likely to disturb the inhabitants of the Town, if audible at a point of reception.
- The noise caused by the erection, demolition, alteration or repair of a building or by construction or earth-moving equipment working upon a site or highway when such work is undertaken by forces of the Town, any other public utility, or their agents or servants

#### Exemptions

- The noise arising from the operation of construction or construction equipment on any day between the hours of 7:00 a.m. and 7:00 p.m. This exemption shall not apply to construction equipment being operated without the originally installed muffling devices or their equivalent in good working order and in constant operation;

## 3. Noise Sensitive Areas

Predicted noise levels are assessed at NSAs. Land uses classified as "Traditional NSAs" by the MTO Guide consist of the following land uses with associated OLAs:

- Private homes such as single family residences;
- Townhouses;
- Multiple unit buildings, such as apartments with OLAs for use by all occupants; and
- Hospitals, nursing homes for the aged, where there are OLAs for the patients.

In addition to the above, where certain land uses are considered “part of a community”, meaning located next to a Traditional NSA, the land use is considered noise sensitive and included in the analysis. The land uses considered noise sensitive when part of a community are:

- Educational facilities and day care centres, where there are OLAs for students;
- Campgrounds that provide overnight accommodation;
- Hotels/motels where there are OLAs for visitors;
- Community centres with OLAs (e.g. outdoor basketball courts etc.);
- Municipal parks (excluding golf courses and trails); and
- Places of worship with OLAs.

Land uses that do not qualify as noise sensitive by the MTO Guide consist of the following:

- Apartment balconies above ground floor;
- Cemeteries;
- All commercial; and
- All industrial.

In general, the areas adjacent to the Project consist of suburban development on both the north and south sides of Highway 401, along with rural dwellings to the northeast and northwest of the Project.

As per the MTO Guide, where there is a transportation corridor adjacent to a residential area constructed after 1977, the following must be determined:

- If there was a noise study report completed for the development that included consideration of the transportation corridor,
- If the study's traffic analysis is consistent with the proposed MTO project;
- If there were warning clauses on the title of the properties; and
- At the time of the study, the age of the residential developments was not available.

Assessed noise sensitive locations are presented in Table 7, with locations depicted on Figure 2.

**Table 7: Assessed Representative Noise Sensitive Locations**

|       | Representative Receptor | Front Row Receptors Represented | Description     |
|-------|-------------------------|---------------------------------|-----------------|
| NSA01 | R01                     | 3                               | 571 Palace Rd   |
|       | R02                     | 3                               | 583 Palace Rd   |
|       | R03                     | 3                               | 603 Palace Rd   |
|       | R04                     | 3                               | 619 Palace Rd   |
|       | R05                     | 3                               | 631 Palace Rd   |
|       | R06                     | 3                               | 659 Palace Rd   |
|       | R07                     | 3                               | 667 Palace Rd   |
|       | R08                     | 3                               | 675 Palace Rd   |
|       | R09                     | 3                               | 701 Palace Rd   |
|       | R10                     | 3                               | 715 Palace Rd   |
|       | R11                     | 3                               | 739 Palace Road |
|       | R12                     | 3                               | 755 Palace Road |
|       | R13                     | 3                               | 769 Palace Road |



|       | Representative Receptor | Front Row Receptors Represented | Description            |
|-------|-------------------------|---------------------------------|------------------------|
|       | R14                     | 3                               | 776 Palace Road        |
|       | R15                     | 3                               | 784 Palace Road        |
|       | R16                     | 3                               | 798 Palace Road        |
|       | R17                     | 3                               | 810 Palace Road        |
|       | R18                     | 3                               | 818 Palace Road        |
| NSA02 | R19                     | 1                               | 994 County Road 5      |
|       | R20                     | 1                               | 1020 County Road 5     |
|       | R21                     | 1                               | 1022 County Road 5     |
|       | R22                     | 1                               | 1041 County Road 5     |
|       | R23                     | 1                               | 1049 County Road 5     |
|       | R24                     | 1                               | 1042 County Road 5     |
|       | R25                     | 1                               | 1104 County Road 5     |
| NSA03 | R26                     | 1                               | 128 Huron St           |
|       | R27                     | 1                               | 92 Southwood Crescent  |
|       | R28                     | 1                               | 9 Parkview Hill        |
|       | R29                     | 1                               | 8 Parkview Hill        |
|       | R30                     | 1                               | 60 Huron St            |
| NSA04 | R31                     | 1                               | 553 County Road 1 East |
| NSA05 | R32                     | 1                               | 480 County Road 1 East |

## 4. Traffic Noise Impact Assessment

### 4.1 Noise Prediction Procedure

In accordance with the MTO Guide, traffic noise levels were calculated using the United States Federal Highway Administration's (FHWA) Traffic Noise Model (TNM). Version 3.2, was used in the noise predictions for this assessment.

The prediction model inputs include the following:

- Road traffic data
  - Volumes
  - Speed limit
  - Vehicle composition (percentage Medium and Heavy Trucks)
- Ground characteristics
  - Roadway surface type (e.g., Asphalt, concrete)
  - Ground topography
  - Ground type between assessment locations and roadways
  - Roadway layout
  - Roadway profile

- Shielding effects
  - Berms
  - Barriers
  - Housing
  - Topographical features

As the subject of the Project is a highway expansion, the assessment of the noise levels was based on the 24-hour equivalent noise level ( $L_{eq, 24hr}$ ) as required by the MTO Guide.

The pavement type (concrete or asphalt) has not been determined at this stage of the Project. Therefore, in accordance with the MTO Guide, both pavement type options have been modelled: a concrete scenario (Portland Cement Concrete (PCC) in TNM) and an asphalt scenario (average surface type in TNM).

To assess the noise impact, the predicted "No Project" noise levels were compared to those of the predicted "With Project" noise levels. The horizon year of 2044 was used as the basis of assessment.

## 4.2 Traffic Data

Traffic data was provided by the design team in the form of Average Annual Daily Traffic (AADT) for the horizon year of 2044. Truck volumes were also provided as a combined heavy and medium truck percentage. The distribution between medium and heavy trucks was based upon the assumptions in the MTO Guide.

TNM accepts traffic data in hourly volumes. Daily traffic information was converted into average hourly traffic data per lane for direct input into TNM. A summary of the traffic input is provided in Table 8 below.

**Table 8: Daytime Average Hourly Traffic Volumes (2044)**

| Roadway (# of lanes)                 | Average Vehicles per hour by Lane |         |         |                      |                |         |         |                      | Notes   |
|--------------------------------------|-----------------------------------|---------|---------|----------------------|----------------|---------|---------|----------------------|---------|
|                                      | No Project                        |         |         |                      | Project        |         |         |                      |         |
|                                      | Auto                              | Med Trk | Hvy Trk | Speed Limit (km/h r) | Auto           | Med Trk | Hvy Trk | Speed Limit (km/hr ) |         |
| Hwy 401 EB Through Traffic (2 lanes) | 440                               | 35      | 104     | 110                  | Not Applicable |         |         |                      | 1,3     |
| Hwy 401 WB Through Traffic (2 lanes) | 448                               | 35      | 106     | 110                  | Not Applicable |         |         |                      | 1,3     |
| N/S to East of Hwy 401               | 56                                | 1       | 2       | 40                   | 71             | 1       | 2       | 40                   | 1, 2, 3 |
| N/S to West of Hwy 401               | 21                                | 3       | 5       | 40                   | 26             | 4       | 6       | 40                   | 1, 2, 3 |
| West of Hwy 401 to N/S Palace Road   | 18                                | 4       | 6       | 30                   | 23             | 5       | 8       | 30                   | 1, 2, 3 |
| East of Hwy 401 to N/S Palace Road   | 58                                | 1       | 2       | 30                   | 73             | 1       | 2       | 30                   | 1, 2, 3 |
| Palace Road NRT NB (1 lane)          | 31                                | 2       | 3       | 60                   | 40             | 2       | 4       | 60                   | 1, 3, 5 |
| Palace Road NRT SB (1 lane)          | 60                                | 2       | 3       | 60                   | 76             | 2       | 4       | 60                   | 1, 3, 5 |
| Palace Road SRT NB (1 lane)          | 47                                | 2       | 2       | 60                   | 59             | 2       | 3       | 60                   | 1, 3, 5 |
| Palace Road SRT SB (1 lane)          | 65                                | 4       | 6       | 60                   | 81             | 5       | 8       | 60                   | 1, 3, 5 |
| Hwy 401 EB Through Traffic (4 lanes) | Not Applicable                    |         |         |                      | 369            | 29      | 87      | 110                  | 1, 3    |
| Hwy 401 WB Through Traffic (4 lanes) | Not Applicable                    |         |         |                      | 376            | 30      | 89      | 110                  | 1,3     |

Notes to table: (1) hourly data by lane.

(2) Ramps have advisory posted speeds

(3) Average volumes rounded in table, where there was a fractional vehicle due to averaging, volume was adjusted in the model to account for the difference.

(4) Truck data was provided as a combined heavy and medium truck percentage. The percentage split between medium and heavy trucks was assumed based on the MTO Guide.

(5) NRT refers to the area north of Highway 401, while SRT denotes the area south of Highway 401.

## 4.3 Impact Assessment

Road geometry and traffic data were input into TNM to predict the noise levels to assess the requirement for noise mitigation investigation. The pavement in the No Project scenario was modeled as the average pavement type (representative of asphalt pavement) in TNM. The pavement type for the “With Project” scenario has not been determined at this stage, consequently the following “With Project” pavement alternatives have been modeled:

- Alternative 1 – Asphalt Pavement Type (average pavement type in TNM)
- Alternative 2 – Concrete Pavement Type (PCC in TNM)

The assessment results for the concrete and asphalt pavement types are in Table 9 and Table 10 respectively. The tables also includes the assessment of the predicted noise levels against the MTO’s criteria for noise mitigation investigation.

Note that the MTO Guide presents results to the tenth of a decibel, while requiring that the results be rounded to the nearest whole number before assessment against criteria.

**Table 9: Impact Assessment Summary - Asphalt Pavement Type**

| Receptor | 2044 Predicted Traffic Noise $L_{eq}$ (24 hr) |              | Change due to undertaking [dB] | Mitigation Investigation (Yes/No) |          |
|----------|-----------------------------------------------|--------------|--------------------------------|-----------------------------------|----------|
|          | No Project                                    | With Project |                                | ≥5 dB Change                      | ≥ 65 dBA |
| R01      | 46.9                                          | 47.7         | 0.8                            | No                                | No       |
| R02      | 48.4                                          | 49.3         | 0.9                            | No                                | No       |
| R03      | 49.9                                          | 51.0         | 1.1                            | No                                | No       |
| R04      | 50.8                                          | 52.0         | 1.2                            | No                                | No       |
| R05      | 52.2                                          | 53.6         | 1.4                            | No                                | No       |
| R06      | 53.5                                          | 54.9         | 1.4                            | No                                | No       |
| R07      | 54.0                                          | 55.7         | 1.7                            | No                                | No       |
| R08      | 54.7                                          | 56.5         | 1.8                            | No                                | No       |
| R09      | 57.2                                          | 59.1         | 1.9                            | No                                | No       |
| R10      | 58.1                                          | 59.8         | 1.7                            | No                                | No       |
| R11      | 60.0                                          | 61.6         | 1.6                            | No                                | No       |
| R12      | 60.3                                          | 61.9         | 1.6                            | No                                | No       |
| R13      | 59.8                                          | 61.9         | 2.1                            | No                                | No       |
| R14      | 60.5                                          | 61.7         | 1.2                            | No                                | No       |
| R15      | 59.7                                          | 61.2         | 1.5                            | No                                | No       |
| R16      | 61.3                                          | 62.2         | 0.9                            | No                                | No       |
| R17      | 61.9                                          | 62.5         | 0.6                            | No                                | No       |
| R18      | 62.6                                          | 62.7         | 0.1                            | No                                | No       |
| R19      | 58.0                                          | 57.8         | -0.2                           | No                                | No       |
| R20      | 54.3                                          | 54.1         | -0.2                           | No                                | No       |
| R21      | 54.1                                          | 53.8         | -0.3                           | No                                | No       |
| R22      | 54.8                                          | 56.0         | 1.2                            | No                                | No       |
| R23      | 53.9                                          | 55.1         | 1.2                            | No                                | No       |
| R24      | 51.9                                          | 52.5         | 0.6                            | No                                | No       |
| R25      | 47.3                                          | 48.8         | 1.5                            | No                                | No       |
| R26      | 55.1                                          | 54.5         | -0.6                           | No                                | No       |
| R27      | 55.2                                          | 55.1         | -0.1                           | No                                | No       |
| R28      | 55.6                                          | 55.7         | 0.1                            | No                                | No       |
| R29      | 55.0                                          | 55.3         | 0.3                            | No                                | No       |
| R30      | 54.4                                          | 54.9         | 0.5                            | No                                | No       |
| R31      | 53.4                                          | 54.4         | 1.0                            | No                                | No       |
| R32      | 57.2                                          | 58.9         | 1.7                            | No                                | No       |

Notes to table: (1) Values from the assessment shall be rounded to the nearest whole number before the consideration of noise mitigation.



**Table 10: Impact Assessment Summary - Concrete Pavement Type**

| Receptor | 2044 Predicted Traffic Noise $L_{eq}$ (24 hr) |              | Change due to undertaking | Mitigation Investigation (Yes/No) |          |
|----------|-----------------------------------------------|--------------|---------------------------|-----------------------------------|----------|
|          | No Project                                    | With Project |                           | ≥5 dB Change                      | ≥ 65 dBA |
| R01      | 46.9                                          | 48.1         | 1.2                       | No                                | No       |
| R02      | 48.4                                          | 49.9         | 1.5                       | No                                | No       |
| R03      | 49.9                                          | 51.7         | 1.8                       | No                                | No       |
| R04      | 50.8                                          | 52.8         | 2.0                       | No                                | No       |
| R05      | 52.2                                          | 54.3         | 2.1                       | No                                | No       |
| R06      | 53.5                                          | 55.7         | 2.2                       | No                                | No       |
| R07      | 54.0                                          | 56.7         | 2.7                       | No                                | No       |
| R08      | 54.7                                          | 57.5         | 2.8                       | No                                | No       |
| R09      | 57.2                                          | 60.1         | 2.9                       | No                                | No       |
| R10      | 58.1                                          | 60.9         | 2.8                       | No                                | No       |
| R11      | 60.0                                          | 62.8         | 2.8                       | No                                | No       |
| R12      | 60.3                                          | 63.0         | 2.7                       | No                                | No       |
| R13      | 59.8                                          | 63.0         | 3.2                       | No                                | No       |
| R14      | 60.5                                          | 62.4         | 1.9                       | No                                | No       |
| R15      | 59.7                                          | 62.2         | 2.5                       | No                                | No       |
| R16      | 61.3                                          | 63.2         | 1.9                       | No                                | No       |
| R17      | 61.9                                          | 63.5         | 1.6                       | No                                | No       |
| R18      | 62.6                                          | 63.8         | 1.2                       | No                                | No       |
| R19      | 58.0                                          | 58.5         | 0.5                       | No                                | No       |
| R20      | 54.3                                          | 54.7         | 0.4                       | No                                | No       |
| R21      | 54.1                                          | 54.3         | 0.2                       | No                                | No       |
| R22      | 54.8                                          | 56.1         | 1.3                       | No                                | No       |
| R23      | 53.9                                          | 55.2         | 1.3                       | No                                | No       |
| R24      | 51.9                                          | 53.1         | 1.2                       | No                                | No       |
| R25      | 47.3                                          | 49.2         | 1.9                       | No                                | No       |
| R26      | 55.1                                          | 55.4         | 0.3                       | No                                | No       |
| R27      | 55.2                                          | 56.0         | 0.8                       | No                                | No       |
| R28      | 55.6                                          | 56.7         | 1.1                       | No                                | No       |
| R29      | 55.0                                          | 56.2         | 1.2                       | No                                | No       |
| R30      | 54.4                                          | 55.7         | 1.3                       | No                                | No       |
| R31      | 53.4                                          | 55.4         | 2.0                       | No                                | No       |
| R32      | 57.2                                          | 59.8         | 2.6                       | No                                | No       |

Notes to table: (1) Values from the assessment shall be rounded to the nearest whole number before the consideration of noise mitigation.

The results in **Table 9** and **Table 10** indicate that all receptors have predicted noise levels below 65 dBA, with overall noise level changes of less than 5 dB in both pavement scenarios. Therefore, a noise mitigation investigation is not warranted at any of the receptor locations in either pavement type scenarios.

## 5. Construction Noise

Construction noise is temporary in nature and will cease at the end of the construction activities; it can be a cause of disturbance to the surrounding noise sensitive areas. Although Ontario does not have any applicable regulatory noise level limits for construction noise impacts on NSAs, construction noise disturbance and potential for complaints can be reduced with the implementation of best practices and other noise control measures.

The MTO Guide requires that construction noise be controlled and mitigated. The responsibility of this is typically split between the construction contractor and contract administrator.

### **Construction Contractor Requirements**

Construction contractor requirements are normally set out in Special Provision No 199F33 and Special Provision No. 199F31.

Special Provision No. 199F33 is used to:

- Identify the extent of noise sensitive areas;
- Stipulate constraints on construction noise with respect to the Town of Greater Napanee noise control By-laws as follows:

While the Ministry does not require a by-law exemption, any work undertaken between 7:00 p.m. and 7:00 a.m. requires a temporary noise permit; submit an application for a permit to the Town Clerk or the Clerk's delegate to obtain an exemption from the By-law's prohibitions;
- Equipment shall comply with the sound emission standards for construction equipment outlined in Ministry of Environment, Conservation and Parks (MECP) publications NPC-115 and NPC-118 (contractor to confirm latest version by contacting MECP<sup>2</sup>), which are the following:
  - NPC-115: Construction Equipment;
  - NPC-118: Motorized Conveyances;
- Where feasible, equipment with broadband backup alarms instead of the tonal backup alarms/beepers shall be utilized;
- Equipment shall be maintained in an operating condition that prevents unnecessary noise, including but not limited to non-defective muffler systems, properly secured components, and the lubrication of moving parts;
- Idling of equipment shall be restricted to the minimum necessary to perform the specified work;
- Stationary equipment shall be located as far away from sensitive locations as feasible.

Special Provision No. 199F31, Environmental Exemptions and Permits, is used to set out notification requirements for operation of construction outside of noise By-law limits.

The contract administrator is required to:

- Setup a noise complaint process in accordance with the Ministry of Transportation's Environmental Guide for Noise;
- Investigate and address noise complaints in accordance with the Ministry Guide.

Some examples of best practices to be considered for the project include, but are not limited to:

- Avoid nighttime construction where possible;

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<sup>2</sup> Available from the Ontario Ministry of Environment, Conservation and Parks – Client Services and Information Branch or Environmental Assessment and Permissions Branch  
Phone: 416-314-8001 or 1-800-461-6290

- Use site layout where possible to screen nearby noise sensitive areas from loud construction activities, and where possible orient equipment noise emissions away from noise sensitive areas;
- Minimize the use of impact equipment;
- Consider lining metal bins/chutes with rubber to minimize sound of falling debris;
- Consider the use of localized mobile noise screens;
- Where multiple construction methods are available, consider using method with the lowest noise emissions.

## 6. Conclusions

AECOM was retained by the MTO to conduct a traffic noise assessment to inform the Napanee River Bridge Improvements Preliminary Design and Class EA Study (WP 4039-19-01). The results of the assessment indicate that the noise levels resulting from these improvements do not warrant further investigation into noise mitigation measures at any of the identified receptors. Recommendations to address construction noise are documented in Section 6.

## 7. References

1. AECOM, Palace Road Transportation Environment Study Report - Noise Impact Assessment, February 2019.
2. Ontario Ministry of Transportation, "Environmental Guide for Noise", February 2022.
3. Ontario Ministry of the Environment (now Ministry of the Environment, Conservation and Parks), Publication NPC-115: Construction Equipment.
4. Ontario Ministry of the Environment (now Ministry of the Environment, Conservation and Parks), Publication NPC-118: Motorized Conveyances.
5. Ontario Ministry of the Environment, Publication NPC-103: Procedures.
6. Town of Greater Napanee, By-law 2023-0043, retrieved May 2023.
7. Ministry of the Environment and Climate Change, Publication NPC-300 – Stationary and Transportation Sources – Approval and Planning



# Appendix A. Zoning Map

---



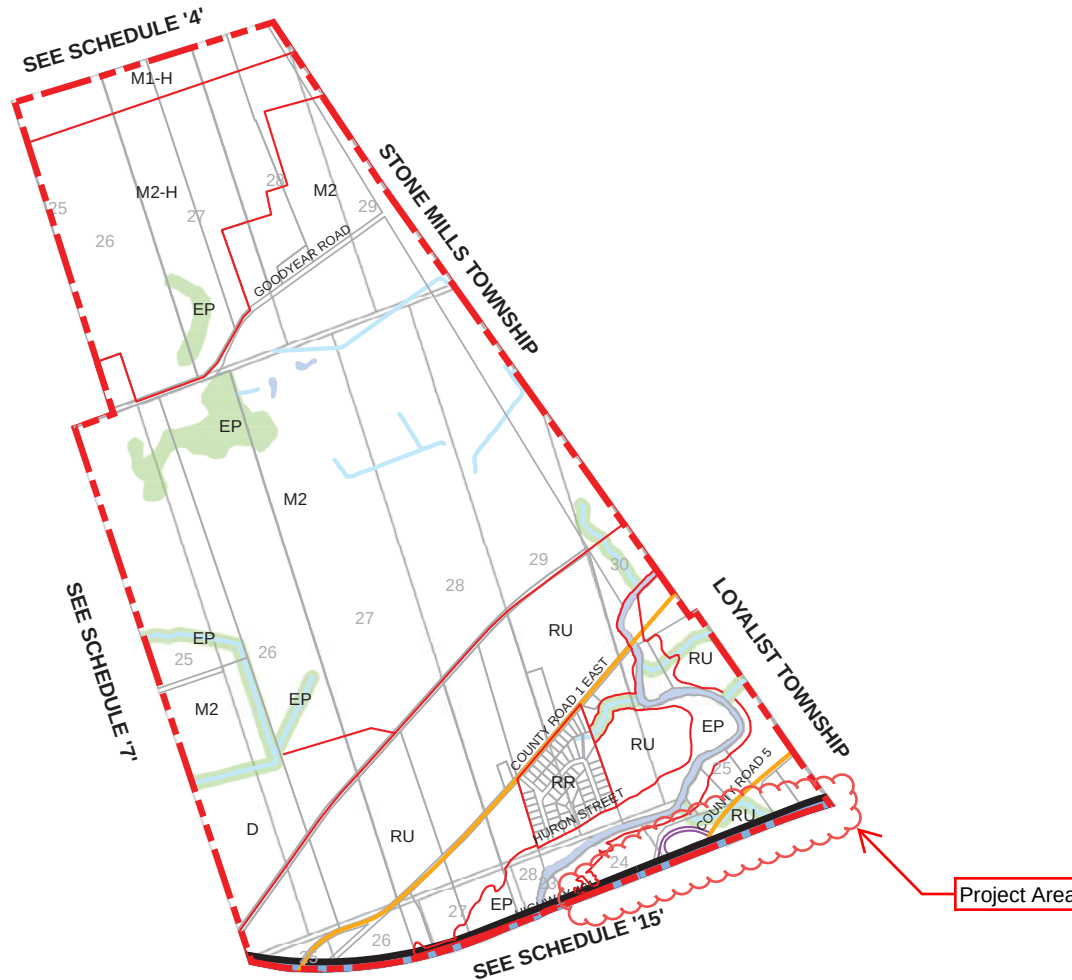
**SCHEDULE '8'**  
TO BY-LAW No. 02-22



Scale: 1:20,000

**ZONE LEGEND**

-  EP - ENVIRONMENTAL PROTECTION
- RU - RURAL
- RR - RURAL RESIDENTIAL
- M1 - LIGHT INDUSTRIAL
- M2 - GENERAL INDUSTRIAL
- D - FUTURE INDUSTRIAL
-  SCHEDULE BOUNDARY
-  HWY 401
-  HIGHWAY
-  RAMP
-  ARTERIAL
-  CN TRACKS
-  WATERBODY
-  WATERCOURSE



**MAP DETAILS**  
Projection: UTM Zone 18  
Datum: North American Datum 1983  
Map Created By: IBI Group  
Project: 39056  
Date: August 2017

THIS VERSION OF ZONING MAP IS PREPARED FOR REFERENCE PURPOSES ONLY AND SHOULD NOT BE USED AS SURVEY INFORMATION.



**IBI GROUP**  
650 Dalton Avenue  
Kingston ON K7M 8N7 Canada  
tel 613 531 4440 fax 613 531 7789  
[ibigroup.com](http://ibigroup.com)



## SCHEDULE '15' TO BY-LAW No. 02-22

0 185 370 740 1,110 1,480 Meters  
Scale: 1:15,000

### ZONE LEGEND

- EP - ENVIRONMENTAL PROTECTION
- OS - OPEN SPACE
- RU - RURAL
- RR - RURAL RESIDENTIAL
- R1 - RESIDENTIAL TYPE 1
- R4 - RESIDENTIAL TYPE 4
- R6 - RESIDENTIAL TYPE 6
- CF - COMMUNITY FACILITY
- C2 - ARTERIAL COMMERCIAL
- C4 - RURAL COMMERCIAL
- C6 - NEIGHBOURHOOD COMMERCIAL
- M4 - EXTRACTIVE INDUSTRIAL
- SCHEDULE BOUNDARY  
Sched\_15\_ORN\_Seg\_Rd\_clip
- HWY 401
- HIGHWAY
- RAMP
- ARTERIAL
- CN TRACKS
- WATERBODY
- WATERCOURSE

#### MAP DETAILS

Projection: UTM Zone 18  
Datum: North American Datum 1983  
Map Created By: IBI Group  
Project: 119763  
Date: April 2022

THIS VERSION OF ZONING MAP IS PREPARED FOR REFERENCE PURPOSES ONLY AND SHOULD NOT BE USED AS SURVEY INFORMATION.



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# Appendix B. Example Calculation

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REPORT:

**Sound-level Input: Receivers**

TNM VERSION:

3.2.8741.34338

REPORT DATE:

22 June 2026

CALCULATED WITH:

TNM v3.2.8741.34338

CALCULATION DATE:

2026-06-22 11:40:37 AM

CASE:

Hwy401-Ex

ORGANIZATION:

ANALYSIS BY:

PROJECT/CONTRACT:

| Receiver Name | Sequence Number | Nb. R.R. | Coordinates (ground) |            |        | Height above Ground | Input Sound Levels and Criteria |                    |                    |                      | Active in Calc. | Notes |
|---------------|-----------------|----------|----------------------|------------|--------|---------------------|---------------------------------|--------------------|--------------------|----------------------|-----------------|-------|
|               |                 |          |                      |            |        |                     | Existing LAeq                   | Absolute Criterion | Relative Criterion | Noise Reduction Goal |                 |       |
|               |                 |          | X [m]                | Y [m]      | Z [m]  |                     | [dBA]                           | [dBA]              | [dBA]              | [dBA]                |                 |       |
| R01           | 4               | 1        | 345233.70            | 4902599.00 | 91.70  | 1.50                | ---                             | 66                 | ---                | 8                    |                 |       |
| R02           | 5               | 1        | 345276.50            | 4902660.00 | 91.88  | 1.50                | ---                             | 66                 | ---                | 8                    |                 |       |
| R03           | 6               | 1        | 345327.60            | 4902730.00 | 92.30  | 1.50                | ---                             | 66                 | ---                | 8                    |                 |       |
| R04           | 7               | 1        | 345355.80            | 4902775.00 | 91.98  | 1.50                | ---                             | 66                 | ---                | 8                    |                 |       |
| R05           | 8               | 1        | 345405.30            | 4902819.00 | 90.88  | 1.50                | ---                             | 66                 | ---                | 8                    |                 |       |
| R06           | 9               | 1        | 345473.70            | 4902864.00 | 92.81  | 1.50                | ---                             | 66                 | ---                | 8                    |                 |       |
| R07           | 10              | 1        | 345540.00            | 4902923.00 | 95.27  | 1.50                | ---                             | 66                 | ---                | 8                    |                 |       |
| R08           | 11              | 1        | 345601.90            | 4902971.00 | 94.82  | 1.50                | ---                             | 66                 | ---                | 8                    |                 |       |
| R09           | 12              | 1        | 345681.90            | 4903054.00 | 95.62  | 1.50                | ---                             | 66                 | ---                | 8                    |                 |       |
| R10           | 13              | 1        | 345763.80            | 4903092.00 | 98.82  | 1.50                | ---                             | 66                 | ---                | 8                    |                 |       |
| R11           | 14              | 1        | 345814.80            | 4903168.00 | 97.05  | 1.50                | ---                             | 66                 | ---                | 8                    |                 |       |
| R12           | 15              | 1        | 345893.30            | 4903200.00 | 101.50 | 1.50                | ---                             | 66                 | ---                | 8                    |                 |       |
| R13           | 16              | 1        | 345942.60            | 4903227.00 | 103.23 | 1.50                | ---                             | 66                 | ---                | 8                    |                 |       |
| R14           | 17              | 1        | 346000.00            | 4903224.00 | 107.24 | 1.50                | ---                             | 66                 | ---                | 8                    |                 |       |
| R15           | 18              | 1        | 346041.00            | 4903250.00 | 106.55 | 1.50                | ---                             | 66                 | ---                | 8                    |                 |       |
| R16           | 19              | 1        | 346073.00            | 4903307.00 | 103.59 | 1.50                | ---                             | 66                 | ---                | 8                    |                 |       |
| R17           | 20              | 1        | 346135.20            | 4903341.00 | 106.84 | 1.50                | ---                             | 66                 | ---                | 8                    |                 |       |
| R18           | 21              | 1        | 346174.80            | 4903382.00 | 106.18 | 1.50                | ---                             | 66                 | ---                | 8                    |                 |       |
| R19           | 22              | 1        | 346795.50            | 4904001.00 | 109.21 | 1.50                | ---                             | 66                 | ---                | 8                    |                 |       |
| R20           | 23              | 1        | 346850.80            | 4904068.00 | 105.67 | 1.50                | ---                             | 66                 | ---                | 8                    |                 |       |
| R21           | 24              | 1        | 346936.70            | 4904100.00 | 110.21 | 1.50                | ---                             | 66                 | ---                | 8                    |                 |       |
| R22           | 25              | 1        | 346890.80            | 4904197.00 | 102.59 | 1.50                | ---                             | 66                 | ---                | 8                    |                 |       |
| R23           | 26              | 1        | 346954.00            | 4904252.00 | 104.43 | 1.50                | ---                             | 66                 | ---                | 8                    |                 |       |

|     |    |   |           |            |        |      |     |    |     |   |  |  |
|-----|----|---|-----------|------------|--------|------|-----|----|-----|---|--|--|
| R24 | 27 | 1 | 347021.60 | 4904190.00 | 115.43 | 1.50 | --- | 66 | --- | 8 |  |  |
| R25 | 28 | 1 | 347185.50 | 4904324.00 | 119.24 | 1.50 | --- | 66 | --- | 8 |  |  |
| R26 | 29 | 1 | 346036.80 | 4903870.00 | 87.18  | 1.50 | --- | 66 | --- | 8 |  |  |
| R27 | 30 | 1 | 345980.10 | 4903829.00 | 87.00  | 1.50 | --- | 66 | --- | 8 |  |  |
| R28 | 31 | 1 | 345939.10 | 4903805.00 | 87.00  | 1.50 | --- | 66 | --- | 8 |  |  |
| R29 | 32 | 1 | 345871.40 | 4903783.00 | 85.71  | 1.50 | --- | 66 | --- | 8 |  |  |
| R30 | 33 | 1 | 345767.50 | 4903744.00 | 84.00  | 1.50 | --- | 0  | --- | 8 |  |  |
| R31 | 34 | 1 | 345406.30 | 4903780.00 | 97.66  | 1.50 | --- | 0  | --- | 8 |  |  |
| R32 | 35 | 1 | 345248.80 | 4903450.00 | 88.53  | 1.50 | --- | 0  | --- | 8 |  |  |

|                  |                       |                   |                        |
|------------------|-----------------------|-------------------|------------------------|
| REPORT:          | <b>INPUT ROADWAYS</b> |                   |                        |
| TNM VERSION:     | 3.2.8741.34338        | REPORT DATE:      | 22 June 2026           |
| CALCULATED WITH: | TNM v3.2.8741.34338   | CALCULATION DATE: | 2026-06-22 11:40:37 AM |
| CASE:            | Hwy401-Ex             | ORGANIZATION:     |                        |
| ANALYSIS BY:     |                       | PROJECT/CONTRACT: |                        |

| Roadway<br>Name    | Roadway<br>Notes | Road Segment |        | Coordinates (pavement) |            |       | Width | Point<br>Notes | Road Segment     |                  |                 |
|--------------------|------------------|--------------|--------|------------------------|------------|-------|-------|----------------|------------------|------------------|-----------------|
|                    |                  | Start Point  |        |                        |            |       |       |                | Road<br>Category | Pavement<br>Type | On<br>Structure |
|                    |                  | Name         | Number | X                      | Y          | Z     | [m]   |                |                  |                  |                 |
| [m]                | [m]              |              |        | [m]                    | [m]        |       |       |                |                  |                  |                 |
| N/S-West of Hwy401 |                  | point1       | 1      | 346447.20              | 4903755.00 | 99.21 | 3.66  |                | Ramp             | Average          | No              |
|                    |                  | point2       | 2      | 346430.30              | 4903762.00 | 99.00 | 3.66  |                | Ramp             | Average          | No              |
|                    |                  | point3       | 3      | 346406.30              | 4903772.00 | 98.82 | 3.66  |                | Ramp             | Average          | No              |
|                    |                  | point4       | 4      | 346386.90              | 4903775.00 | 99.00 | 3.66  |                | Ramp             | Average          | No              |
|                    |                  | point5       | 5      | 346370.70              | 4903776.00 | 99.00 | 3.66  |                | Ramp             | Average          | No              |
|                    |                  | point6       | 6      | 346358.50              | 4903776.00 | 99.00 | 3.66  |                | Ramp             | Average          | No              |
|                    |                  | point7       | 7      | 346321.80              | 4903770.00 | 98.18 | 3.66  |                | Ramp             | Average          | No              |
|                    |                  | point8       | 8      | 346298.60              | 4903762.00 | 98.00 | 3.66  |                | Ramp             | Average          | No              |
|                    |                  | point9       | 9      | 346280.30              | 4903751.00 | 97.93 | 3.66  |                | Ramp             | Average          | No              |
|                    |                  | point10      | 10     | 346266.50              | 4903737.00 | 98.00 | 3.66  |                | Ramp             | Average          | No              |
|                    |                  | point11      | 11     | 346254.90              | 4903716.00 | 98.00 | 3.66  |                | Ramp             | Average          | No              |
|                    |                  | point12      | 12     | 346249.70              | 4903692.00 | 98.00 | 3.66  |                | Ramp             | Average          | No              |
|                    |                  | point13      | 13     | 346246.80              | 4903672.00 | 98.00 | 3.66  |                | Ramp             | Average          | No              |
|                    |                  | point14      | 14     | 346243.50              | 4903650.00 | 98.00 | 3.66  |                | Ramp             | Average          | No              |
|                    |                  | point15      | 15     | 346235.00              | 4903632.00 | 98.14 | 3.66  |                | Ramp             | Average          | No              |
|                    |                  | point16      | 16     | 346217.70              | 4903611.00 | 98.30 | 3.66  |                | Ramp             | Average          | No              |

| Roadway<br>Name             | Roadway<br>Notes | Road Segment |        | Coordinates (pavement) |            |        | Width | Point<br>Notes | Road Segment |          |           |
|-----------------------------|------------------|--------------|--------|------------------------|------------|--------|-------|----------------|--------------|----------|-----------|
|                             |                  | Start Point  |        |                        |            |        |       |                | Road         | Pavement | On        |
|                             |                  | Name         | Number | X                      | Y          | Z      |       |                | Category     | Type     | Structure |
|                             |                  |              |        | [m]                    | [m]        | [m]    | [m]   |                |              |          |           |
| N/S-West of Hwy401          |                  | point17      | 17     | 346189.50              | 4903594.00 | 97.21  | 3.66  |                | Ramp         | Average  | No        |
|                             |                  | point18      | 18     | 346163.90              | 4903583.00 | 96.38  | 3.66  |                | Ramp         | Average  | No        |
|                             |                  | point19      | 19     | 346130.50              | 4903569.00 | 95.17  | 3.66  |                | Ramp         | Average  | No        |
|                             |                  | point20      | 20     | 346099.40              | 4903557.00 | 94.16  | 3.66  |                | Ramp         | Average  | No        |
| SB Palace Rd North Terminus |                  | point9012    | 0      | 347223.40              | 4904431.00 | 115.47 | 3.66  |                | Mainline     | Average  | No        |
|                             |                  | point9013    | 284    | 347194.50              | 4904408.00 | 114.79 | 3.66  |                | Mainline     | Average  | No        |
|                             |                  | point9014    | 285    | 347170.00              | 4904391.00 | 113.37 | 3.66  |                | Mainline     | Average  | No        |
|                             |                  | point9015    | 286    | 347125.00              | 4904359.00 | 111.74 | 3.66  |                | Mainline     | Average  | No        |
|                             |                  | point9016    | 287    | 347067.60              | 4904320.00 | 109.45 | 3.66  |                | Mainline     | Average  | No        |
|                             |                  | point9017    | 288    | 347000.70              | 4904266.00 | 108.32 | 3.66  |                | Mainline     | Average  | No        |
|                             |                  | point9018    | 289    | 346930.30              | 4904207.00 | 105.79 | 3.66  |                | Mainline     | Average  | No        |
|                             |                  | point9019    | 290    | 346888.20              | 4904174.00 | 104.24 | 3.66  |                | Mainline     | Average  | No        |
|                             |                  | point9020    | 291    | 346863.60              | 4904153.00 | 102.55 | 3.66  |                | Mainline     | Average  | No        |
|                             |                  | point9021    | 292    | 346826.20              | 4904120.00 | 102.07 | 3.66  |                | Mainline     | Average  | No        |
|                             |                  | point9022    | 293    | 346796.10              | 4904096.00 | 103.28 | 3.66  |                | Mainline     | Average  | No        |
|                             |                  | point9023    | 294    | 346773.60              | 4904076.00 | 104.36 | 3.66  |                | Mainline     | Average  | No        |
|                             |                  | point9024    | 295    | 346739.10              | 4904050.00 | 100.47 | 3.66  |                | Mainline     | Average  | No        |
|                             |                  | point9025    | 296    | 346674.80              | 4903995.00 | 100.55 | 3.66  |                | Mainline     | Average  | No        |
|                             |                  | point67      | 34     | 346610.70              | 4903941.00 | 100.46 | 3.66  |                | Mainline     | Average  | No        |
|                             |                  | point66      | 35     | 346565.90              | 4903901.00 | 99.66  | 3.66  |                | Mainline     | Average  | No        |
|                             |                  | point65      | 36     | 346547.60              | 4903883.00 | 100.03 | 3.66  |                | Mainline     | Average  | No        |
|                             |                  | point64      | 37     | 346522.50              | 4903856.00 | 99.60  | 3.66  |                | Mainline     | Average  | No        |
|                             |                  | point63      | 38     | 346504.30              | 4903834.00 | 99.16  | 3.66  |                | Mainline     | Average  | No        |
|                             |                  | point62      | 39     | 346485.10              | 4903810.00 | 98.78  | 3.66  |                | Mainline     | Average  | No        |



| Roadway<br>Name                | Roadway<br>Notes | Road Segment |        | Coordinates (pavement) |            |        | Width | Point<br>Notes | Road Segment |          |           |
|--------------------------------|------------------|--------------|--------|------------------------|------------|--------|-------|----------------|--------------|----------|-----------|
|                                |                  | Start Point  |        |                        |            |        |       |                | Road         | Pavement | On        |
|                                |                  | Name         | Number | X                      | Y          | Z      |       |                | Category     | Type     | Structure |
|                                |                  |              |        | [m]                    | [m]        | [m]    | [m]   |                |              |          |           |
| SB Palace Rd<br>North Terminus |                  | point61      | 40     | 346460.80              | 4903773.00 | 99.43  | 3.66  |                | Mainline     | Average  | No        |
|                                |                  | point60      | 41     | 346445.60              | 4903744.00 | 99.00  | 3.66  |                | Mainline     | Average  | No        |
|                                |                  | point59      | 42     | 346435.80              | 4903719.00 | 99.00  | 3.66  |                | Mainline     | Average  | No        |
| Hwy401_WB_L<br>n1              |                  | point69      | 69     | 347528.90              | 4903941.00 | 132.00 | 3.66  |                | Mainline     | Average  | No        |
|                                |                  | point70      | 70     | 347449.60              | 4903940.00 | 132.00 | 3.66  |                | Mainline     | Average  | No        |
|                                |                  | point71      | 71     | 347289.30              | 4903933.00 | 131.39 | 3.66  |                | Mainline     | Average  | No        |
|                                |                  | point72      | 72     | 347239.40              | 4903929.00 | 130.61 | 3.66  |                | Mainline     | Average  | No        |
|                                |                  | point73      | 73     | 347195.00              | 4903923.00 | 129.56 | 3.66  |                | Mainline     | Average  | No        |
|                                |                  | point74      | 74     | 347155.40              | 4903918.00 | 128.56 | 3.66  |                | Mainline     | Average  | No        |
|                                |                  | point75      | 75     | 347120.00              | 4903912.00 | 127.57 | 3.66  |                | Mainline     | Average  | No        |
|                                |                  | point76      | 76     | 347087.90              | 4903906.00 | 126.45 | 3.66  |                | Mainline     | Average  | No        |
|                                |                  | point77      | 77     | 347058.30              | 4903901.00 | 125.59 | 3.66  |                | Mainline     | Average  | No        |
|                                |                  | point78      | 78     | 347022.20              | 4903892.00 | 124.47 | 3.66  |                | Mainline     | Average  | No        |
|                                |                  | point79      | 79     | 346999.20              | 4903887.00 | 123.84 | 3.66  |                | Mainline     | Average  | No        |
|                                |                  | point80      | 80     | 346961.30              | 4903877.00 | 122.57 | 3.66  |                | Mainline     | Average  | No        |
|                                |                  | point81      | 81     | 346933.50              | 4903869.00 | 121.67 | 3.66  |                | Mainline     | Average  | No        |
|                                |                  | point82      | 82     | 346902.20              | 4903860.00 | 120.61 | 3.66  |                | Mainline     | Average  | No        |
|                                |                  | point83      | 83     | 346870.90              | 4903850.00 | 119.54 | 3.66  |                | Mainline     | Average  | No        |
|                                |                  | point84      | 84     | 346837.30              | 4903838.00 | 118.32 | 3.66  |                | Mainline     | Average  | No        |
|                                |                  | point85      | 85     | 346798.40              | 4903823.00 | 117.00 | 3.66  |                | Mainline     | Average  | No        |
|                                |                  | point86      | 86     | 346775.10              | 4903815.00 | 116.66 | 3.66  |                | Mainline     | Average  | No        |
|                                |                  | point87      | 87     | 346745.80              | 4903803.00 | 115.68 | 3.66  |                | Mainline     | Average  | No        |
|                                |                  | point88      | 88     | 346711.00              | 4903789.00 | 114.56 | 3.66  |                | Mainline     | Average  | No        |
|                                |                  | point89      | 89     | 346681.90              | 4903778.00 | 113.64 | 3.66  |                | Mainline     | Average  | No        |

| Roadway<br>Name   | Roadway<br>Notes | Road Segment |        | Coordinates (pavement) |            |        | Width    | Point<br>Notes | Road Segment |           |     |
|-------------------|------------------|--------------|--------|------------------------|------------|--------|----------|----------------|--------------|-----------|-----|
|                   |                  | Start Point  |        |                        |            |        |          |                | Road         | Pavement  | On  |
|                   |                  | Name         | Number | X                      | Y          | Z      | Category |                | Type         | Structure |     |
|                   |                  |              |        | [m]                    | [m]        | [m]    | [m]      |                |              |           |     |
| Hwy401_WB_L<br>n1 |                  | point90      | 90     | 346649.70              | 4903766.00 | 112.45 | 3.66     |                | Mainline     | Average   | No  |
|                   |                  | point91      | 91     | 346612.20              | 4903750.00 | 111.26 | 3.66     |                | Mainline     | Average   | No  |
|                   |                  | point92      | 92     | 346587.30              | 4903741.00 | 110.56 | 3.66     |                | Mainline     | Average   | No  |
|                   |                  | point93      | 93     | 346557.40              | 4903729.00 | 109.42 | 3.66     |                | Mainline     | Average   | No  |
|                   |                  | point94      | 94     | 346527.90              | 4903717.00 | 108.36 | 3.66     |                | Mainline     | Average   | No  |
|                   |                  | point95      | 95     | 346497.20              | 4903705.00 | 107.31 | 3.66     |                | Mainline     | Average   | No  |
|                   |                  | point96      | 96     | 346457.00              | 4903689.00 | 106.23 | 3.66     |                | Mainline     | Average   | Yes |
|                   |                  | point97      | 97     | 346389.30              | 4903663.00 | 104.00 | 3.66     |                | Mainline     | Average   | Yes |
|                   |                  | point98      | 98     | 346363.60              | 4903652.00 | 103.18 | 3.66     |                | Mainline     | Average   | No  |
|                   |                  | point99      | 99     | 346336.60              | 4903643.00 | 102.43 | 3.66     |                | Mainline     | Average   | No  |
|                   |                  | point100     | 100    | 346313.60              | 4903634.00 | 101.57 | 3.66     |                | Mainline     | Average   | No  |
|                   |                  | point101     | 101    | 346283.10              | 4903621.00 | 100.31 | 3.66     |                | Mainline     | Average   | No  |
|                   |                  | point102     | 102    | 346250.90              | 4903609.00 | 99.51  | 3.66     |                | Mainline     | Average   | No  |
|                   |                  | point103     | 103    | 346219.90              | 4903596.00 | 98.60  | 3.66     |                | Mainline     | Average   | No  |
|                   |                  | point104     | 104    | 346187.70              | 4903584.00 | 97.38  | 3.66     |                | Mainline     | Average   | No  |
|                   |                  | point105     | 105    | 346149.80              | 4903569.00 | 96.24  | 3.66     |                | Mainline     | Average   | No  |
|                   |                  | point106     | 106    | 346124.10              | 4903558.00 | 95.40  | 3.66     |                | Mainline     | Average   | No  |
|                   |                  | point107     | 107    | 346097.10              | 4903547.00 | 94.46  | 3.66     |                | Mainline     | Average   | No  |
|                   |                  | point108     | 108    | 346065.30              | 4903535.00 | 93.30  | 3.66     |                | Mainline     | Average   | No  |
|                   |                  | point109     | 109    | 346035.60              | 4903523.00 | 92.32  | 3.66     |                | Mainline     | Average   | No  |
|                   |                  | point110     | 110    | 345998.20              | 4903507.00 | 91.27  | 3.66     |                | Mainline     | Average   | No  |
|                   |                  | point111     | 111    | 345972.80              | 4903498.00 | 90.54  | 3.66     |                | Mainline     | Average   | No  |
|                   |                  | point112     | 112    | 345950.90              | 4903490.00 | 90.00  | 3.66     |                | Mainline     | Average   | No  |
|                   |                  | point113     | 113    | 345930.80              | 4903484.00 | 90.00  | 3.66     |                | Mainline     | Average   | No  |

| Roadway<br>Name   | Roadway<br>Notes | Road Segment |        | Coordinates (pavement) |            |       | Width    | Point<br>Notes | Road Segment |           |     |
|-------------------|------------------|--------------|--------|------------------------|------------|-------|----------|----------------|--------------|-----------|-----|
|                   |                  | Start Point  |        |                        |            |       |          |                | Road         | Pavement  | On  |
|                   |                  | Name         | Number | X                      | Y          | Z     | Category |                | Type         | Structure |     |
|                   |                  |              |        | [m]                    | [m]        | [m]   |          |                |              |           | [m] |
| Hwy401_WB_L<br>n1 |                  | point114     | 114    | 345917.00              | 4903479.00 | 89.85 | 3.66     |                | Mainline     | Average   | No  |
|                   |                  | point115     | 115    | 345902.90              | 4903473.00 | 89.15 | 3.66     |                | Mainline     | Average   | No  |
|                   |                  | point116     | 116    | 345882.10              | 4903464.00 | 89.00 | 3.66     |                | Mainline     | Average   | No  |
|                   |                  | point117     | 117    | 345870.30              | 4903460.00 | 89.00 | 3.66     |                | Mainline     | Average   | No  |
|                   |                  | point118     | 118    | 345852.90              | 4903452.00 | 89.00 | 3.66     |                | Mainline     | Average   | No  |
|                   |                  | point119     | 119    | 345833.20              | 4903444.00 | 89.00 | 3.66     |                | Mainline     | Average   | No  |
|                   |                  | point120     | 120    | 345821.10              | 4903439.00 | 89.00 | 3.66     |                | Mainline     | Average   | No  |
|                   |                  | point121     | 121    | 345804.70              | 4903433.00 | 88.47 | 3.66     |                | Mainline     | Average   | No  |
|                   |                  | point122     | 122    | 345787.70              | 4903426.00 | 88.00 | 3.66     |                | Mainline     | Average   | No  |
|                   |                  | point123     | 123    | 345771.00              | 4903420.00 | 88.00 | 3.66     |                | Mainline     | Average   | No  |
|                   |                  | point124     | 124    | 345751.70              | 4903413.00 | 87.71 | 3.66     |                | Mainline     | Average   | No  |
|                   |                  | point125     | 125    | 345732.70              | 4903405.00 | 88.00 | 3.66     |                | Mainline     | Average   | No  |
|                   |                  | point126     | 126    | 345721.80              | 4903401.00 | 88.00 | 3.66     |                | Mainline     | Average   | No  |
|                   |                  | point127     | 127    | 345703.70              | 4903394.00 | 88.00 | 3.66     |                | Mainline     | Average   | No  |
|                   |                  | point128     | 128    | 345681.30              | 4903385.00 | 88.00 | 3.66     |                | Mainline     | Average   | No  |
|                   |                  | point129     | 129    | 345672.80              | 4903382.00 | 88.00 | 3.66     |                | Mainline     | Average   | No  |
|                   |                  | point130     | 130    | 345652.70              | 4903373.00 | 87.98 | 3.66     |                | Mainline     | Average   | No  |
|                   |                  | point131     | 131    | 345631.60              | 4903366.00 | 87.82 | 3.66     |                | Mainline     | Average   | No  |
|                   |                  | point132     | 132    | 345584.50              | 4903347.00 | 87.00 | 3.66     |                | Mainline     | Average   | No  |
|                   |                  | point133     | 133    | 345526.30              | 4903323.00 | 87.00 | 3.66     |                | Mainline     | Average   | No  |
|                   |                  | point134     | 134    | 345422.90              | 4903285.00 | 87.44 | 3.66     |                | Mainline     | Average   | No  |
|                   |                  | point135     | 135    | 345331.30              | 4903256.00 | 87.95 | 3.66     |                | Mainline     | Average   | No  |
|                   |                  | point136     | 136    | 345284.50              | 4903243.00 | 88.00 | 3.66     |                | Mainline     | Average   | No  |
|                   |                  | point137     | 137    | 345235.40              | 4903232.00 | 88.46 | 3.66     |                | Mainline     | Average   | No  |

| Roadway<br>Name   | Roadway<br>Notes | Road Segment |        | Coordinates (pavement) |            |        | Width    | Point<br>Notes | Road Segment |           |    |
|-------------------|------------------|--------------|--------|------------------------|------------|--------|----------|----------------|--------------|-----------|----|
|                   |                  | Start Point  |        |                        |            |        |          |                | Road         | Pavement  | On |
|                   |                  | Name         | Number | X                      | Y          | Z      | Category |                | Type         | Structure |    |
|                   |                  |              |        | [m]                    | [m]        | [m]    | [m]      |                |              |           |    |
| Hwy401_WB_L<br>n1 |                  | point138     | 138    | 345186.40              | 4903223.00 | 89.00  | 3.66     |                | Mainline     | Average   | No |
|                   |                  | point139     | 139    | 345153.80              | 4903217.00 | 89.28  | 3.66     |                | Mainline     | Average   | No |
|                   |                  | point140     | 140    | 345113.40              | 4903212.00 | 89.93  | 3.66     |                | Mainline     | Average   | No |
| Hwy401_WB_L<br>n2 |                  | point141     | 141    | 347528.30              | 4903945.00 | 132.00 | 3.66     |                | Mainline     | Average   | No |
|                   |                  | point142     | 142    | 347449.00              | 4903944.00 | 132.00 | 3.66     |                | Mainline     | Average   | No |
|                   |                  | point143     | 143    | 347288.60              | 4903937.00 | 131.37 | 3.66     |                | Mainline     | Average   | No |
|                   |                  | point144     | 144    | 347238.80              | 4903933.00 | 130.67 | 3.66     |                | Mainline     | Average   | No |
|                   |                  | point145     | 145    | 347194.40              | 4903927.00 | 129.65 | 3.66     |                | Mainline     | Average   | No |
|                   |                  | point146     | 146    | 347154.80              | 4903922.00 | 128.62 | 3.66     |                | Mainline     | Average   | No |
|                   |                  | point147     | 147    | 347119.40              | 4903916.00 | 127.73 | 3.66     |                | Mainline     | Average   | No |
|                   |                  | point148     | 148    | 347087.30              | 4903910.00 | 126.56 | 3.66     |                | Mainline     | Average   | No |
|                   |                  | point149     | 149    | 347057.70              | 4903905.00 | 125.68 | 3.66     |                | Mainline     | Average   | No |
|                   |                  | point150     | 150    | 347021.60              | 4903896.00 | 124.58 | 3.66     |                | Mainline     | Average   | No |
|                   |                  | point151     | 151    | 346998.60              | 4903891.00 | 123.82 | 3.66     |                | Mainline     | Average   | No |
|                   |                  | point152     | 152    | 346960.70              | 4903881.00 | 122.45 | 3.66     |                | Mainline     | Average   | No |
|                   |                  | point153     | 153    | 346932.90              | 4903873.00 | 121.43 | 3.66     |                | Mainline     | Average   | No |
|                   |                  | point154     | 154    | 346901.60              | 4903864.00 | 120.41 | 3.66     |                | Mainline     | Average   | No |
|                   |                  | point155     | 155    | 346870.20              | 4903854.00 | 119.38 | 3.66     |                | Mainline     | Average   | No |
|                   |                  | point156     | 156    | 346836.70              | 4903842.00 | 118.29 | 3.66     |                | Mainline     | Average   | No |
|                   |                  | point157     | 157    | 346797.80              | 4903827.00 | 117.00 | 3.66     |                | Mainline     | Average   | No |
|                   |                  | point158     | 158    | 346774.40              | 4903819.00 | 116.63 | 3.66     |                | Mainline     | Average   | No |
|                   |                  | point159     | 159    | 346745.20              | 4903807.00 | 115.74 | 3.66     |                | Mainline     | Average   | No |
|                   |                  | point160     | 160    | 346710.40              | 4903793.00 | 114.41 | 3.66     |                | Mainline     | Average   | No |
|                   |                  | point161     | 161    | 346681.30              | 4903782.00 | 113.49 | 3.66     |                | Mainline     | Average   | No |



| Roadway<br>Name   | Roadway<br>Notes | Road Segment |        | Coordinates (pavement) |            |        | Width | Point<br>Notes | Road Segment |          |           |
|-------------------|------------------|--------------|--------|------------------------|------------|--------|-------|----------------|--------------|----------|-----------|
|                   |                  | Start Point  |        |                        |            |        |       |                | Road         | Pavement | On        |
|                   |                  | Name         | Number | X                      | Y          | Z      |       |                | Category     | Type     | Structure |
|                   |                  |              |        | [m]                    | [m]        | [m]    | [m]   |                |              |          |           |
| Hwy401_WB_L<br>n2 |                  | point162     | 162    | 346649.10              | 4903770.00 | 112.44 | 3.66  |                | Mainline     | Average  | No        |
|                   |                  | point163     | 163    | 346611.60              | 4903754.00 | 111.16 | 3.66  |                | Mainline     | Average  | No        |
|                   |                  | point164     | 164    | 346586.70              | 4903745.00 | 110.41 | 3.66  |                | Mainline     | Average  | No        |
|                   |                  | point165     | 165    | 346556.80              | 4903733.00 | 109.32 | 3.66  |                | Mainline     | Average  | No        |
|                   |                  | point166     | 166    | 346527.30              | 4903721.00 | 108.33 | 3.66  |                | Mainline     | Average  | No        |
|                   |                  | point167     | 167    | 346496.50              | 4903709.00 | 107.18 | 3.66  |                | Mainline     | Average  | No        |
|                   |                  | point168     | 168    | 346456.30              | 4903693.00 | 106.17 | 3.66  |                | Mainline     | Average  | Yes       |
|                   |                  | point169     | 169    | 346388.70              | 4903667.00 | 104.00 | 3.66  |                | Mainline     | Average  | Yes       |
|                   |                  | point170     | 170    | 346362.90              | 4903656.00 | 103.15 | 3.66  |                | Mainline     | Average  | No        |
|                   |                  | point171     | 171    | 346336.00              | 4903647.00 | 102.47 | 3.66  |                | Mainline     | Average  | No        |
|                   |                  | point172     | 172    | 346313.00              | 4903638.00 | 101.60 | 3.66  |                | Mainline     | Average  | No        |
|                   |                  | point173     | 173    | 346282.40              | 4903625.00 | 100.21 | 3.66  |                | Mainline     | Average  | No        |
|                   |                  | point174     | 174    | 346250.20              | 4903613.00 | 99.41  | 3.66  |                | Mainline     | Average  | No        |
|                   |                  | point175     | 175    | 346219.30              | 4903600.00 | 98.47  | 3.66  |                | Mainline     | Average  | No        |
|                   |                  | point176     | 176    | 346187.00              | 4903588.00 | 97.34  | 3.66  |                | Mainline     | Average  | No        |
|                   |                  | point177     | 177    | 346149.20              | 4903573.00 | 96.16  | 3.66  |                | Mainline     | Average  | No        |
|                   |                  | point178     | 178    | 346123.50              | 4903562.00 | 95.29  | 3.66  |                | Mainline     | Average  | No        |
|                   |                  | point179     | 179    | 346096.50              | 4903551.00 | 94.29  | 3.66  |                | Mainline     | Average  | No        |
|                   |                  | point180     | 180    | 346064.70              | 4903539.00 | 93.19  | 3.66  |                | Mainline     | Average  | No        |
|                   |                  | point181     | 181    | 346034.90              | 4903527.00 | 92.25  | 3.66  |                | Mainline     | Average  | No        |
|                   |                  | point182     | 182    | 345997.50              | 4903511.00 | 91.17  | 3.66  |                | Mainline     | Average  | No        |
|                   |                  | point183     | 183    | 345972.30              | 4903502.00 | 90.38  | 3.66  |                | Mainline     | Average  | No        |
|                   |                  | point184     | 184    | 345950.20              | 4903494.00 | 90.00  | 3.66  |                | Mainline     | Average  | No        |
|                   |                  | point185     | 185    | 345930.20              | 4903488.00 | 90.00  | 3.66  |                | Mainline     | Average  | No        |

| Roadway<br>Name   | Roadway<br>Notes | Road Segment |        | Coordinates (pavement) |            |       | Width    | Point<br>Notes | Road Segment |           |     |
|-------------------|------------------|--------------|--------|------------------------|------------|-------|----------|----------------|--------------|-----------|-----|
|                   |                  | Start Point  |        |                        |            |       |          |                | Road         | Pavement  | On  |
|                   |                  | Name         | Number | X                      | Y          | Z     | Category |                | Type         | Structure |     |
|                   |                  |              |        | [m]                    | [m]        | [m]   |          |                |              |           | [m] |
| Hwy401_WB_L<br>n2 |                  | point186     | 186    | 345916.30              | 4903483.00 | 89.47 | 3.66     |                | Mainline     | Average   | No  |
|                   |                  | point187     | 187    | 345902.30              | 4903477.00 | 89.12 | 3.66     |                | Mainline     | Average   | No  |
|                   |                  | point188     | 188    | 345881.50              | 4903468.00 | 89.00 | 3.66     |                | Mainline     | Average   | No  |
|                   |                  | point189     | 189    | 345869.70              | 4903464.00 | 88.72 | 3.66     |                | Mainline     | Average   | No  |
|                   |                  | point190     | 190    | 345852.30              | 4903456.00 | 89.00 | 3.66     |                | Mainline     | Average   | No  |
|                   |                  | point191     | 191    | 345832.50              | 4903448.00 | 89.00 | 3.66     |                | Mainline     | Average   | No  |
|                   |                  | point192     | 192    | 345820.40              | 4903443.00 | 88.75 | 3.66     |                | Mainline     | Average   | No  |
|                   |                  | point193     | 193    | 345804.10              | 4903437.00 | 88.41 | 3.66     |                | Mainline     | Average   | No  |
|                   |                  | point194     | 194    | 345787.10              | 4903430.00 | 88.00 | 3.66     |                | Mainline     | Average   | No  |
|                   |                  | point195     | 195    | 345770.40              | 4903424.00 | 87.58 | 3.66     |                | Mainline     | Average   | No  |
|                   |                  | point196     | 196    | 345751.00              | 4903417.00 | 87.28 | 3.66     |                | Mainline     | Average   | No  |
|                   |                  | point197     | 197    | 345732.10              | 4903409.00 | 88.00 | 3.66     |                | Mainline     | Average   | No  |
|                   |                  | point198     | 198    | 345721.10              | 4903405.00 | 87.79 | 3.66     |                | Mainline     | Average   | No  |
|                   |                  | point199     | 199    | 345703.10              | 4903398.00 | 87.73 | 3.66     |                | Mainline     | Average   | No  |
|                   |                  | point200     | 200    | 345680.70              | 4903389.00 | 88.00 | 3.66     |                | Mainline     | Average   | No  |
|                   |                  | point201     | 201    | 345672.10              | 4903386.00 | 87.77 | 3.66     |                | Mainline     | Average   | No  |
|                   |                  | point202     | 202    | 345652.10              | 4903377.00 | 87.68 | 3.66     |                | Mainline     | Average   | No  |
|                   |                  | point203     | 203    | 345631.00              | 4903370.00 | 87.62 | 3.66     |                | Mainline     | Average   | No  |
|                   |                  | point204     | 204    | 345583.80              | 4903351.00 | 87.00 | 3.66     |                | Mainline     | Average   | No  |
|                   |                  | point205     | 205    | 345525.60              | 4903327.00 | 87.00 | 3.66     |                | Mainline     | Average   | No  |
|                   |                  | point206     | 206    | 345422.30              | 4903289.00 | 87.33 | 3.66     |                | Mainline     | Average   | No  |
|                   |                  | point207     | 207    | 345330.60              | 4903260.00 | 87.91 | 3.66     |                | Mainline     | Average   | No  |
|                   |                  | point208     | 208    | 345283.80              | 4903247.00 | 88.00 | 3.66     |                | Mainline     | Average   | No  |
|                   |                  | point209     | 209    | 345234.70              | 4903236.00 | 88.36 | 3.66     |                | Mainline     | Average   | No  |

| Roadway<br>Name          | Roadway<br>Notes | Road Segment |        | Coordinates (pavement) |            |        | Width | Point<br>Notes | Road Segment |          |           |
|--------------------------|------------------|--------------|--------|------------------------|------------|--------|-------|----------------|--------------|----------|-----------|
|                          |                  | Start Point  |        |                        |            |        |       |                | Road         | Pavement | On        |
|                          |                  | Name         | Number | X                      | Y          | Z      |       |                | Category     | Type     | Structure |
|                          |                  |              |        | [m]                    | [m]        | [m]    | [m]   |                |              |          |           |
| Hwy401_WB_L<br>n2        |                  | point210     | 210    | 345185.80              | 4903227.00 | 89.00  | 3.66  |                | Mainline     | Average  | No        |
|                          |                  | point211     | 211    | 345153.20              | 4903221.00 | 89.13  | 3.66  |                | Mainline     | Average  | No        |
|                          |                  | point212     | 212    | 345112.80              | 4903216.00 | 89.73  | 3.66  |                | Mainline     | Average  | No        |
| East of<br>Hwy401 to N/S |                  | point375     | 375    | 346629.50              | 4903765.00 | 111.71 | 3.66  |                | Ramp         | Average  | No        |
|                          |                  | point374     | 374    | 346616.90              | 4903761.00 | 111.29 | 3.66  |                | Ramp         | Average  | No        |
|                          |                  | point373     | 373    | 346585.90              | 4903749.00 | 110.24 | 3.66  |                | Ramp         | Average  | No        |
|                          |                  | point372     | 372    | 346562.90              | 4903739.00 | 109.46 | 3.66  |                | Ramp         | Average  | No        |
|                          |                  | point371     | 371    | 346533.60              | 4903728.00 | 108.42 | 3.66  |                | Ramp         | Average  | No        |
|                          |                  | point370     | 370    | 346512.30              | 4903720.00 | 108.00 | 3.66  |                | Ramp         | Average  | No        |
|                          |                  | point369     | 369    | 346487.00              | 4903709.00 | 107.00 | 3.66  |                | Ramp         | Average  | No        |
|                          |                  | point368     | 368    | 346465.70              | 4903701.00 | 106.27 | 3.66  |                | Ramp         | Average  | Yes       |
|                          |                  | point367     | 367    | 346402.90              | 4903677.00 | 104.00 | 3.66  |                | Ramp         | Average  | Yes       |
|                          |                  | point366     | 366    | 346387.20              | 4903672.00 | 103.66 | 3.66  |                | Ramp         | Average  | No        |
|                          |                  | point365     | 365    | 346371.20              | 4903667.00 | 103.29 | 3.66  |                | Ramp         | Average  | No        |
|                          |                  | point364     | 364    | 346354.50              | 4903662.00 | 102.58 | 3.66  |                | Ramp         | Average  | No        |
|                          |                  | point363     | 363    | 346336.70              | 4903658.00 | 102.25 | 3.66  |                | Ramp         | Average  | No        |
|                          |                  | point362     | 362    | 346313.10              | 4903656.00 | 101.31 | 3.66  |                | Ramp         | Average  | No        |
|                          |                  | point361     | 361    | 346297.40              | 4903658.00 | 100.00 | 3.66  |                | Ramp         | Average  | No        |
|                          |                  | point360     | 360    | 346275.10              | 4903672.00 | 99.00  | 3.66  |                | Ramp         | Average  | No        |
|                          |                  | point359     | 359    | 346264.20              | 4903690.00 | 98.00  | 3.66  |                | Ramp         | Average  | No        |
|                          |                  | point358     | 358    | 346265.40              | 4903710.00 | 98.00  | 3.66  |                | Ramp         | Average  | No        |
|                          |                  | point357     | 357    | 346269.00              | 4903720.00 | 98.00  | 3.66  |                | Ramp         | Average  | No        |
|                          |                  | point356     | 356    | 346280.50              | 4903734.00 | 98.00  | 3.66  |                | Ramp         | Average  | No        |
|                          |                  | point355     | 355    | 346294.70              | 4903744.00 | 98.00  | 3.66  |                | Ramp         | Average  | No        |

| Roadway<br>Name                 | Roadway<br>Notes | Road Segment |        | Coordinates (pavement) |            |        | Width    | Point<br>Notes | Road Segment |           |    |
|---------------------------------|------------------|--------------|--------|------------------------|------------|--------|----------|----------------|--------------|-----------|----|
|                                 |                  | Start Point  |        |                        |            |        |          |                | Road         | Pavement  | On |
|                                 |                  | Name         | Number | X                      | Y          | Z      | Category |                | Type         | Structure |    |
|                                 |                  |              |        | [m]                    | [m]        | [m]    | [m]      |                |              |           |    |
| East of Hwy401 to N/S           |                  | point354     | 354    | 346314.50              | 4903753.00 | 98.17  | 3.66     |                | Ramp         | Average   | No |
|                                 |                  | point353     | 353    | 346340.10              | 4903761.00 | 99.00  | 3.66     |                | Ramp         | Average   | No |
|                                 |                  | point352     | 352    | 346359.40              | 4903763.00 | 98.67  | 3.66     |                | Ramp         | Average   | No |
|                                 |                  | point351     | 351    | 346382.00              | 4903763.00 | 99.00  | 3.66     |                | Ramp         | Average   | No |
|                                 |                  | point350     | 350    | 346408.90              | 4903756.00 | 98.78  | 3.66     |                | Ramp         | Average   | No |
|                                 |                  | point349     | 349    | 346438.50              | 4903746.00 | 99.00  | 3.66     |                | Ramp         | Average   | No |
| West of Hwy401 to N/S Palace Rd |                  | point390     | 390    | 345928.80              | 4903459.00 | 89.25  | 3.66     |                | Ramp         | Average   | No |
|                                 |                  | point389     | 389    | 345942.40              | 4903465.00 | 90.00  | 3.66     |                | Ramp         | Average   | No |
|                                 |                  | point388     | 388    | 345951.80              | 4903469.00 | 89.82  | 3.66     |                | Ramp         | Average   | No |
|                                 |                  | point387     | 387    | 345975.90              | 4903478.00 | 90.39  | 3.66     |                | Ramp         | Average   | No |
|                                 |                  | point386     | 386    | 346006.90              | 4903490.00 | 91.00  | 3.66     |                | Ramp         | Average   | No |
|                                 |                  | point385     | 385    | 346045.50              | 4903505.00 | 92.55  | 3.66     |                | Ramp         | Average   | No |
|                                 |                  | point384     | 384    | 346071.70              | 4903515.00 | 93.53  | 3.66     |                | Ramp         | Average   | No |
|                                 |                  | point383     | 383    | 346108.30              | 4903527.00 | 94.39  | 3.66     |                | Ramp         | Average   | No |
|                                 |                  | point382     | 382    | 346135.40              | 4903537.00 | 95.45  | 3.66     |                | Ramp         | Average   | No |
|                                 |                  | point381     | 381    | 346166.50              | 4903546.00 | 96.63  | 3.66     |                | Ramp         | Average   | No |
|                                 |                  | point380     | 380    | 346188.00              | 4903550.00 | 97.26  | 3.66     |                | Ramp         | Average   | No |
|                                 |                  | point379     | 379    | 346205.20              | 4903548.00 | 97.76  | 3.66     |                | Ramp         | Average   | No |
|                                 |                  | point378     | 378    | 346226.00              | 4903545.00 | 98.63  | 3.66     |                | Ramp         | Average   | No |
|                                 |                  | point377     | 377    | 346243.80              | 4903534.00 | 99.45  | 3.66     |                | Ramp         | Average   | No |
|                                 |                  | point376     | 376    | 346257.10              | 4903518.00 | 100.00 | 3.66     |                | Ramp         | Average   | No |
| N/S-East of Hwy401              |                  | point391     | 391    | 346266.50              | 4903521.00 | 100.21 | 3.66     |                | Ramp         | Average   | No |
|                                 |                  | point392     | 392    | 346261.80              | 4903529.00 | 100.00 | 3.66     |                | Ramp         | Average   | No |



| Roadway<br>Name    | Roadway<br>Notes | Road Segment |        | Coordinates (pavement) |            |        | Width    | Point<br>Notes | Road Segment |           |     |
|--------------------|------------------|--------------|--------|------------------------|------------|--------|----------|----------------|--------------|-----------|-----|
|                    |                  | Start Point  |        |                        |            |        |          |                | Road         | Pavement  | On  |
|                    |                  | Name         | Number | X                      | Y          | Z      | Category |                | Type         | Structure |     |
|                    |                  |              |        | [m]                    | [m]        | [m]    | [m]      |                |              |           |     |
| N/S-East of Hwy401 |                  | point393     | 393    | 346254.90              | 4903546.00 | 99.64  | 3.66     |                | Ramp         | Average   | No  |
|                    |                  | point394     | 394    | 346253.50              | 4903559.00 | 99.35  | 3.66     |                | Ramp         | Average   | No  |
|                    |                  | point395     | 395    | 346264.50              | 4903580.00 | 99.72  | 3.66     |                | Ramp         | Average   | No  |
|                    |                  | point396     | 396    | 346295.00              | 4903601.00 | 100.54 | 3.66     |                | Ramp         | Average   | No  |
|                    |                  | point397     | 397    | 346322.40              | 4903613.00 | 101.47 | 3.66     |                | Ramp         | Average   | No  |
|                    |                  | point398     | 398    | 346348.80              | 4903624.00 | 102.42 | 3.66     |                | Ramp         | Average   | No  |
|                    |                  | point399     | 399    | 346379.40              | 4903636.00 | 103.24 | 3.66     |                | Ramp         | Average   | Yes |
|                    |                  | point400     | 400    | 346422.30              | 4903653.00 | 104.23 | 3.66     |                | Ramp         | Average   | Yes |
|                    |                  | point401     | 401    | 346438.90              | 4903659.00 | 105.31 | 3.66     |                | Ramp         | Average   | No  |
|                    |                  | point402     | 402    | 346465.30              | 4903670.00 | 106.52 | 3.66     |                | Ramp         | Average   | No  |
|                    |                  | point403     | 403    | 346493.90              | 4903681.00 | 107.64 | 3.66     |                | Ramp         | Average   | No  |
|                    |                  | point404     | 404    | 346527.30              | 4903694.00 | 108.74 | 3.66     |                | Ramp         | Average   | No  |
|                    |                  | point405     | 405    | 346562.80              | 4903708.00 | 109.47 | 3.66     |                | Ramp         | Average   | No  |
|                    |                  | point406     | 406    | 346594.10              | 4903720.00 | 110.70 | 3.66     |                | Ramp         | Average   | No  |
|                    |                  | point407     | 407    | 346623.30              | 4903731.00 | 111.34 | 3.66     |                | Ramp         | Average   | No  |
|                    |                  | point408     | 408    | 346654.40              | 4903744.00 | 112.36 | 3.66     |                | Ramp         | Average   | No  |
|                    |                  | point409     | 409    | 346681.80              | 4903755.00 | 113.36 | 3.66     |                | Ramp         | Average   | No  |
|                    |                  | point410     | 410    | 346712.00              | 4903768.00 | 114.23 | 3.66     |                | Ramp         | Average   | No  |
| Hwy401_EB_L n1     |                  | point546     | 546    | 345115.40              | 4903197.00 | 90.00  | 3.66     |                | Mainline     | Average   | No  |
|                    |                  | point545     | 545    | 345173.80              | 4903206.00 | 89.00  | 3.66     |                | Mainline     | Average   | No  |
|                    |                  | point544     | 544    | 345219.10              | 4903215.00 | 89.00  | 3.66     |                | Mainline     | Average   | No  |
|                    |                  | point543     | 543    | 345268.50              | 4903226.00 | 88.00  | 3.66     |                | Mainline     | Average   | No  |
|                    |                  | point542     | 542    | 345304.10              | 4903235.00 | 88.00  | 3.66     |                | Mainline     | Average   | No  |
|                    |                  | point541     | 541    | 345327.10              | 4903241.00 | 88.00  | 3.66     |                | Mainline     | Average   | No  |

| Roadway<br>Name   | Roadway<br>Notes | Road Segment |        | Coordinates (pavement) |            |       | Width    | Point<br>Notes | Road Segment |           |    |
|-------------------|------------------|--------------|--------|------------------------|------------|-------|----------|----------------|--------------|-----------|----|
|                   |                  | Start Point  |        |                        |            |       |          |                | Road         | Pavement  | On |
|                   |                  | Name         | Number | X                      | Y          | Z     | Category |                | Type         | Structure |    |
|                   |                  |              |        | [m]                    | [m]        | [m]   | [m]      |                |              |           |    |
| Hwy401_EB_L<br>n1 |                  | point540     | 540    | 345352.70              | 4903248.00 | 88.00 | 3.66     |                | Mainline     | Average   | No |
|                   |                  | point539     | 539    | 345380.30              | 4903256.00 | 87.94 | 3.66     |                | Mainline     | Average   | No |
|                   |                  | point538     | 538    | 345402.80              | 4903263.00 | 87.93 | 3.66     |                | Mainline     | Average   | No |
|                   |                  | point537     | 537    | 345453.10              | 4903280.00 | 87.43 | 3.66     |                | Mainline     | Average   | No |
|                   |                  | point536     | 536    | 345484.30              | 4903292.00 | 87.00 | 3.66     |                | Mainline     | Average   | No |
|                   |                  | point535     | 535    | 345544.70              | 4903315.00 | 87.00 | 3.66     |                | Mainline     | Average   | No |
|                   |                  | point534     | 534    | 345599.50              | 4903337.00 | 87.00 | 3.66     |                | Mainline     | Average   | No |
|                   |                  | point533     | 533    | 345647.70              | 4903356.00 | 87.75 | 3.66     |                | Mainline     | Average   | No |
|                   |                  | point532     | 532    | 345690.10              | 4903373.00 | 88.00 | 3.66     |                | Mainline     | Average   | No |
|                   |                  | point531     | 531    | 345739.40              | 4903392.00 | 88.00 | 3.66     |                | Mainline     | Average   | No |
|                   |                  | point530     | 530    | 345752.80              | 4903398.00 | 87.82 | 3.66     |                | Mainline     | Average   | No |
|                   |                  | point529     | 529    | 345771.40              | 4903405.00 | 88.00 | 3.66     |                | Mainline     | Average   | No |
|                   |                  | point528     | 528    | 345795.60              | 4903414.00 | 88.00 | 3.66     |                | Mainline     | Average   | No |
|                   |                  | point527     | 527    | 345807.20              | 4903419.00 | 88.77 | 3.66     |                | Mainline     | Average   | No |
|                   |                  | point526     | 526    | 345825.30              | 4903426.00 | 89.00 | 3.66     |                | Mainline     | Average   | No |
|                   |                  | point525     | 525    | 345867.90              | 4903443.00 | 89.00 | 3.66     |                | Mainline     | Average   | No |
|                   |                  | point524     | 524    | 345910.80              | 4903460.00 | 89.33 | 3.66     |                | Mainline     | Average   | No |
|                   |                  | point523     | 523    | 345945.40              | 4903474.00 | 90.00 | 3.66     |                | Mainline     | Average   | No |
|                   |                  | point522     | 522    | 345973.40              | 4903484.00 | 90.67 | 3.66     |                | Mainline     | Average   | No |
|                   |                  | point521     | 521    | 346003.00              | 4903496.00 | 91.04 | 3.66     |                | Mainline     | Average   | No |
|                   |                  | point520     | 520    | 346033.40              | 4903508.00 | 92.08 | 3.66     |                | Mainline     | Average   | No |
|                   |                  | point519     | 519    | 346071.20              | 4903523.00 | 93.69 | 3.66     |                | Mainline     | Average   | No |
|                   |                  | point518     | 518    | 346105.00              | 4903536.00 | 94.68 | 3.66     |                | Mainline     | Average   | No |
|                   |                  | point517     | 517    | 346133.70              | 4903547.00 | 95.76 | 3.66     |                | Mainline     | Average   | No |

| Roadway<br>Name   | Roadway<br>Notes | Road Segment |        | Coordinates (pavement) |            |        | Width    | Point<br>Notes | Road Segment |           |     |
|-------------------|------------------|--------------|--------|------------------------|------------|--------|----------|----------------|--------------|-----------|-----|
|                   |                  | Start Point  |        |                        |            |        |          |                | Road         | Pavement  | On  |
|                   |                  | Name         | Number | X                      | Y          | Z      | Category |                | Type         | Structure |     |
|                   |                  |              |        | [m]                    | [m]        | [m]    | [m]      |                |              |           |     |
| Hwy401_EB_L<br>n1 |                  | point516     | 516    | 346158.00              | 4903557.00 | 96.60  | 3.66     |                | Mainline     | Average   | No  |
|                   |                  | point515     | 515    | 346191.50              | 4903570.00 | 97.61  | 3.66     |                | Mainline     | Average   | No  |
|                   |                  | point514     | 514    | 346220.30              | 4903581.00 | 98.53  | 3.66     |                | Mainline     | Average   | No  |
|                   |                  | point513     | 513    | 346249.30              | 4903593.00 | 99.17  | 3.66     |                | Mainline     | Average   | No  |
|                   |                  | point512     | 512    | 346288.80              | 4903608.00 | 100.62 | 3.66     |                | Mainline     | Average   | No  |
|                   |                  | point511     | 511    | 346319.90              | 4903620.00 | 101.50 | 3.66     |                | Mainline     | Average   | No  |
|                   |                  | point510     | 510    | 346347.90              | 4903631.00 | 102.48 | 3.66     |                | Mainline     | Average   | No  |
|                   |                  | point509     | 509    | 346382.80              | 4903646.00 | 103.67 | 3.66     |                | Mainline     | Average   | Yes |
|                   |                  | point508     | 508    | 346461.20              | 4903676.00 | 106.38 | 3.66     |                | Mainline     | Average   | Yes |
|                   |                  | point507     | 507    | 346497.90              | 4903691.00 | 107.64 | 3.66     |                | Mainline     | Average   | No  |
|                   |                  | point506     | 506    | 346528.30              | 4903703.00 | 108.62 | 3.66     |                | Mainline     | Average   | No  |
|                   |                  | point505     | 505    | 346554.20              | 4903713.00 | 109.32 | 3.66     |                | Mainline     | Average   | No  |
|                   |                  | point504     | 504    | 346587.60              | 4903726.00 | 110.38 | 3.66     |                | Mainline     | Average   | No  |
|                   |                  | point503     | 503    | 346618.40              | 4903738.00 | 111.38 | 3.66     |                | Mainline     | Average   | No  |
|                   |                  | point502     | 502    | 346650.30              | 4903751.00 | 112.48 | 3.66     |                | Mainline     | Average   | No  |
|                   |                  | point501     | 501    | 346681.30              | 4903763.00 | 113.48 | 3.66     |                | Mainline     | Average   | No  |
|                   |                  | point500     | 500    | 346719.10              | 4903778.00 | 114.57 | 3.66     |                | Mainline     | Average   | No  |
|                   |                  | point499     | 499    | 346750.50              | 4903790.00 | 115.61 | 3.66     |                | Mainline     | Average   | No  |
|                   |                  | point498     | 498    | 346778.40              | 4903801.00 | 116.45 | 3.66     |                | Mainline     | Average   | No  |
|                   |                  | point497     | 497    | 346813.20              | 4903813.00 | 117.39 | 3.66     |                | Mainline     | Average   | No  |
|                   |                  | point496     | 496    | 346845.50              | 4903823.00 | 118.48 | 3.66     |                | Mainline     | Average   | No  |
|                   |                  | point495     | 495    | 346872.10              | 4903831.00 | 119.40 | 3.66     |                | Mainline     | Average   | No  |
|                   |                  | point494     | 494    | 346902.70              | 4903840.00 | 120.31 | 3.66     |                | Mainline     | Average   | No  |
|                   |                  | point493     | 493    | 346936.60              | 4903849.00 | 121.33 | 3.66     |                | Mainline     | Average   | No  |

| Roadway<br>Name   | Roadway<br>Notes | Road Segment |        | Coordinates (pavement) |            |        | Width    | Point<br>Notes | Road Segment |           |    |
|-------------------|------------------|--------------|--------|------------------------|------------|--------|----------|----------------|--------------|-----------|----|
|                   |                  | Start Point  |        |                        |            |        |          |                | Road         | Pavement  | On |
|                   |                  | Name         | Number | X                      | Y          | Z      | Category |                | Type         | Structure |    |
|                   |                  |              |        | [m]                    | [m]        | [m]    | [m]      |                |              |           |    |
| Hwy401_EB_L<br>n1 |                  | point492     | 492    | 346970.90              | 4903858.00 | 122.55 | 3.66     |                | Mainline     | Average   | No |
|                   |                  | point491     | 491    | 346995.40              | 4903863.00 | 123.27 | 3.66     |                | Mainline     | Average   | No |
|                   |                  | point490     | 490    | 347034.60              | 4903872.00 | 124.64 | 3.66     |                | Mainline     | Average   | No |
|                   |                  | point489     | 489    | 347070.70              | 4903878.00 | 125.79 | 3.66     |                | Mainline     | Average   | No |
|                   |                  | point488     | 488    | 347099.00              | 4903883.00 | 126.45 | 3.66     |                | Mainline     | Average   | No |
|                   |                  | point487     | 487    | 347134.40              | 4903888.00 | 128.00 | 3.66     |                | Mainline     | Average   | No |
|                   |                  | point486     | 486    | 347166.00              | 4903892.00 | 128.36 | 3.66     |                | Mainline     | Average   | No |
|                   |                  | point485     | 485    | 347201.40              | 4903896.00 | 129.23 | 3.66     |                | Mainline     | Average   | No |
|                   |                  | point484     | 484    | 347247.50              | 4903900.00 | 130.38 | 3.66     |                | Mainline     | Average   | No |
|                   |                  | point483     | 483    | 347309.90              | 4903902.00 | 131.94 | 3.66     |                | Mainline     | Average   | No |
|                   |                  | point482     | 482    | 347404.00              | 4903904.00 | 132.00 | 3.66     |                | Mainline     | Average   | No |
|                   |                  | point481     | 481    | 347449.20              | 4903905.00 | 132.00 | 3.66     |                | Mainline     | Average   | No |
|                   |                  | point480     | 480    | 347512.60              | 4903906.00 | 132.00 | 3.66     |                | Mainline     | Average   | No |
|                   |                  | point479     | 479    | 347528.50              | 4903906.00 | 132.00 | 3.66     |                | Mainline     | Average   | No |
| Hwy401_EB_L<br>n2 |                  | point614     | 614    | 345115.40              | 4903193.00 | 90.00  | 3.66     |                | Mainline     | Average   | No |
|                   |                  | point613     | 613    | 345173.80              | 4903202.00 | 89.10  | 3.66     |                | Mainline     | Average   | No |
|                   |                  | point612     | 612    | 345219.10              | 4903211.00 | 89.00  | 3.66     |                | Mainline     | Average   | No |
|                   |                  | point611     | 611    | 345268.50              | 4903222.00 | 88.00  | 3.66     |                | Mainline     | Average   | No |
|                   |                  | point610     | 610    | 345304.10              | 4903231.00 | 88.00  | 3.66     |                | Mainline     | Average   | No |
|                   |                  | point609     | 609    | 345327.10              | 4903237.00 | 88.00  | 3.66     |                | Mainline     | Average   | No |
|                   |                  | point608     | 608    | 345352.70              | 4903244.00 | 88.00  | 3.66     |                | Mainline     | Average   | No |
|                   |                  | point607     | 607    | 345380.30              | 4903253.00 | 88.00  | 3.66     |                | Mainline     | Average   | No |
|                   |                  | point606     | 606    | 345402.80              | 4903260.00 | 87.87  | 3.66     |                | Mainline     | Average   | No |
|                   |                  | point605     | 605    | 345453.10              | 4903277.00 | 87.51  | 3.66     |                | Mainline     | Average   | No |



| Roadway<br>Name   | Roadway<br>Notes | Road Segment |        | Coordinates (pavement) |            |       | Width | Point<br>Notes | Road Segment     |                  |                 |
|-------------------|------------------|--------------|--------|------------------------|------------|-------|-------|----------------|------------------|------------------|-----------------|
|                   |                  | Start Point  |        |                        |            |       |       |                | Road<br>Category | Pavement<br>Type | On<br>Structure |
|                   |                  | Name         | Number | X                      | Y          | Z     | [m]   |                |                  |                  |                 |
| Hwy401_EB_L<br>n2 |                  | point604     | 604    | 345484.30              | 4903288.00 | 87.00 | 3.66  |                | Mainline         | Average          | No              |
|                   |                  | point603     | 603    | 345544.70              | 4903312.00 | 87.00 | 3.66  |                | Mainline         | Average          | No              |
|                   |                  | point602     | 602    | 345599.50              | 4903334.00 | 87.00 | 3.66  |                | Mainline         | Average          | No              |
|                   |                  | point601     | 601    | 345647.70              | 4903353.00 | 87.50 | 3.66  |                | Mainline         | Average          | No              |
|                   |                  | point600     | 600    | 345690.10              | 4903370.00 | 87.97 | 3.66  |                | Mainline         | Average          | No              |
|                   |                  | point599     | 599    | 345739.40              | 4903389.00 | 87.94 | 3.66  |                | Mainline         | Average          | No              |
|                   |                  | point598     | 598    | 345752.80              | 4903394.00 | 87.60 | 3.66  |                | Mainline         | Average          | No              |
|                   |                  | point597     | 597    | 345771.40              | 4903402.00 | 88.00 | 3.66  |                | Mainline         | Average          | No              |
|                   |                  | point596     | 596    | 345795.60              | 4903411.00 | 88.00 | 3.66  |                | Mainline         | Average          | No              |
|                   |                  | point595     | 595    | 345807.20              | 4903415.00 | 88.57 | 3.66  |                | Mainline         | Average          | No              |
|                   |                  | point594     | 594    | 345825.30              | 4903423.00 | 89.00 | 3.66  |                | Mainline         | Average          | No              |
|                   |                  | point593     | 593    | 345867.90              | 4903440.00 | 89.00 | 3.66  |                | Mainline         | Average          | No              |
|                   |                  | point592     | 592    | 345910.80              | 4903457.00 | 89.22 | 3.66  |                | Mainline         | Average          | No              |
|                   |                  | point591     | 591    | 345945.40              | 4903470.00 | 90.00 | 3.66  |                | Mainline         | Average          | No              |
|                   |                  | point590     | 590    | 345973.40              | 4903481.00 | 90.55 | 3.66  |                | Mainline         | Average          | No              |
|                   |                  | point589     | 589    | 346003.00              | 4903492.00 | 91.00 | 3.66  |                | Mainline         | Average          | No              |
|                   |                  | point588     | 588    | 346033.40              | 4903504.00 | 92.00 | 3.66  |                | Mainline         | Average          | No              |
|                   |                  | point587     | 587    | 346071.20              | 4903519.00 | 93.62 | 3.66  |                | Mainline         | Average          | No              |
|                   |                  | point586     | 586    | 346105.00              | 4903533.00 | 94.58 | 3.66  |                | Mainline         | Average          | No              |
|                   |                  | point585     | 585    | 346133.70              | 4903543.00 | 95.66 | 3.66  |                | Mainline         | Average          | No              |
|                   |                  | point584     | 584    | 346158.00              | 4903553.00 | 96.60 | 3.66  |                | Mainline         | Average          | No              |
|                   |                  | point583     | 583    | 346191.50              | 4903566.00 | 97.64 | 3.66  |                | Mainline         | Average          | No              |
|                   |                  | point582     | 582    | 346220.30              | 4903577.00 | 98.36 | 3.66  |                | Mainline         | Average          | No              |
|                   |                  | point581     | 581    | 346249.30              | 4903589.00 | 99.11 | 3.66  |                | Mainline         | Average          | No              |

| Roadway<br>Name   | Roadway<br>Notes | Road Segment |        | Coordinates (pavement) |            |        | Width | Point<br>Notes | Road Segment     |                  |                 |
|-------------------|------------------|--------------|--------|------------------------|------------|--------|-------|----------------|------------------|------------------|-----------------|
|                   |                  | Start Point  |        |                        |            |        |       |                | Road<br>Category | Pavement<br>Type | On<br>Structure |
|                   |                  | Name         | Number | X                      | Y          | Z      |       |                |                  |                  |                 |
|                   |                  |              |        | [m]                    | [m]        | [m]    | [m]   |                |                  |                  |                 |
| Hwy401_EB_L<br>n2 |                  | point580     | 580    | 346288.80              | 4903605.00 | 100.58 | 3.66  |                | Mainline         | Average          | No              |
|                   |                  | point579     | 579    | 346319.90              | 4903617.00 | 101.50 | 3.66  |                | Mainline         | Average          | No              |
|                   |                  | point578     | 578    | 346347.90              | 4903628.00 | 102.40 | 3.66  |                | Mainline         | Average          | No              |
|                   |                  | point577     | 577    | 346382.80              | 4903642.00 | 103.53 | 3.66  |                | Mainline         | Average          | Yes             |
|                   |                  | point576     | 576    | 346461.20              | 4903672.00 | 106.38 | 3.66  |                | Mainline         | Average          | Yes             |
|                   |                  | point575     | 575    | 346497.90              | 4903687.00 | 107.68 | 3.66  |                | Mainline         | Average          | No              |
|                   |                  | point574     | 574    | 346528.30              | 4903699.00 | 108.68 | 3.66  |                | Mainline         | Average          | No              |
|                   |                  | point573     | 573    | 346554.20              | 4903709.00 | 109.26 | 3.66  |                | Mainline         | Average          | No              |
|                   |                  | point572     | 572    | 346587.60              | 4903723.00 | 110.38 | 3.66  |                | Mainline         | Average          | No              |
|                   |                  | point571     | 571    | 346618.40              | 4903734.00 | 111.29 | 3.66  |                | Mainline         | Average          | No              |
|                   |                  | point570     | 570    | 346650.30              | 4903747.00 | 112.38 | 3.66  |                | Mainline         | Average          | No              |
|                   |                  | point569     | 569    | 346681.30              | 4903759.00 | 113.42 | 3.66  |                | Mainline         | Average          | No              |
|                   |                  | point568     | 568    | 346719.10              | 4903774.00 | 114.45 | 3.66  |                | Mainline         | Average          | No              |
|                   |                  | point567     | 567    | 346750.50              | 4903786.00 | 115.54 | 3.66  |                | Mainline         | Average          | No              |
|                   |                  | point566     | 566    | 346778.40              | 4903797.00 | 116.35 | 3.66  |                | Mainline         | Average          | No              |
|                   |                  | point565     | 565    | 346813.20              | 4903809.00 | 117.30 | 3.66  |                | Mainline         | Average          | No              |
|                   |                  | point564     | 564    | 346845.50              | 4903820.00 | 118.41 | 3.66  |                | Mainline         | Average          | No              |
|                   |                  | point563     | 563    | 346872.10              | 4903828.00 | 119.31 | 3.66  |                | Mainline         | Average          | No              |
|                   |                  | point562     | 562    | 346902.70              | 4903836.00 | 120.23 | 3.66  |                | Mainline         | Average          | No              |
|                   |                  | point561     | 561    | 346936.60              | 4903845.00 | 121.33 | 3.66  |                | Mainline         | Average          | No              |
|                   |                  | point560     | 560    | 346970.90              | 4903854.00 | 122.55 | 3.66  |                | Mainline         | Average          | No              |
|                   |                  | point559     | 559    | 346995.40              | 4903860.00 | 123.27 | 3.66  |                | Mainline         | Average          | No              |
|                   |                  | point558     | 558    | 347034.60              | 4903868.00 | 124.68 | 3.66  |                | Mainline         | Average          | No              |
|                   |                  | point557     | 557    | 347070.70              | 4903875.00 | 125.86 | 3.66  |                | Mainline         | Average          | No              |

| Roadway<br>Name                   | Roadway<br>Notes | Road Segment |        | Coordinates (pavement) |            |        | Width    | Point<br>Notes | Road Segment |           |    |
|-----------------------------------|------------------|--------------|--------|------------------------|------------|--------|----------|----------------|--------------|-----------|----|
|                                   |                  | Start Point  |        |                        |            |        |          |                | Road         | Pavement  | On |
|                                   |                  | Name         | Number | X                      | Y          | Z      | Category |                | Type         | Structure |    |
|                                   |                  |              |        | [m]                    | [m]        | [m]    | [m]      |                |              |           |    |
| Hwy401_EB_L<br>n2                 |                  | point556     | 556    | 347099.00              | 4903880.00 | 126.45 | 3.66     |                | Mainline     | Average   | No |
|                                   |                  | point555     | 555    | 347134.40              | 4903885.00 | 128.00 | 3.66     |                | Mainline     | Average   | No |
|                                   |                  | point554     | 554    | 347166.00              | 4903889.00 | 128.29 | 3.66     |                | Mainline     | Average   | No |
|                                   |                  | point553     | 553    | 347201.40              | 4903892.00 | 129.19 | 3.66     |                | Mainline     | Average   | No |
|                                   |                  | point552     | 552    | 347247.50              | 4903896.00 | 130.32 | 3.66     |                | Mainline     | Average   | No |
|                                   |                  | point551     | 551    | 347309.90              | 4903898.00 | 132.00 | 3.66     |                | Mainline     | Average   | No |
|                                   |                  | point550     | 550    | 347404.00              | 4903901.00 | 132.00 | 3.66     |                | Mainline     | Average   | No |
|                                   |                  | point549     | 549    | 347449.20              | 4903902.00 | 132.00 | 3.66     |                | Mainline     | Average   | No |
|                                   |                  | point548     | 548    | 347512.60              | 4903902.00 | 132.00 | 3.66     |                | Mainline     | Average   | No |
|                                   |                  | point547     | 547    | 347528.50              | 4903903.00 | 132.00 | 3.66     |                | Mainline     | Average   | No |
| NB Palace Rd<br>South<br>Terminus |                  | point-1594   | 30     | 345237.60              | 4902527.00 | 92.68  | 3.66     |                | Mainline     | Average   | No |
|                                   |                  | point-1595   | 240    | 345258.50              | 4902565.00 | 93.73  | 3.66     |                | Mainline     | Average   | No |
|                                   |                  | point-1596   | 241    | 345281.00              | 4902602.00 | 93.73  | 3.66     |                | Mainline     | Average   | No |
|                                   |                  | point-1597   | 234    | 345305.70              | 4902640.00 | 93.50  | 3.66     |                | Mainline     | Average   | No |
|                                   |                  | point-1598   | 235    | 345330.30              | 4902672.00 | 93.34  | 3.66     |                | Mainline     | Average   | No |
|                                   |                  | point-1599   | 236    | 345346.30              | 4902693.00 | 93.67  | 3.66     |                | Mainline     | Average   | No |
|                                   |                  | point-1600   | 237    | 345364.40              | 4902713.00 | 94.76  | 3.66     |                | Mainline     | Average   | No |
|                                   |                  | point-1601   | 238    | 345386.30              | 4902737.00 | 95.66  | 3.66     |                | Mainline     | Average   | No |
|                                   |                  | point-1602   | 239    | 345410.50              | 4902761.00 | 96.05  | 3.66     |                | Mainline     | Average   | No |
|                                   |                  | point-1603   | 21     | 345442.80              | 4902789.00 | 95.98  | 3.66     |                | Mainline     | Average   | No |
|                                   |                  | point-1604   | 22     | 345473.20              | 4902815.00 | 96.29  | 3.66     |                | Mainline     | Average   | No |
|                                   |                  | point-1605   | 224    | 345505.00              | 4902840.00 | 96.94  | 3.66     |                | Mainline     | Average   | No |
|                                   |                  | point-1606   | 225    | 345539.60              | 4902865.00 | 97.95  | 3.66     |                | Mainline     | Average   | No |

| Roadway<br>Name                   | Roadway<br>Notes | Road Segment |        | Coordinates (pavement) |            |        | Width | Point<br>Notes | Road Segment |          |           |
|-----------------------------------|------------------|--------------|--------|------------------------|------------|--------|-------|----------------|--------------|----------|-----------|
|                                   |                  | Start Point  |        |                        |            |        |       |                | Road         | Pavement | On        |
|                                   |                  | Name         | Number | X                      | Y          | Z      |       |                | Category     | Type     | Structure |
|                                   |                  |              |        | [m]                    | [m]        | [m]    | [m]   |                |              |          |           |
| NB Palace Rd<br>South<br>Terminus |                  | point-1607   | 226    | 345570.20              | 4902891.00 | 97.60  | 3.66  |                | Mainline     | Average  | No        |
|                                   |                  | point-1608   | 227    | 345607.00              | 4902919.00 | 97.95  | 3.66  |                | Mainline     | Average  | No        |
|                                   |                  | point-1609   | 228    | 345631.10              | 4902939.00 | 98.70  | 3.66  |                | Mainline     | Average  | No        |
|                                   |                  | point-1610   | 229    | 345651.10              | 4902955.00 | 99.81  | 3.66  |                | Mainline     | Average  | No        |
|                                   |                  | point-1611   | 230    | 345677.30              | 4902975.00 | 101.14 | 3.66  |                | Mainline     | Average  | No        |
|                                   |                  | point-1612   | 231    | 345693.40              | 4902988.00 | 101.91 | 3.66  |                | Mainline     | Average  | No        |
|                                   |                  | point-1613   | 232    | 345717.50              | 4903007.00 | 103.03 | 3.66  |                | Mainline     | Average  | No        |
|                                   |                  | point-1614   | 233    | 345745.70              | 4903028.00 | 103.33 | 3.66  |                | Mainline     | Average  | No        |
|                                   |                  | point-1615   | 23     | 345775.50              | 4903051.00 | 103.07 | 3.66  |                | Mainline     | Average  | No        |
|                                   |                  | point-1616   | 24     | 345839.10              | 4903100.00 | 103.40 | 3.66  |                | Mainline     | Average  | No        |
|                                   |                  | point-1617   | 25     | 345873.30              | 4903128.00 | 103.02 | 3.66  |                | Mainline     | Average  | No        |
|                                   |                  | point-1618   | 26     | 345901.10              | 4903149.00 | 104.01 | 3.66  |                | Mainline     | Average  | No        |
|                                   |                  | point-1619   | 27     | 345944.60              | 4903183.00 | 105.55 | 3.66  |                | Mainline     | Average  | No        |
|                                   |                  | point-1620   | 28     | 345978.40              | 4903220.00 | 105.89 | 3.66  |                | Mainline     | Average  | No        |
|                                   |                  | point-1621   | 29     | 345996.00              | 4903240.00 | 104.35 | 3.66  |                | Mainline     | Average  | No        |
|                                   |                  | point-1622   | 31     | 346003.30              | 4903250.00 | 103.74 | 3.66  |                | Mainline     | Average  | No        |
|                                   |                  | point-122    | 59     | 346052.80              | 4903313.00 | 100.86 | 3.66  |                | Mainline     | Average  | No        |
|                                   |                  | point-121    | 60     | 346070.30              | 4903336.00 | 99.77  | 3.66  |                | Mainline     | Average  | No        |
|                                   |                  | point-120    | 61     | 346093.60              | 4903363.00 | 99.63  | 3.66  |                | Mainline     | Average  | No        |
|                                   |                  | point-119    | 62     | 346131.00              | 4903408.00 | 99.20  | 3.66  |                | Mainline     | Average  | No        |
|                                   |                  | point-118    | 63     | 346139.90              | 4903416.00 | 99.40  | 3.66  |                | Mainline     | Average  | No        |
|                                   |                  | point-117    | 64     | 346171.10              | 4903450.00 | 99.56  | 3.66  |                | Mainline     | Average  | No        |
|                                   |                  | point-116    | 65     | 346201.40              | 4903470.00 | 100.07 | 3.66  |                | Mainline     | Average  | No        |
|                                   |                  | point-115    | 66     | 346213.00              | 4903478.00 | 100.23 | 3.66  |                | Mainline     | Average  | No        |



| Roadway<br>Name                   | Roadway<br>Notes | Road Segment  |        | Coordinates (pavement) |            |        | Width    | Point<br>Notes | Road Segment |           |    |
|-----------------------------------|------------------|---------------|--------|------------------------|------------|--------|----------|----------------|--------------|-----------|----|
|                                   |                  | Start Point   |        |                        |            |        |          |                | Road         | Pavement  | On |
|                                   |                  | Name          | Number | X                      | Y          | Z      | Category |                | Type         | Structure |    |
|                                   |                  |               |        | [m]                    | [m]        | [m]    | [m]      |                |              |           |    |
| NB Palace Rd<br>South<br>Terminus |                  | point-114     | 67     | 346223.60              | 4903485.00 | 100.50 | 3.66     |                | Mainline     | Average   | No |
|                                   |                  | point-113     | 68     | 346267.80              | 4903512.00 | 100.62 | 3.66     |                | Mainline     | Average   | No |
|                                   |                  | point-112     | 32     | 346330.90              | 4903551.00 | 100.00 | 3.66     |                | Mainline     | Average   | No |
|                                   |                  | point-111     | 33     | 346384.40              | 4903604.00 | 99.04  | 3.66     |                | Mainline     | Average   | No |
|                                   |                  | point-110     | 43     | 346430.40              | 4903698.00 | 100.00 | 3.66     |                | Mainline     | Average   | No |
| SB Palace<br>Rd_South<br>Terminus |                  | point59       | 44     | 346435.80              | 4903719.00 | 99.00  | 3.66     |                | Mainline     | Average   | No |
|                                   |                  | point58       | 45     | 346427.50              | 4903701.00 | 99.89  | 3.66     |                | Mainline     | Average   | No |
|                                   |                  | point57       | 46     | 346381.40              | 4903607.00 | 99.00  | 3.66     |                | Mainline     | Average   | No |
|                                   |                  | point56       | 47     | 346327.90              | 4903555.00 | 100.00 | 3.66     |                | Mainline     | Average   | No |
|                                   |                  | point55       | 48     | 346264.90              | 4903516.00 | 100.37 | 3.66     |                | Mainline     | Average   | No |
|                                   |                  | point54       | 49     | 346220.70              | 4903488.00 | 100.16 | 3.66     |                | Mainline     | Average   | No |
|                                   |                  | point53       | 50     | 346210.10              | 4903481.00 | 99.91  | 3.66     |                | Mainline     | Average   | No |
|                                   |                  | point52       | 51     | 346198.50              | 4903474.00 | 100.00 | 3.66     |                | Mainline     | Average   | No |
|                                   |                  | point51       | 52     | 346168.20              | 4903453.00 | 99.33  | 3.66     |                | Mainline     | Average   | No |
|                                   |                  | point50       | 53     | 346137.00              | 4903420.00 | 99.21  | 3.66     |                | Mainline     | Average   | No |
|                                   |                  | point49       | 54     | 346128.10              | 4903411.00 | 99.00  | 3.66     |                | Mainline     | Average   | No |
|                                   |                  | point48       | 55     | 346090.70              | 4903367.00 | 99.34  | 3.66     |                | Mainline     | Average   | No |
|                                   |                  | point47       | 56     | 346067.40              | 4903339.00 | 99.46  | 3.66     |                | Mainline     | Average   | No |
|                                   |                  | point46       | 57     | 346049.90              | 4903317.00 | 100.57 | 3.66     |                | Mainline     | Average   | No |
|                                   |                  | POINT452<br>3 | 242    | 346021.90              | 4903282.00 | 101.60 | 3.66     |                | Mainline     | Average   | No |
|                                   |                  | POINT452<br>4 | 243    | 346008.20              | 4903263.00 | 102.74 | 3.66     |                | Mainline     | Average   | No |
|                                   |                  | POINT452<br>5 | 244    | 345993.30              | 4903245.00 | 103.81 | 3.66     |                | Mainline     | Average   | No |

| Roadway<br>Name                   | Roadway<br>Notes | Road Segment  |        | Coordinates (pavement) |            |        | Width    | Point<br>Notes | Road Segment |           |    |
|-----------------------------------|------------------|---------------|--------|------------------------|------------|--------|----------|----------------|--------------|-----------|----|
|                                   |                  | Start Point   |        |                        |            |        |          |                | Road         | Pavement  | On |
|                                   |                  | Name          | Number | X                      | Y          | Z      | Category |                | Type         | Structure |    |
|                                   |                  |               |        | [m]                    | [m]        | [m]    | [m]      |                |              |           |    |
| SB Palace<br>Rd_South<br>Terminus |                  | POINT452<br>6 | 245    | 345975.10              | 4903223.00 | 105.46 | 3.66     |                | Mainline     | Average   | No |
|                                   |                  | POINT452<br>7 | 246    | 345941.40              | 4903186.00 | 105.20 | 3.66     |                | Mainline     | Average   | No |
|                                   |                  | POINT452<br>8 | 247    | 345899.30              | 4903152.00 | 103.71 | 3.66     |                | Mainline     | Average   | No |
|                                   |                  | POINT452<br>9 | 248    | 345870.80              | 4903131.00 | 102.64 | 3.66     |                | Mainline     | Average   | No |
|                                   |                  | POINT453<br>0 | 249    | 345836.90              | 4903103.00 | 103.04 | 3.66     |                | Mainline     | Average   | No |
|                                   |                  | POINT453<br>1 | 250    | 345811.50              | 4903082.00 | 103.30 | 3.66     |                | Mainline     | Average   | No |
|                                   |                  | POINT453<br>2 | 251    | 345773.30              | 4903054.00 | 102.69 | 3.66     |                | Mainline     | Average   | No |
|                                   |                  | POINT453<br>3 | 252    | 345743.90              | 4903031.00 | 102.95 | 3.66     |                | Mainline     | Average   | No |
|                                   |                  | POINT453<br>4 | 253    | 345715.70              | 4903009.00 | 102.63 | 3.66     |                | Mainline     | Average   | No |
|                                   |                  | POINT453<br>5 | 254    | 345691.10              | 4902991.00 | 101.37 | 3.66     |                | Mainline     | Average   | No |
|                                   |                  | POINT453<br>6 | 255    | 345675.10              | 4902978.00 | 100.62 | 3.66     |                | Mainline     | Average   | No |
|                                   |                  | POINT453<br>7 | 256    | 345648.70              | 4902957.00 | 99.36  | 3.66     |                | Mainline     | Average   | No |
|                                   |                  | POINT453<br>8 | 257    | 345629.00              | 4902941.00 | 98.31  | 3.66     |                | Mainline     | Average   | No |
|                                   |                  | POINT453<br>9 | 258    | 345604.80              | 4902923.00 | 97.63  | 3.66     |                | Mainline     | Average   | No |
|                                   |                  | POINT454<br>0 | 259    | 345568.00              | 4902894.00 | 97.35  | 3.66     |                | Mainline     | Average   | No |
|                                   |                  | POINT454<br>1 | 260    | 345536.90              | 4902868.00 | 97.59  | 3.66     |                | Mainline     | Average   | No |
|                                   |                  | POINT454<br>2 | 261    | 345502.50              | 4902842.00 | 96.58  | 3.66     |                | Mainline     | Average   | No |
|                                   |                  | POINT454<br>3 | 262    | 345470.90              | 4902818.00 | 95.91  | 3.66     |                | Mainline     | Average   | No |

| Roadway<br>Name                   | Roadway<br>Notes | Road Segment |        | Coordinates (pavement) |            |        | Width    | Point<br>Notes | Road Segment |           |    |
|-----------------------------------|------------------|--------------|--------|------------------------|------------|--------|----------|----------------|--------------|-----------|----|
|                                   |                  | Start Point  |        |                        |            |        |          |                | Road         | Pavement  | On |
|                                   |                  | Name         | Number | X                      | Y          | Z      | Category |                | Type         | Structure |    |
|                                   |                  |              |        | [m]                    | [m]        | [m]    | [m]      |                |              |           |    |
| SB Palace<br>Rd_South<br>Terminus |                  | POINT4544    | 263    | 345440.40              | 4902792.00 | 95.48  | 3.66     |                | Mainline     | Average   | No |
|                                   |                  | POINT4545    | 264    | 345408.70              | 4902764.00 | 95.75  | 3.66     |                | Mainline     | Average   | No |
|                                   |                  | POINT4546    | 265    | 345384.10              | 4902740.00 | 95.40  | 3.66     |                | Mainline     | Average   | No |
|                                   |                  | POINT4547    | 266    | 345362.00              | 4902716.00 | 94.64  | 3.66     |                | Mainline     | Average   | No |
|                                   |                  | POINT4548    | 267    | 345343.50              | 4902695.00 | 93.50  | 3.66     |                | Mainline     | Average   | No |
|                                   |                  | POINT4549    | 268    | 345327.20              | 4902674.00 | 93.14  | 3.66     |                | Mainline     | Average   | No |
|                                   |                  | POINT4550    | 269    | 345310.50              | 4902652.00 | 93.33  | 3.66     |                | Mainline     | Average   | No |
|                                   |                  | POINT4551    | 270    | 345288.30              | 4902621.00 | 93.35  | 3.66     |                | Mainline     | Average   | No |
|                                   |                  | POINT4552    | 271    | 345272.10              | 4902597.00 | 93.65  | 3.66     |                | Mainline     | Average   | No |
|                                   |                  | POINT4553    | 272    | 345227.00              | 4902530.00 | 93.57  | 3.66     |                | Mainline     | Average   | No |
|                                   |                  |              |        |                        |            |        |          |                |              |           |    |
| NB Palace<br>Rd_North<br>Terminus |                  | point-100    | 58     | 346430.40              | 4903698.00 | 100.00 | 3.66     |                | Mainline     | Average   | No |
|                                   |                  | point-101    | 213    | 346438.70              | 4903716.00 | 99.22  | 3.66     |                | Mainline     | Average   | No |
|                                   |                  | point-102    | 214    | 346448.50              | 4903740.00 | 99.07  | 3.66     |                | Mainline     | Average   | No |
|                                   |                  | point-103    | 215    | 346463.70              | 4903770.00 | 99.56  | 3.66     |                | Mainline     | Average   | No |
|                                   |                  | point-104    | 216    | 346488.00              | 4903806.00 | 99.08  | 3.66     |                | Mainline     | Average   | No |
|                                   |                  | point-105    | 217    | 346507.20              | 4903830.00 | 99.39  | 3.66     |                | Mainline     | Average   | No |
|                                   |                  | point-106    | 218    | 346525.40              | 4903852.00 | 100.00 | 3.66     |                | Mainline     | Average   | No |
|                                   |                  | point-107    | 219    | 346550.50              | 4903879.00 | 100.26 | 3.66     |                | Mainline     | Average   | No |
|                                   |                  | point-108    | 220    | 346568.80              | 4903898.00 | 100.07 | 3.66     |                | Mainline     | Average   | No |
|                                   |                  | point-109    | 221    | 346613.60              | 4903937.00 | 100.75 | 3.66     |                | Mainline     | Average   | No |

| Roadway<br>Name                   | Roadway<br>Notes | Road Segment |        | Coordinates (pavement) |            |        | Width | Point<br>Notes | Road Segment     |                  |                 |
|-----------------------------------|------------------|--------------|--------|------------------------|------------|--------|-------|----------------|------------------|------------------|-----------------|
|                                   |                  | Start Point  |        |                        |            |        |       |                | Road<br>Category | Pavement<br>Type | On<br>Structure |
|                                   |                  | Name         | Number | X                      | Y          | Z      |       |                |                  |                  |                 |
|                                   |                  |              |        | [m]                    | [m]        | [m]    | [m]   |                |                  |                  |                 |
| NB Palace<br>Rd_North<br>Terminus |                  | point-1414   | 273    | 346677.70              | 4903991.00 | 100.81 | 3.66  |                | Mainline         | Average          | No              |
|                                   |                  | point-1415   | 274    | 346800.10              | 4904092.00 | 103.48 | 3.66  |                | Mainline         | Average          | No              |
|                                   |                  | point-1416   | 275    | 346828.40              | 4904117.00 | 102.29 | 3.66  |                | Mainline         | Average          | No              |
|                                   |                  | point-1417   | 276    | 346867.40              | 4904150.00 | 103.07 | 3.66  |                | Mainline         | Average          | No              |
|                                   |                  | point-1418   | 277    | 346889.90              | 4904170.00 | 104.72 | 3.66  |                | Mainline         | Average          | No              |
|                                   |                  | point-1419   | 278    | 346932.30              | 4904203.00 | 106.27 | 3.66  |                | Mainline         | Average          | No              |
|                                   |                  | point-1420   | 279    | 347003.40              | 4904262.00 | 108.95 | 3.66  |                | Mainline         | Average          | No              |
|                                   |                  | point-1421   | 280    | 347068.30              | 4904315.00 | 110.02 | 3.66  |                | Mainline         | Average          | No              |
|                                   |                  | point-1422   | 281    | 347127.50              | 4904356.00 | 112.32 | 3.66  |                | Mainline         | Average          | No              |
|                                   |                  | point-1423   | 282    | 347171.20              | 4904388.00 | 113.70 | 3.66  |                | Mainline         | Average          | No              |
|                                   |                  | point-1424   | 283    | 347197.20              | 4904406.00 | 115.06 | 3.66  |                | Mainline         | Average          | No              |
|                                   |                  | point-1425   | 222    | 347225.30              | 4904426.00 | 115.77 | 3.66  |                | Mainline         | Average          | No              |



## REPORT:

## INPUT TRAFFIC FOR TNM VEHICLES (LAeq)

TNM VERSION:

3.2.8741.34338

REPORT DATE:

22 June 2026

CALCULATED WITH:

TNM v3.2.8741.34338

CALCULATION DATE:

2026-06-22 11:40:37 AM

CASE:

Hwy401-Ex

ORGANIZATION:

ANALYSIS BY:

PROJECT/CONTRACT:

| Roadway<br>Name    | Road Segment<br>Start Point |     | Auto     |        | Medium Truck |        | Heavy Truck |        | Bus      |        | Motorcycle |        |
|--------------------|-----------------------------|-----|----------|--------|--------------|--------|-------------|--------|----------|--------|------------|--------|
|                    |                             |     | Volume   | Speed  | Volume       | Speed  | Volume      | Speed  | Volume   | Speed  | Volume     | Speed  |
|                    | Name                        | No. |          |        |              |        |             |        |          |        |            |        |
|                    |                             |     | [Veh/hr] | [km/h] | [Veh/hr]     | [km/h] | [Veh/hr]    | [km/h] | [Veh/hr] | [km/h] | [Veh/hr]   | [km/h] |
| N/S-West of Hwy401 | point1                      | 1   | 21       | 40     | 3            | 40     | 5           | 40     | 1        | 40     | 1          | 40     |
|                    | point2                      | 2   | 21       | 40     | 3            | 40     | 5           | 40     | 1        | 40     | 1          | 40     |
|                    | point3                      | 3   | 21       | 40     | 3            | 40     | 5           | 40     | 1        | 40     | 1          | 40     |
|                    | point4                      | 4   | 21       | 40     | 3            | 40     | 5           | 40     | 1        | 40     | 1          | 40     |
|                    | point5                      | 5   | 21       | 40     | 3            | 40     | 5           | 40     | 1        | 40     | 1          | 40     |
|                    | point6                      | 6   | 21       | 40     | 3            | 40     | 5           | 40     | 1        | 40     | 1          | 40     |
|                    | point7                      | 7   | 21       | 40     | 3            | 40     | 5           | 40     | 1        | 40     | 1          | 40     |
|                    | point8                      | 8   | 21       | 40     | 3            | 40     | 5           | 40     | 1        | 40     | 1          | 40     |
|                    | point9                      | 9   | 21       | 40     | 3            | 40     | 5           | 40     | 1        | 40     | 1          | 40     |
|                    | point10                     | 10  | 21       | 40     | 3            | 40     | 5           | 40     | 1        | 40     | 1          | 40     |
|                    | point11                     | 11  | 21       | 40     | 3            | 40     | 5           | 40     | 1        | 40     | 1          | 40     |
|                    | point12                     | 12  | 21       | 40     | 3            | 40     | 5           | 40     | 1        | 40     | 1          | 40     |
|                    | point13                     | 13  | 21       | 40     | 3            | 40     | 5           | 40     | 1        | 40     | 1          | 40     |
|                    | point14                     | 14  | 21       | 40     | 3            | 40     | 5           | 40     | 1        | 40     | 1          | 40     |
|                    | point15                     | 15  | 21       | 40     | 3            | 40     | 5           | 40     | 1        | 40     | 1          | 40     |
|                    | point16                     | 16  | 21       | 40     | 3            | 40     | 5           | 40     | 1        | 40     | 1          | 40     |

| Roadway<br>Name             | Road Segment<br>Start Point |     | Auto   |       | Medium Truck |       | Heavy Truck |       | Bus    |       | Motorcycle |       |
|-----------------------------|-----------------------------|-----|--------|-------|--------------|-------|-------------|-------|--------|-------|------------|-------|
|                             |                             |     | Volume | Speed | Volume       | Speed | Volume      | Speed | Volume | Speed | Volume     | Speed |
|                             | Name                        | No. |        |       |              |       |             |       |        |       |            |       |
|                             |                             |     |        |       |              |       |             |       |        |       |            |       |
| N/S-West of Hwy401          | point17                     | 17  | 21     | 40    | 3            | 40    | 5           | 40    | 1      | 40    | 1          | 40    |
|                             | point18                     | 18  | 21     | 40    | 3            | 40    | 5           | 40    | 1      | 40    | 1          | 40    |
|                             | point19                     | 19  | 21     | 40    | 3            | 40    | 5           | 40    | 1      | 40    | 1          | 40    |
|                             | point20                     | 20  | 21     | 40    | 3            | 40    | 5           | 40    | 1      | 40    | 1          | 40    |
| SB Palace Rd North Terminus | point9012                   | 0   | 47     | 60    | 2            | 60    | 2           | 60    | 1      | 60    | 1          | 60    |
|                             | point9013                   | 284 | 47     | 60    | 2            | 60    | 2           | 60    | 1      | 60    | 1          | 60    |
|                             | point9014                   | 285 | 47     | 60    | 2            | 60    | 2           | 60    | 1      | 60    | 1          | 60    |
|                             | point9015                   | 286 | 47     | 60    | 2            | 60    | 2           | 60    | 1      | 60    | 1          | 60    |
|                             | point9016                   | 287 | 47     | 60    | 2            | 60    | 2           | 60    | 1      | 60    | 1          | 60    |
|                             | point9017                   | 288 | 47     | 60    | 2            | 60    | 2           | 60    | 1      | 60    | 1          | 60    |
|                             | point9018                   | 289 | 47     | 60    | 2            | 60    | 2           | 60    | 1      | 60    | 1          | 60    |
|                             | point9019                   | 290 | 47     | 60    | 2            | 60    | 2           | 60    | 1      | 60    | 1          | 60    |
|                             | point9020                   | 291 | 47     | 60    | 2            | 60    | 2           | 60    | 1      | 60    | 1          | 60    |
|                             | point9021                   | 292 | 47     | 60    | 2            | 60    | 2           | 60    | 1      | 60    | 1          | 60    |
|                             | point9022                   | 293 | 47     | 60    | 2            | 60    | 2           | 60    | 1      | 60    | 1          | 60    |
|                             | point9023                   | 294 | 47     | 60    | 2            | 60    | 2           | 60    | 1      | 60    | 1          | 60    |
|                             | point9024                   | 295 | 47     | 60    | 2            | 60    | 2           | 60    | 1      | 60    | 1          | 60    |
|                             | point9025                   | 296 | 47     | 60    | 2            | 60    | 2           | 60    | 1      | 60    | 1          | 60    |
|                             | point67                     | 34  | 47     | 60    | 2            | 60    | 2           | 60    | 1      | 60    | 1          | 60    |
|                             | point66                     | 35  | 47     | 60    | 2            | 60    | 2           | 60    | 1      | 60    | 1          | 60    |
|                             | point65                     | 36  | 47     | 60    | 2            | 60    | 2           | 60    | 1      | 60    | 1          | 60    |
|                             | point64                     | 37  | 47     | 60    | 2            | 60    | 2           | 60    | 1      | 60    | 1          | 60    |
|                             | point63                     | 38  | 47     | 60    | 2            | 60    | 2           | 60    | 1      | 60    | 1          | 60    |
|                             | point62                     | 39  | 47     | 60    | 2            | 60    | 2           | 60    | 1      | 60    | 1          | 60    |

| Roadway<br>Name                | Road Segment<br>Start Point |     | Auto   |       | Medium Truck |       | Heavy Truck |       | Bus    |       | Motorcycle |       |
|--------------------------------|-----------------------------|-----|--------|-------|--------------|-------|-------------|-------|--------|-------|------------|-------|
|                                |                             |     | Volume | Speed | Volume       | Speed | Volume      | Speed | Volume | Speed | Volume     | Speed |
|                                | Name                        | No. |        |       |              |       |             |       |        |       |            |       |
|                                |                             |     |        |       |              |       |             |       |        |       |            |       |
| SB Palace Rd<br>North Terminus | point61                     | 40  | 47     | 60    | 2            | 60    | 2           | 60    | 1      | 60    | 1          | 60    |
|                                | point60                     | 41  | 47     | 60    | 2            | 60    | 2           | 60    | 1      | 60    | 1          | 60    |
|                                | point59                     | 42  | 47     | 60    | 2            | 60    | 2           | 60    | 1      | 60    | 1          | 60    |
| Hwy401_WB_L<br>n1              | point69                     | 69  | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                                | point70                     | 70  | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                                | point71                     | 71  | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                                | point72                     | 72  | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                                | point73                     | 73  | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                                | point74                     | 74  | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                                | point75                     | 75  | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                                | point76                     | 76  | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                                | point77                     | 77  | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                                | point78                     | 78  | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                                | point79                     | 79  | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                                | point80                     | 80  | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                                | point81                     | 81  | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                                | point82                     | 82  | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                                | point83                     | 83  | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                                | point84                     | 84  | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                                | point85                     | 85  | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                                | point86                     | 86  | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                                | point87                     | 87  | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                                | point88                     | 88  | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                                | point89                     | 89  | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |

| Roadway<br>Name   | Road Segment<br>Start Point |     | Auto   |       | Medium Truck |       | Heavy Truck |       | Bus    |       | Motorcycle |       |
|-------------------|-----------------------------|-----|--------|-------|--------------|-------|-------------|-------|--------|-------|------------|-------|
|                   |                             |     | Volume | Speed | Volume       | Speed | Volume      | Speed | Volume | Speed | Volume     | Speed |
|                   | Name                        | No. |        |       |              |       |             |       |        |       |            |       |
|                   |                             |     |        |       |              |       |             |       |        |       |            |       |
| Hwy401_WB_L<br>n1 | point90                     | 90  | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point91                     | 91  | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point92                     | 92  | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point93                     | 93  | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point94                     | 94  | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point95                     | 95  | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point96                     | 96  | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point97                     | 97  | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point98                     | 98  | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point99                     | 99  | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point100                    | 100 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point101                    | 101 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point102                    | 102 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point103                    | 103 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point104                    | 104 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point105                    | 105 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point106                    | 106 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point107                    | 107 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point108                    | 108 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point109                    | 109 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point110                    | 110 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point111                    | 111 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point112                    | 112 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point113                    | 113 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |



| Roadway<br>Name   | Road Segment<br>Start Point |     | Auto   |       | Medium Truck |       | Heavy Truck |       | Bus    |       | Motorcycle |       |
|-------------------|-----------------------------|-----|--------|-------|--------------|-------|-------------|-------|--------|-------|------------|-------|
|                   |                             |     | Volume | Speed | Volume       | Speed | Volume      | Speed | Volume | Speed | Volume     | Speed |
|                   | Name                        | No. |        |       |              |       |             |       |        |       |            |       |
|                   |                             |     |        |       |              |       |             |       |        |       |            |       |
| Hwy401_WB_L<br>n1 | point114                    | 114 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point115                    | 115 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point116                    | 116 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point117                    | 117 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point118                    | 118 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point119                    | 119 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point120                    | 120 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point121                    | 121 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point122                    | 122 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point123                    | 123 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point124                    | 124 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point125                    | 125 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point126                    | 126 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point127                    | 127 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point128                    | 128 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point129                    | 129 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point130                    | 130 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point131                    | 131 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point132                    | 132 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point133                    | 133 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
| point134          | 134                         | 448 | 110    | 35    | 110          | 106   | 110         | 1     | 110    | 1     | 110        |       |
| point135          | 135                         | 448 | 110    | 35    | 110          | 106   | 110         | 1     | 110    | 1     | 110        |       |
| point136          | 136                         | 448 | 110    | 35    | 110          | 106   | 110         | 1     | 110    | 1     | 110        |       |
| point137          | 137                         | 448 | 110    | 35    | 110          | 106   | 110         | 1     | 110    | 1     | 110        |       |

| Roadway<br>Name   | Road Segment<br>Start Point |     | Auto   |       | Medium Truck |       | Heavy Truck |       | Bus    |       | Motorcycle |       |
|-------------------|-----------------------------|-----|--------|-------|--------------|-------|-------------|-------|--------|-------|------------|-------|
|                   |                             |     | Volume | Speed | Volume       | Speed | Volume      | Speed | Volume | Speed | Volume     | Speed |
|                   | Name                        | No. |        |       |              |       |             |       |        |       |            |       |
|                   |                             |     |        |       |              |       |             |       |        |       |            |       |
| Hwy401_WB_L<br>n1 | point138                    | 138 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point139                    | 139 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point140                    | 140 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
| Hwy401_WB_L<br>n2 | point141                    | 141 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point142                    | 142 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point143                    | 143 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point144                    | 144 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point145                    | 145 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point146                    | 146 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point147                    | 147 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point148                    | 148 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point149                    | 149 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point150                    | 150 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point151                    | 151 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point152                    | 152 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point153                    | 153 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point154                    | 154 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point155                    | 155 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point156                    | 156 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point157                    | 157 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point158                    | 158 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point159                    | 159 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point160                    | 160 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point161                    | 161 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |

| Roadway<br>Name   | Road Segment<br>Start Point |     | Auto   |       | Medium Truck |       | Heavy Truck |       | Bus    |       | Motorcycle |       |
|-------------------|-----------------------------|-----|--------|-------|--------------|-------|-------------|-------|--------|-------|------------|-------|
|                   |                             |     | Volume | Speed | Volume       | Speed | Volume      | Speed | Volume | Speed | Volume     | Speed |
|                   | Name                        | No. |        |       |              |       |             |       |        |       |            |       |
|                   |                             |     |        |       |              |       |             |       |        |       |            |       |
| Hwy401_WB_L<br>n2 | point162                    | 162 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point163                    | 163 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point164                    | 164 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point165                    | 165 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point166                    | 166 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point167                    | 167 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point168                    | 168 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point169                    | 169 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point170                    | 170 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point171                    | 171 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point172                    | 172 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point173                    | 173 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point174                    | 174 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point175                    | 175 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point176                    | 176 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point177                    | 177 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point178                    | 178 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point179                    | 179 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point180                    | 180 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point181                    | 181 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point182                    | 182 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point183                    | 183 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point184                    | 184 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point185                    | 185 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |

| Roadway<br>Name   | Road Segment<br>Start Point |     | Auto   |       | Medium Truck |       | Heavy Truck |       | Bus    |       | Motorcycle |       |
|-------------------|-----------------------------|-----|--------|-------|--------------|-------|-------------|-------|--------|-------|------------|-------|
|                   |                             |     | Volume | Speed | Volume       | Speed | Volume      | Speed | Volume | Speed | Volume     | Speed |
|                   | Name                        | No. |        |       |              |       |             |       |        |       |            |       |
|                   |                             |     |        |       |              |       |             |       |        |       |            |       |
| Hwy401_WB_L<br>n2 | point186                    | 186 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point187                    | 187 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point188                    | 188 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point189                    | 189 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point190                    | 190 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point191                    | 191 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point192                    | 192 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point193                    | 193 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point194                    | 194 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point195                    | 195 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point196                    | 196 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point197                    | 197 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point198                    | 198 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point199                    | 199 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point200                    | 200 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point201                    | 201 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point202                    | 202 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point203                    | 203 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point204                    | 204 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
|                   | point205                    | 205 | 448    | 110   | 35           | 110   | 106         | 110   | 1      | 110   | 1          | 110   |
| point206          | 206                         | 448 | 110    | 35    | 110          | 106   | 110         | 1     | 110    | 1     | 110        |       |
| point207          | 207                         | 448 | 110    | 35    | 110          | 106   | 110         | 1     | 110    | 1     | 110        |       |
| point208          | 208                         | 448 | 110    | 35    | 110          | 106   | 110         | 1     | 110    | 1     | 110        |       |
| point209          | 209                         | 448 | 110    | 35    | 110          | 106   | 110         | 1     | 110    | 1     | 110        |       |



| Roadway<br>Name          | Road Segment<br>Start Point |     | Auto     |        | Medium Truck |        | Heavy Truck |        | Bus      |        | Motorcycle |        |
|--------------------------|-----------------------------|-----|----------|--------|--------------|--------|-------------|--------|----------|--------|------------|--------|
|                          |                             |     | Volume   | Speed  | Volume       | Speed  | Volume      | Speed  | Volume   | Speed  | Volume     | Speed  |
|                          | Name                        | No. | [Veh/hr] | [km/h] | [Veh/hr]     | [km/h] | [Veh/hr]    | [km/h] | [Veh/hr] | [km/h] | [Veh/hr]   | [km/h] |
|                          |                             |     |          |        |              |        |             |        |          |        |            |        |
| Hwy401_WB_L<br>n2        | point210                    | 210 | 448      | 110    | 35           | 110    | 106         | 110    | 1        | 110    | 1          | 110    |
|                          | point211                    | 211 | 448      | 110    | 35           | 110    | 106         | 110    | 1        | 110    | 1          | 110    |
|                          | point212                    | 212 | 448      | 110    | 35           | 110    | 106         | 110    | 1        | 110    | 1          | 110    |
| East of<br>Hwy401 to N/S | point375                    | 375 | 58       | 30     | 1            | 30     | 2           | 30     | 1        | 30     | 1          | 30     |
|                          | point374                    | 374 | 58       | 30     | 1            | 30     | 2           | 30     | 1        | 30     | 1          | 30     |
|                          | point373                    | 373 | 58       | 30     | 1            | 30     | 2           | 30     | 1        | 30     | 1          | 30     |
|                          | point372                    | 372 | 58       | 30     | 1            | 30     | 2           | 30     | 1        | 30     | 1          | 30     |
|                          | point371                    | 371 | 58       | 30     | 1            | 30     | 2           | 30     | 1        | 30     | 1          | 30     |
|                          | point370                    | 370 | 58       | 30     | 1            | 30     | 2           | 30     | 1        | 30     | 1          | 30     |
|                          | point369                    | 369 | 58       | 30     | 1            | 30     | 2           | 30     | 1        | 30     | 1          | 30     |
|                          | point368                    | 368 | 58       | 30     | 1            | 30     | 2           | 30     | 1        | 30     | 1          | 30     |
|                          | point367                    | 367 | 58       | 30     | 1            | 30     | 2           | 30     | 1        | 30     | 1          | 30     |
|                          | point366                    | 366 | 58       | 30     | 1            | 30     | 2           | 30     | 1        | 30     | 1          | 30     |
|                          | point365                    | 365 | 58       | 30     | 1            | 30     | 2           | 30     | 1        | 30     | 1          | 30     |
|                          | point364                    | 364 | 58       | 30     | 1            | 30     | 2           | 30     | 1        | 30     | 1          | 30     |
|                          | point363                    | 363 | 58       | 30     | 1            | 30     | 2           | 30     | 1        | 30     | 1          | 30     |
|                          | point362                    | 362 | 58       | 30     | 1            | 30     | 2           | 30     | 1        | 30     | 1          | 30     |
|                          | point361                    | 361 | 58       | 30     | 1            | 30     | 2           | 30     | 1        | 30     | 1          | 30     |
|                          | point360                    | 360 | 58       | 30     | 1            | 30     | 2           | 30     | 1        | 30     | 1          | 30     |
|                          | point359                    | 359 | 58       | 30     | 1            | 30     | 2           | 30     | 1        | 30     | 1          | 30     |
|                          | point358                    | 358 | 58       | 30     | 1            | 30     | 2           | 30     | 1        | 30     | 1          | 30     |
|                          | point357                    | 357 | 58       | 30     | 1            | 30     | 2           | 30     | 1        | 30     | 1          | 30     |
|                          | point356                    | 356 | 58       | 30     | 1            | 30     | 2           | 30     | 1        | 30     | 1          | 30     |
|                          | point355                    | 355 | 58       | 30     | 1            | 30     | 2           | 30     | 1        | 30     | 1          | 30     |

| Roadway<br>Name                 | Road Segment<br>Start Point |     | Auto   |       | Medium Truck |       | Heavy Truck |       | Bus    |       | Motorcycle |       |
|---------------------------------|-----------------------------|-----|--------|-------|--------------|-------|-------------|-------|--------|-------|------------|-------|
|                                 |                             |     | Volume | Speed | Volume       | Speed | Volume      | Speed | Volume | Speed | Volume     | Speed |
|                                 | Name                        | No. |        |       |              |       |             |       |        |       |            |       |
|                                 |                             |     |        |       |              |       |             |       |        |       |            |       |
| East of Hwy401 to N/S           | point354                    | 354 | 58     | 30    | 1            | 30    | 2           | 30    | 1      | 30    | 1          | 30    |
|                                 | point353                    | 353 | 58     | 30    | 1            | 30    | 2           | 30    | 1      | 30    | 1          | 30    |
|                                 | point352                    | 352 | 58     | 30    | 1            | 30    | 2           | 30    | 1      | 30    | 1          | 30    |
|                                 | point351                    | 351 | 58     | 30    | 1            | 30    | 2           | 30    | 1      | 30    | 1          | 30    |
|                                 | point350                    | 350 | 58     | 30    | 1            | 30    | 2           | 30    | 1      | 30    | 1          | 30    |
|                                 | point349                    | 349 | 58     | 30    | 1            | 30    | 2           | 30    | 1      | 30    | 1          | 30    |
| West of Hwy401 to N/S Palace Rd | point390                    | 390 | 18     | 30    | 4            | 30    | 6           | 30    | 1      | 30    | 1          | 30    |
|                                 | point389                    | 389 | 18     | 30    | 4            | 30    | 6           | 30    | 1      | 30    | 1          | 30    |
|                                 | point388                    | 388 | 18     | 30    | 4            | 30    | 6           | 30    | 1      | 30    | 1          | 30    |
|                                 | point387                    | 387 | 18     | 30    | 4            | 30    | 6           | 30    | 1      | 30    | 1          | 30    |
|                                 | point386                    | 386 | 18     | 30    | 4            | 30    | 6           | 30    | 1      | 30    | 1          | 30    |
|                                 | point385                    | 385 | 18     | 30    | 4            | 30    | 6           | 30    | 1      | 30    | 1          | 30    |
|                                 | point384                    | 384 | 18     | 30    | 4            | 30    | 6           | 30    | 1      | 30    | 1          | 30    |
|                                 | point383                    | 383 | 18     | 30    | 4            | 30    | 6           | 30    | 1      | 30    | 1          | 30    |
|                                 | point382                    | 382 | 18     | 30    | 4            | 30    | 6           | 30    | 1      | 30    | 1          | 30    |
|                                 | point381                    | 381 | 18     | 30    | 4            | 30    | 6           | 30    | 1      | 30    | 1          | 30    |
|                                 | point380                    | 380 | 18     | 30    | 4            | 30    | 6           | 30    | 1      | 30    | 1          | 30    |
|                                 | point379                    | 379 | 18     | 30    | 4            | 30    | 6           | 30    | 1      | 30    | 1          | 30    |
|                                 | point378                    | 378 | 18     | 30    | 4            | 30    | 6           | 30    | 1      | 30    | 1          | 30    |
|                                 | point377                    | 377 | 18     | 30    | 4            | 30    | 6           | 30    | 1      | 30    | 1          | 30    |
|                                 | point376                    | 376 | 18     | 30    | 4            | 30    | 6           | 30    | 1      | 30    | 1          | 30    |
| N/S-East of Hwy401              | point391                    | 391 | 56     | 40    | 1            | 40    | 2           | 40    | 1      | 40    | 1          | 40    |
|                                 | point392                    | 392 | 56     | 40    | 1            | 40    | 2           | 40    | 1      | 40    | 1          | 40    |

| Roadway<br>Name    | Road Segment<br>Start Point |     | Auto     |        | Medium Truck |        | Heavy Truck |        | Bus      |        | Motorcycle |        |
|--------------------|-----------------------------|-----|----------|--------|--------------|--------|-------------|--------|----------|--------|------------|--------|
|                    |                             |     | Volume   | Speed  | Volume       | Speed  | Volume      | Speed  | Volume   | Speed  | Volume     | Speed  |
|                    | Name                        | No. | [Veh/hr] | [km/h] | [Veh/hr]     | [km/h] | [Veh/hr]    | [km/h] | [Veh/hr] | [km/h] | [Veh/hr]   | [km/h] |
|                    |                             |     |          |        |              |        |             |        |          |        |            |        |
| N/S-East of Hwy401 | point393                    | 393 | 56       | 40     | 1            | 40     | 2           | 40     | 1        | 40     | 1          | 40     |
|                    | point394                    | 394 | 56       | 40     | 1            | 40     | 2           | 40     | 1        | 40     | 1          | 40     |
|                    | point395                    | 395 | 56       | 40     | 1            | 40     | 2           | 40     | 1        | 40     | 1          | 40     |
|                    | point396                    | 396 | 56       | 40     | 1            | 40     | 2           | 40     | 1        | 40     | 1          | 40     |
|                    | point397                    | 397 | 56       | 40     | 1            | 40     | 2           | 40     | 1        | 40     | 1          | 40     |
|                    | point398                    | 398 | 56       | 40     | 1            | 40     | 2           | 40     | 1        | 40     | 1          | 40     |
|                    | point399                    | 399 | 56       | 40     | 1            | 40     | 2           | 40     | 1        | 40     | 1          | 40     |
|                    | point400                    | 400 | 56       | 40     | 1            | 40     | 2           | 40     | 1        | 40     | 1          | 40     |
|                    | point401                    | 401 | 56       | 40     | 1            | 40     | 2           | 40     | 1        | 40     | 1          | 40     |
|                    | point402                    | 402 | 56       | 40     | 1            | 40     | 2           | 40     | 1        | 40     | 1          | 40     |
|                    | point403                    | 403 | 56       | 40     | 1            | 40     | 2           | 40     | 1        | 40     | 1          | 40     |
|                    | point404                    | 404 | 56       | 40     | 1            | 40     | 2           | 40     | 1        | 40     | 1          | 40     |
|                    | point405                    | 405 | 56       | 40     | 1            | 40     | 2           | 40     | 1        | 40     | 1          | 40     |
|                    | point406                    | 406 | 56       | 40     | 1            | 40     | 2           | 40     | 1        | 40     | 1          | 40     |
|                    | point407                    | 407 | 56       | 40     | 1            | 40     | 2           | 40     | 1        | 40     | 1          | 40     |
|                    | point408                    | 408 | 56       | 40     | 1            | 40     | 2           | 40     | 1        | 40     | 1          | 40     |
|                    | point409                    | 409 | 56       | 40     | 1            | 40     | 2           | 40     | 1        | 40     | 1          | 40     |
|                    | point410                    | 410 | 56       | 40     | 1            | 40     | 2           | 40     | 1        | 40     | 1          | 40     |
| Hwy401_EB_L n1     | point546                    | 546 | 440      | 110    | 35           | 110    | 104         | 110    | 1        | 110    | 1          | 110    |
|                    | point545                    | 545 | 440      | 110    | 35           | 110    | 104         | 110    | 1        | 110    | 1          | 110    |
|                    | point544                    | 544 | 440      | 110    | 35           | 110    | 104         | 110    | 1        | 110    | 1          | 110    |
|                    | point543                    | 543 | 440      | 110    | 35           | 110    | 104         | 110    | 1        | 110    | 1          | 110    |
|                    | point542                    | 542 | 440      | 110    | 35           | 110    | 104         | 110    | 1        | 110    | 1          | 110    |
|                    | point541                    | 541 | 440      | 110    | 35           | 110    | 104         | 110    | 1        | 110    | 1          | 110    |

| Roadway<br>Name   | Road Segment<br>Start Point |     | Auto   |       | Medium Truck |       | Heavy Truck |       | Bus    |       | Motorcycle |       |
|-------------------|-----------------------------|-----|--------|-------|--------------|-------|-------------|-------|--------|-------|------------|-------|
|                   |                             |     | Volume | Speed | Volume       | Speed | Volume      | Speed | Volume | Speed | Volume     | Speed |
|                   | Name                        | No. |        |       |              |       |             |       |        |       |            |       |
|                   |                             |     |        |       |              |       |             |       |        |       |            |       |
| Hwy401_EB_L<br>n1 | point540                    | 540 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point539                    | 539 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point538                    | 538 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point537                    | 537 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point536                    | 536 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point535                    | 535 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point534                    | 534 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point533                    | 533 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point532                    | 532 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point531                    | 531 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point530                    | 530 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point529                    | 529 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point528                    | 528 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point527                    | 527 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point526                    | 526 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point525                    | 525 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point524                    | 524 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point523                    | 523 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point522                    | 522 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point521                    | 521 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point520                    | 520 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point519                    | 519 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point518                    | 518 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point517                    | 517 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |

| Roadway<br>Name   | Road Segment<br>Start Point |     | Auto   |       | Medium Truck |       | Heavy Truck |       | Bus    |       | Motorcycle |       |
|-------------------|-----------------------------|-----|--------|-------|--------------|-------|-------------|-------|--------|-------|------------|-------|
|                   |                             |     | Volume | Speed | Volume       | Speed | Volume      | Speed | Volume | Speed | Volume     | Speed |
|                   | Name                        | No. |        |       |              |       |             |       |        |       |            |       |
|                   |                             |     |        |       |              |       |             |       |        |       |            |       |
| Hwy401_EB_L<br>n1 | point516                    | 516 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point515                    | 515 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point514                    | 514 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point513                    | 513 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point512                    | 512 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point511                    | 511 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point510                    | 510 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point509                    | 509 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point508                    | 508 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point507                    | 507 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point506                    | 506 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point505                    | 505 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point504                    | 504 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point503                    | 503 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point502                    | 502 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point501                    | 501 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point500                    | 500 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point499                    | 499 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point498                    | 498 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point497                    | 497 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point496                    | 496 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point495                    | 495 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point494                    | 494 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point493                    | 493 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |



| Roadway<br>Name   | Road Segment<br>Start Point |     | Auto   |       | Medium Truck |       | Heavy Truck |       | Bus    |       | Motorcycle |       |
|-------------------|-----------------------------|-----|--------|-------|--------------|-------|-------------|-------|--------|-------|------------|-------|
|                   |                             |     | Volume | Speed | Volume       | Speed | Volume      | Speed | Volume | Speed | Volume     | Speed |
|                   | Name                        | No. |        |       |              |       |             |       |        |       |            |       |
|                   |                             |     |        |       |              |       |             |       |        |       |            |       |
| Hwy401_EB_L<br>n1 | point492                    | 492 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point491                    | 491 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point490                    | 490 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point489                    | 489 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point488                    | 488 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point487                    | 487 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point486                    | 486 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point485                    | 485 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point484                    | 484 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point483                    | 483 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point482                    | 482 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point481                    | 481 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point480                    | 480 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point479                    | 479 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
| Hwy401_EB_L<br>n2 | point614                    | 614 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point613                    | 613 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point612                    | 612 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point611                    | 611 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point610                    | 610 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point609                    | 609 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point608                    | 608 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point607                    | 607 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point606                    | 606 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point605                    | 605 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |

| Roadway<br>Name   | Road Segment<br>Start Point |     | Auto   |       | Medium Truck |       | Heavy Truck |       | Bus    |       | Motorcycle |       |
|-------------------|-----------------------------|-----|--------|-------|--------------|-------|-------------|-------|--------|-------|------------|-------|
|                   |                             |     | Volume | Speed | Volume       | Speed | Volume      | Speed | Volume | Speed | Volume     | Speed |
|                   | Name                        | No. |        |       |              |       |             |       |        |       |            |       |
|                   |                             |     |        |       |              |       |             |       |        |       |            |       |
| Hwy401_EB_L<br>n2 | point604                    | 604 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point603                    | 603 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point602                    | 602 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point601                    | 601 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point600                    | 600 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point599                    | 599 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point598                    | 598 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point597                    | 597 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point596                    | 596 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point595                    | 595 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point594                    | 594 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point593                    | 593 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point592                    | 592 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point591                    | 591 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point590                    | 590 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point589                    | 589 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point588                    | 588 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point587                    | 587 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point586                    | 586 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point585                    | 585 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point584                    | 584 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point583                    | 583 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point582                    | 582 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point581                    | 581 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |

| Roadway<br>Name   | Road Segment<br>Start Point |     | Auto   |       | Medium Truck |       | Heavy Truck |       | Bus    |       | Motorcycle |       |
|-------------------|-----------------------------|-----|--------|-------|--------------|-------|-------------|-------|--------|-------|------------|-------|
|                   |                             |     | Volume | Speed | Volume       | Speed | Volume      | Speed | Volume | Speed | Volume     | Speed |
|                   | Name                        | No. |        |       |              |       |             |       |        |       |            |       |
|                   |                             |     |        |       |              |       |             |       |        |       |            |       |
| Hwy401_EB_L<br>n2 | point580                    | 580 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point579                    | 579 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point578                    | 578 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point577                    | 577 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point576                    | 576 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point575                    | 575 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point574                    | 574 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point573                    | 573 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point572                    | 572 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point571                    | 571 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point570                    | 570 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point569                    | 569 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point568                    | 568 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point567                    | 567 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point566                    | 566 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point565                    | 565 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point564                    | 564 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point563                    | 563 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point562                    | 562 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point561                    | 561 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point560                    | 560 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point559                    | 559 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point558                    | 558 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |
|                   | point557                    | 557 | 440    | 110   | 35           | 110   | 104         | 110   | 1      | 110   | 1          | 110   |

| Roadway<br>Name                   | Road Segment<br>Start Point |        | Auto     |        | Medium Truck |        | Heavy Truck |        | Bus      |        | Motorcycle |        |
|-----------------------------------|-----------------------------|--------|----------|--------|--------------|--------|-------------|--------|----------|--------|------------|--------|
|                                   |                             |        | Volume   | Speed  | Volume       | Speed  | Volume      | Speed  | Volume   | Speed  | Volume     | Speed  |
|                                   | Name                        | No.    |          |        |              |        |             |        |          |        |            |        |
|                                   | [Veh/hr]                    | [km/h] | [Veh/hr] | [km/h] | [Veh/hr]     | [km/h] | [Veh/hr]    | [km/h] | [Veh/hr] | [km/h] | [Veh/hr]   | [km/h] |
| Hwy401_EB_L<br>n2                 | point556                    | 556    | 440      | 110    | 35           | 110    | 104         | 110    | 1        | 110    | 1          | 110    |
|                                   | point555                    | 555    | 440      | 110    | 35           | 110    | 104         | 110    | 1        | 110    | 1          | 110    |
|                                   | point554                    | 554    | 440      | 110    | 35           | 110    | 104         | 110    | 1        | 110    | 1          | 110    |
|                                   | point553                    | 553    | 440      | 110    | 35           | 110    | 104         | 110    | 1        | 110    | 1          | 110    |
|                                   | point552                    | 552    | 440      | 110    | 35           | 110    | 104         | 110    | 1        | 110    | 1          | 110    |
|                                   | point551                    | 551    | 440      | 110    | 35           | 110    | 104         | 110    | 1        | 110    | 1          | 110    |
|                                   | point550                    | 550    | 440      | 110    | 35           | 110    | 104         | 110    | 1        | 110    | 1          | 110    |
|                                   | point549                    | 549    | 440      | 110    | 35           | 110    | 104         | 110    | 1        | 110    | 1          | 110    |
|                                   | point548                    | 548    | 440      | 110    | 35           | 110    | 104         | 110    | 1        | 110    | 1          | 110    |
|                                   | point547                    | 547    | 440      | 110    | 35           | 110    | 104         | 110    | 1        | 110    | 1          | 110    |
| NB Palace Rd<br>South<br>Terminus | point-1594                  | 30     | 47       | 60     | 2            | 60     | 2           | 60     | 1        | 60     | 1          | 60     |
|                                   | point-1595                  | 240    | 47       | 60     | 2            | 60     | 2           | 60     | 1        | 60     | 1          | 60     |
|                                   | point-1596                  | 241    | 47       | 60     | 2            | 60     | 2           | 60     | 1        | 60     | 1          | 60     |
|                                   | point-1597                  | 234    | 47       | 60     | 2            | 60     | 2           | 60     | 1        | 60     | 1          | 60     |
|                                   | point-1598                  | 235    | 47       | 60     | 2            | 60     | 2           | 60     | 1        | 60     | 1          | 60     |
|                                   | point-1599                  | 236    | 47       | 60     | 2            | 60     | 2           | 60     | 1        | 60     | 1          | 60     |
|                                   | point-1600                  | 237    | 47       | 60     | 2            | 60     | 2           | 60     | 1        | 60     | 1          | 60     |
|                                   | point-1601                  | 238    | 47       | 60     | 2            | 60     | 2           | 60     | 1        | 60     | 1          | 60     |
|                                   | point-1602                  | 239    | 47       | 60     | 2            | 60     | 2           | 60     | 1        | 60     | 1          | 60     |
|                                   | point-1603                  | 21     | 47       | 60     | 2            | 60     | 2           | 60     | 1        | 60     | 1          | 60     |
|                                   | point-1604                  | 22     | 47       | 60     | 2            | 60     | 2           | 60     | 1        | 60     | 1          | 60     |
|                                   | point-1605                  | 224    | 47       | 60     | 2            | 60     | 2           | 60     | 1        | 60     | 1          | 60     |
|                                   | point-1606                  | 225    | 47       | 60     | 2            | 60     | 2           | 60     | 1        | 60     | 1          | 60     |

| Roadway<br>Name                   | Road Segment<br>Start Point |        | Auto     |        | Medium Truck |        | Heavy Truck |        | Bus      |        | Motorcycle |        |
|-----------------------------------|-----------------------------|--------|----------|--------|--------------|--------|-------------|--------|----------|--------|------------|--------|
|                                   |                             |        | Volume   | Speed  | Volume       | Speed  | Volume      | Speed  | Volume   | Speed  | Volume     | Speed  |
|                                   | Name                        | No.    |          |        |              |        |             |        |          |        |            |        |
|                                   | [Veh/hr]                    | [km/h] | [Veh/hr] | [km/h] | [Veh/hr]     | [km/h] | [Veh/hr]    | [km/h] | [Veh/hr] | [km/h] | [Veh/hr]   | [km/h] |
| NB Palace Rd<br>South<br>Terminus | point-1607                  | 226    | 47       | 60     | 2            | 60     | 2           | 60     | 1        | 60     | 1          | 60     |
|                                   | point-1608                  | 227    | 47       | 60     | 2            | 60     | 2           | 60     | 1        | 60     | 1          | 60     |
|                                   | point-1609                  | 228    | 47       | 60     | 2            | 60     | 2           | 60     | 1        | 60     | 1          | 60     |
|                                   | point-1610                  | 229    | 47       | 60     | 2            | 60     | 2           | 60     | 1        | 60     | 1          | 60     |
|                                   | point-1611                  | 230    | 47       | 60     | 2            | 60     | 2           | 60     | 1        | 60     | 1          | 60     |
|                                   | point-1612                  | 231    | 47       | 60     | 2            | 60     | 2           | 60     | 1        | 60     | 1          | 60     |
|                                   | point-1613                  | 232    | 47       | 60     | 2            | 60     | 2           | 60     | 1        | 60     | 1          | 60     |
|                                   | point-1614                  | 233    | 47       | 60     | 2            | 60     | 2           | 60     | 1        | 60     | 1          | 60     |
|                                   | point-1615                  | 23     | 47       | 60     | 2            | 60     | 2           | 60     | 1        | 60     | 1          | 60     |
|                                   | point-1616                  | 24     | 47       | 60     | 2            | 60     | 2           | 60     | 1        | 60     | 1          | 60     |
|                                   | point-1617                  | 25     | 47       | 60     | 2            | 60     | 2           | 60     | 1        | 60     | 1          | 60     |
|                                   | point-1618                  | 26     | 47       | 60     | 2            | 60     | 2           | 60     | 1        | 60     | 1          | 60     |
|                                   | point-1619                  | 27     | 47       | 60     | 2            | 60     | 2           | 60     | 1        | 60     | 1          | 60     |
|                                   | point-1620                  | 28     | 47       | 60     | 2            | 60     | 2           | 60     | 1        | 60     | 1          | 60     |
|                                   | point-1621                  | 29     | 47       | 60     | 2            | 60     | 2           | 60     | 1        | 60     | 1          | 60     |
|                                   | point-1622                  | 31     | 47       | 60     | 2            | 60     | 2           | 60     | 1        | 60     | 1          | 60     |
|                                   | point-122                   | 59     | 47       | 60     | 2            | 60     | 2           | 60     | 1        | 60     | 1          | 60     |
|                                   | point-121                   | 60     | 47       | 60     | 2            | 60     | 2           | 60     | 1        | 60     | 1          | 60     |
|                                   | point-120                   | 61     | 47       | 60     | 2            | 60     | 2           | 60     | 1        | 60     | 1          | 60     |
|                                   | point-119                   | 62     | 47       | 60     | 2            | 60     | 2           | 60     | 1        | 60     | 1          | 60     |
|                                   | point-118                   | 63     | 47       | 60     | 2            | 60     | 2           | 60     | 1        | 60     | 1          | 60     |
|                                   | point-117                   | 64     | 47       | 60     | 2            | 60     | 2           | 60     | 1        | 60     | 1          | 60     |
|                                   | point-116                   | 65     | 47       | 60     | 2            | 60     | 2           | 60     | 1        | 60     | 1          | 60     |
|                                   | point-115                   | 66     | 47       | 60     | 2            | 60     | 2           | 60     | 1        | 60     | 1          | 60     |



| Roadway<br>Name                   | Road Segment<br>Start Point |     | Auto   |       | Medium Truck |       | Heavy Truck |       | Bus    |       | Motorcycle |       |
|-----------------------------------|-----------------------------|-----|--------|-------|--------------|-------|-------------|-------|--------|-------|------------|-------|
|                                   |                             |     | Volume | Speed | Volume       | Speed | Volume      | Speed | Volume | Speed | Volume     | Speed |
|                                   | Name                        | No. |        |       |              |       |             |       |        |       |            |       |
|                                   |                             |     |        |       |              |       |             |       |        |       |            |       |
| NB Palace Rd<br>South<br>Terminus | point-114                   | 67  | 47     | 60    | 2            | 60    | 2           | 60    | 1      | 60    | 1          | 60    |
|                                   | point-113                   | 68  | 47     | 60    | 2            | 60    | 2           | 60    | 1      | 60    | 1          | 60    |
|                                   | point-112                   | 32  | 47     | 60    | 2            | 60    | 2           | 60    | 1      | 60    | 1          | 60    |
|                                   | point-111                   | 33  | 47     | 60    | 2            | 60    | 2           | 60    | 1      | 60    | 1          | 60    |
|                                   | point-110                   | 43  | 47     | 60    | 2            | 60    | 2           | 60    | 1      | 60    | 1          | 60    |
| SB Palace<br>Rd_South<br>Terminus | point59                     | 44  | 65     | 60    | 4            | 60    | 6           | 60    | 1      | 60    | 1          | 60    |
|                                   | point58                     | 45  | 65     | 60    | 4            | 60    | 6           | 60    | 1      | 60    | 1          | 60    |
|                                   | point57                     | 46  | 65     | 60    | 4            | 60    | 6           | 60    | 1      | 60    | 1          | 60    |
|                                   | point56                     | 47  | 65     | 60    | 4            | 60    | 6           | 60    | 1      | 60    | 1          | 60    |
|                                   | point55                     | 48  | 65     | 60    | 4            | 60    | 6           | 60    | 1      | 60    | 1          | 60    |
|                                   | point54                     | 49  | 65     | 60    | 4            | 60    | 6           | 60    | 1      | 60    | 1          | 60    |
|                                   | point53                     | 50  | 65     | 60    | 4            | 60    | 6           | 60    | 1      | 60    | 1          | 60    |
|                                   | point52                     | 51  | 65     | 60    | 4            | 60    | 6           | 60    | 1      | 60    | 1          | 60    |
|                                   | point51                     | 52  | 65     | 60    | 4            | 60    | 6           | 60    | 1      | 60    | 1          | 60    |
|                                   | point50                     | 53  | 65     | 60    | 4            | 60    | 6           | 60    | 1      | 60    | 1          | 60    |
|                                   | point49                     | 54  | 65     | 60    | 4            | 60    | 6           | 60    | 1      | 60    | 1          | 60    |
|                                   | point48                     | 55  | 65     | 60    | 4            | 60    | 6           | 60    | 1      | 60    | 1          | 60    |
|                                   | point47                     | 56  | 65     | 60    | 4            | 60    | 6           | 60    | 1      | 60    | 1          | 60    |
|                                   | point46                     | 57  | 65     | 60    | 4            | 60    | 6           | 60    | 1      | 60    | 1          | 60    |
|                                   | POINT452<br>3               | 242 | 65     | 60    | 4            | 60    | 6           | 60    | 1      | 60    | 1          | 60    |
|                                   | POINT452<br>4               | 243 | 65     | 60    | 4            | 60    | 6           | 60    | 1      | 60    | 1          | 60    |
|                                   | POINT452<br>5               | 244 | 65     | 60    | 4            | 60    | 6           | 60    | 1      | 60    | 1          | 60    |

| Roadway<br>Name             | Road Segment<br>Start Point |     | Auto     |        | Medium Truck |        | Heavy Truck |        | Bus      |        | Motorcycle |        |
|-----------------------------|-----------------------------|-----|----------|--------|--------------|--------|-------------|--------|----------|--------|------------|--------|
|                             |                             |     | Volume   | Speed  | Volume       | Speed  | Volume      | Speed  | Volume   | Speed  | Volume     | Speed  |
|                             | Name                        | No. | [Veh/hr] | [km/h] | [Veh/hr]     | [km/h] | [Veh/hr]    | [km/h] | [Veh/hr] | [km/h] | [Veh/hr]   | [km/h] |
|                             |                             |     |          |        |              |        |             |        |          |        |            |        |
| SB Palace Rd_South Terminus | POINT4526                   | 245 | 65       | 60     | 4            | 60     | 6           | 60     | 1        | 60     | 1          | 60     |
|                             | POINT4527                   | 246 | 65       | 60     | 4            | 60     | 6           | 60     | 1        | 60     | 1          | 60     |
|                             | POINT4528                   | 247 | 65       | 60     | 4            | 60     | 6           | 60     | 1        | 60     | 1          | 60     |
|                             | POINT4529                   | 248 | 65       | 60     | 4            | 60     | 6           | 60     | 1        | 60     | 1          | 60     |
|                             | POINT4530                   | 249 | 65       | 60     | 4            | 60     | 6           | 60     | 1        | 60     | 1          | 60     |
|                             | POINT4531                   | 250 | 65       | 60     | 4            | 60     | 6           | 60     | 1        | 60     | 1          | 60     |
|                             | POINT4532                   | 251 | 65       | 60     | 4            | 60     | 6           | 60     | 1        | 60     | 1          | 60     |
|                             | POINT4533                   | 252 | 65       | 60     | 4            | 60     | 6           | 60     | 1        | 60     | 1          | 60     |
|                             | POINT4534                   | 253 | 65       | 60     | 4            | 60     | 6           | 60     | 1        | 60     | 1          | 60     |
|                             | POINT4535                   | 254 | 65       | 60     | 4            | 60     | 6           | 60     | 1        | 60     | 1          | 60     |
|                             | POINT4536                   | 255 | 65       | 60     | 4            | 60     | 6           | 60     | 1        | 60     | 1          | 60     |
|                             | POINT4537                   | 256 | 65       | 60     | 4            | 60     | 6           | 60     | 1        | 60     | 1          | 60     |
|                             | POINT4538                   | 257 | 65       | 60     | 4            | 60     | 6           | 60     | 1        | 60     | 1          | 60     |
|                             | POINT4539                   | 258 | 65       | 60     | 4            | 60     | 6           | 60     | 1        | 60     | 1          | 60     |
|                             | POINT4540                   | 259 | 65       | 60     | 4            | 60     | 6           | 60     | 1        | 60     | 1          | 60     |
|                             | POINT4541                   | 260 | 65       | 60     | 4            | 60     | 6           | 60     | 1        | 60     | 1          | 60     |
|                             | POINT4542                   | 261 | 65       | 60     | 4            | 60     | 6           | 60     | 1        | 60     | 1          | 60     |
|                             | POINT4543                   | 262 | 65       | 60     | 4            | 60     | 6           | 60     | 1        | 60     | 1          | 60     |

| Roadway<br>Name             | Road Segment<br>Start Point |        | Auto     |        | Medium Truck |        | Heavy Truck |        | Bus      |        | Motorcycle |        |
|-----------------------------|-----------------------------|--------|----------|--------|--------------|--------|-------------|--------|----------|--------|------------|--------|
|                             |                             |        | Volume   | Speed  | Volume       | Speed  | Volume      | Speed  | Volume   | Speed  | Volume     | Speed  |
|                             | Name                        | No.    |          |        |              |        |             |        |          |        |            |        |
|                             | [Veh/hr]                    | [km/h] | [Veh/hr] | [km/h] | [Veh/hr]     | [km/h] | [Veh/hr]    | [km/h] | [Veh/hr] | [km/h] | [Veh/hr]   | [km/h] |
| SB Palace Rd_South Terminus | POINT4544                   | 263    | 65       | 60     | 4            | 60     | 6           | 60     | 1        | 60     | 1          | 60     |
|                             | POINT4545                   | 264    | 65       | 60     | 4            | 60     | 6           | 60     | 1        | 60     | 1          | 60     |
|                             | POINT4546                   | 265    | 65       | 60     | 4            | 60     | 6           | 60     | 1        | 60     | 1          | 60     |
|                             | POINT4547                   | 266    | 65       | 60     | 4            | 60     | 6           | 60     | 1        | 60     | 1          | 60     |
|                             | POINT4548                   | 267    | 65       | 60     | 4            | 60     | 6           | 60     | 1        | 60     | 1          | 60     |
|                             | POINT4549                   | 268    | 65       | 60     | 4            | 60     | 6           | 60     | 1        | 60     | 1          | 60     |
|                             | POINT4550                   | 269    | 65       | 60     | 4            | 60     | 6           | 60     | 1        | 60     | 1          | 60     |
|                             | POINT4551                   | 270    | 65       | 60     | 4            | 60     | 6           | 60     | 1        | 60     | 1          | 60     |
|                             | POINT4552                   | 271    | 65       | 60     | 4            | 60     | 6           | 60     | 1        | 60     | 1          | 60     |
|                             | POINT4553                   | 272    | 65       | 60     | 4            | 60     | 6           | 60     | 1        | 60     | 1          | 60     |
| NB Palace Rd_North Terminus | point-100                   | 58     | 31       | 60     | 2            | 60     | 3           | 60     | 1        | 60     | 1          | 60     |
|                             | point-101                   | 213    | 31       | 60     | 2            | 60     | 3           | 60     | 1        | 60     | 1          | 60     |
|                             | point-102                   | 214    | 31       | 60     | 2            | 60     | 3           | 60     | 1        | 60     | 1          | 60     |
|                             | point-103                   | 215    | 31       | 60     | 2            | 60     | 3           | 60     | 1        | 60     | 1          | 60     |
|                             | point-104                   | 216    | 31       | 60     | 2            | 60     | 3           | 60     | 1        | 60     | 1          | 60     |
|                             | point-105                   | 217    | 31       | 60     | 2            | 60     | 3           | 60     | 1        | 60     | 1          | 60     |
|                             | point-106                   | 218    | 31       | 60     | 2            | 60     | 3           | 60     | 1        | 60     | 1          | 60     |
|                             | point-107                   | 219    | 31       | 60     | 2            | 60     | 3           | 60     | 1        | 60     | 1          | 60     |
|                             | point-108                   | 220    | 31       | 60     | 2            | 60     | 3           | 60     | 1        | 60     | 1          | 60     |
|                             | point-109                   | 221    | 31       | 60     | 2            | 60     | 3           | 60     | 1        | 60     | 1          | 60     |

| Roadway<br>Name                   | Road Segment |     | Auto   |       | Medium Truck |       | Heavy Truck |       | Bus    |       | Motorcycle |       |
|-----------------------------------|--------------|-----|--------|-------|--------------|-------|-------------|-------|--------|-------|------------|-------|
|                                   |              |     | Volume | Speed | Volume       | Speed | Volume      | Speed | Volume | Speed | Volume     | Speed |
|                                   | Name         | No. |        |       |              |       |             |       |        |       |            |       |
|                                   |              |     |        |       |              |       |             |       |        |       |            |       |
| NB Palace<br>Rd_North<br>Terminus | point-1414   | 273 | 31     | 60    | 2            | 60    | 3           | 60    | 1      | 60    | 1          | 60    |
|                                   | point-1415   | 274 | 31     | 60    | 2            | 60    | 3           | 60    | 1      | 60    | 1          | 60    |
|                                   | point-1416   | 275 | 31     | 60    | 2            | 60    | 3           | 60    | 1      | 60    | 1          | 60    |
|                                   | point-1417   | 276 | 31     | 60    | 2            | 60    | 3           | 60    | 1      | 60    | 1          | 60    |
|                                   | point-1418   | 277 | 31     | 60    | 2            | 60    | 3           | 60    | 1      | 60    | 1          | 60    |
|                                   | point-1419   | 278 | 31     | 60    | 2            | 60    | 3           | 60    | 1      | 60    | 1          | 60    |
|                                   | point-1420   | 279 | 31     | 60    | 2            | 60    | 3           | 60    | 1      | 60    | 1          | 60    |
|                                   | point-1421   | 280 | 31     | 60    | 2            | 60    | 3           | 60    | 1      | 60    | 1          | 60    |
|                                   | point-1422   | 281 | 31     | 60    | 2            | 60    | 3           | 60    | 1      | 60    | 1          | 60    |
|                                   | point-1423   | 282 | 31     | 60    | 2            | 60    | 3           | 60    | 1      | 60    | 1          | 60    |
|                                   | point-1424   | 283 | 31     | 60    | 2            | 60    | 3           | 60    | 1      | 60    | 1          | 60    |
|                                   | point-1425   | 222 | 31     | 60    | 2            | 60    | 3           | 60    | 1      | 60    | 1          | 60    |

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# Appendix E

Stage 1 AA





## Study #2 (GWP 4016-21-00) Stage 1 Archaeological Assessment

Highway 401 Improvements between Belleville and Kingston  
Planning, Preliminary Design and Class Environmental Assessment  
Study #2 (GWP 4016-21-00) including Highway 401 from 5km west  
of County Road 41/Centre Street to 5km west of County Road 38

Part of Lots 11-12, Concession 4 Western Division, Kingston  
Township, Frontenac County, Gore Lot and Lots 39-42, Concession  
3, Gore Lot and Lots 25-42, Concession 4, Lots 14-27, Concession  
5, Lots 1-18, Concession 6, Lots 1-4, Concession 7, Ernestown  
Township, Lots 22-30, Concession 7 South, Fredricksburg Township,  
Lots 21 and 24-30, Concession 1, Lots 17-23, Concession 2 and  
Lots 8-16, Concession 3, Richmond Township, Lennox and  
Addington County, Ontario

Ministry of Transportation

Original Report  
License: P316  
PIF Number: P316-0563-2025  
Project number: 60734357  
October 7, 2026

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AECOM: 2015-12-21

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## Quality information

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## Revision History

| Revision | Revision date | Details | Authorized | Name | Position |
|----------|---------------|---------|------------|------|----------|
|          |               |         |            |      |          |
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|               |              |                                                      |



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# Executive Summary

AECOM Canada ULC (AECOM) was retained by the Ministry of Transportation (MTO) to undertake two Planning Preliminary Design and Class Environmental Assessment (Class EA) Studies to address current and future transportation needs by developing a plan for the rehabilitation and / or replacement of various bridges and culverts, determining the long-term interchange configuration at seven locations, and establishing the footprint for the interim six and ultimate eight lanes of Highway 401 between the City of Belleville and the City of Kingston (the Project). Each study area is defined as follows:

- Study #1 – includes highway 401 from 4.3 kilometres (km) east of Highway 37 to 5 km west of County Road 41 / Centre Street for a total length of approximately 26 km; and
- Study #2 – includes Highway 401 from 5 km west of County Road 41 / Centre Street to 8 km west of Kingston Road 38 for a total length of approximately 29 km (**Figures 1 and 2**).

This Stage 1 Archaeological Assessment (AA) focuses on Study #2 (GWP 4016-21-00) only, which falls within the County of Lennox and Addington as well as the lower tier municipalities of Township of Loyalist and the Town of Greater Napanee. A separate archaeological report will be prepared for the Study #1 (GWP 4022-21-00) study area, registered under PIF P316-0562-2025 (AECOM, Forthcoming).

The Study #2 study area is located within what is historically known as part of Lots 11-12, Concession 4 Western Division, Kingston Township, Frontenac County, Gore Lot and Lots 39-42, Concession 3, Gore Lot and Lots 25-42, Concession 4, Lots 14-27, Concession 5, Lots 1-18, Concession 68, Lots 1-43, Concession 7, Ernestown Township, Lots 22-30, Concession 7 South, Fredricksburg Township, Lots 21 and 24-30, Concession 1, Lots 17-23, Concession 2 and Lots 8-16, Concession 3, Richmond Township, Lennox and Addington County, Ontario. This Stage 1 AA was conducted to meet the requirements of Section 3 of the *Planning Act* (Ontario Government 1990a), and Section 2.6 of the Provincial Policy Statement (Ontario Government 1990c). This Project is also subject to the *Ontario Heritage Act* (Ontario Government 1990b) and *Standards and Guidelines for Consultant Archaeologists* (Ontario Government 2011). The assessment is being completed as part of a Class B Preliminary Design and Class Environmental Assessment study. There are no development plans available for this Project. As such, AECOM assessed 120 metres (m) on either side of the MTO Right-of-Way (ROW).

All archaeological consulting activities were conducted under PIF number P316-0563-2025, issued to Professional Archaeologist Sherri Pearce, MA (P316) in accordance with the Ministry of Citizenship and Multiculturalism's (MCM) *Standards and Guidelines for Consultant Archaeologists* (Ontario Government 2011).

AECOM's Stage 1 background study determined that archaeological potential was high within the study area. Based on the above, the following recommendations are made:

1. The areas coloured purple in **Figure 9** have been previously assessed and meet current Standards and Guidelines (Ontario Government 2011). As these areas have been cleared of further archaeological concerns, no further AA of these areas is recommended.
  - a. This includes archaeological sites BbGf-47, BbGf-48, and BbGf-51, which have been determined to not retain Cultural Heritage Value and Interest (CHVI) and have not been recommended for further assessment.
2. The areas coloured purple with cross hatching in **Figure 9** are considered to retain archaeological potential and are recommended for further AA. More specifically:
  - a. To carry forward the recommendations from the Past Recovery Stage 1-3 report (2021c), site BbGf-49 was recommended for Stage 3 assessment (coloured purple with black cross

hatch, **Figure 9-3**). The Stage 3 assessment should be conducted by a licensed archaeologist and should consist of the controlled excavation of one metre square units across the site area on a 5 m grid with an additional 20% of the grid total placed in areas of interest.

b. To carry forward the recommendations from the Past Recovery Stage 3 report (PIF P1201-0088- 2021, Past Recovery 2023), portions of the Jacob Valenstine Site (BbGf-50) were recommended for Stage 4 Avoidance and Protection (coloured purple with purple cross hatch, Figure 9-3), while remaining parts of the site and property were cleared of further archaeological concerns (Past Recovery 2023). The recommendations for the avoidance and protection of the site areas included erection of a temporary barrier around the site areas and a 10m buffer, no-go instructions be issued to all on-site construction crews, etc., the location of the protected areas be added to all contract drawings, all ground disturbing activities be monitored and inspected by a licensed archaeologist, Stage 4 reporting documenting the avoidance strategy be submitted to the MCM, and that relevant interested Indigenous communities be engaged during the monitoring (Past Recovery 2023).

3. All areas marked red in **Figure 9** are considered to be previously disturbed and to no longer retain archaeological potential. However, as no Stage 1 property inspection was completed, these areas require visual confirmation and photo documentation during Stage 2 assessment prior to being cleared of further archaeological concerns.

4. The areas coloured green in **Figure 9** are considered to retain archaeological potential and are recommended for Stage 2 AA. The Stage 2 AA must be conducted by a licensed archaeologist and must follow the requirements set out in Section 2.1 of the *Standards and Guidelines for Consultant Archaeologists* (Ontario Government 2011), including:

- a. A standard test pit survey at 5 m intervals is to be conducted in all areas that will be impacted by the Project where ploughing is not feasible (e.g., woodlots, overgrown areas, manicured lawns).
- b. Pedestrian survey at 5 m intervals where ploughing is possible (e.g., agricultural fields). This assessment will occur when fields have been recently ploughed, weathered by rain, and exhibit at least 80% surface visibility.

5. No impacts to the bed of any water bodies are anticipated. However, if any changes are made and impacts may occur to the bed of any water bodies, a marine archaeological checklist should be completed, which may result in the recommendation that a marine AA be undertaken.

Should additional land outside of the current study area be included as part of the Project development plan, the standard requirements for AAs to be conducted prior to land disturbance remain in place. Additional AA(s) must be conducted by a licensed archaeologist and follow the requirements set out in *Standards and Guidelines for Consultant Archaeologists* (Ontario Government 2011).

With regard to the **Spook Horn Cemetery**, as AECOM is producing this report, True North Archaeological Services has conducted a Stage 1-3 AA where the boundaries of the cemetery have been determined. As the True North Archaeological Services Stage 1-3 AA report is still a draft and has not been accepted by the MCM, their recommendations of all areas outside of the Stage 3 Mechanical Topsoil Removal (MTR) area and the previously assessed area along the eastern boundary, retain archaeological potential and

should be subject to Stage 2 AA should future development impacts be anticipated, cannot be carried forward until the Stage 1-3 AA report is accepted. Therefore, in the interim, AECOM's recommendations are as follows:

As a Stage 1 property inspection was not completed for this report, the Study Area portion within the Spook Horn boundaries will need to be confirmed and photo documented at the time of Stage 2 survey. If impacts by the Project are proposed within the limits of the cemetery property, the following must be completed:

- Contact the cemetery owner/operator and the BAO prior to completing any ground disturbing activities within the known limits of the cemetery. This is needed to ensure that any planned activities within a cemetery are completed with knowledge and permission from the cemetery owner/operator. Consent from the BAO Registrar may also be necessary to complete certain activities within a cemetery.
- Stage 2 test pit survey at judgemental intervals to avoid marked and known burials (Section 2.1, Standard 2.1.2, Government of Ontario, 2011a).
- Stage 3 cemetery investigation after the completion of the Stage 2 test pit survey and any Stage 3 work recommended for archaeological sites identified during the Stage 2 assessment.
- Stage 3 cemetery investigation strategies for work within the current cemetery limits (i.e. MTR, plans for excavation and reinterment, etc.).
  - o For all MTR, the following procedures should be followed:
    - MTR should begin within the cemetery lands for minimal impact to any potential burials;
    - To avoid damage to potential cultural deposits beneath the topsoil, use machinery that pulls soil away (e.g. an excavator or backhoe with a flat-edged bucket);
    - MTR must stop at or above the topsoil/subsoil interface. If conditions do not allow for mechanical topsoil removal without intruding into subsoil (e.g. very wet or dry soil conditions), delay mechanical topsoil removal or remove topsoil by hand;
    - Hand excavation by shovel if it appears that mechanical topsoil removal may be affecting the integrity of cultural features; and,
    - Clean all exposed subsoil surfaces by shovel shining or trowel following mechanical topsoil removal;
    - MTR should be completed in accordance with Section 3.3.3 in areas in which the removal of overburden is required and Section 4.2.3 in areas where topsoil is present as per the *Standards and Guidelines for Consultant Archaeologists* (Ontario Government 2011).
  - o A Stage 3 Cemetery Investigation report must be completed detailing the results of the investigation for the cemetery and be submitted to the Ministry of Citizenship and Multiculturalism for review and acceptance into the Ontario Public Register of Archaeological Reports.

With regard to the **Riverside Cemetery** that is located approximately 50 m south of the current study area, AECOM's background research, the consultation undertaken with the BAO and cemetery management, and the diagram/parcel mapping review, AECOM was able to confirm with sufficient certainty the cemetery's limits. A 1915 map of the cemetery and the provided GIS Riverside Cemetery Package from the Town of Greater Napanee, outlined the boundary of the cemetery and showed it as intact and has stayed consistent

over time. The graves have not moved with the late 19<sup>th</sup>/early 20<sup>th</sup> century expansion. It has been determined that there is low potential for unmarked burials to exist beyond the known cemetery property limits. The background research was conducted to confirm that the boundaries of this cemetery fall outside of the current study area by more than 10m. As of yet, no impacts are proposed to occur within the limits of the cemetery property. If impacts by the Project are proposed within the limits of the cemetery property, arrangements must be made with the cemetery manager, the BAO, and the MCM prior to any ground-disturbing activities to determine an appropriate strategy for Stage 2 and 3 field methods within the limits of this cemetery to ensure provisions under the *Funeral, Burial and Cremation Services Act* (Ontario Government 2002) are addressed.

With regard to the **Smith Cemetery** that is located approximately 50 m north outside of the current study area, AECOM's background research, the consultation undertaken with the Bereavement Authority of Ontario and cemetery management, with the provided maps, and visual confirmation from the cemetery operator, AECOM was able to confirm with sufficient certainty the cemetery's limits. As such, the potential for unmarked burials associated with this private cemetery to exist outside of the registered legal cemetery boundaries can be fully removed. The background research was conducted to confirm that the boundaries of this cemetery fall outside of the current study area by more than 10m. As of yet, no impacts are proposed to occur within the limits of the cemetery property. If impacts by the Project are proposed within the limits of the cemetery property, arrangements must be made with the cemetery manager, the BAO, and the MCM prior to any ground-disturbing activities to determine an appropriate strategy for Stage 2 and 3 field methods within the limits of this cemetery to ensure provisions under the *Funeral, Burial and Cremation Services Act* (Ontario Government 2002) are addressed.

The MCM is asked to accept this Report into the Ontario Public Register of Archaeological Reports, thereby concurring with the recommendations presented herein. **As further AA is recommended for the Highway 401 from Belleville to Kingston Assignment Study 2 GWP 4016-21-00 study area, archaeological concerns have not been fully addressed.**

Please note that this AA report has been written to meet the requirements of the MCM's *Standards and Guidelines for Consultant Archaeologists* (Ontario Government 2011); however, properties that are subject to AA are not considered cleared for ground disturbance activities until the associated report has been reviewed and accepted by the MCM. In order to maintain compliance with the MCM and the *Ontario Heritage Act* (1990b), no ground disturbing activities are to occur until the proponent and approval authority receive a formal letter from the MCM stating that the recommendations provided herein are compliant and that the Report has been accepted into the MCM register of archaeological reports.



## Project Personnel

|                        |                                                    |
|------------------------|----------------------------------------------------|
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| Licensed Archaeologist | Sherri Pearce, MA (P316)                           |
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## Acknowledgements

|                    |                                  |
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| Approval Authority | Lucas Billow, Lead Engineer, MTO |

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# 1. Project Context

## 1.1 Development Context

AECOM Canada ULC (AECOM) was retained by the Ministry of Transportation (MTO) to undertake two Planning, Preliminary Design and Class Environmental Assessment (Class EA) Studies to address current and future transportation needs by developing a plan for the rehabilitation and/or replacement of various bridges and culverts, determining the long-term interchange configuration at seven locations, and establishing the footprint for the interim six and ultimate eight lanes of Highway 401 between the City of Belleville and the City of Kingston (the Project). Each study area is further defined below and illustrated in **Plate 1** below:

- Study #1 (GWP 4022-21-00) – includes Highway 401 from 4.3 kilometres (km) east of Highway 37 to 5 km west of County Road 41 / Centre Street for a total length of approximately 26 km; and
- Study #2 (GWP 4016-21-00) – includes Highway 401 from 5 km west of County Road 41 / Centre Street to 8 km west of Kingston Road 38 for a total length of approximately 29 km (**Figures 1 and 2**).

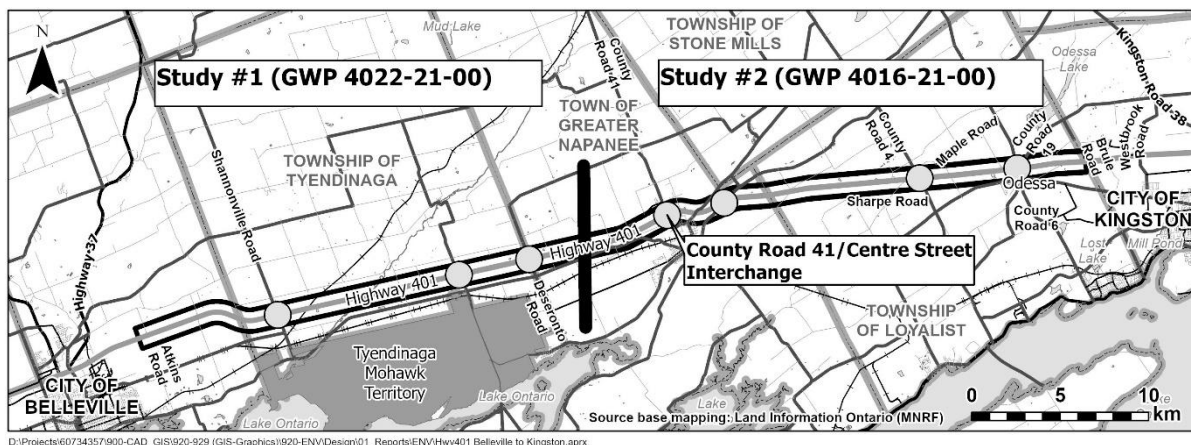


**Plate 1: Study Area Map showing Study #1 and Study #2**

The focus of the current Stage 1 Archaeological Assessment (AA) is Study #2 (GWP 4016-21-00), which falls within the County of Lennox and Addington as well as the lower tier municipalities of Township of Loyalist and the Town of Greater Napanee. A separate archaeological report will be prepared for Study #1 (GWP 4022-21-00), registered under PIF P316-0562-2025 (AECOM, Forthcoming).

The Study #2 study area is located within what is historically known as part of Lots 11-12, Concession 4 Western Division, Kingston Township, Frontenac County, Gore Lot and Lots 39-42, Concession 3, Gore Lot and Lots 25-42, Concession 4, Lots 14-27, Concession 5, Lots 1-18, Concession 68, Lots 1-43, Concession 7, Ernestown Township, Lots 22-30, Concession 7 South, Fredricksburg Township, Lots 21 and 24-30, Concession 1, Lots 17-23, Concession 2 and Lots 8-16, Concession 3, Richmond Township, Lennox and Addington County, Ontario (**Figures 1 and 2**).

This Stage 1 AA was conducted to meet the requirements of the Ontario Heritage Act (Ontario Government 1990b) and *Standards and Guidelines for Consultant Archaeologists* (Ontario Government 2011). As MTO has not yet finalized the proposed improvements and area to be disturbed, a 120 metre (m) buffer beyond the right-of-way (ROW) was established for the purpose of this Stage 1 AA.

All archaeological consulting activities were conducted under PIF number P316-0563-2025, issued to Professional Archaeologist Sherri Pearce, MA (P316) in accordance with the Ministry of Citizenship and Multiculturalism's (MCM) *Standards and Guidelines for Consultant Archaeologists* (Ontario Government 2011).

## 1.2 Objectives

The objective of the Stage 1 background study is to document the archaeological and land use history and present conditions of the study area. This information will be used to evaluate in detail the study area's archaeological potential, which will support recommendations for the Stage 2 survey for all parts of the study area, as well as recommending appropriate Stage 2 survey strategies. The Stage 1 research information has been drawn from:

- The MCM's Ontario Archaeological Sites Database (ASDB) for a listing of registered archaeological sites within a 1-kilometre (km) radius of the study area;
- Reports of previous AAs within 50 metres (m) of the study area;
- Recent and historical maps of the study area;
- Archaeological management plans or other archaeological potential mapping, where available;
- Municipal Registers of listed heritage properties and properties designated under the *Ontario Heritage Act* (Ontario Government 1990b); and
- Commemorative plaques and monuments identified on or near the property.

## 1.3 Historical Context

Years of archaeological research and assessments in southern Ontario have resulted in a well-developed understanding of the historic land use in the County of Frontenac and County of Lennox and Addington from the earliest Indigenous people to the more recent colonial settlers and farmers. **Table 1** provides a breakdown of the cultural and temporal history of past occupations in the County of Frontenac and the County of Lennox and Addington.

**Table 1. Cultural Chronology for The County of Frontenac and The County of Lennox and Addington**

| Archaeological Period | Time Period  | Characteristics                                                                                                                                                                        |
|-----------------------|--------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Early Paleo           | 9000-8400 BC | <ul style="list-style-type: none"> <li>• Fluted Points, Gainey, Barnes, Crowfield</li> <li>• Arctic tundra and spruce parkland, caribou hunters</li> </ul>                             |
| Late Paleo            | 8400-8000 BC | <ul style="list-style-type: none"> <li>• Holcombe, Hi-Lo, and Lanceolate Points</li> <li>• Slight reduction in territory size</li> </ul>                                               |
| Early Archaic         | 8000-6000 BC | <ul style="list-style-type: none"> <li>• Notched and Bifurcate Base Points</li> <li>• Growing populations</li> </ul>                                                                   |
| Middle Archaic        | 6000-2500 BC | <ul style="list-style-type: none"> <li>• Stemmed and Brewerton Points</li> <li>• Laurentian Development, Otter Creek, Stanley/Neville</li> <li>• Increasing regionalization</li> </ul> |
| Late Archaic          | 2000-1800 BC | <ul style="list-style-type: none"> <li>• Narrow Points, Lamoka</li> <li>• Environment similar to present</li> </ul>                                                                    |



| Archaeological Period              | Time Period     | Characteristics                                                                                                                                                       |
|------------------------------------|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                    | 1800-1500 BC    | <ul style="list-style-type: none"> <li>Broad Points, Genesee, Adder Orchard, Perkiomen</li> <li>Large lithic tools</li> </ul>                                         |
|                                    | 1500-1100 BC    | <ul style="list-style-type: none"> <li>Small Point, Crawford Knoll</li> <li>Introduction of bow</li> </ul>                                                            |
| <b>Terminal Archaic</b>            | 1100-950 BC     | <ul style="list-style-type: none"> <li>Hind Points</li> <li>Glacial Kame Complex</li> <li>Earliest true cemeteries</li> </ul>                                         |
| <b>Early Woodland</b>              | 950-400 BC      | <ul style="list-style-type: none"> <li>Meadowood Points</li> <li>Introduction of pottery</li> </ul>                                                                   |
| <b>Middle Woodland</b>             | 400 BC – AD 500 | <ul style="list-style-type: none"> <li>Dentate/Pseudo-scallop Ceramics</li> <li>Increased sedentism</li> <li>Saugeen/Couture</li> </ul>                               |
|                                    | AD 550-900      | <ul style="list-style-type: none"> <li>Princess Point</li> <li>Introduction of corn horticulture</li> </ul>                                                           |
| <b>Late Woodland</b>               | AD 900-1300     | <ul style="list-style-type: none"> <li>Agricultural villages</li> <li>Glen Meyer</li> </ul>                                                                           |
|                                    | AD 1300-1400    | <ul style="list-style-type: none"> <li>Increased longhouse sizes</li> <li>Uren, Middleport</li> </ul>                                                                 |
|                                    | AD 1400-1650    | <ul style="list-style-type: none"> <li>Territoriality</li> <li>Neutral Iroquois</li> </ul>                                                                            |
| <b>Contact Period - Indigenous</b> | AD 1600-1875    | <ul style="list-style-type: none"> <li>Early written records and treaties</li> <li>Mixture of goods of Indigenous and European manufacture</li> <li>Ojibwa</li> </ul> |
| <b>Contact Period - Settler</b>    | AD 1749-present | <ul style="list-style-type: none"> <li>European goods and colonial settlement</li> </ul>                                                                              |

Source: Notes: Taken from Ellis and Ferris (1990)

The following sections provide a detailed summary of the archaeological cultures that have settled in the vicinity of the study area. As Chapman and Putnam (1984) illustrate, the modern physiography of southern Ontario is a product of events of the last major glacial stage, and the landscape is a complex mosaic of features and deposits produced during the last series of glacial retreats and advances prior to the withdrawal of the continental glaciers from the area. Southwestern Ontario was finally ice free by 12,500 years ago. With continuing ice retreat and lake regressions the land area of southern Ontario progressively increased while barriers to the influx of plants, animals, and people steadily diminished (Karrow and Warner 1990). The lands within the County of Frontenac and the County of Lennox and Addington have been extensively utilized by pre-contact Indigenous people who began occupying southwestern Ontario as the glaciers receded from the land, as early as 11,000 years ago.

## 1.3.1 Pre-Contact Indigenous Settlement

### *The Paleo Period*

In this area the first human settlement can be traced back to 11,000 years ago; these earliest well-documented groups are referred to as Paleo, which literally means old or ancient. During the Paleo period people were non-agriculturalists who depended on hunting and gathering of wild food, they moved their encampments on a regular basis to be in the locations where these resources naturally became available, and the size of the groups occupying any particular location would vary depending on the nature and size of the available food resources (Ellis and Deller 1990). The picture that has emerged for the early and late

Paleo is of groups at low population densities who were residentially mobile and made use of large territories during annual cycles of resource exploitation.

### ***The Archaic Period***

The next major cultural period following the Paleo is termed the Archaic, which is broken temporally into the Early, Middle, and Late Archaic periods. There is much debate on how the term Archaic is employed; general practice bases the designation off assemblage content as there are marked differences in artifact suites from the preceding Paleo and subsequent Woodland periods. As Ellis *et al.* (1990) note, from an artifact and site characteristic perspective the Archaic is simply used to refer to non-Paleo manifestations that pre-date the introduction of ceramics. Ellis *et al.* (1990) stress that Archaic groups can be distinguished from earlier groups based on site characteristics and artifact content.

Early Archaic sites have been reported throughout much of southwestern Ontario and extend as far north as the Lake Huron Basin region and as far east as Rice Lake (Deller *et al.* 1986). A lack of excavated assemblages from southern Ontario has limited understandings and inferences regarding the nature of stone tool kits in the Early Archaic and tool forms other than points are poorly known in Ontario; however, at least three major temporal horizons can be recognized and can be distinguished based on projectile point form (Ellis *et al.* 1990). These horizons are referred to as Side-Notched (ca. 8,000-7,700 BC), Corner-Notched (ca. 7,700-6,900 BC), and Bifurcated (ca. 6,900-6,000 BC) (Ellis *et al.* 1990). Additional details on each of these horizons and the temporal changes to tool types can be found in Ellis *et al.* (1990).

The Middle Archaic period (6,000-2,500 BC), like the Early Archaic, is relatively unknown in southern Ontario. Ellis *et al.* (1990) suggest that artifact traits that have come to be considered as characteristic of the Archaic period as a whole, first appear in the Middle Archaic. These traits include fully ground and polished stone tools, specific tool types including banner stones and net-sinkers, and the use of local and/or non-chert type materials for lithic tool manufacture (Ellis *et al.* 1990).

The Late Archaic begins around approximately 2,000 BC and ends with the beginning of ceramics and the Meadowood Phase at roughly 950 BC. Much more is known about this period than the Early and Middle Archaic and a number of Late Archaic sites are known. Sites appear to be more common than earlier periods, suggesting some degree of population increase. True cemeteries appear and have allowed for the analysis of band size, biological relationships, social organization, and health. Narrow and Small point traditions appear as well as tool recycling wherein points were modified into drills, knives, end scrapers, and other tools (Ellis *et al.* 1990). Other tools including serrated flakes used for sawing or shredding, spokeshaves, and retouched flakes manufactured into perforators, gravers, micro-perforators, or piercers. Tools on coarse-grained rocks such as sandstone and quartz become common and include hammerstones, net-sinkers, anvils, and cobble spalls. Depending on preservation, several Late Archaic sites include bone and/or antler artifacts which likely represent fishing toolkits and ornamentation. These artifacts include bone harpoons, barbs or hooks, notched projectile points, and awls. Bone ornaments recovered have included tubular bone beads and drilled mammal canine pendants (Ellis *et al.* 1990).

Throughout the Early to Late Archaic periods the natural environment warmed, and vegetation changed from closed conifer-dominated vegetation cover to the mixed coniferous and deciduous forest in the north and deciduous vegetation in the south we see in Ontario today (Ellis *et al.* 1990). During the Archaic period there are indications of increasing populations and decreasing size of territories exploited during annual rounds; fewer moves of residential camps throughout the year and longer occupations at seasonal campsites; continuous use of certain locations on a seasonal basis over many years; increasing attention to ritual associated with the deceased; and, long range exchange and trade systems for the purpose of obtaining valued and geographically localized resources (Ellis *et al.* 1990).

### ***The Woodland Period***

The Early Woodland period is distinguished from the Late Archaic period primarily by the addition of ceramic technology, which provides a useful demarcation point for archaeologists but is expected to have made less difference in the lives of the Early Woodland peoples. The settlement and subsistence patterns of Early Woodland people shows much continuity with the earlier Archaic with seasonal camps occupied to exploit specific natural resources (Spence *et al.* 1990). During the Middle Woodland well-defined territories containing several key environmental zones were exploited over the yearly subsistence cycle. Large sites with structures and substantial middens appear in the Middle Woodland associated with spring macro-band occupations focussed on utilizing fish resources and created by consistent returns to the same Site (Spence *et al.* 1990). Groups would come together into large macro-bands during the spring-summer at lakeshore or marshland areas to take advantage of spawning fish; in the fall inland sand plains and river valleys were occupied for deer and nut harvesting and groups split into small micro-bands for winter survival (Spence *et al.* 1990). This is a departure from earlier Woodland times when macro-band aggregation is thought to have taken place in the winter (Ellis *et al.* 1988; Granger 1978).

The period between the Middle and Late Woodland periods was both technically and socially transitional for the ethnically diverse populations of southern Ontario and these developments laid the basis for the emergence of settled villages and agriculturally based lifestyles (Fox 1990). The Late Woodland period began with some groups shifting settlement and subsistence patterns, involving an increasing reliance on corn horticulture. Corn may have been introduced into southwestern Ontario from the American Midwest as early as 600 AD. However, it did not become a dietary staple until at least three to four hundred years later. The first agricultural villages in southwestern Ontario date to the 10th century A.D. Unlike the riverine base camps of the Middle Woodland period, Late Woodland sites are located in the uplands, on well-drained sandy soils.

In the Late Woodland period, between 900-1300 AD, villages tended to be small settlements with nearby camps and hamlets that served as temporary spaces for hunting game and gathering resources outside of the villages. At this time, small village sites were characterized by the presence of longhouses with villages being occupied considerably longer than later in the Woodland period. Villages tended to be moved when nearby soils had been depleted by farming and conveniently collected firewood grew scarce. The Jesuits reported that the Huron moved their villages once every 10-15 years as they relied less heavily on corn than did later groups, and since their villages were much smaller, there was less demand on nearby resources. Small amounts of corn appear to have been a dietary component at this time; however, archaeological evidence suggests that its role was not as a dietary staple at this time but was possibly supplemental in nature.

Between 1300 and 1400 AD, village sizes grew significantly, resulting in the development of complex community political systems. This period also marks the emergence of fully developed horticulture, including the cultivation of corn, beans, and squash. Additionally, changes in ceramic styles may reflect increasing levels of inter-community communication and integration.

By the beginning of the fourteenth century, larger fortified village sites were often cleared to accommodate the cultivation of corn, beans, and squash as a result of an increasing reliance on horticulture. Longhouses also continued to grow in size until 1450 AD when a decrease in house length is observed. This decrease in house length may be partially attributed to large scale drops in population size associated with the introduction of European diseases.

### 1.3.2 Post-Contact Period Settlement

It is important to note that, when discussing the historical documentation of the movement of Indigenous people, what has been documented by early European explorers and settlers represents only a very small snapshot in time. Documentation of where Indigenous groups were residing during European exploration and settlement is restricted to only a very short period of time and does not reflect previous and subsequent movements of these groups. This brief history does not reflect the full picture of the pre- or post-contact period occupation of Indigenous groups or cultures. As such, relying on historic documentation in regard to

Indigenous occupation and movement across the landscape can lead to misinterpretation. For example, noting the movement of Indigenous groups into an area may incorrectly suggest to the reader that these groups had not occupied the area previously; however, this is not the case. It is clear from Indigenous oral histories and the archaeological record that pre-contact Indigenous populations were extremely mobile and not tied to any one specific area. Over the vast period of time prior to the arrival of Europeans, Indigenous groups, language families, and cultures were fluid across the landscape. Similarly, while economic activity altered the way people used the landscape, particularly at the height of the fur trade, the overall social-cultural system of kinship-based land-use and group association remained intact.

The arrival of European explorers and traders at the beginning of the 17<sup>th</sup> century triggered widespread shifts in Indigenous lifeways and set the stage for the ensuing colonialist settlement process. Documentation for this period is abundant, ranging from the first sketches of Upper Canada and the written accounts of early explorers to detailed township maps and lengthy histories.

The post-contact Indigenous occupation of southern Ontario was heavily influenced by the dispersal of Iroquoian-speaking peoples, including the Wendat and the Six Nations of the Iroquois – Mohawk, Cayuga, Oneida, Seneca, Onondaga, and Tuscarora. This was followed by the return of Algonkian-speaking groups from northern Ontario, who had temporarily retreated to their wintering grounds in the mid-1600s to avoid warfare and disease as a result of colonial settlement. Algonkian-speaking Ojibwe (Chippewa), Odawa (Ottawa), and Pottawatomi, known as the Three Fires Confederacy, remained in their traditional territory that covered a vast area of southern Ontario as well as eastern Michigan.

As colonial settlers encroached on their territory, the nature of Indigenous population distribution, settlement size, and material culture changed. Despite these changes, it is possible to correlate historically recorded villages with archaeological manifestations. The similarity of these sites to more ancient sites reveals an antiquity to documented cultural expressions that confirms a long historical continuity to systems of Indigenous ideology and thought (Ferris 2009).

The study area is located within the limits of Crawford's Purchases (**Figure 3**). The Crawford Purchases were made by Captain William Crawford on behalf of the Crown, and certain Indigenous peoples in October 1783, and involved the land along the north shore of eastern Lake Ontario and the St. Lawrence River. These purchases were designed to provide land to Loyalists who fought on behalf of the British during the American Revolution, including Indigenous allies and United Empire Loyalists (UELs) (CIRNAC 2023).

### 1.3.3 19<sup>th</sup> Century and Municipal Settlement

The study area is located within what is historically known part of Lots 11-12, Concession 4 Western Division, Kingston Township, Frontenac County, Gore Lot and Lots 39-42, Concession 3, Gore Lot and Lots 25-42, Concession 4, Lots 14-27, Concession 5, Lots 1-18, Concession 68, Lots 1-43, Concession 7, Ernestown Township, Lots 22-30, Concession 7 South, Fredricksburg Township, Lots 21 and 24-30, Concession 1, Lots 17-23, Concession 2 and Lots 8-16, Concession 3, Richmond Township, Lennox and Addington County, Ontario (**Figures 4 and 5**).

The first known European to the area was Samuel de Champlain, who passed through the Trent River in 1615 with a group of Huron-Wendat on their way to attack an Iroquois village south of Lake Ontario. His voyage resulted in the Bay of Quinte-Trent System becoming one of the main French routes for travel from the St Lawrence to the Upper Great Lakes (Boyce 1967).

The early settlement around the Bay of Quinte had been initiated following the American Revolutionary War (1775-1783). In the late eighteenth century, waves of British Loyalists and disbanded soldiers crossed north of the St-Lawrence River seeking protection and lands under the British Crown (Walker & Walker 1968: 1-2). The British government was caught slightly off guard by the migration and quickly initiated negotiations with the Mississauga for land purchase (Walker & Walker 1968: 2). In 1783, the Indian Department conducted the negotiations, known as the "Crawford Purchase", for the acquisition of an extensive band of land north of the St-Lawrence River (Walker & Walker 1968: 2).

Following the acquisition of this extensive parcel of land, the government initiated the organization of the land. In 1788, the government divided the territory into districts in order to provide administration services across the province (Archives of Ontario 2011). The Bay of Quinte area was incorporated into the historical District of Mecklenburg, which was renamed District of Midland in 1792. The same year, counties were created within the district for electoral and militia purposes and also to facilitate the survey of future townships and land registration (Archives of Ontario 2011).

### ***Lennox and Addington County***

The County of Lennox was named for Charles Lennox, Third Duke of Richmond, who was Ambassador Extraordinary to the Court of France in 1765 and Secretary of State in 1766. The County of Addington was named for Henry Addington, Viscount Sidmouth, Speaker of the House of Commons from 1789 to 1791, and Chancellor of the Exchequer and Prime Minister of Great Britain (Herrington 1913: 30).

### ***Ernestown Township***

In 1783 Ernestown Township was known as Second Township because it was the second township laid out in the eastern part of Upper Canada. The first settlers arrived in 1784 and were members of the 2<sup>nd</sup> Battalion of Sir John Johnson's regiment of the King's New York Rangers. The township was originally spelt "Ernesttown" after the eighth son of King George III, Prince Ernest Augustus. The Territorial Division Act revises Statutes of Ontario (1937 & 1950) spelt it as "Ernestown" and this has been the official spelling ever since (Queen's University). In 1998 the Townships of Ernestown and Amherst Island amalgamated with the Village of Bath to form Loyalist Township (Loyalist Township).

### ***Fredricksburgh Township***

Fredericksburgh was named after Frederick, Duke of Sussex, and ninth child of King George III. It was also referred to as Third Town as it was the third township to be surveyed. The first general survey was completed in 1783, but lots were not marked and numbered until the following year. Initially the Township did not have enough property for all of Colonel Rogers Corps, a group of UELs who wished to stay together, so 12 lots were taken from Adolphustown Township, and was known as Fredericksburgh Additional (Herrington 1913: 182). There is a documented cemetery, called Spook Horn Cemetery, located in Fredricksburgh Township, it is further discussed in **Section 1.3.5.1**.

### ***Richmond Township***

Settlement in Richmond Township centred around the Napanee River with the government owned gristmill at the falls of the river. These falls were known as the Appeneau Falls (Canniff 1869: 206). The mill was completed in 1785 and was run by Robert Clark (Canniff 1869: 207). United Empire Loyalists settled nearby and a hamlet was created, originally called Clarkville (Canniff 1869: 504). The waterpower of the Appeneau Falls attracted more industrialists, including Richard Cartwright who bought the government mill and erected two additional mills and a distillery on the bank of the river in 1812. The small hamlet grew around the mills. The first buildings were erected prior to the town subdivision and organization into lots (Herrington 1913: 222). In 1831, Samuel Benson prepared a formal site plan of the town; however, the developed portion of the village was not included in order to spare confusion (Herrington 1913: 222). The village flourished rapidly and the village was incorporated in 1854 (Canniff 1869: 504). There is a documented cemetery, called Riverside Cemetery, located in Richmond Township, it is further discussed in **Section 1.3.5.2**.

### ***Frontenac County and Kingston Township***

This county is one of the earliest settlements of Upper Canada (Middleton, 1927). This area includes the City of Kingston and the site of Fort Frontenac, built by Louis de Buade, the Comte de Frontenac and governor of New France in 1673 (National Defence of Canada). This fort was built as a commercial and



military outpost in an attempt to counter the growing fur trade from the English Colony in New York and gain control over the Indigenous groups (National Defence of Canada).

In 1675, Fort Frontenac and four leagues of mainland with Wolfe and Amherst Islands were granted by Louis XIV to De La Salle as a Seigneury (Middleton, 1927). The fort was captured by Colonel Bradstreet in 1759 (Middleton, 1927). In 1783, ten townships were surveyed along the Front (Middleton, 1927). It was surveyed under Haldimand and settled in 1784 by Michael Grass and a party of Loyalists from New York (Middleton, 1927). A mill was built at Kingston Mills on the Rideau in 1783 (Middleton, 1927).

In 1785, Kingston was described as increasing fast, with already fifty houses built and some being very elegant (Middleton, 1927). In 1789 Carleton Island, which had been the Navel depot, was surrendered to the Americans and the Naval services were transferred to Kingston (Middleton, 1927). At this time, the “stone frigate” was erected, which has long been a barrack building for the Royal Military College (Middleton, 1927).

In 1792 Governor Simcoe arrived to organize Upper Canada (Middleton, 1927). Frontenac County was organized in this movement and became an electoral district (Middleton, 1927). In 1792-94, the first St. George's church was built and served until 1825, when a stone building was erected to replace it (Middleton, 1927). The first Roman Catholic Church was built in 1808, the first Wesleyan Chapel in 1817, and St. Andrew's in 1820 (Middleton, 1927). In 1838, Kingston was incorporated as a town, and the first mayor was Thomas Kirkpatrick (Middleton, 1927). Between 1841 and 1843, Kingston served as the capital of Canada (Middleton, 1927). Queen's University opened its doors in 1841 (Middleton, 1927). In 1846, Kingston became incorporated as a city, with John Counter as the first mayor (Kingston Historical Society, 2000). In 1856, Kingston was added to the Grand Trunk Railway system, connecting to Toronto and Montreal (Kingston Historical Society, 2000).

In 1927 when Middleton was collecting this information, parts of Frontenac County were very fertile and suitable for farming, while others were rocky with many small lakes and streams (Middleton, 1927). The City of Kingston was served by the Canadian Pacific and the Canadian National Railways and had connection with Ottawa by the Rideau Canal (Middleton, 1927). Manufacturers in the area included locomotive, engines, motorboats, cottons and knitted goods, pianos, tile, sash and doors, picture moulding and leather (Middleton, 1927). Queen's University and the Royal Military College offer higher education, and the public schools and collegiate institute were described as admirable (Middleton, 1927). There was a government dry-dock, and a good harbour fully utilized in the summer months (Middleton, 1927). Kingston was described as a “solid-looking and picturesque city” (Middleton, 1927).

In 1997, the City of Kingston, Kingston Township, and Pittsburgh Township (on the southern side of Cataraqui Bay and the Rideau, adjacent to Kingston, opened in 1787) amalgamated to create the City of Kingston we see today (Ontario Government, 2022; Middleton, 1927). At the same time of this amalgamation, the City of Kingston separated from Frontenac County (Ontario Government, 2022). Today, Frontenac County is made up of the municipalities of North Frontenac, Central Frontenac, South Frontenac, and Frontenac Islands.

### ***Historical Overview of Highway 401***

Kings Highway 401 (Highway 401) is a primary route across the west, central, and eastern portions of southern Ontario. During the 1930s southern Ontario needed an east to west highway. With the increase in automobile dependency many of the major trans-provincial roads were becoming congested, including Highway 2. In the late 1930s, under the direction of Thomas B. McQuestion the planning for the provincial highway began and construction began after World War II (Shragge, 2007). In 1947, the first section of the controlled-access highway was completed between West Hill in Scarborough and Oshawa (Bever, 2024). This stretch of highway was known as Highway 2A and in 1952 Highway 2A was renamed Highway 401, the year in which the 400 series highway numbering was introduced into Ontario.

Beginning in the 1950s and continuing until the completion of Highway 401 in 1968, those communities that suffered the most congestion were prioritized along the alignment (Bever, 2024). Those high priority sections include:

- Windsor to Tilbury
- London to Woodstock
- Milton to Toronto
- Oshawa to Port Hope
- Trenton to Belleville
- Kingston to Gananoque

The remaining sections of Highway 401 were completed during the 1960s. In 1965, the Premier of Ontario John Robarts designated Highway 401 as the Macdonald-Cartier Freeway paying respect to Sir John A. Macdonald and George-Étienne Cartier (Annual Report, 1966).

Today, Highway 401 is 818 kilometres in total length and terminates in the west at Highway 3 in Windsor and at the Ontario-Quebec border in the east. It is now a vital economic corridor (Bever, 2024).

### ***Historical Mapping Review***

The 1860 Historic Atlas Map of Richmond Township, Fredricksburgh Township and Ernestown Township of Lennox and Addington County and Kingston Township of Frontenac County (**Figure 4**) and 1878 Historic Atlas Map of Richmond Township, Fredricksburgh Township and Ernestown Township of Lennox and Addington County and Kingston Township of Frontenac County (**Figure 5**) were reviewed by AECOM for the presence of historical landowners, features, or other cultural markers of interest, including historical transportation routes within the study area, to further provide historical context to the study area.

A review of the mapping indicates that the townships of Fredricksburgh, Ernestown and Richmond were well settled as of 1860 and continuing into 1878 with almost every lot associated with a landowner and the majority depicted as having homesteads present. In addition to homesteads, within close proximity to the study area (i.e., 300 m), the 1860 map shows, from west to east, a school in Lot 12, Concession 3, Richmond Township, a grist mill and sawmill within Lot 16, Concession 2 and 3, Richmond Township, a Toll Gate located within Lot 21, Concession 3, Richmond Township, a sawmill located in Lot 22, Concession 3, Richmond Township, another Toll Gate in Lot 23, Concession 3, Richmond Township, a school in Lot 24, Concession 3, Richmond Township, a cemetery in Lot 25, Concession 2, Richmond (Riverside Cemetery, today located in Lot 25, Concession 1, Richmond Township), a blacksmith shop in Lot 23, Concession 7, Fredricksburgh Township, a school on Lot 4, Concession 7, Ernestown Township, and a school on Lot 21, Concession 5, Ernestown Township. The study area also passes through the settlement of Odessa in Ernestown Township.

In the 1878 mapping, from west to east, the school in Lot 12, Concession 3, Richmond Township is not visible, the above grist and saw mills on Lot 16, Concession 3, Richmond Township are not visible, the Toll Gate on Lot 21, Concession 3, Richmond Township is now a school, the Toll Gate located within Lot 21, Concession 3, Richmond Township is not visible, the sawmill located in Lot 22, Concession 3, Richmond Township is not visible, the other Toll Gate in Lot 23, Concession 3, Richmond Township is not visible, the school in Lot 24, Concession 3, Richmond Township is not visible, the cemetery in Lot 25, Concession 2, Richmond (Riverside Cemetery, today located in Lot 25, Concession 1, Richmond Township) is still visible, the blacksmith shop in Lot 23, Concession 7 of Fredricksburgh Township is not visible anymore, the school on Lot 4, Concession 7, Ernestown is still visible, and the school on Lot 21, Concession 5, Ernestown Township is visible as well. The settlements of Napanee and Odessa shows expansion from 1860 to 1878. A review of historic roadways also determined that County Roads 41, 19, 6 and 5 were open as of 1860 and remained open in 1878 (**Figures 4 and 5**).

It should be noted that not all features of interest, particularly farmhouses and smaller homesteads, were mapped systematically as this would have been beyond the intended scope of the Ontario historical atlas

series. In addition, given that atlases were funded by subscription, preference regarding the level of detail included was given to subscribers. As such, the absence of structures or other features on historic atlas maps does not preclude the presence of historic features at the time the area was surveyed.

### 1.3.4 The City of Kingston's Archaeological Management Plan (2009)

In 2009, the City of Kingston's *Master Plan of Archaeological Resources Technical Report* and the *Planning for the Conservation of Archaeological Resources in the City of Kingston* were published to provide guidance with regard to management of archaeological resources within the City of Kingston. These documents outline the City's role and responsibilities and provides a protocol for the implementation of the plan to ensure the management of archaeological resources is systematic and consistent across the City's jurisdiction. Both document's appendices provide overall archaeological potential mapping for the City, which is based on the MCM's criteria for determining archaeological potential. The Project limits terminate at the municipal boundary between the Township of Loyalist and City of Kingston. The City's archaeological potential modelling indicates that lands adjacent the Project impact area within the boundaries of the City of Kingston retain archaeological potential (**Figure 6**), based on its proximity to Milhaven Creek and Lake Ontario.

### 1.3.5 Cemeteries

Historical background research, information sourced from the Bereavement Authority of Ontario (BAO), and information provided from consultation with the respective management for the cemeteries are all provided below. E-mail communication logs are provided within the **Supplementary Documentation** appended to this report. Cemetery plot mapping, diagrams, and parcel mapping where available from the BAO and/or the cemetery management are provided within **Appendix A**. The Spook Horn Cemetery and Riverside Cemetery's presumed boundaries, based on the above-mentioned mapping sources and archival research, are also mapped within **Figure 9**.

#### 1.3.5.1 Spook Horn Cemetery

The Stage 1 background research found information regarding a poorly documented cemetery within the study area on Lot 23, Concession 7. Available information was detailed in Past Recovery Archaeological Service's Stage 1-3 AA under PIF P336-0233-2018, P336-250-2019 and P336-0260-2019. Their findings are summarized here. Between 1961 and 1963, the property owner at the time, Ivon Simkins, found several unmarked partially buried limestones slabs on part of his land. He found 34 stones and completed some initial excavations, which found skeletal remains. He contacted several agencies, including the Royal Ontario Museum (ROM), who sent out Walter A Kenyon to investigate. Kenyon completed some initial work in 1964 and opened four graves. He took the contents of the graves back to the ROM for further investigation. He estimated that there were 50 individuals buried in the cemetery. His analysis of the grave contents concluded that the burial ground likely dated between 1786, when the first mill was established in Napanee, and 1840 when cemeteries began to be established in the area. Due to the size of the cemetery, Kenyon concluded that it was too large for a single-family burying ground and may have been associated with the nearby settlement of Clarksville (Past Recovery 2020).

Past Recovery's research found that it had been suggested that the cemetery could be the location of St Warburg, a poorly recorded church in Fredricksburg Township. It was mentioned by Rev John Langhorn, first Anglican Bishop of Ontario. The location of the church was not known but is supposed to date to 1791. Langhorn's register shows entries relating to St Warburg between 1792 and 1806. Past Recovery found that the Spook Horn Cemetery does not appear on the 1834 survey plan of the area. Their theory was that the cemetery may have gone out of use by this time (Past Recovery 2020). Land registry records for Lot 23 do not shed light on this situation. The first mention of the burial ground is in 1875 when Peter Fraser bought 12 acres from Adbram Loucks, except for the burying ground.

AECOM contacted the BAO through e-mail on August 5, 2025, and spoke with Crystal Forrest, Senior Manager, Regulatory Operations, and Selena Janssens, Inspector, to inquire about the cemetery's history. Mrs. Janssens let AECOM know that Spook Horn is a complex site with little mapping available, and what is available is not overly reliable. She also let AECOM know that the Town of Greater Napanee is currently working toward determining the exact location and boundaries of the Spook Horn Cemetery through a Stage 1 AA (although who was completing this assessment was not provided at the time of this email communication). She also said that the Town of Greater Napanee does have some concerns about potential internments along the boundaries and possibly within Lots 24 and 22. She provided a hand drawn map of the cemetery, which included some photographs, along with two survey plans identifying where the cemetery potentially resides. Since the mapping provided by the BAO is of poor quality, it was not useable for GIS referencing. But these provided documents are available for review in **Section 2.1** of the **Supplementary Document**.

AECOM contacted the Town of Greater Napanee through e-mail on May 8, 2025, and spoke with Sonia McLuckie. She said that it came to the attention of the Town last year that a cemetery existed between the Highway 401 corridor and Palace Road, known as the Spook Horn Cemetery and it was also discovered that this cemetery is licenced and operated by a licence under the Town. As the Town is responsible for cemeteries under their licence, it is their obligation to maintain and protect them. The Town was advised by the BAO to complete an AA of this cemetery to determine the boundary. The Town is going to undergo an AA of Lot 23, Concession 7, Geographic Township of North Fredericksburgh. A request for tender was posted and closed May 23, 2025. The expansion of the 401 corridor has been of conversation with the BAO and Mrs. McLuckie believes until the Town determines the boundaries of the cemetery, no work in that area will be permitted. Depending on the findings, it may have an impact on the current MTO Highway 401 Improvements between Belleville and Kingston Planning, Preliminary Design and Class Environment Assessment Study #2.

A follow up email to Mrs. McLuckie was sent on February 19, 2026, asking her if there has been any update regarding the determination of the boundaries of Spook Horn Cemetery. Mrs. McLuckie responded that the Town is still in the end stages of survey work in that area. However, she said she will ask their archaeologist, who is currently doing an AA to determine the boundaries, if they have any mapping that can be shared prior to approvals from the BAO and the MCM.

Mrs. McLuckie responded on February 26, 2026, with a package of select maps approved for AECOM's records from their archaeologist of the True North Archaeological Services company, who was completing the AA. Currently, the True North Archaeological Services company is conducting a Stage 1-3 AA (under PIFs P311-0368-2025, P311-0378-2025, and P311-0382-2025) to determine the boundaries of the Spook Horn Cemetery. AECOM was only provided with a mapping package and not the written report. No reference of results or recommendations were seen within the supplied map package.

On May 28, 2026, AECOM was provided the draft Stage 1-3 AA for Spook Horn Cemetery, Part Lot 23, Concession 7, Township of Fredricksburg, Town of Greater Napanee, Ontario, conducted by True North Archaeological Services. This draft report was provided by MTO who received it from the Town of Greater Napanee. Based on the Stage 1-3 AA, the limits of the Spook Horn Cemetery are now known and can be seen on **Figures 2-3, 9-3, and SD Figure 2-3** and **4**. The report has not yet been accepted into the Ontario Register for Archaeological Reports by the MCM.

On June 1, 2026, AECOM reached out to Sonia McLuckie at the Town of Greater Napanee to confirm that the limits of the Spook Horn Cemetery, that are outlined in the draft Stage 1-3 AA conducted by True North Archaeological Services, will be used to register the cemetery with the BAO. Mrs. McLuckie responded and confirmed that the newly determine boundaries will be used to formally define the cemetery limits with the BAO, as the cemetery has previously been registered with the BAO. This correspondence is available in **Section 2.2** of the **Supplementary Document**.

### 1.3.5.2 Riverside Cemetery

The Riverside Cemetery is an active cemetery managed by the Town of Greater Napanee. It is located at 334 Church Street, Napanee, Ontario, as illustrated in **Figure 2-3**, within what is historically known as Lot 25, Concession 2, Geographic Township of Richmond, County of Lennox and Addington, now in Lot 25, Concession 1 of the Town of Greater Napanee, County of Lennox and Addington. The cemetery measures approximately 37.7 acres (15.3 hectares). Due to the relative proximity of the cemetery to the study area, the background research has been conducted to confirm the cemetery boundaries. The cemetery is approximately 50m south of the study area and is currently of no concern to the Project.

The property features two main entrances, fronting Church Street, each with a gravel roadway. There are no gates or fences to mark the boundaries on the Church Street elevation of the property. The southern front entrance has the municipal number sign, plus a simple plaque on a wooden post put up by the Town of Greater Napanee. The northern entrance just has the plaque on a wooden post. The plaque reads "RIVERSIDE CEMETERY 334 Church Street". Directly to the north of the southern entrance there is a mausoleum. The south boundary is bound by a hedge line separating it from adjacent residential properties and the Napanee River. The north boundary is bound by a forest of birch trees and an agricultural field. The east boundary is bound by a tree line and the Napanee River.

With regard to the cemetery's history, the Napanee Cemetery Company purchased part of Lot 25, Concession 2 of Richmond Township from E. B. Miles and his wife in 1872 (Land Registry Office, 2026a). In 1925, the Napanee Cemetery Company sold a portion of their land to the Corporation of the County of Lennox and Addington, described as a road plan (Land Registry Office, 2026a). In 1976, the Napanee Cemetery Company sold part of the section of the lot to the Municipal Geographic Township of Richmond, assumably for a road plan, and another part to Deann Young & Trust (Land Registry Office, 2026a). In 1981, the Napanee Cemetery Company sold another section of the Lot to Wendel Vine (Land Registry Office, 2026a). In 2020, the Napanee Cemetery Company informed the Town of Greater Napanee that they wished to turn over the Riverside Cemetery over to the municipality (The Napanee Beaver, 2020). Based on a photograph in this article of the old cemetery sign produced by the Napanee Cemetery Company, the Riverside Cemetery was established in 1870 (The Napanee Beaver, 2020). Today, the cemetery owns a large portion of Lot 25, Concession 1 in the Town of Greater Napanee, County of Lennox & Addington. The cemetery itself does not take up the full expanse of this Lot, but the exact boundaries of the cemetery are unknown. The Lot does go to the edge of the current Highway 401, and is within the current study area, but the cemetery itself is not within the study area.

AECOM contacted the BAO through e-mail on February 3, 2026 and spoke with Elizabeth Nanson, Licensing Officer of the BAO, to inquire about the cemetery's history. Mrs. Nanson forwarded what the BAO had on file for the Riverside Cemetery. This included the plans for a proposed Hunt Columbarium, a map for the distance this proposed Hunt Columbarium was from Church Street, a map of where this proposed Hunt Columbarium would sit within Section G of the cemetery, as well as a set of photographs of the staking of the location of the proposed Hunt Columbarium of where it is to be installed. There was no confirmation of the boundaries of the cemetery. This correspondence and provided documents are available in **Section 3.1** of the **Supplementary Document**.

AECOM contacted the Town of Greater Napanee through e-mail on February 3, 2026 and spoke with Sonia McLuckie. She said that it would take some time to gather information pertaining to the Riverside Cemetery as their records are paper and not digitized. A follow up e-mail was sent on February 19, 2026, with a response from Mrs. McLuckie saying she will provide what she can, when she can.

Mrs. McLuckie responded on February 26, 2026, and said that she has located the 1915 mapping of the Riverside Cemetery and can confirm the cemetery boundary does not extend to the far North, therefore the Town of Greater Napanee has no record of any burial taking place to the north. In order to be provided with the mapping, Mrs. McLuckie said that AECOM needs to enter into a Data Sharing Agreement with the Town of Greater Napanee. She provided the contact to be able to do so.



On February 26, 2026, AECOM contacted Diana Tyner, who was the contact provided by Mrs. McLuckie to discuss the Data Sharing Agreement with. After a phone call discussing the parameters of what the Data Sharing Agreement would entail Ms. Tyner forwarded the Data Sharing Agreement to AECOM on March 26, 2026. It was signed and sent back by AECOM on March 27, 2026. On April 7, 2026 Ms. Tyner forwarded a copy of a 1915 paper map of the Riverside Cemetery, along with photographs of the original plot maps and GIS packages for the cemetery. Due to the confidential nature of the provided documentation of the cemetery, they have been placed in **Section 3.2** of the **Supplementary Document**. This correspondence can also be found in **Section 3.2** of the **Supplementary Document**.

The beginnings of the Riverside Cemetery are obscure, as based on the photograph from the Napanee Beaver article and the cover photo for the cemetery on Find-a-Grave, the cemetery was founded in 1870, but that year has since been removed from the current plaque (2020 & 2026). The oldest headstones are from the early to mid-19<sup>th</sup> century, with the oldest being from 1829 (Find-a-Grave, 2026). Based on the 1915 map, there was an old cemetery located in the northeast corner of the area, originally established by the surrounding community, most likely as a local burial ground. It can be assumed that as the community grew so did the cemetery, explaining the purchase made by the Napanee Cemetery Company in 1872. This was most likely done to make the local burial ground an official cemetery resource for the community and then allowed the cemetery to expand south into what was seen in the 1915 map. Based on this 1915 map and the provided GIS Riverside Cemetery Package from the Town of Greater Napanee, the boundary of the cemetery is intact and has stayed consistent over time. The graves have not moved with the late 19<sup>th</sup>/early 20<sup>th</sup> century expansion.

### 1.3.5.3 Smith Cemetery

The Smith Cemetery is a mid to late 19<sup>th</sup> century private cemetery consisting of four burials. This cemetery is located approximately 50m north of the study area, as illustrated in **Figure 2-1**, on the property of 672 Drive-In Road West, Napanee, Ontario, which is in Lot 13, Concession 3, Greater Napanee, Lennox and Addington. This cemetery is located approximately 50m outside of the current study area but is still discussed here since it is located close by. On April 21, 2026, AECOM reached out to the BAO via e-mail to gain any information about the cemetery. Molly Dawe, a licensing officer with the BAO, responded to the e-mail on April 24, 2026, and confirmed that the BAO has no maps on file for the Smith Cemetery. However, the BAO stated that the cemetery is registered on file as containing four burials and is listed as inactive. This correspondence is available in **Section 4.1** of the **Supplementary Document**.

On April 21, 2026, AECOM reached out to Sonia McLuckie from the Town of Greater Napanee via e-mail to confirm if the town had any further information they could provide concerning this cemetery. On April 28, 2026, Mrs. McLuckie responded confirming that she visited the property and that the burials still exist on the property with worn headstones and were interred between 1849 to 1873. The cemetery is located to the east of the house on the property along the eastern property boundary. She also provided a map to confirm the location of the cemetery based on her site visit. Due to its confidential nature, this map has been placed in **Section 4.2** of the **Supplementary Document**. Land registry records show that much of the land was owned by various Smith's, leading to the assumption that this private cemetery was a familial burial plot (Land Registry Office, 2026b). This correspondence is available in **Section 4.2** of the **Supplementary Document**.

## 1.4 Archaeological Context

This section provides background research pertaining to previous archaeological fieldwork conducted within and in the vicinity of the study area, its environmental characteristics (including drainage, soils or surficial geology and topography, etc.), and current land use and field conditions.

### 1.4.1 Natural Environment

The study area is situated within the Napanee Plain physiographic region of eastern Ontario (**Figure 6**). This region is characterized by a flat-to-undulating plain of limestone from which most of the overburden

was stripped by glaciers (Chapman and Putnam 1984: 186). While soil is relatively shallow throughout this region, some deeper glacial till does occur in the stream valleys and depressions where deposits of stratified clay are found. This is the case around Amherst Island (Chapman and Putnam 1984: 186). The soil on the mainland at Millhaven consists of Farmington loam, a well-drained shallow till that overlies limestone bedrock (Gillespie and Wicklund 1963).

Historically, sugar maple was the dominant tree species along with white elm, silver and red maple and cedar, which occupied the lower ground with basswood, beech, oak and white pine on the dry, shallow upland soils (Chapman and Putnam 1984: 187).

The single most important environmental feature necessary for extended human occupation is potable water. As such, proximity to water is regarded as a useful index for the determination of potential for the presence of archaeological resources. The study area crosses over Sucker Creek, the Napanee River, Little Creek, Spring Creek, Wilton Creek, Millhaven Creek, and several unnamed tributaries. Given the overall drainage of the area, and the proximity to creeks and rivers, these environmental characteristics would have provided an ideal environment for both temporary and permanent settlement throughout the pre-and post-contact periods. The water sources would have served as an important pre- and post-contact transportation routes as well as a sources of potable water and riverine resources.

During the 19<sup>th</sup> and 20<sup>th</sup> centuries, rapid deforestation resulted in significant land clearance and over time, the once diverse forest life and wide range of tree species and natural resources would have also been depleted as agricultural and modern residential and commercial development continued. Over the course of the 19<sup>th</sup> century, the study area would have been made up of agricultural land just outside of the rapidly expanding municipality along historically surveyed road allowances. As a result of continuing development, this portion of southern Ontario is almost completely deforested today.

## 1.4.2 Previous Archaeological Work

To inform the current Stage 1 AA and further establish the archaeological context of the study area, a search of the MCM's Past Portal was conducted by AECOM to determine if any previous archeological work had been completed within the current study area or within 50 m of the study area boundaries. Fourteen previous assessments were identified by this search (**Figure 7**). Table 2 lists the reports that detail previous archaeological work relevant to the study area.

**Table 2. Archaeological Reports Relevant to the Study Area**

| Year  | Title                                                                                                                                                                                                              | Author | PIF Number                     |
|-------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|--------------------------------|
| 2012a | Final Report Stage 1 Archaeological Background Study And Stage 2 Property Assessment Sol-Luce Kingston Solar PV Energy Project Ernestown And Kingston Townships, Frontenac, Lennox And Addington Counties, Ontario | AMEC   | P348-001-2011<br>P141-160-2011 |
| 2012b | Final Report, Stage 2 Property Assessment, Parcel 14A, 21, 22, 23 & 24, Sol-Luce Kingston Solar PV Energy Project, Ernestown And Kingston Townships, Frontenac, Lennox And Addington Counties, Ontario.            | AMEC   | P141-166-2011                  |

| Year  | Title                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Author                                    | PIF Number                                     |
|-------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|------------------------------------------------|
| 2012c | Original Report Stage 2 Property Assessment Access Roads/Collector Lines: Parcel 1-2, 3, 4, 21 & 22 Sol-Luce Kingston Solar PV Energy Project Ernestown And Kingston Townships, Frontenac, Lennox And Addington Counties, Ontario                                                                                                                                                                                                                              | AMEC                                      | P141-169-2012                                  |
| 2013  | Sol-luce Kingston Solar PV Energy Project Additional Stage 2 Archaeological Assessment, Various Lots, Concessions 5 and 6, Western Addition, Geographic Township of Kingston, now City of Kingston, Frontenac County; Various Lots, Concession 4, Geographic Township of Ernestown now Loyalist Township, Lennox and Addington County, Ontario                                                                                                                 | Stantec Consulting Ltd                    | P389-0016-2013                                 |
| 2017  | Stage 1 and 2 Archaeological Assessment Five (5) Culvert Replacements on Highway 401 between Highway 37 and County Road 41, Part of Lot 23, Concession 2, Geographic Township of Thurlow, Part of Lot 40, Concession 1 North of the Road, Geographic Township of Tyendinaga, Hastings County and Part of Lots 1 and 6, Concession 3 and the Road Allowance between Lots 12 and 13, Concession 3, Geographic Township of Richmond, Lennox and Addington County. | The Central Archaeology Group Inc         | P248-0275-2017                                 |
| 2019  | Stage 1 and 2 Archeological Assessment Class EA for Highway 401 Napanee River Bridge Rehabilitation and Potential Six Lane Expansion (GWP 4197-13-00), Part Lots 23 and 24, Concession 7, Geographic Township of Fredricksburgh and Part Lots 27 and 28, Concession 1, Geographic Township of Richmond, Now Town of Greater Napanee, County of Lennox and Addington                                                                                            | Past Recovery Archaeological Services Inc | P111-0075-2018                                 |
| 2020  | Stage 1 and 2 Archaeological Assessments, Stage 3 Archaeological Assessment of the Quackenbush Site (BbGf-47) and Stage 3 Cemetery Investigation Class EA for the Highway 401/Palace Road Interchange                                                                                                                                                                                                                                                          | Past Recovery Archaeological Services Inc | P336-0233-2018, P336-0250-2019, P336-0260-2019 |

| Year  | Title                                                                                                                                                                                                                                                                                                                      | Author                                    | PIF Number                          |
|-------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|-------------------------------------|
|       | Improvements (Agreement #4016-E-0014; Assignment #21, #37) Lots 24 to 26, Concession 7, Geographic Township of Fredricksburgh, Now Town of Greater Napanee, County of Lennox and Addington                                                                                                                                 |                                           |                                     |
| 2020  | Stage 1-2 Archaeological Assessments Highway 401 Interchange Improvements at Palace Road, Preliminary Design and Class EA, Part Lots 23-27, Concession VII, North Fredricksburgh Township, Lennox and Addington County, Town of Greater Napanee, County of Lennox and Addington, Ontario, G.W.P. 4197-13-00                | AECOM Canada ULC                          | P123-0372-2017                      |
| 2021a | Stage 1 and 2 Archaeological Assessments Class EA for the Highway 401 Interchange Improvements at Palace Road (GWP 4197-13-00), 974 Palance Road, Lot 25, Concession 7, Geographic Township of Fredricksburgh, now Town of Greater Napanee, County of Lennox and Addington                                                 | Past Recovery Archaeological Services Inc | P1201-0055-2020                     |
| 2021b | Stage 1 and 2 Archaeological Assessments Class EA for the Highway 401 Interchange Improvements at Palace Road (GWP 4197-13-00), 959 Palance Road, Lot 25, Concession 7, Geographic Township of Fredricksburgh, now Town of Greater Napanee, County of Lennox and Addington                                                 | Past Recovery Archaeological Services Inc | P1201-0057-2020                     |
| 2021c | Stage 1 and 2 Archaeological Assessments Class EA for the Highway 401 Interchange Improvements at Palace Road (GWP 4197-13-00), 974 Palace Road, and Stage 3 Assessment of the H1 Site (BbGf-48), Lot 25, Concession 7, Geographic Township of Fredricksburgh, now Town of Greater Napanee, County of Lennox and Addington | Past Recovery Archaeological Services Inc | P1201-0054-2020,<br>P1201-0056-2020 |
| 2023  | Stage 3 Archaeological Assessment of the Jacob Vanalstine Site (BbGf-50), 974 Palace Road, Lot 25, Concession 7, Geographic Township                                                                                                                                                                                       | Past Recovery Archaeological Services Inc | P1201-0088-2021                     |

| Year                                                                                                                         | Title                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Author                                   | PIF Number                                               |
|------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|----------------------------------------------------------|
|                                                                                                                              | of Fredircksburgh, New Town of<br>Greater Napanee                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                          |                                                          |
| 2024                                                                                                                         | Stage 1-2 Archaeological<br>Assessment: Quinte West Detention<br>Centre                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Stantec Consulting Ltd                   | P415-0285-2021                                           |
| Forthcoming                                                                                                                  | Study #1 (GWP 4022-21-00) Stage<br>1 Archaeological Assessment<br>Highway 401 improvements<br>between Belleville and Kingston<br>Planning, Preliminary Design and<br>Class Environmental Assessment<br>Study #1 (GWP 4022-21-00)<br>including Highway 401 from 4.3 km<br>east of Highway 37 to 5 km west of<br>County Road 41/Centre Street. Part<br>of Lots 17-31, Concession 2, Lots<br>17-27, Concession, Thurlow<br>Township and Lots 1-40,<br>Concession 1 North of the Road,<br>Township of Tyendinaga, Hastings<br>County and Lots 1-12, Township of<br>Richmond, Lennox and Addington<br>County, Ontario | AECOM Canada ULC                         | P316-0562-2025                                           |
| Awaiting<br>Review and<br>Acceptance by<br>the MCM into<br>the Ontario<br>Public Register<br>of<br>Archaeological<br>Reports | Stage 1 to 3 Archaeological<br>Assessment Spook Horn Cemetery,<br>Part Lot 23, Concession 7, Township<br>of Fredericksburg, Town of Greater<br>Napanee, Ontario                                                                                                                                                                                                                                                                                                                                                                                                                                                  | True North<br>Archaeological<br>Services | P311-0368-2025,<br>P311-0378-2025, and<br>P311-0382-2025 |

The three AMEC reports were not available for download on Past Portal. For the project area, Stantec completed a Stage 2, as discussed below. According to Stantec's report, a Stage 1 AA for the Sol-luce Kingston Solar PV Energy Project was completed by AMEC in 2011 in a combined Stage 1 and 2 Report (AMEC 2012a). Their Stage 2 assessment was performed in the fall of 2011 for 22 parcels of land (AMEC 2012a). Subsequently, in December 2011, AMEC completed a Stage 2 property assessment of 5 additional parcels of land (AMEC 2012b). In May 2012 AMEC conducted a Stage 2 property assessment for a various access roads and other infrastructure (AMEC 2012c). Based on future reporting by Stantec (2013), the portion of the AMEC study area that overlaps with the current study area was subject to stage 2 assessment and cleared of archaeological concern.

In 2013 Stantec Consulting Ltd undertook the Stage 2 AA of a 117.16 ha area for proposed housing of solar panels and associated infrastructure. The assessment resulted in the discovery of Location 1 (BbGd-58), an isolated basal fragment of a Meadowood projectile point. As the artifact was isolated, it was determined that the location did not retain enough CHVI to warrant further investigation. No further assessment was recommended, and the study area was cleared of further archaeological concerns (Stantec 2013).

In 2017 AECOM undertook the Stage 1-2 AA of Highway 401 Interchange Improvements at Palace Road. The assessment consisted of background research followed by Stage 2 assessment. The assessment found areas of disturbance and slope. There were also permanently wet areas. The remaining sections



were subject to Stage 2 test pit survey. The assessment resulted in the discovery of a 19<sup>th</sup> century site called the H1 site (BbGf-48). A total of 251 artifacts representing an occupation from the 1850s to the 1900s were recovered. The H1 site (BbGf-48) was recommended for Stage 3 AA while the remainder of the study area was cleared of further archaeological concerns (AECOM 2020).

In 2017 the Central Archaeology Group Inc. undertook the Stage 1 and 2 AA for five culvert locations on Highway 401 between Highway 37 and County Road 41. One of these culverts was located within the current study area. The Stage 2 test pit survey at this culvert found that the ground had been previously disturbed, and no further work was recommended. Further, all five culvert locations were cleared of further archaeological concerns (The Central Archaeology Group Inc 2017).

In 2018, Past Recovery was retained by McIntosh Perry Consulting Engineers Ltd. (McIntosh Perry) on behalf of the Ontario Ministry of Transportation (MTO) to undertake Stage 1 and 2 AAs as part of environmental field studies and pre-engineering work for the bridge rehabilitation and potential six lane expansion where Highway 401 crosses the Napanee River. The Stage 1 assessment determined that Stage 2 was required. The results of the Stage 2 property survey determined that there are no further concerns for unlicensed impacts to archaeological sites within the study area and no further AA of the subject property is required in advance of the planned rehabilitation and potential six lane expansion (Past Recovery, 2019).

In 2019 Past Recovery Archaeological Services Inc. undertook Stage 1-3 assessments and a Cemetery Investigation to address concerns for a poorly documented historical cemetery as part of the environmental field studies and pre-engineering work for the technically preferred alternative for the Highway 401 interchange improvements at Palace Road. The Stage 2 survey resulted in the discovery of the Quackenbush site (BbGf-47), a site dating from 1840-1850. This was subject to Stage 3 AA and was found to no longer retain CHVI and was cleared of further archaeological concerns. Mechanical topsoil removal was completed as part of the Cemetery Investigation involving stripping of a 10m wide corridor along the western edge of the current MTO property abutting the Spook Horn Cemetery and no grave shafts were identified and no further cemetery investigation was recommended for the lands to be impacted by the project. It was also recommended that the H1 site (BbGf-48) found by AECOM in 2017 be subject to Stage 3 AA, while all remaining parts of the study area were cleared of further archaeological concerns (Past Recovery 2020).

In 2020 and 2021 Past Recovery completed Stage 1 through 3 AAs for proposed Highway 401 interchange improvements at Palace Road on three individual parcels. The work was documented in four assessment reports (Past Recovery Inc. 2021a, b, and c, and 2023). The first assessment (P1201-0055-2020) resulted in the discovery of Location 1 and Location 2 (BbGf-50). Location 1 was determined to date to the early 20<sup>th</sup> century and was not recommended for further Stage 3 assessment. Location 2 was determined to be a 19<sup>th</sup> century site. Location 2 was found to retain sufficient CHVI to warrant Stage 3 assessment. The remaining parts of the study area were cleared of further archaeological concerns (Past Recovery 2021a).

The second Past Recovery assessment for proposed Highway 401 interchange improvements at Palace Road (P1201-0057-2020) resulted in the discovery of the John Alvin Vanalstine site (BbGf-51). This site was found to date from the 1870s to the 1950s. It was determined that the site did not retain sufficient CHVI to warrant further investigation and the study area was cleared of further archaeological concerns (Past Recovery 2021b).

The third Past Recovery assessment for proposed Highway 401 interchange improvements at Palace Road (P1201-0054-2020, P1201-0056-2020) documented Stages 1 through 3 assessment work. The Stage 2 survey resulted in the re-discovery of the H1 site (BbGf-48), previously documented by AECOM in 2020, as well as the discovery of Location 4 (BbGf-49), which consists of an isolated Innis-type projectile point, and Location 5, which is a 20<sup>th</sup> century scatter. The 20<sup>th</sup> century scatter (Location 5) was determined to not retain CHVI, and no further assessment was recommended for that site. Stage 3 assessment was conducted at the H1 site (BbGf-48). The Stage 3 AA of the H1 site (BbGf-48) recovered 1709 19<sup>th</sup> and 20<sup>th</sup> century artifacts, as well as a side-notched Brewerton Eared projectile point. The Stage 3 assessment of

the H1 site (BbGf-48) determined that the site was sufficiently documented, no longer retained CHVI, and was cleared of further archaeological concerns. The isolated Innes point (Location 4, BbGf-49) was recommended for Stage 3 assessment, which remains an outstanding concern (Past Recovery 2021c).

In 2021 Past Recovery undertook the Stage 3 assessment of the Jacob Valenstine Site (BbGf-50) previously identified during a Stage 2 assessment for the above Highway 401 interchange improvements at Palace Road project (Past Recovery 2021a). A total of 36 1x1m units were excavated, resulting in the recovery of 4,474 artifacts dating to the 19<sup>th</sup> century. The assessment found two areas within the site limits that were recommended for Stage 4 AA, while the remaining parts of the site were cleared of further archaeological concerns (Past Recovery 2023). The preferred mitigation was avoidance and protection of the two areas requiring further assessment.

In 2021 Stantec Consulting Ltd undertook the Stage 1 and 2 AA of the Quinte West Detention Centre. The assessment consisted of test pit survey and resulted in the recovery of two artifact bearing locations. Neither retained enough CHVI to warrant further AA. Stantec did not assess the northern portion of the study area. As a result of they recommended that the northern portion of the study area be subject to Stage 2 test pit survey and the southern portion be cleared of further archaeological concerns (Stantec 2024).

AECOM was retained by the MTO to undertake two Planning, Preliminary Design and Class Environmental Assessment (Class EA) Studies to address current and future transportation needs by developing a plan for the rehabilitation and/or replacement of various bridges and culverts, determining the long-term interchange configuration at seven locations, and establishing the footprint for the interim six and ultimate eight lanes of Highway 401 between the City of Belleville and the City of Kingston (the Project). As indicated, the focus of the current report is Study is #2. The Stage 1 background study consisted of background research into the land use history of the area, a search of previous investigations and nearby archaeological sites as well as a desktop survey to establish whether any parts of the study area retained archaeological potential. As MTO has not yet finalized the proposed improvements and area to be disturbed, a 120 m buffer beyond the right-of-way was established for the purpose of this Stage 1 AA. A review of available background information showed that part of the study area has been previously assessed and is cleared of further archaeological concerns. The remaining portions of the study area require a Stage 2 AA (AECOM, Forthcoming).

In 2025, True North Archaeological Services was retained by the Town of Greater Napanee to conduct a Stage 1-3 AA of the Spook Horn Cemetery, located on part of Lot 23, Concession 7, Township of Fredericksburg, Town of Greater Napanee, Ontario (True North Archaeological Services, Forthcoming). The Town provided the MTO with a copy of the draft report, who in turn shared the draft report with AECOM. Based on the draft report, the AA involved the physical examination of the property to identify depressions, limestone monuments or rock cairns. It also involved Stage 2 test pitting and Stage 3 mechanical topsoil removal (MTR) of a focused study area within the property; the focused study area was determined in consultation with the MCM and BAO with the purpose being to clear the area of archaeological concerns to accommodate the re-interment of human remains recovered from the property in 1964. The AA was able to determine the boundaries of the Spook Horn Cemetery, which will be used by the Town to register the limits of the cemetery with the BAO. Beyond the limits of the focused study area subject to Stage 2 and Stage 3 MTR, the report recommended further Stage 2 AA if future development impacts are anticipated. This report is currently a draft report and has not been reviewed and accepted by the MCM into the Ontario Register of Archaeological Reports at the time of submitting this report. It is depicted on **Figure 8** but it should be reiterated that the study area for P311-0368-2025, P311-0378-2025, and P311-0382-2025 has not been accepted by the MCM as of yet.

To the best of our knowledge, there are no other reports concerning archaeological work conducted within or in close proximity (i.e. within 50 m) of the study area; however, it should be noted that the MCM does not maintain a database of all properties that have had past archaeological investigations and searches of the MCM's public register do not always result in a complete listing of all archaeological work conducted in a given area. Consequently, in some cases the only way a consulting archaeologist will know that a past

assessment has been conducted in a given area is if they have personal knowledge of it, or if the assessment resulted in the discovery and registration of one or more archaeological sites.

### 1.4.3 Known Archaeological Sites

AECOM conducted a data search of the MCM's Ontario Archaeological Sites Database (OASD) to determine whether any registered or known archaeological resources are located within the study area, or within a 1 km radius of the study area boundaries. This search resulted in the identification of 14 registered archaeological sites, as detailed below in **Table 3**. Five archaeological sites are located within the study area (**SD Figure 3**).

**Table 3. Registered Archaeological Sites within 1km of the Study Area**

| <b>Borden Number</b> | <b>Site Name</b>             | <b>Cultural Affiliation</b>      | <b>Site Type</b> | <b>Development Status</b> |
|----------------------|------------------------------|----------------------------------|------------------|---------------------------|
| BbGe-26              | -                            | Pre-Contact                      | Hunting          | No further CHVI*          |
| BbGf-25              | Lyle Dupre                   | Pre-Contact, Archaic             | Unknown          | Unknown                   |
| BbGf-27              | Fred Wales                   | Pre-Contact, Late Archaic        | Unknown          | Unknown                   |
| BbGf-28              | Miles                        | Pre-Contact, Archaic             | Unknown          | Unknown                   |
| BbGf-39              | Suddard                      | Post-Contact                     | Cabin, homestead | Unknown                   |
| BbGf-45              | Napanee 8                    | Pre-Contact                      | Findspot         | Further CHVI              |
| BbGf-46              | Napanee 8                    | Pre-Contact                      | Unknown          | Further CHVI              |
| <b>BbGf-47</b>       | <b>Quackenbush</b>           | <b>Post-Contact</b>              | <b>Farmstead</b> | <b>No further CHVI</b>    |
| <b>BbGf-48</b>       | <b>H1</b>                    | <b>Post-Contact</b>              | <b>Homestead</b> | <b>No further CHVI</b>    |
| <b>BbGf-49</b>       | -                            | <b>Pre-Contact, Late Archaic</b> | <b>Unknown</b>   | <b>Further CHVI</b>       |
| <b>BbGf-50</b>       | <b>Jacob Vanalstine</b>      | <b>Post-Contact</b>              | <b>Farmstead</b> | <b>Further CHVI</b>       |
| <b>BbGf-51</b>       | <b>John Alvin Vanalstine</b> | <b>Post-Contact</b>              | <b>Farmstead</b> | <b>No further CHVI</b>    |
| BbGg-16              | Van Deborgart                | Unknown                          | Unknown          | Unknown                   |
| BbGg-18              | -                            | Post-Contact                     | Unknown          | Unknown                   |

*CHVI – Cultural Heritage Value or Interest*

Information concerning specific site locations is protected by provincial policy and is not fully subject to the Freedom of Information and Protection of Privacy Act (FIPPA). The release of such information in the past has led to looting or various forms of illegally conducted site destruction. Confidentiality extends to all media capable of conveying location, including maps, drawings, or textual descriptions of a site location. The MCM will provide information concerning site location to the party or an agent of the party holding title to a property, or to a licensed archaeologist with relevant cultural resource management interests.

### 1.4.4 Existing Conditions

The study area consists of a portion of Highway 401 beginning just west of the Town of Greater Napanee continuing east toward the municipal boundary between the Township of Loyalist and the City of Kingston. The study area around the highway is mainly rural in nature with some undeveloped woodlots, with the exception of urban development on the outskirts of the towns of Napanee and Odessa. There are several

watercourses that run through the study area, including Sucker Creek, Napanee River, Little Creek, Spring Creek, Wilton Creek, Millhaven Creek, and several unnamed tributaries.

## 2. Analysis and Conclusions

### 2.1 Determination of Archaeological Potential

Archaeological potential is established by determining the likelihood that archaeological resources may be present in a study area. Criteria commonly used by the MCM to determine areas of archaeological potential are listed in Section 1.3.1 of *Standards and Guidelines for Consultant Archaeologists* (Ontario Government 2011).

Distance to modern or ancient water sources is generally accepted as the most important element for past human settlement patterns, and when considered alone may result in a determination of archaeological potential. In addition, any combination of two or more of the listed criteria indicates archaeological potential.

Based on a review of the historical, environmental, and archaeological context of the study area, **AECOM's Stage 1 background study has determined that the potential for the recovery of pre- and post-contact Indigenous and 19<sup>th</sup> century settler archaeological resources within the study area is high**, based on the presence of the following features:

- Proximity to previously identified archaeological sites within and adjacent the study area (nine within 1 km, and five within the study area: BbGf-47, BbGf-48, BbGf-49, BbGf-50, and BbGf-51);
- Distance to various types of water sources (Sucker Creek, Napanee River, Little Creek, Spring Creek, Wilton Creek, Millhaven Creek);
- Areas of early 19<sup>th</sup> century colonial settlement (Town of Napanee, Switzerville, and Odessa);
- Early 19<sup>th</sup> century transportation routes (Situated between Kingston and Napanee (County Roads 41, 19, 6 and 5).

It should be noted that certain features indicate that archaeological potential has been removed, such as lands that have been subject to extensive and intensive deep land alterations that have severely damaged the integrity of any archaeological resources. This includes landscaping that involves grading below the topsoil level, building footprints, quarrying, and sewage and infrastructure development (Ontario Government 2011). Furthermore, extensive and intensive modern disturbance associated with road rights-of-way (ROW), commercial and residential development, and infrastructure improvements, including grading, cutting and filling, additional drainage ditching, watercourse alteration or channelization, servicing, removals, intensive landscaping, and heavy construction traffic, will have significantly impacted the potential for the survival of any deposits or features of archaeological potential, thereby negating archaeological potential.

### 2.2 Cemetery Analysis

With regard to the Spook Horn Cemetery, AECOM's background research, the consultation undertaken with the BAO and cemetery management, with the provided maps, sketches, photographs, and based on information within the True North Archaeological Services Stage 1-3 AA draft report, AECOM was able to confirm with sufficient certainty the cemetery's limits. As such, the potential for unmarked burials associated with this cemetery to exist outside of the soon to be registered legal cemetery boundaries can be fully removed.

Additionally, with regard to the Riverside Cemetery, AECOM's background research, the consultation undertaken with the BAO and cemetery management, and the diagram/parcel mapping review, AECOM was able to confirm with sufficient certainty the cemetery's limits. The beginnings of the Riverside Cemetery are obscure; based on the photograph from the Napanee Beaver article and the cover photo for the cemetery on Find-a-Grave, the cemetery was founded in 1870, but that year has since been removed from



the current plaque (2020 & 2026). The oldest headstones are from the early to mid-19<sup>th</sup> century, with the oldest being from 1829 (Find-a-Grave, 2026). Based on the 1915 map, there was an old cemetery located in the northeast corner of the area, originally established by the surrounding community, most likely as a local burial ground. It can be assumed that as the community grew so did the cemetery, explaining the purchase made by the Napanee Cemetery Company in 1872. This was most likely done to make the local burial ground an official cemetery resource for the community and then allowed the cemetery to expand south into what was seen in the 1915 map. Based on this 1915 map and the provided GIS Riverside Cemetery Package from the Town of Greater Napanee, the boundary of the cemetery is intact and has stayed consistent over time. The graves have not moved with the late 19<sup>th</sup>/early 20<sup>th</sup> century expansion. It has been determined that there is low potential for unmarked burials to exist beyond the known cemetery property limits within the study area.

Finally, with regard to the **Smith Cemetery** that is located approximately 50m outside of the current study area, AECOM's background research, the consultation undertaken with the Bereavement Authority of Ontario and cemetery management, with the provided maps, and visual confirmation from the cemetery operator, AECOM was able to confirm with sufficient certainty the cemetery's limits. As such, the potential for unmarked burials associated with this private cemetery to exist outside of the registered legal cemetery boundaries can be fully removed.

## 2.3 Conclusions

AECOM's Stage 1 background study for the Highway 401 from Belleville to Kingston Study 2 GWP 4016-21-00 study area has determined that the potential for the recovery of pre- and post-contact Indigenous and 19<sup>th</sup> century settler archaeological resources within the study area is high (Section 1.3.1, Ontario Government 2011). It also determined that portions of the study area have been subject to previous AA and cleared of archaeological concern, while other areas have been identified as being previously disturbed. The previously disturbed areas are limited to existing roads, including Highway 401, and road rights-of-way. For the remaining portions of the study area, they are considered to retain archaeological potential and are recommended for Stage 2 assessment (**Figure 9**).

### 3. Recommendations

AECOM's Stage 1 background study determined that archaeological potential was high within the study area. Based on the above, the following recommendations are made:

1. The areas coloured purple in **Figure 9** have been previously assessed and meet current Standards and Guidelines (Ontario Government 2011). As these areas have been cleared of further archaeological concerns, no further AA of these areas is recommended.

- a. This includes archaeological sites BbGf-47, BbGf-48, and BbGf-51, which have been determined to not retain Cultural Heritage Value and Interest (CHVI) and have not been recommended for further assessment.

2. The areas with black cross hatching in **Figure 9** are considered to retain archaeological potential and are recommended for further AA. More specifically:

- a. To carry forward the recommendations from the Past Recovery Stage 1-3 report (2021c), site BbGf-49 was recommended for Stage 3 assessment (coloured pink with black cross hatch, Figure 9-3). The Stage 3 assessment should be conducted by a licensed archaeologist and should consist of the controlled excavation of one metre square units across the site area on a 5m grid with an additional 20% of the grid total placed in areas of interest.

- b. To carry forward the recommendations from the Past Recovery Stage 3 report (PIF P1201-0088- 2021, Past Recovery 2023), portions of the Jacob Valenstine Site (BbGf-50) were recommended for Stage 4 Avoidance and Protection (coloured yellow with black cross hatch, Figure 9-3), while remaining parts of the site and property were cleared of further archaeological concerns (Past Recovery 2023). The recommendations for the avoidance and protection of the site areas included erection of a temporary barrier around the site areas and a 10m buffer, no-go instructions be issued to all on-site construction crews, etc., the location of the protected areas be added to all contract drawings, all ground disturbing activities be monitored and inspected by a licensed archaeologist, Stage 4 reporting documenting the avoidance strategy be submitted to the MCM, and that relevant interested Indigenous communities be engaged during the monitoring (Past Recovery 2023).

3. All areas marked red in **Figure 9** are considered to be previously disturbed and to no longer retain archaeological potential. However, as no Stage 1 property inspection was completed, these areas require visual confirmation and photo documentation during Stage 2 assessment prior to being cleared of further archaeological concerns.

4. The areas coloured green in **Figure 9** are considered to retain archaeological potential and are recommended for Stage 2 AA. The Stage 2 AA must be conducted by a licensed archaeologist and must follow the requirements set out in Section 2.1 of the *Standards and Guidelines for Consultant Archaeologists* (Ontario Government 2011), including:

- a. A standard test pit survey at 5 m intervals is to be conducted in all areas that will be impacted by the Project where ploughing is not feasible (e.g., woodlots, overgrown areas, manicured lawns).

b. Pedestrian survey at 5 m intervals where ploughing is possible (e.g., agricultural fields). This assessment will occur when fields have been recently ploughed, weathered by rain, and exhibit at least 80% surface visibility.

5. No impacts to the bed of any water bodies are anticipated. However, if any changes are made and impacts may occur to the bed of any water bodies, a marine archaeological checklist should be completed, which may result in the recommendation that a marine AA be undertaken.

Should additional land outside of the current study area be included as part of the Project development plan, the standard requirements for AAs to be conducted prior to land disturbance remain in place. Additional AA(s) must be conducted by a licensed archaeologist and follow the requirements set out in *Standards and Guidelines for Consultant Archaeologists* (Ontario Government 2011).

With regard to the **Spook Horn Cemetery**, as AECOM is producing this report, True North Archaeological Services has conducted a Stage 1-3 AA where the boundaries of the cemetery have been determined. As the True North Archaeological Services Stage 1-3 AA report is still a draft and has not been accepted by the MCM, their recommendations of all areas outside of the Stage 3 Mechanical Topsoil Removal (MTR) area and the previously assessed area along the eastern boundary, retain archaeological potential and should be subject to Stage 2 AA should future development impacts be anticipated, cannot be carried forward until the Stage 1-3 AA report is accepted. Therefore, in the interim, AECOM's recommendations are as follows:

As a Stage 1 property inspection was not completed for this report, the Study Area portion within the Spook Horn boundaries will need to be confirmed and photo documented at the time of Stage 2 survey. If impacts by the Project are proposed within the limits of the cemetery property, the following must be completed:

- Contact the cemetery owner/operator and the BAO prior to completing any ground disturbing activities within the known limits of the cemetery. This is needed to ensure that any planned activities within a cemetery are completed with knowledge and permission from the cemetery owner/operator. Consent from the BAO Registrar may also be necessary to complete certain activities within a cemetery.
- Stage 2 test pit survey at judgemental intervals to avoid marked and known burials (Section 2.1, Standard 2.1.2, Government of Ontario, 2011a).
- Stage 3 cemetery investigation after the completion of the Stage 2 test pit survey and any Stage 3 work recommended for archaeological sites identified during the Stage 2 assessment.
- Stage 3 cemetery investigation strategies for work within the current cemetery limits (i.e. MTR, plans for excavation and reinterment, etc.).
  - o For all MTR, the following procedures should be followed:
    - MTR should begin within the cemetery lands for minimal impact to any potential burials;
    - To avoid damage to potential cultural deposits beneath the topsoil, use machinery that pulls soil away (e.g. an excavator or backhoe with a flat-edged bucket);
    - MTR must stop at or above the topsoil/subsoil interface. If conditions do not allow for mechanical topsoil removal without intruding into subsoil (e.g. very wet or dry soil conditions), delay mechanical topsoil removal or remove topsoil by hand;

- Hand excavation by shovel if it appears that mechanical topsoil removal may be affecting the integrity of cultural features; and,
  - Clean all exposed subsoil surfaces by shovel shining or trowel following mechanical topsoil removal;
  - MTR should be completed in accordance with Section 3.3.3 in areas in which the removal of overburden is required and Section 4.2.3 in areas where topsoil is present as per the *Standards and Guidelines for Consultant Archaeologists* (Ontario Government 2011).
- o A Stage 3 Cemetery Investigation report must be completed detailing the results of the investigation for the cemetery and be submitted to the Ministry of Citizenship and Multiculturalism for review and acceptance into the Ontario Public Register of Archaeological Reports.

With regard to the **Riverside Cemetery** that is located approximately 50 m south of the current study area, AECOM's background research, the consultation undertaken with the BAO and cemetery management, and the diagram/parcel mapping review, AECOM was able to confirm with sufficient certainty the cemetery's limits. A 1915 map of the cemetery and the provided GIS Riverside Cemetery Package from the Town of Greater Napanee, outlined the boundary of the cemetery and showed it as intact and has stayed consistent over time. The graves have not moved with the late 19<sup>th</sup>/early 20<sup>th</sup> century expansion. It has been determined that there is low potential for unmarked burials to exist beyond the known cemetery property limits. The background research was conducted to confirm that the boundaries of this cemetery fall outside of the current study area by more than 10m. As of yet, no impacts are proposed to occur within the limits of the cemetery property. If impacts by the Project are proposed within the limits of the cemetery property, arrangements must be made with the cemetery manager, the BAO, and the MCM prior to any ground-disturbing activities to determine an appropriate strategy for Stage 2 and 3 field methods within the limits of this cemetery to ensure provisions under the *Funeral, Burial and Cremation Services Act* (Ontario Government 2002) are addressed.

With regard to the **Smith Cemetery** that is located approximately 50 m north outside of the current study area, AECOM's background research, the consultation undertaken with the Bereavement Authority of Ontario and cemetery management, with the provided maps, and visual confirmation from the cemetery operator, AECOM was able to confirm with sufficient certainty the cemetery's limits. As such, the potential for unmarked burials associated with this private cemetery to exist outside of the registered legal cemetery boundaries can be fully removed. The background research was conducted to confirm that the boundaries of this cemetery fall outside of the current study area by more than 10m. As of yet, no impacts are proposed to occur within the limits of the cemetery property. If impacts by the Project are proposed within the limits of the cemetery property, arrangements must be made with the cemetery manager, the BAO, and the MCM prior to any ground-disturbing activities to determine an appropriate strategy for Stage 2 and 3 field methods within the limits of this cemetery to ensure provisions under the *Funeral, Burial and Cremation Services Act* (Ontario Government 2002) are addressed.

The MCM is asked to accept this Report into the Ontario Public Register of Archaeological Reports, thereby concurring with the recommendations presented herein. **As further AA is recommended for the Highway 401 from Belleville to Kingston Assignment Study 2 GWP 4016-21-00 study area, archaeological concerns have not been fully addressed.**

Please note that this AA report has been written to meet the requirements of the MCM's *Standards and Guidelines for Consultant Archaeologists* (Ontario Government 2011); however, properties that are subject to AA are not considered cleared for ground disturbance activities until the associated report has been reviewed and accepted by the MCM. In order to maintain compliance with the MCM and the *Ontario*

*Heritage Act* (1990b), no ground disturbing activities are to occur until the proponent and approval authority receive a formal letter from the MCM stating that the recommendations provided herein are compliant and that the Report has been accepted into the MCM register of archaeological reports.



## 4. Advise on Compliance with Legislation

This report is submitted to the Ministry of Citizenship and Multiculturalism as a condition of licensing in accordance with Part VI of the *Ontario Heritage Act*, R.S.O. 1990, c 0.18. The report is reviewed to ensure that it complies with the standards and guidelines that are issued by the Minister, and that the archaeological fieldwork and report recommendations ensure the conservation, protection and preservation of the cultural heritage of Ontario. When all matters relating to archaeological sites within the project area of a development proposal have been addressed to the satisfaction of the Ministry of Citizenship and Multiculturalism, a letter will be issued by the ministry stating that there are no further concerns with regard to alterations to archaeological sites by the proposed development.

It is an offence under Sections 48 and 69 of the *Ontario Heritage Act* for any party other than a licensed archaeologist to make any alteration to a known archaeological site or to remove any artifact or other physical evidence of past human use or activity from the site, until such time as a licensed archaeologist has completed archaeological fieldwork on the site, submitted a report to the Minister stating that the site has no further cultural heritage value or interest, and the report has been filed in the Ontario Public Register of Archaeological Reports referred to in Section 65.1 of the *Ontario Heritage Act*.

Should previously undocumented archaeological resources be discovered, they may be a new archaeological site and therefore subject to Section 48 (1) of the *Ontario Heritage Act*. The proponent or person discovering the archaeological resources must cease alteration of the site immediately and engage a licensed consultant archaeologist to carry out archaeological fieldwork, in compliance with Section 48 (1) of the *Ontario Heritage Act*.

Archaeological sites recommended for further archaeological fieldwork or protection remain subject to Section 48 (1) of the *Ontario Heritage Act* and may not be altered, or have artifacts removed from them, except by a person holding an archaeological licence.

The *Funeral, Burial and Cremation Services Act, 2002*, S.O. 2002, c.33 requires that any person discovering human remains must notify the police or coroner and the Registrar of Cemeteries at the Ministry of Public and Business Service Delivery and Procurement.

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- 2019 Stage 1 and 2 Archaeological Assessment Class EA for Highway 401 Napanee River Bridge Rehabilitation and Potential Six Lane Expansion (GWP 4197-13-00), Part Lots 23 and 24, Concession 7, Geographic Township of Fredricksburgh and Part Lots 27 and 28, Concession 1, Geographic Township of Richmond, Now Town of Greater Napanee, County of Lennox and Addington, P111-0073-2018.
- 2020 Stage 1 and 2 Archaeological Assessment, Stage Archaeological Assessment of the Quackenbush Site (BbGf-47), and Stage 3 Cemetery Investigation Class EA for the Highway 401/Palace Road Interchange Improvements (Agreement #4016-E-0014; Assignment #21, #37) Lots 24 to 26, Concession 7, Geographic Township of Fredricksburgh, Now own o Greater Napanee, County of Lennox and Addington, P336-0233-2018, P336-0250-2019, P336-0260-2019.

- 2021a Stage 1 and 2 Archaeological Assessment Class EA for the Highway 401 Interchange Improvements at Palace Road (GWP 4197-13-00), 974 Palace Road, Lot 25, Concession 7, Geographic Township of Fredricksburgh, now Town of Greater Napanee, county of Lennox and Addington, P1201-0055-2020.
- 2021b Stage 1 and 2 Archaeological Assessments Class EA for the Highway 401 Interchange Improvements at Palace Road (GWP 4197-13-00), 959 Palace Road, Lot 25, Concession 7, Geographic Township of Fredricksburgh, now Town of Greater Napanee, County of Lennox and Addington, P1201-0057-2020.
- 2021c Stage 1 and 2 Archaeological Assessments Class EA for the Highway 401 Interchange Improvements at Palace Road (GWP 4197-13-00), 974 Palace Road, and Stage 3 Assessment of the H1 Site (BbGf-48), Lot 25, Concession 7, Geographic Township of Fredricksburgh, now Town of Greater Napanee, County of Lennox and Addington, P1201-0054-2020, P1201-0056-2020.
- 2023 Stage 3 Archaeological Assessment of the Jacob Valastine Site (BbGf-50), 974 Palace Road, Lot 25, Concession 7, Geographic Township of Fredricksburgh, Now Town of Greater Napanee, P1201-0088-2021.

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The Central Archaeology Group Inc

2017 Stage 1 and 2 Archaeological Assessment Five (5) Culvert Replacements on Highway 401 between Highway 37 and County Road 41, Part of Lot 23, Concession 2, Geographic Township of Thurlow, Part of Lot 40, Concession 1 North of the Road, Geographic Township of Tyendinaga, Hastings County and Part of Lots 1 and 6, Concession 3 and the Road Allowed between Lots 12 and 13, Concession 3, Geographic Township of Richmond, Lennox and Addington County, P248-0275-2016.

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True North Archaeological Services

Forthcoming *Stage 1 to 3 Archaeological Assessment Spook Horn Cemetery, Part Lot 23, Concession 7, Township of Fredericksburg, Town of Greater Napanee, Ontario.* P311-0368-2025, P311-0378-2025, and P311-0382-2025. On file with the Town of Greater Napanee.

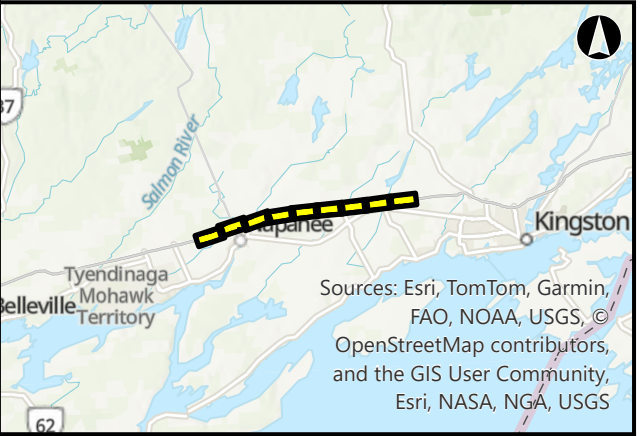
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1968 *Carleton Saga*. The Runge Press Limited, Ottawa.



## 6. Figures

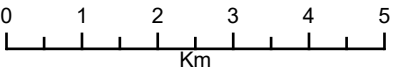
All figures pertaining to the Stage 1 archaeological assessment are provided within the following pages. Any maps that show actual archaeological locations are provided in the Supplementary Documentation appended to this report.



**Legend**

Study Area

Municipal Boundary



Highway 401 from Belleville to Kingston  
Assignment No. GWP 4016-21-00 Study #2

|                                                                                                                                                                                                                                                                                                                                                                                                  |                                     |                                                   |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|---------------------------------------------------|
| Study Area Location                                                                                                                                                                                                                                                                                                                                                                              |                                     |                                                   |
| Jun, 2026                                                                                                                                                                                                                                                                                                                                                                                        | 1:100,000<br>* when printed 11"x17" | Datum: NAD 1983 UTM Zone 18N<br>Source: MNRF, NRC |
| P#: 60734357                                                                                                                                                                                                                                                                                                                                                                                     |                                     | Figure 1                                          |
| <b>AECOM</b>                                                                                                                                                                                                                                                                                                                                                                                     |                                     |                                                   |
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Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community, Esri, NASA, NGA, USGS, FEMA









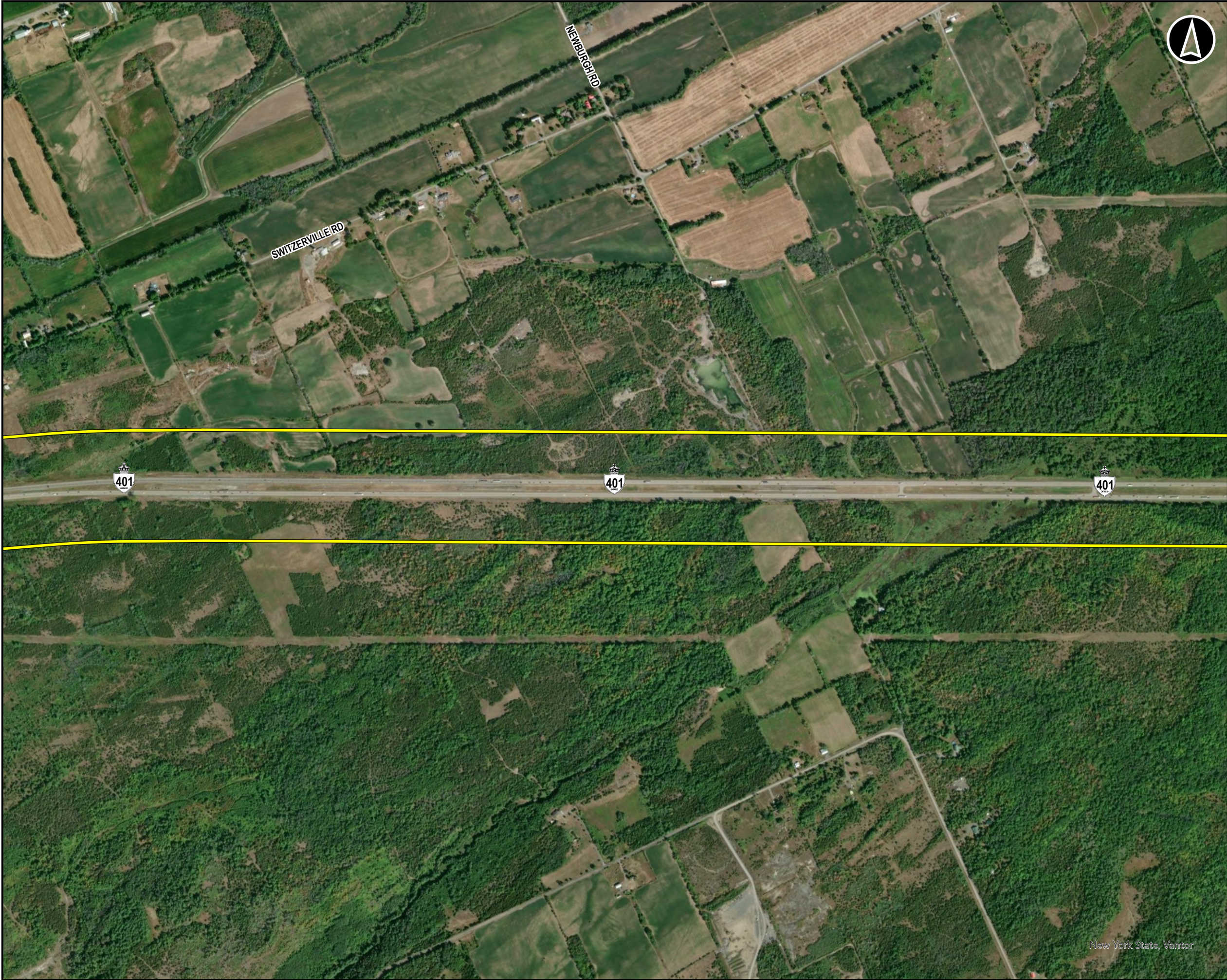
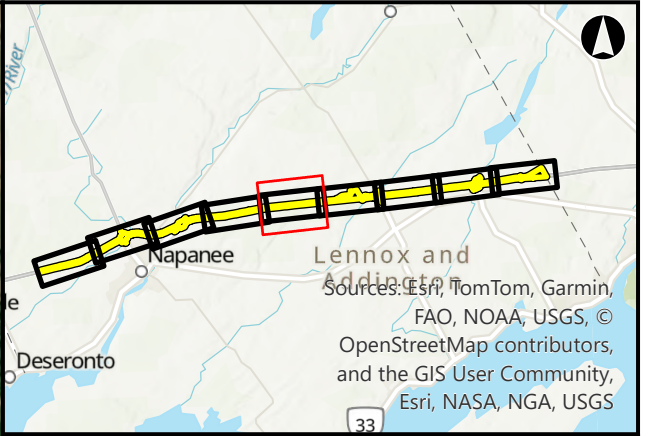






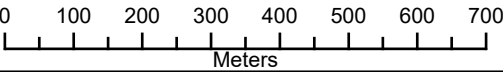






**Legend**

Study Area

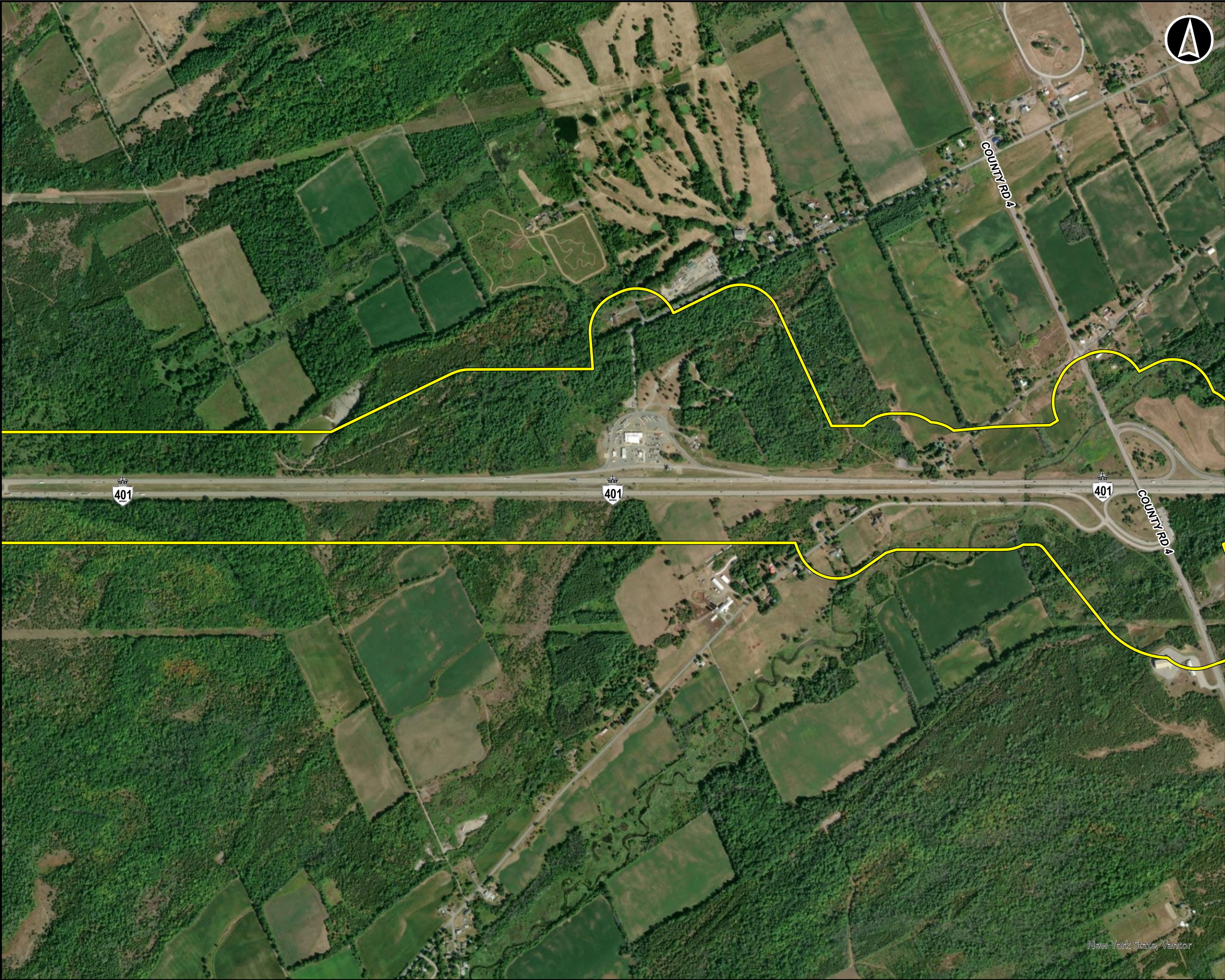
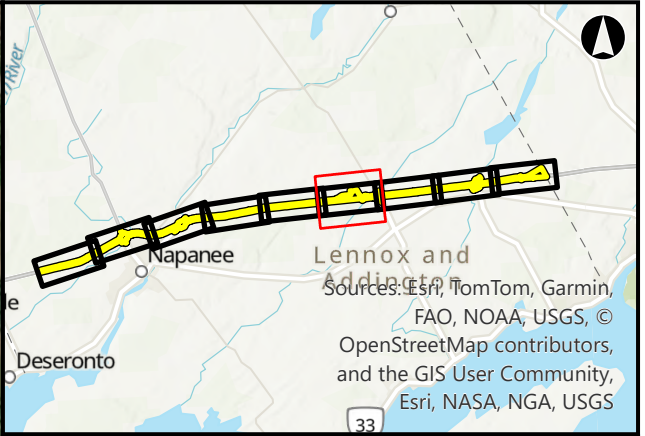


Highway 401 from Belleville to Kingston  
Assignment No. GWP 4016-21-00 Study #2

| Study Area In Detail |                                                   |                                                   |
|----------------------|---------------------------------------------------|---------------------------------------------------|
| Oct, 2026            | 1:11,000<br><small>* when printed 11"x17"</small> | Datum: NAD 1983 UTM Zone 18N<br>Source: MNRF, NRC |
| P#: 60734357         |                                                   | Figure 2-5                                        |
| <b>AECOM</b>         |                                                   |                                                   |

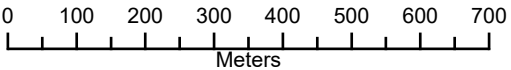
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Legend

 Study Area



Highway 401 from Belleville to Kingston  
Assignment No. GWP 4016-21-00 Study #2

Study Area In Detail

Oct, 2026

1:11,000

Datum: NAD 1983 UTM Zone 18N  
Source: MNR, NRC

P#: 60734357

**AECOM**

Figure 2-6

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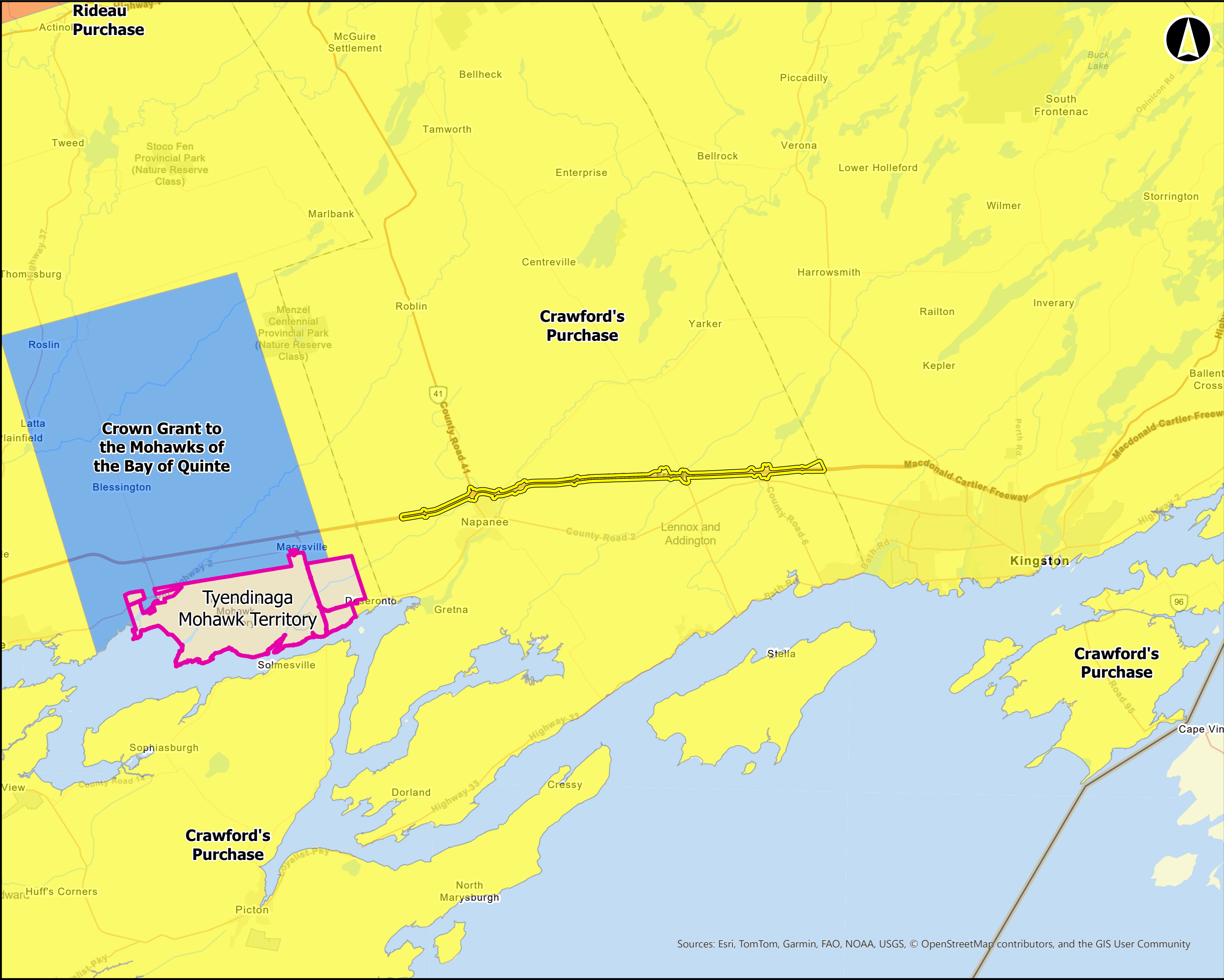
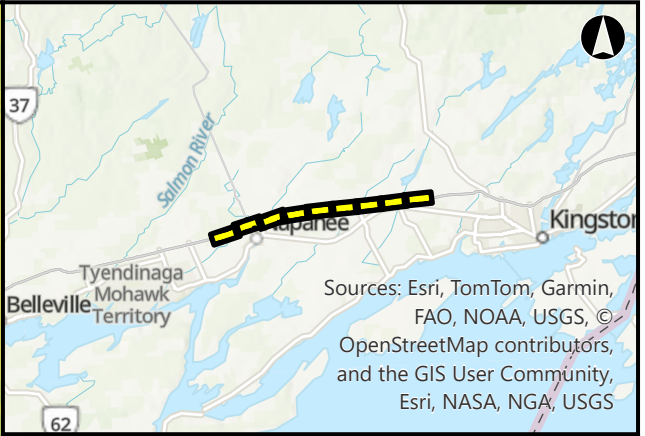




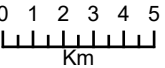








- Legend**
- Study Area
  - First Nations Reserve
  - Crawford's Purchase
  - Crown Grant to the Mohawks of the Bay of Quinte
  - Treaty 27 & 27 1/4, Rideau Purchase



Highway 401 from Belleville to Kingston  
Assignment No. GWP 4016-21-00 Study #2

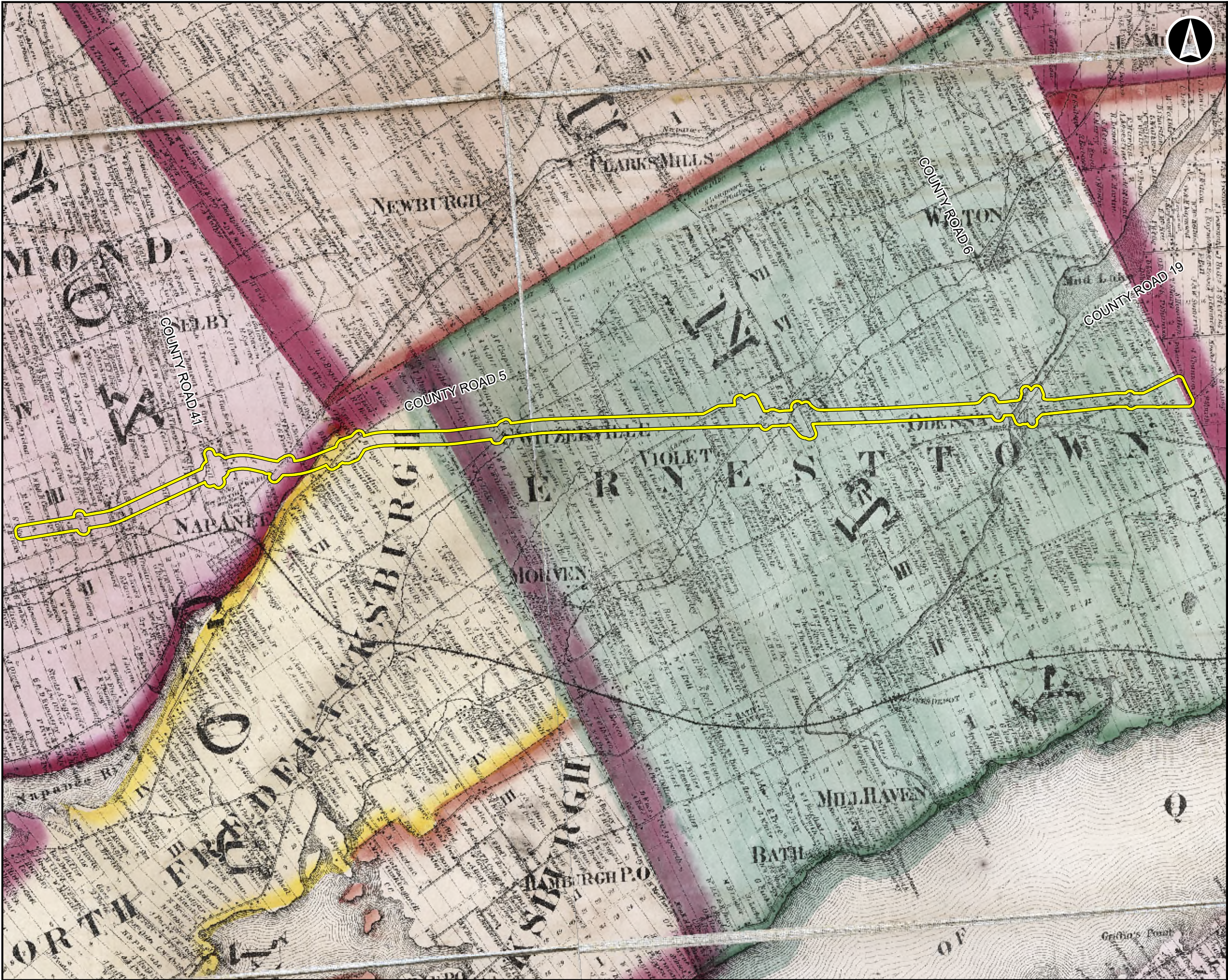
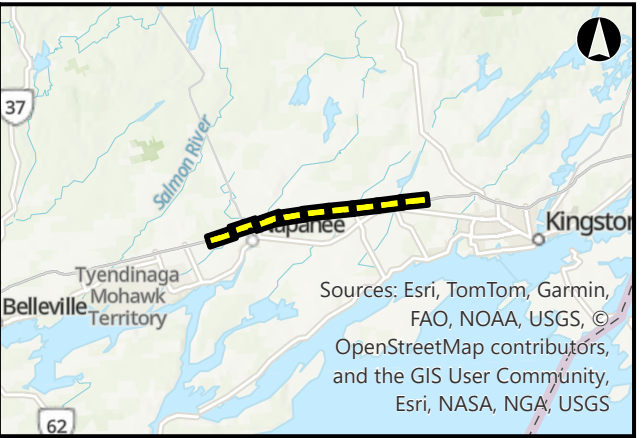
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| P#: 60734357           |                                     | <b>Figure 3</b>                                   |
| <b>AECOM</b>           |                                     |                                                   |

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Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

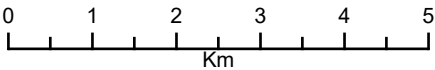
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## Legend

 Study Area



Highway 401 from Belleville to Kingston  
Assignment No. GWP 4016-21-00 Study #2

1860 Historic Atlas Map of Richmond Township, Fredricksburgh Township, and Ernestown Township of Lennox and Addington County

Jun, 2026

1:90,000

Datum: NAD 1983 UTM Zone 18N  
Source: MNRF, NRC

P#: 60734357

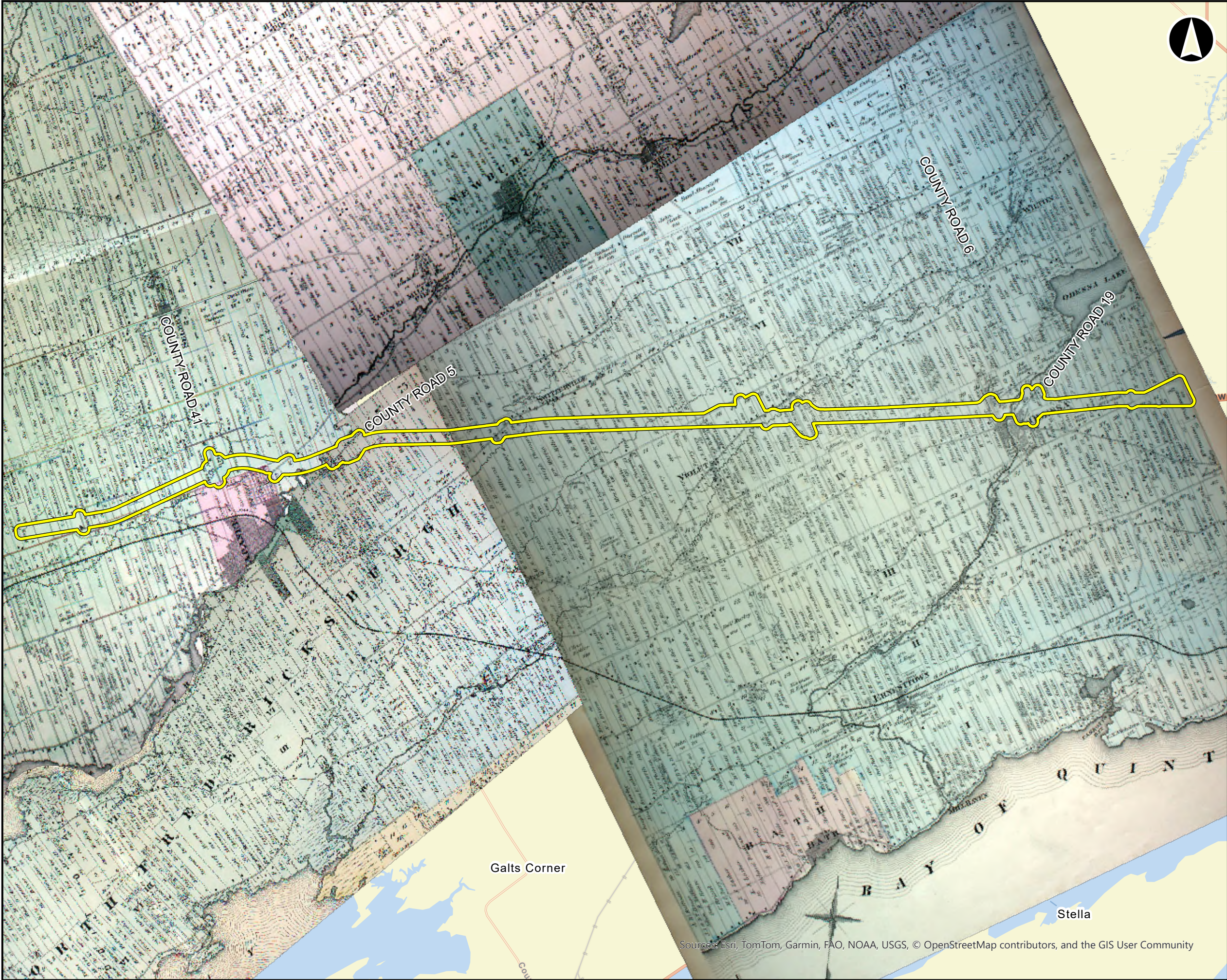
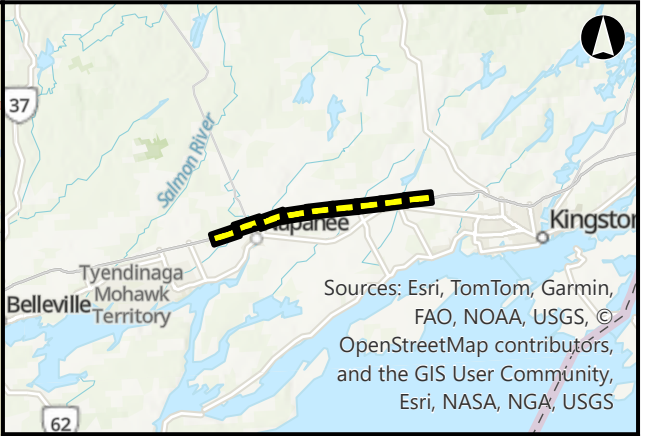
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**AECOM**

Figure 4

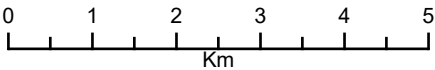
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## Legend

 Study Area



Highway 401 from Belleville to Kingston  
Assignment No. GWP 4016-21-00 Study #2

1878 Historic Atlas Map of Richmond Township, Fredricksburgh Township, and Ernestown Township of Lennox and Addington County

Jun, 2026

1:90,000

Datum: NAD 1983 UTM Zone 18N  
Source: MNRF, NRC

P#: 60734357

\* when printed 11"x17"

**AECOM**

Figure 5

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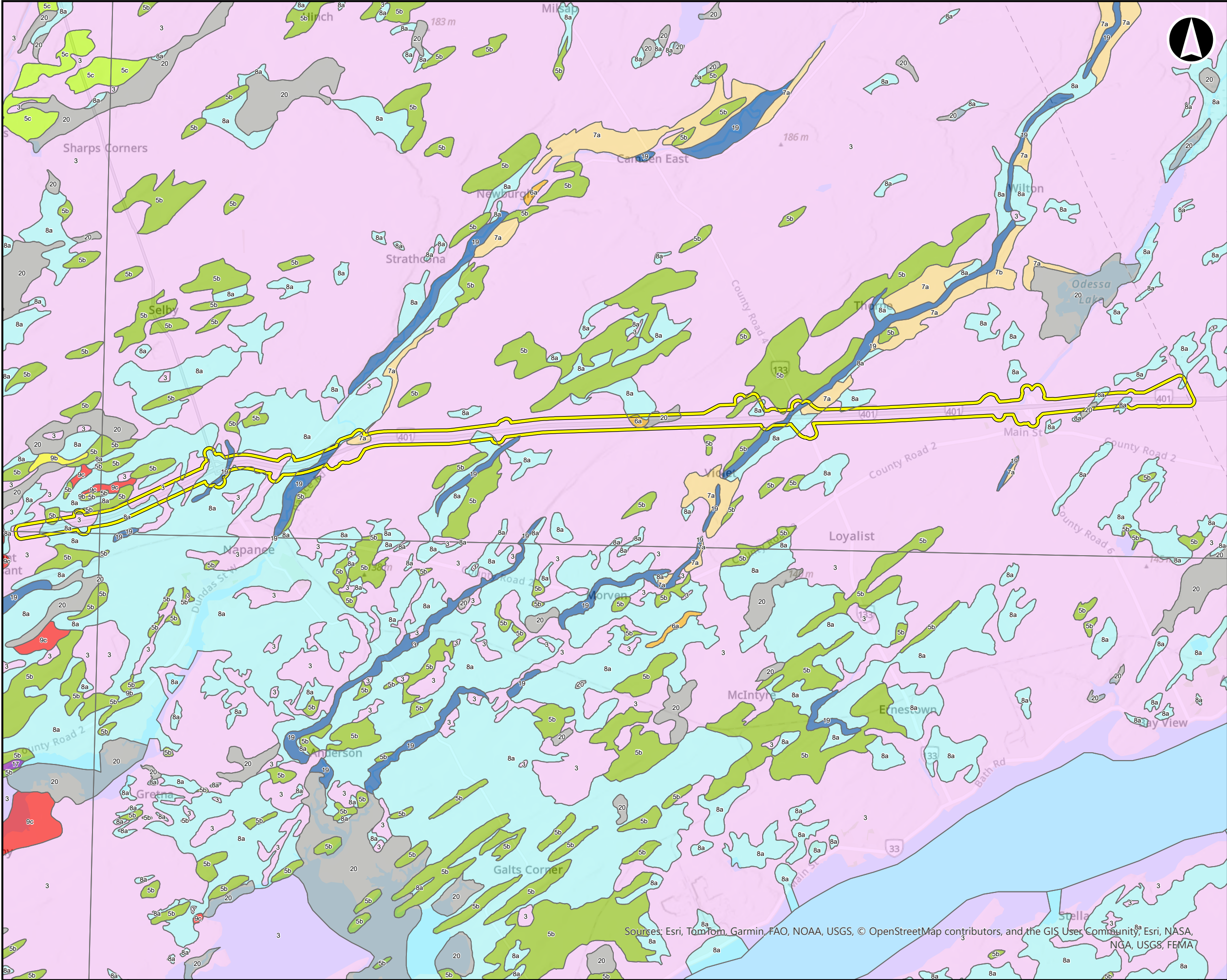
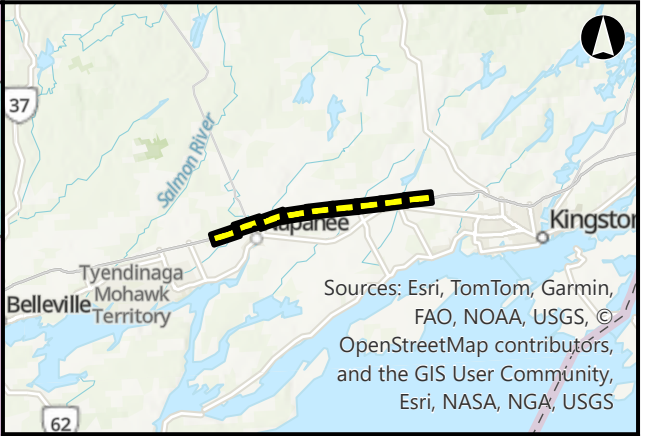
Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

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**Legend**

- sgu\_poly\_polygon2
- Study Area
- Physiographic Region
- 1: Precambrian Bedrock
- 3: Paleozoic bedrock
- 5b: Stone-poor, carbonate-derived silty to sandy till
- 5c: Stony, carbonate-derived silty to sandy till
- 6a: In moraines, kames, eskers and crevasse fills
- 7a: Sandy deposits
- 7b: Gravelly deposits
- 8a: Massive-well laminated
- 9b: Littoral-foreshore deposits
- 9c: Foreshore-basinal deposits
- 12: Older alluvial deposits
- 14b: Littoral-foreshore deposits
- 17: Eolian deposits
- 19: Modern alluvial deposits
- 20: Organic deposits

0 1 2 3 4 5 Km

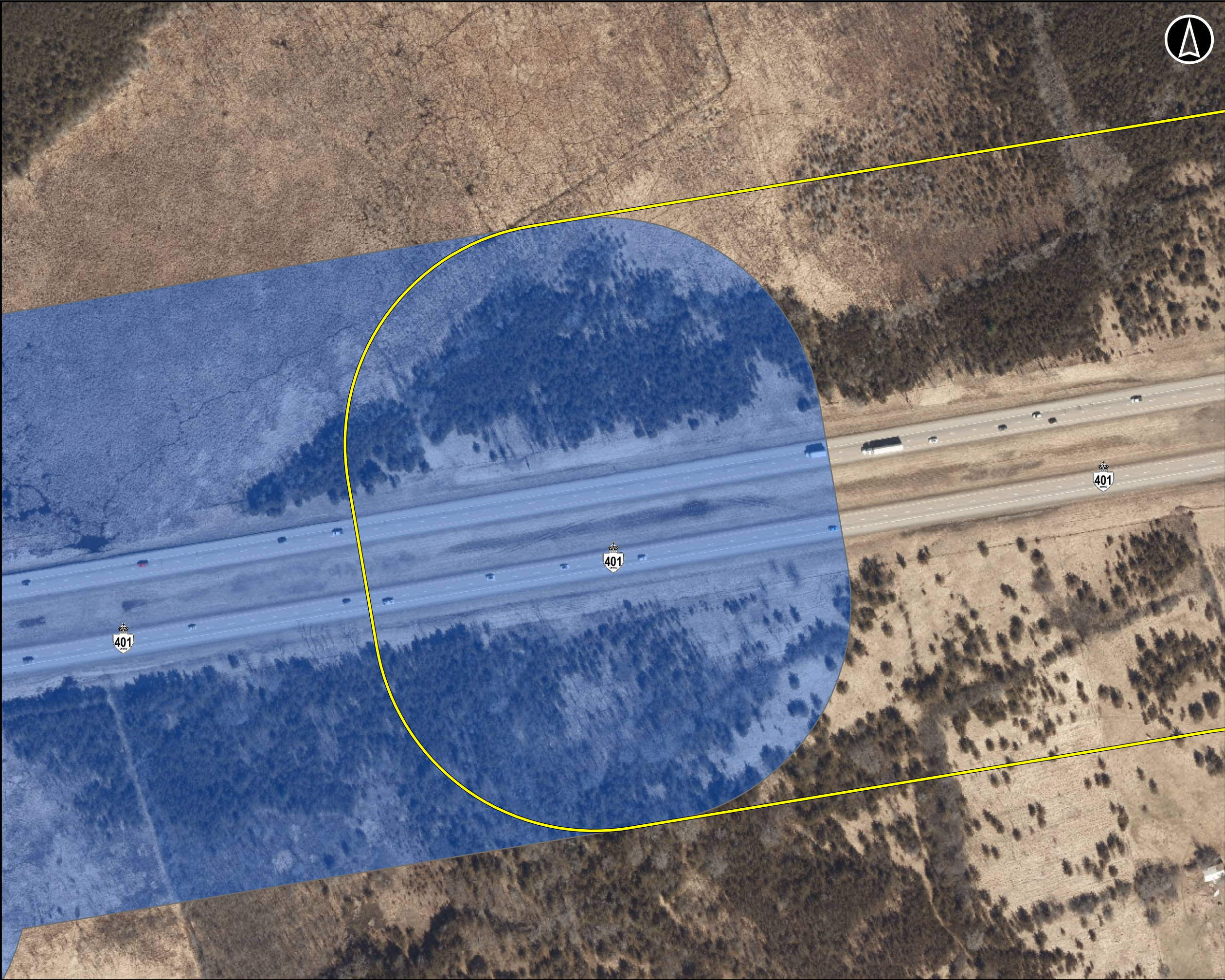
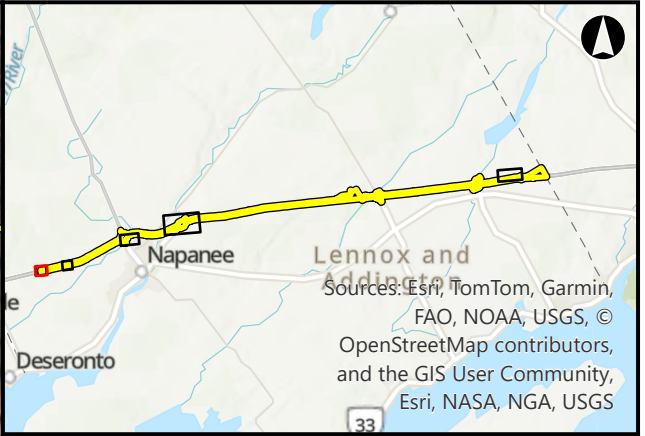
Highway 401 from Belleville to Kingston  
Assignment No. GWP 4016-21-00 Study #2

| Physiography and Soil Types within the Study Area                                                                                                                                                                                                                                                                                                                                                |                                    |                                                                 |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|-----------------------------------------------------------------|
| Jun, 2026                                                                                                                                                                                                                                                                                                                                                                                        | 1:90,000<br>* when printed 11"x17" | Datum: NAD 1983 UTM Zone 18N<br>Source: MNR, MNDM (MRD128 Rev1) |
| P#: 60734357                                                                                                                                                                                                                                                                                                                                                                                     |                                    |                                                                 |
| <b>AECOM</b>                                                                                                                                                                                                                                                                                                                                                                                     |                                    | <b>Figure 7</b>                                                 |
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Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community, Esri, NASA, NGA, USGS, FEMA

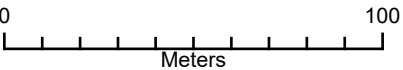
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**Legend**

- Study Area
- P316-0562-2025 (AECOM, Forthcoming) - Stage 1 complete, Stage 2 required



Highway 401 from Belleville to Kingston  
Assignment No. GWP 4016-21-00 Study #2

Previous Archaeological Assessments

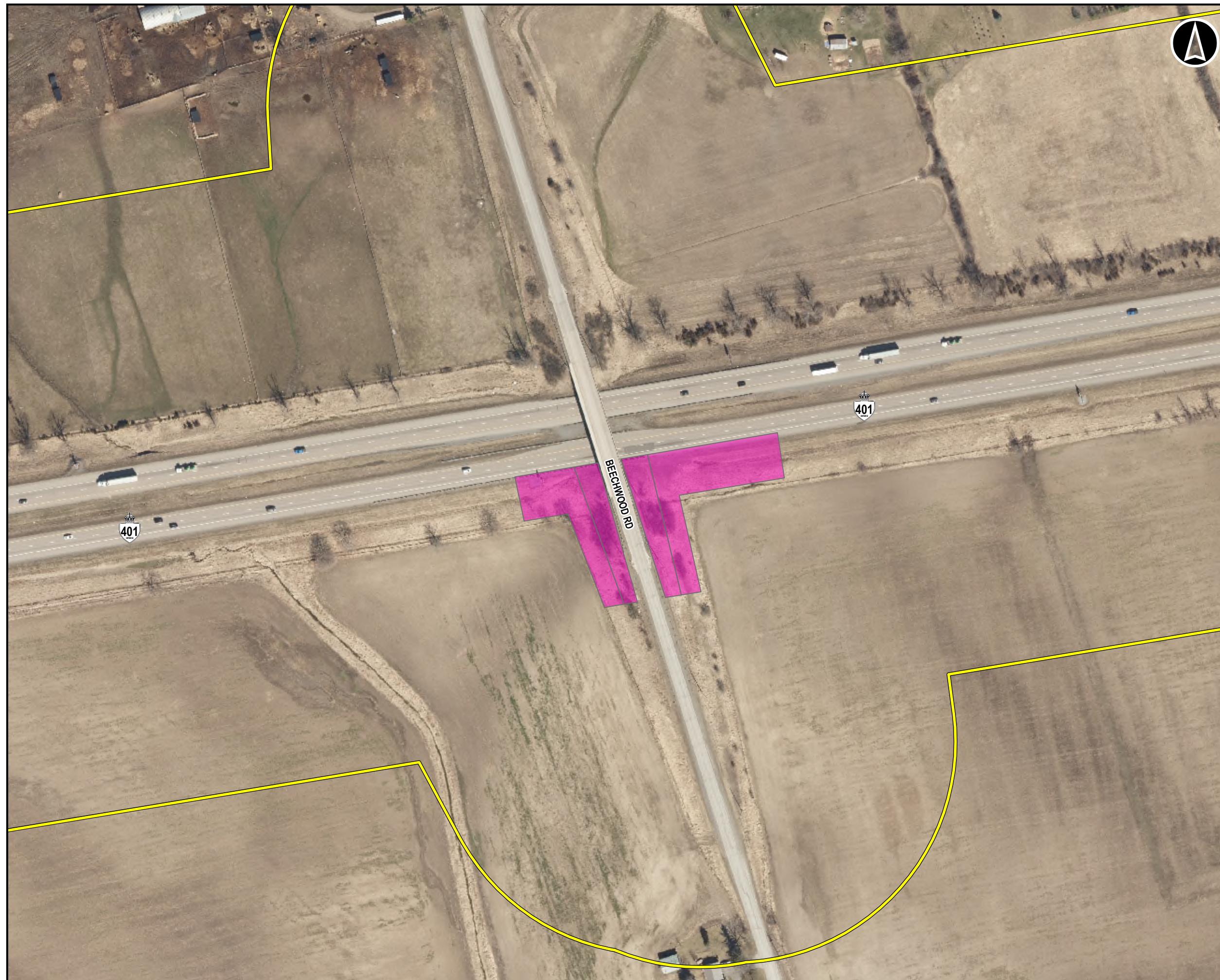
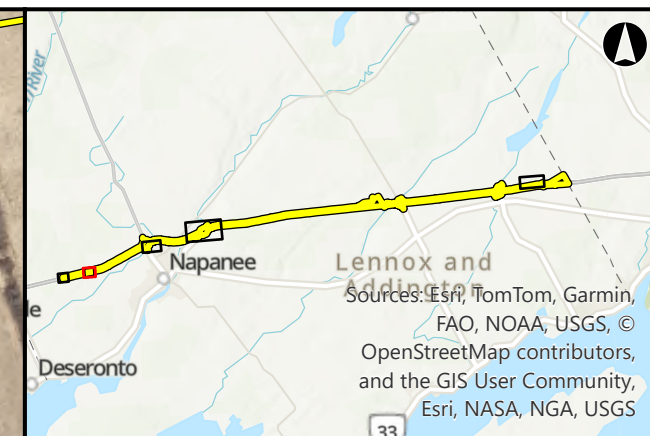
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|-----------|-----------------------------------|--------------------------------------------------|

|              |  |                   |
|--------------|--|-------------------|
| P#: 60734357 |  | <b>Figure 8-1</b> |
|--------------|--|-------------------|

**AECOM**

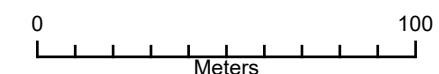
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### Legend

-  Study Area
-  P248-0275-2017 (The Central Archaeology Group Inc 2017) -Stage 1 and 2 complete, no further work recommended



Highway 401 from Belleville to Kingston  
Assignment No. GWP 4016-21-00 Study #2

## Previous Archaeological Assessments

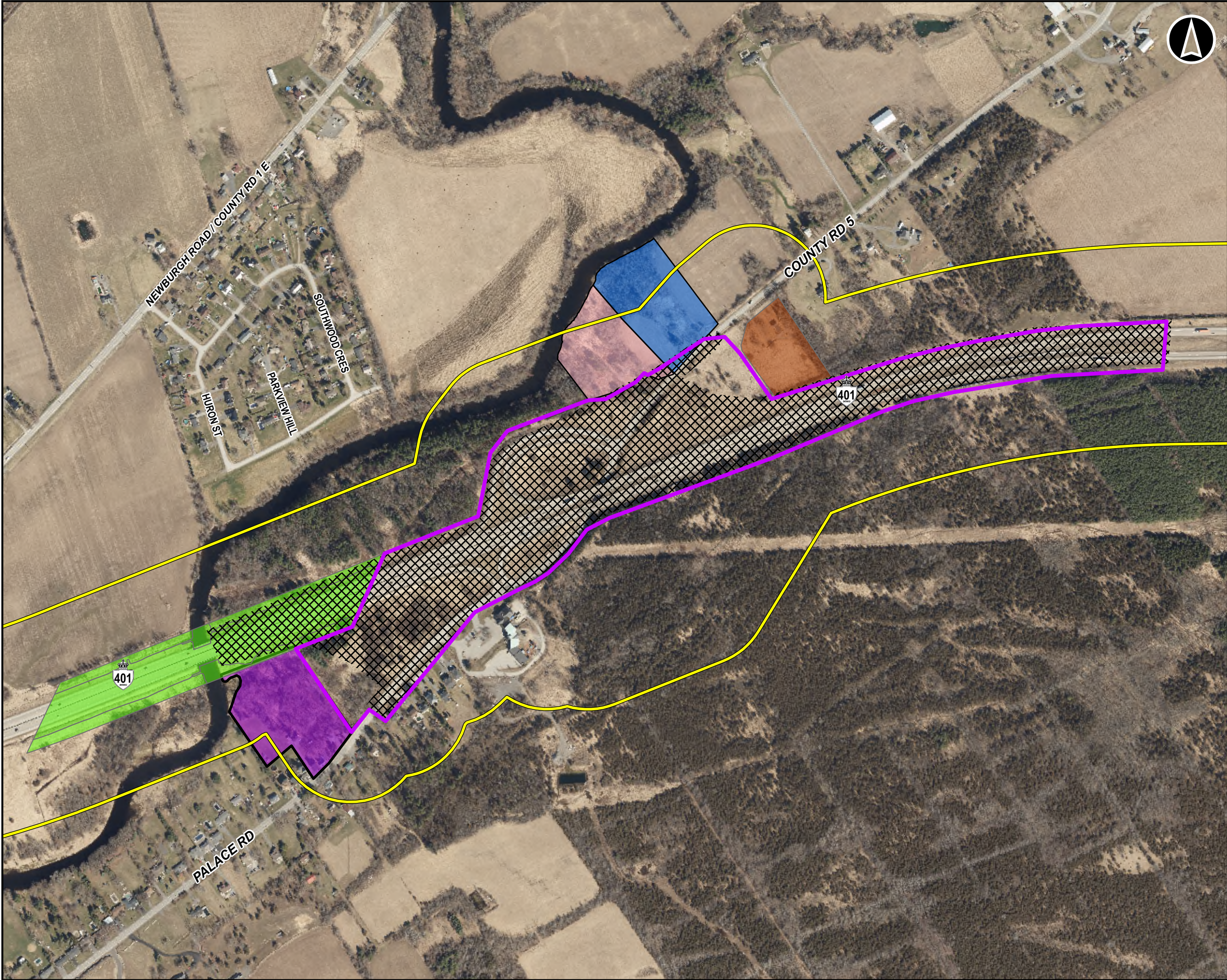
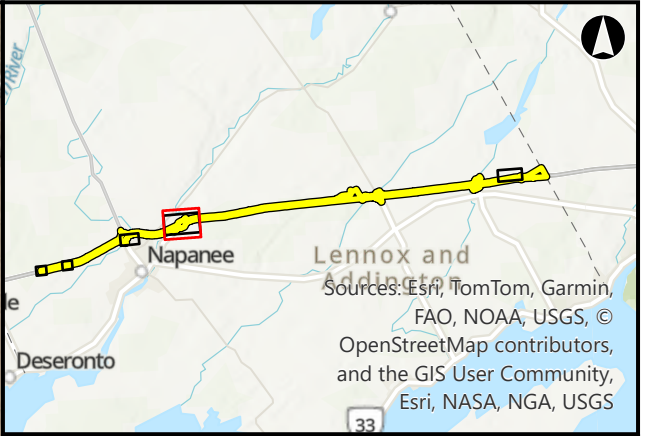
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| P#: 60734357                                                                          |                                   | Figure 8-2                                        |
|  |                                   |                                                   |

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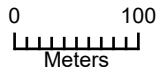






**Legend**

- Study Area
- P111-0075-2018 (Past Recovery Archaeological Services Inc 2019) - Stage 1 and 2 complete, no further work recommended
- P123-0372-2017 (AECOM, 2020) Stage 1 and 2 complete, Stage 3 required for a portion of the study area
- P336-0233-2018, P336-0250-2019 and P336-0260-2019 (Past Recovery Archaeological Services Inc 2020) - Stage 1 to 3 complete, no further work recommended
- P1201-0055-2020, P1201-0088-2021 (Past Recovery Arch Services Inc 2021a and 2023) - Stage 1 to 3 complete, Stage 4 Avoidance and Protection recommended for a portion of the study area
- P1201-0057-2020 (Past Recovery Archaeological Services Inc 2021b) - Stage 1 and 2 complete, no further work recommended
- P1201-0054-2020, P1201-0056-2020 (Past Recovery Archaeological Services Inc 2021c) - Stage 1-3 complete, Stage 3 recommended for a portion of the study area
- P311-0368-2025, P311-0378-2025, P311-0382-2025 (True North Archaeological Services, Awaiting Review and Acceptance by the MCM into the Ontario Public Register of Archaeological Reports) - Stage 1-3 Complete, Stage 2 Recommended for Portion of the Study Area



Highway 401 from Belleville to Kingston  
Assignment No. GWP 4016-21-00 Study #2

**Previous Archaeological Assessments**

|           |                                   |                                                   |
|-----------|-----------------------------------|---------------------------------------------------|
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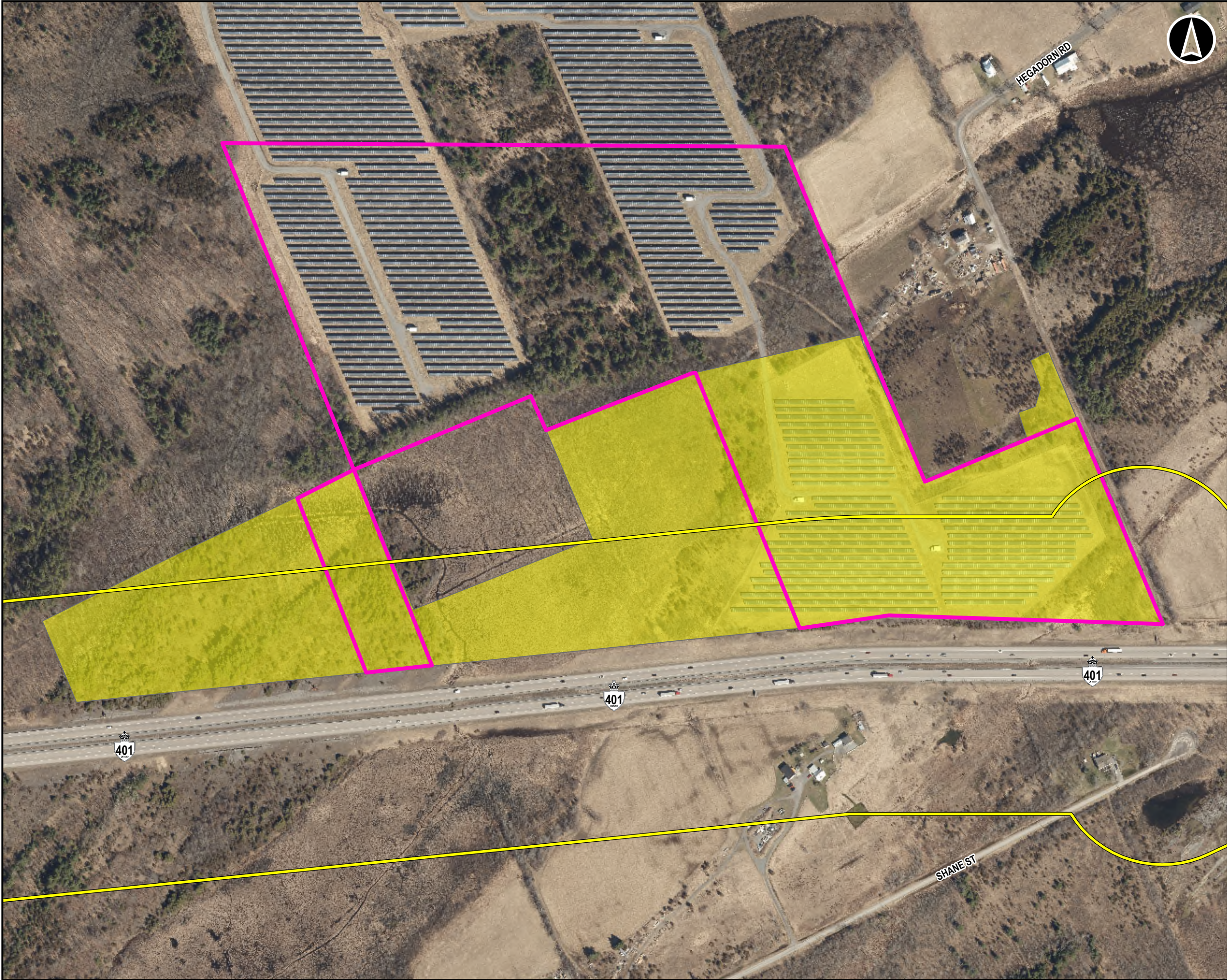
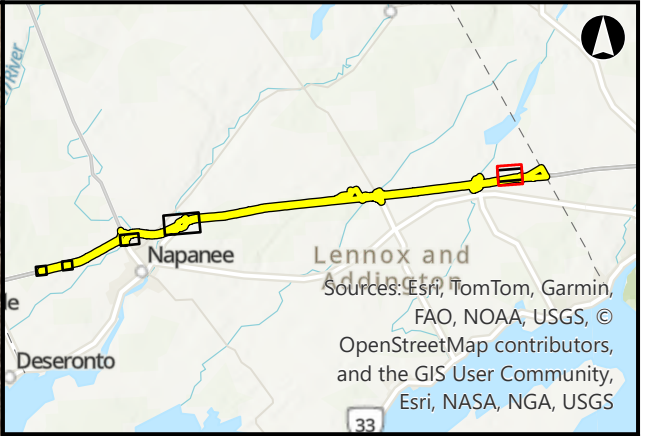
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**AECOM**

**Figure 8-4**

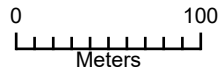
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**Legend**

- Study Area
- P389-0016-2013 (Stantec Consulting Ltd 2013) - Stage 1 and 2 complete, no further work recommended
- P348-001-2011, P141-160-2011, P141-166-2011, P141-169-2012 (AMEC 2011, 2012a, 2012b, 2012c) - Stage 1 and 2 complete, no further work recommended



Highway 401 from Belleville to Kingston  
Assignment No. GWP 4016-21-00 Study #2

**Previous Archaeological Assessments**

|           |                                   |                                                  |
|-----------|-----------------------------------|--------------------------------------------------|
| Sep, 2026 | 1:4,100<br>* when printed 11"x17" | Datum: NAD 1983 UTM Zone 18N<br>Source: MNR, NRC |
|-----------|-----------------------------------|--------------------------------------------------|

|              |              |                   |
|--------------|--------------|-------------------|
| P#: 60734357 | <b>AECOM</b> | <b>Figure 8-5</b> |
|--------------|--------------|-------------------|

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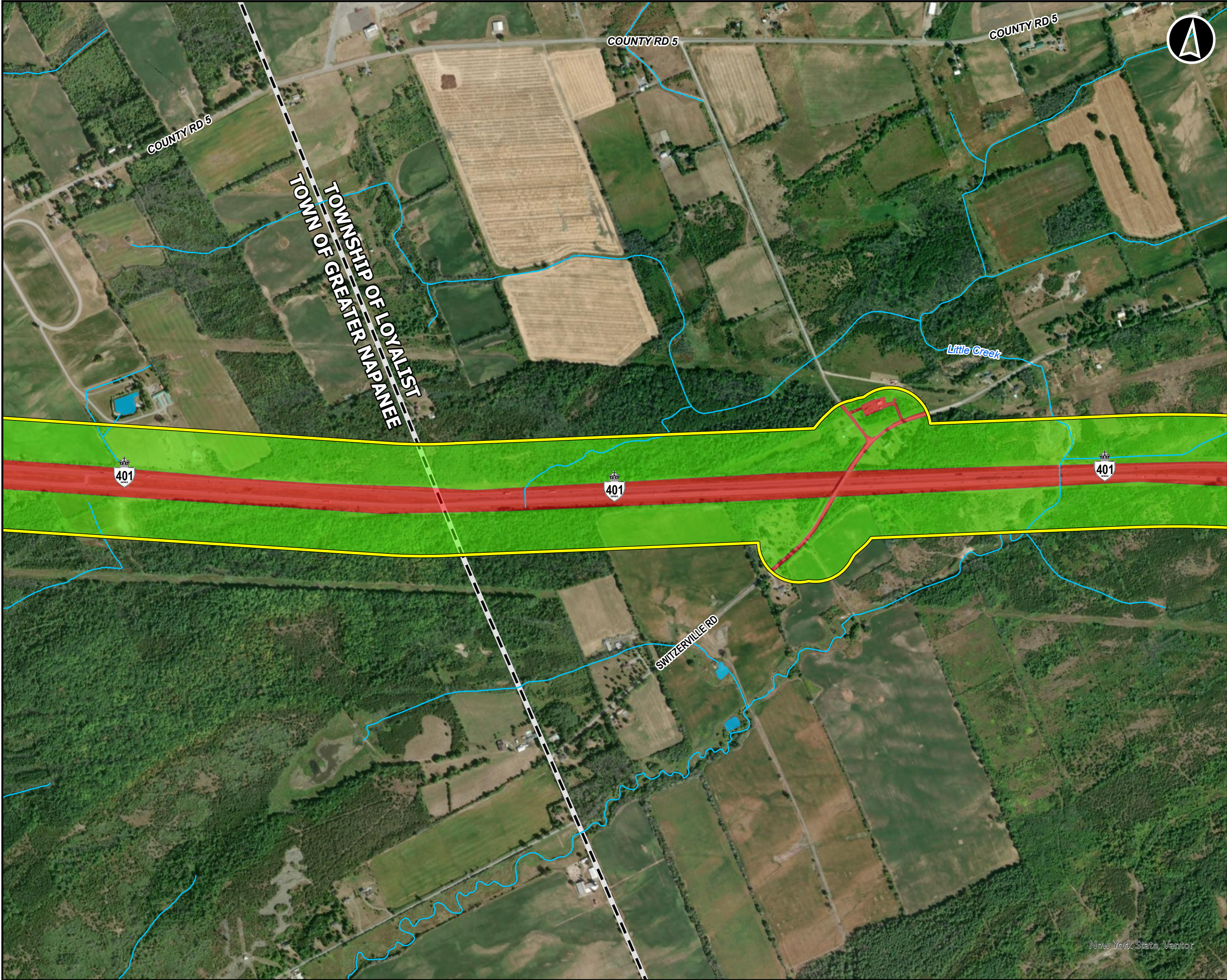
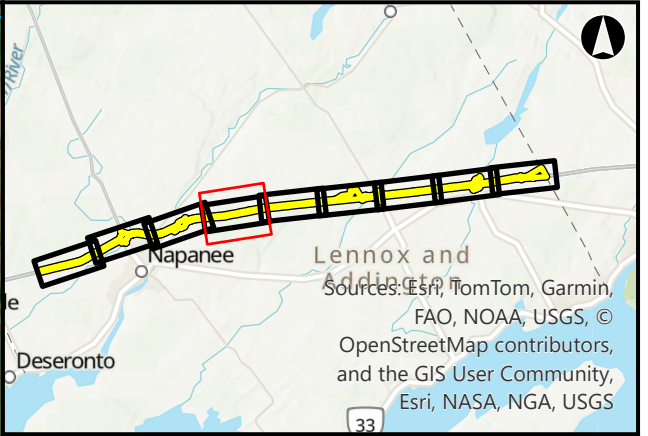






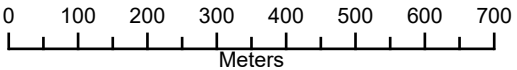






**Legend**

- Watercourse
- Waterbody
- Study Area
- Stage 2 Archaeological Assessment Recommended
- Disturbed - Visual Confirmation and Photo Documentation Required



Highway 401 from Belleville to Kingston  
Assignment No. GWP 4016-21-00 Study #2

**Results of the Stage 1 AA**

|           |                                    |                                                  |
|-----------|------------------------------------|--------------------------------------------------|
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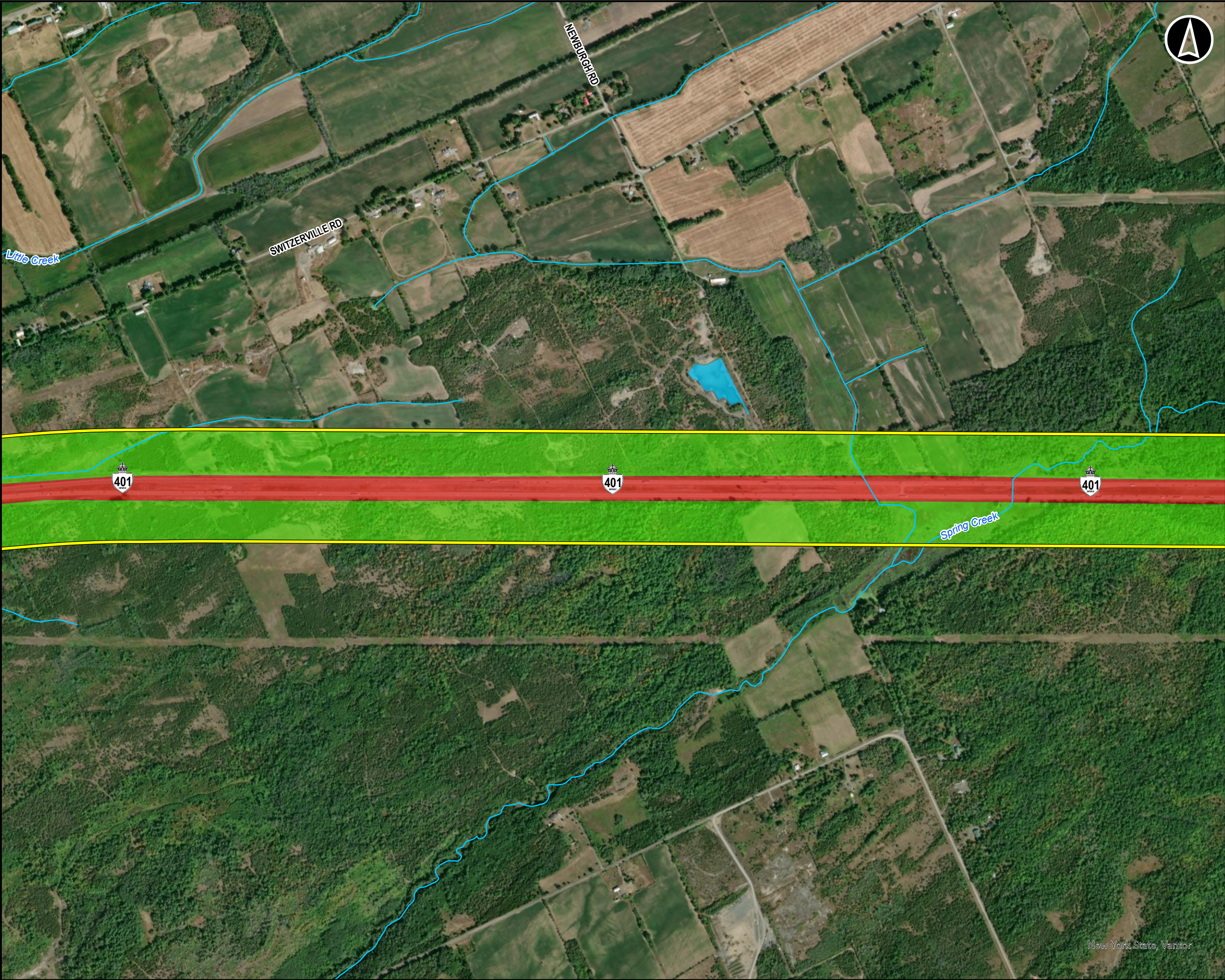
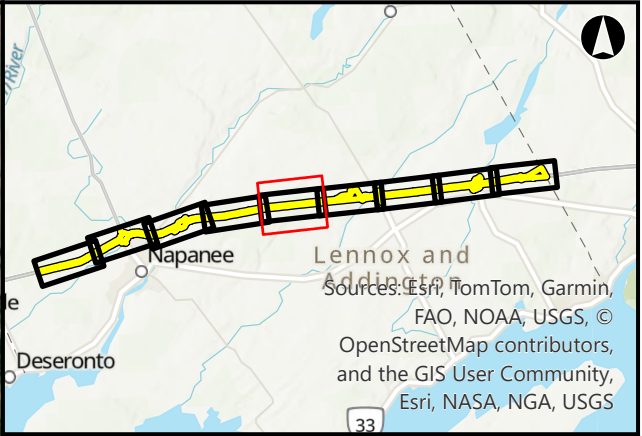
P#: 60734357

**AECOM**

**Figure 9-4**

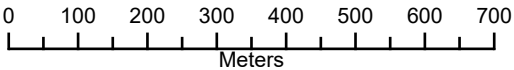
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**Legend**

- Watercourse
- Waterbody
- Study Area
- Stage 2 Archaeological Assessment Recommended
- Disturbed - Visual Confirmation and Photo Documentation Required



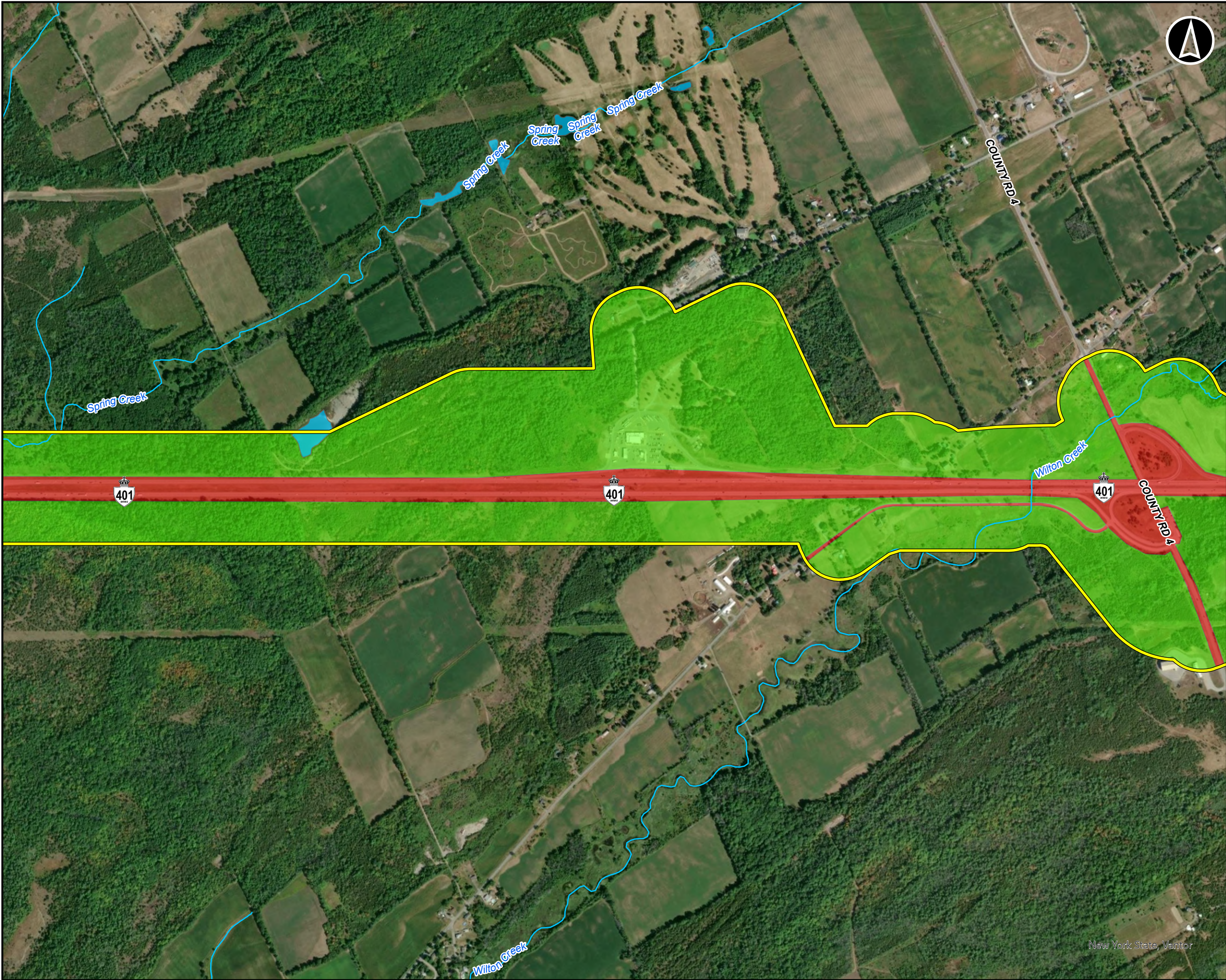
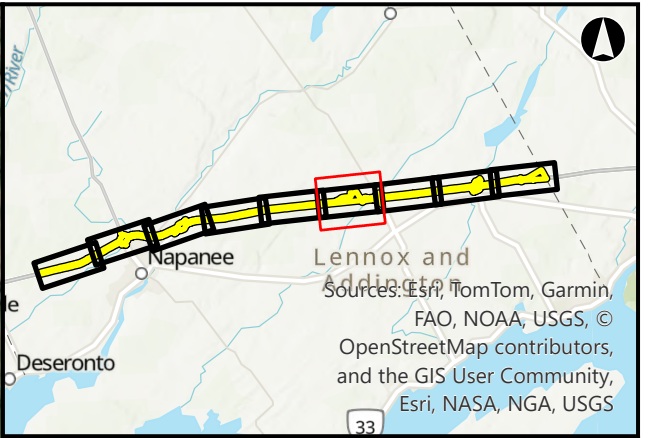
Highway 401 from Belleville to Kingston  
Assignment No. GWP 4016-21-00 Study #2

Results of the Stage 1 AA

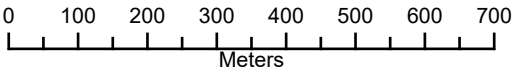
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| P#: 60734357 |                                    |                                                   |
| <b>AECOM</b> |                                    | <b>Figure 9-5</b>                                 |

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- Legend**
- Watercourse
  - Waterbody
  - Study Area
  - Stage 2 Archaeological Assessment Recommended
  - Disturbed - Visual Confirmation and Photo Documentation Required



Highway 401 from Belleville to Kingston  
Assignment No. GWP 4016-21-00 Study #2

Results of the Stage 1 AA

Oct, 2026

1:10,900

Datum: NAD 1983 UTM Zone 18N  
Source: MNRF, NRC

P#: 60734357

**AECOM**

**Figure 9-6**

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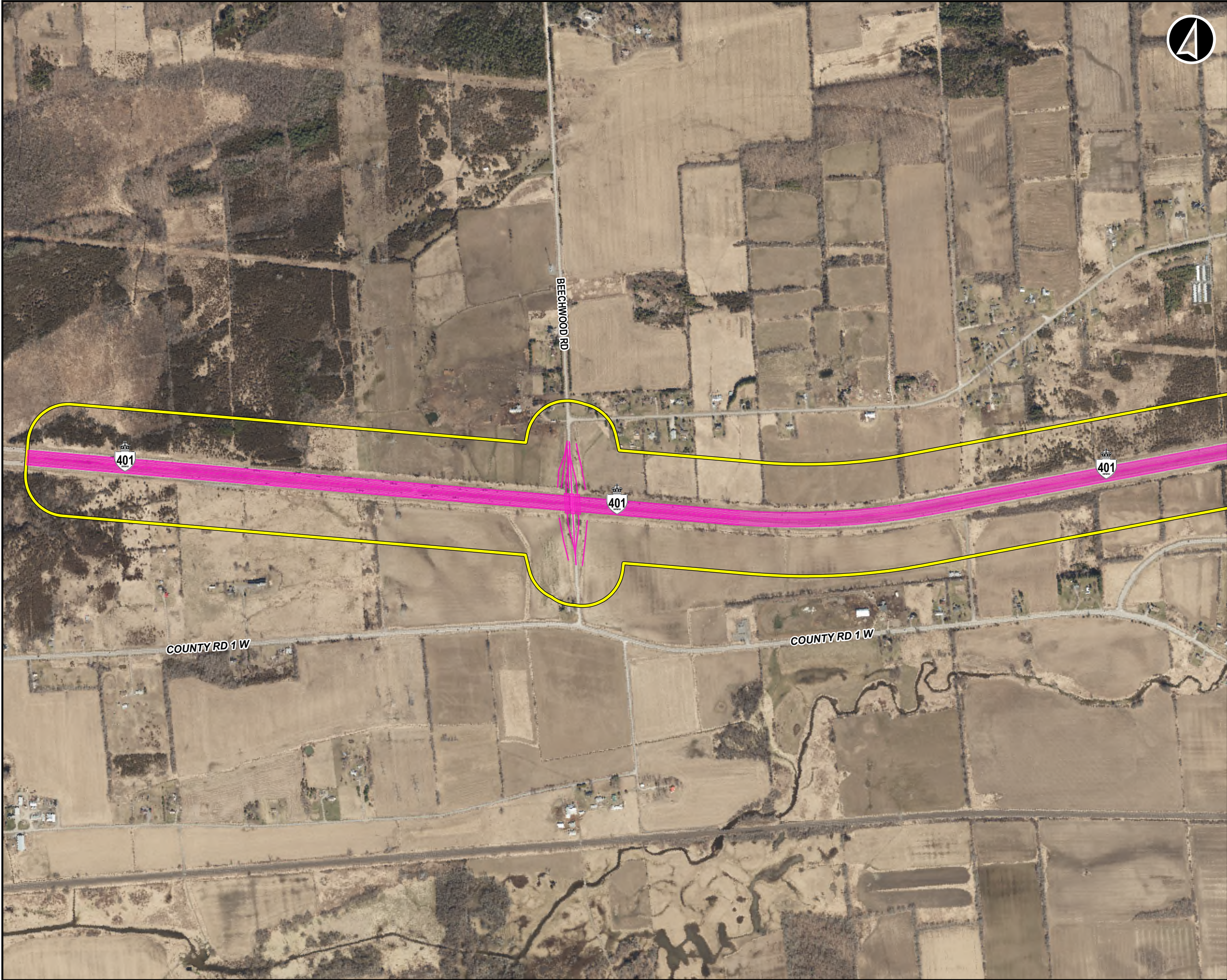
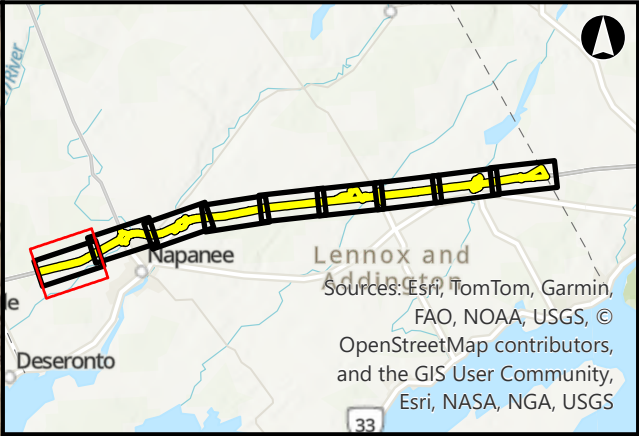






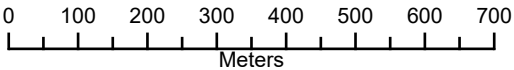






Legend

- Design Alternatives
- Study Area

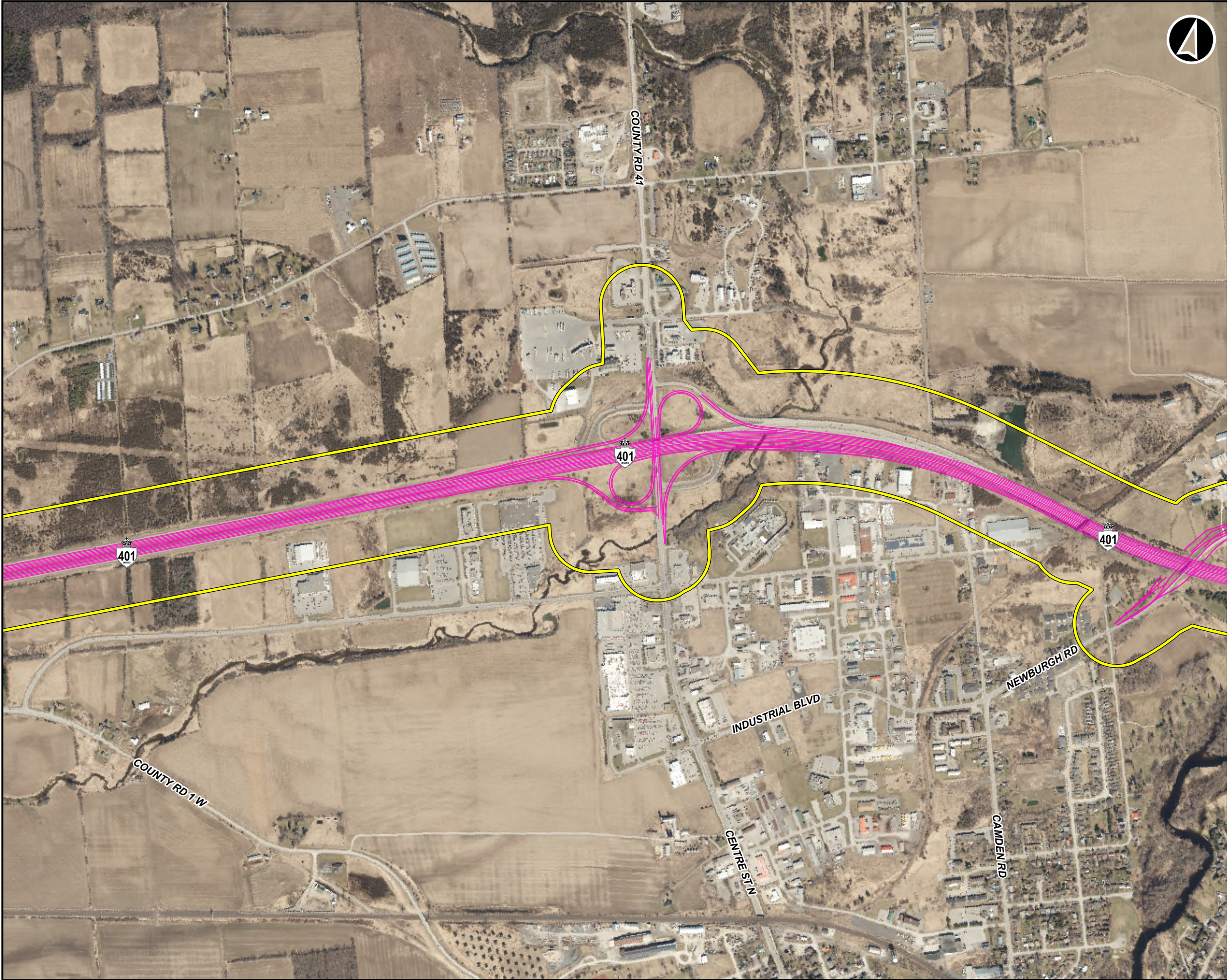
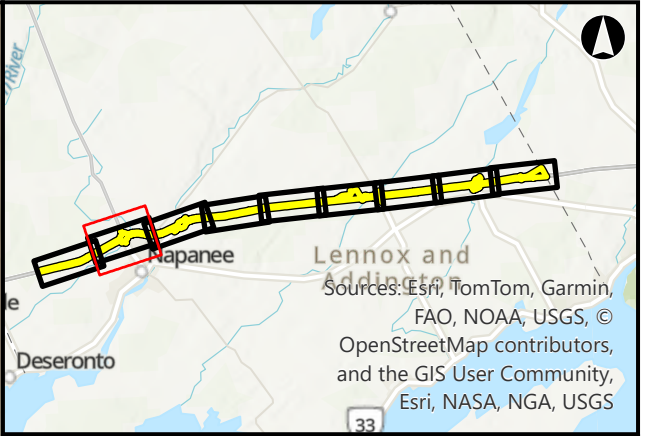


Highway 401 from Belleville to Kingston  
Assignment No. GWP 4016-21-00 Study #2

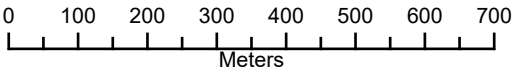
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| P#: 60734357 |                                    | Figure 10-1                                      |
| AECOM        |                                    |                                                  |

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- Legend**
- Design Alternatives
  - Study Area

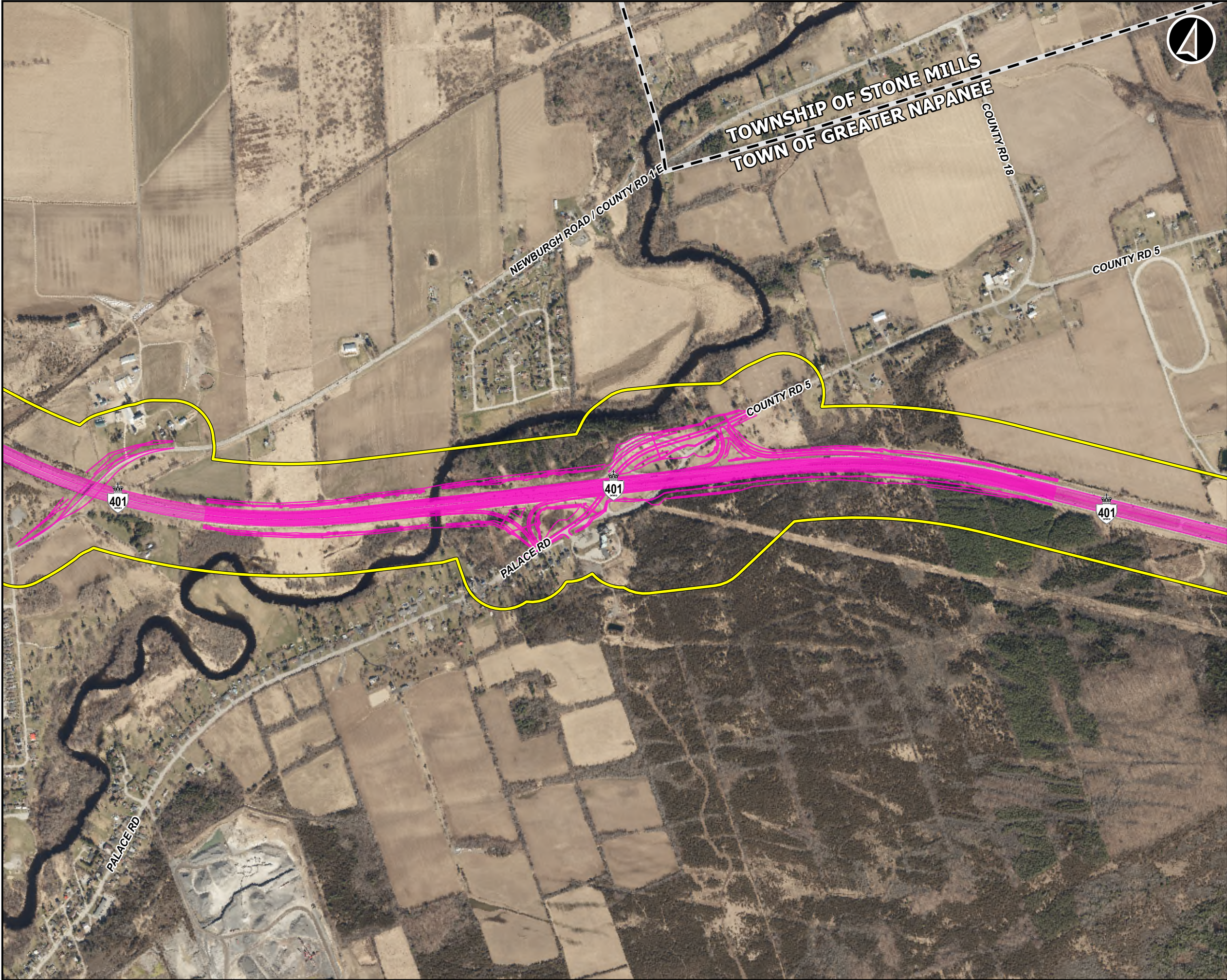
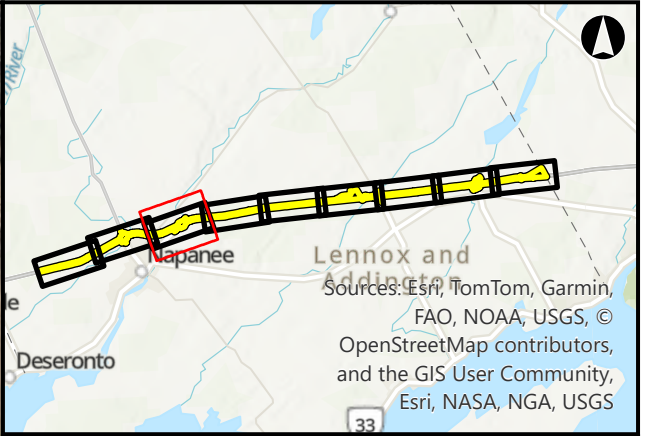


Highway 401 from Belleville to Kingston  
Assignment No. GWP 4016-21-00 Study #2

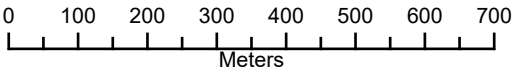
| Development  |                                        |                                                   |
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| P#: 60734357 |                                        | Figure 10-2                                       |
| AECOM        |                                        |                                                   |

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- Legend**
- Design Alternatives
  - Study Area



Highway 401 from Belleville to Kingston  
Assignment No. GWP 4016-21-00 Study #2

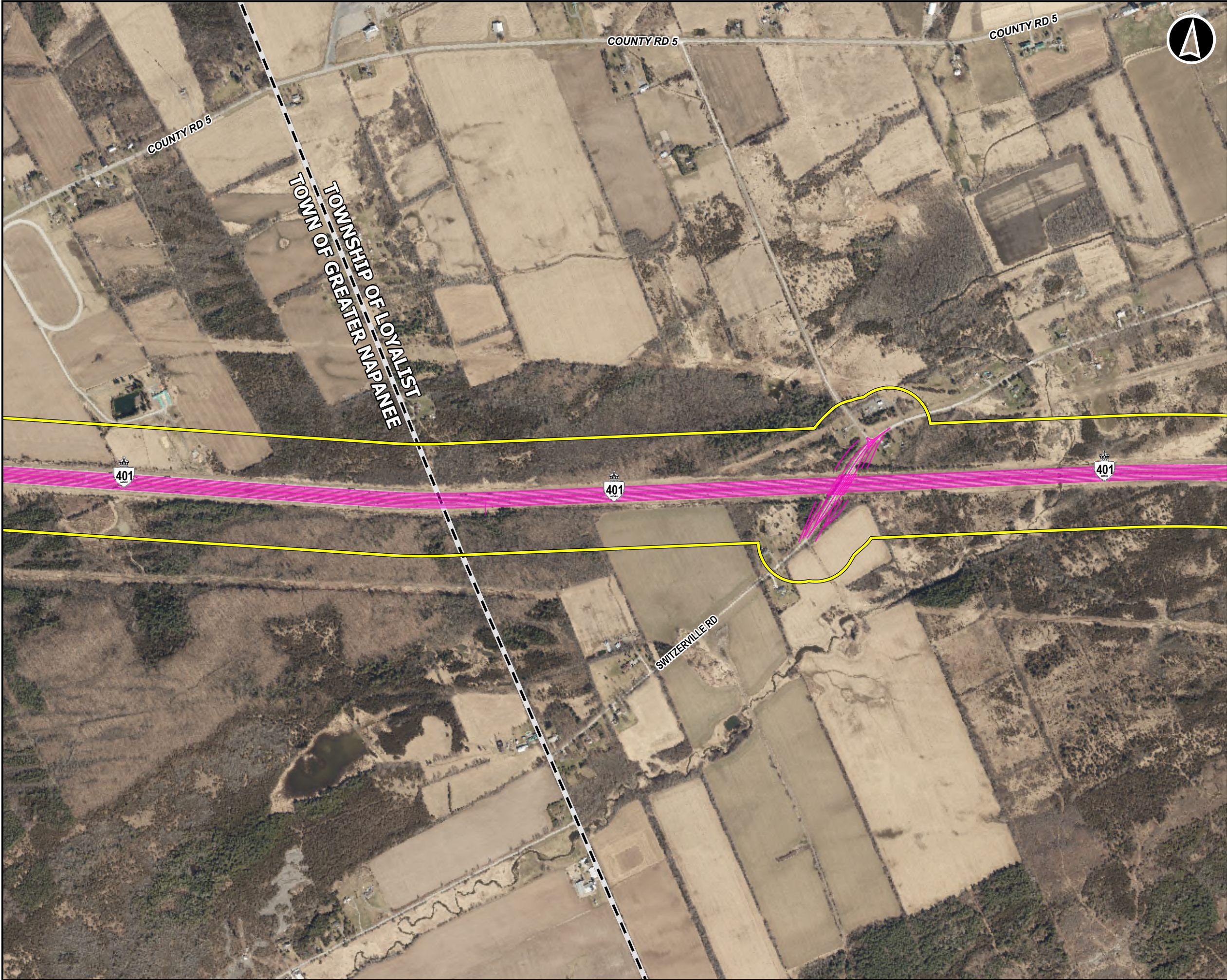
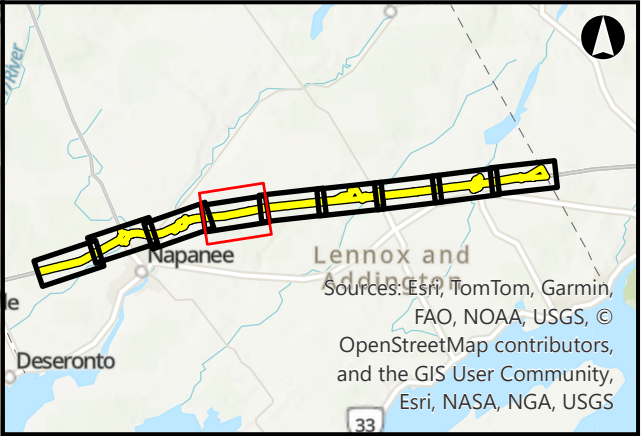
| Development  |                                                   |                                                   |
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| P#: 60734357 |                                                   | <b>Figure 10-3</b>                                |

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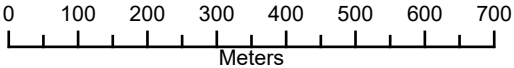
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Legend

- Design Alternatives
- Study Area



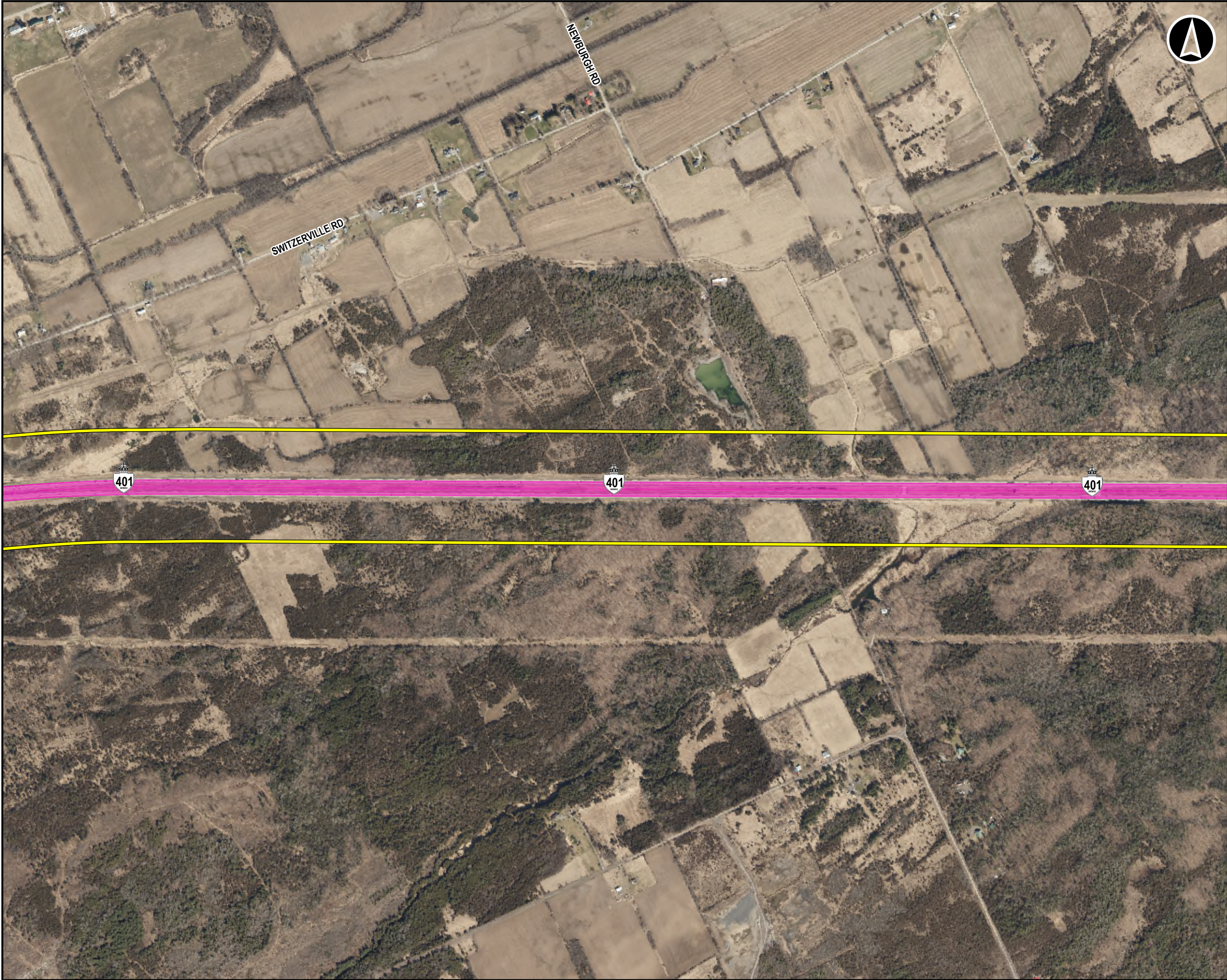
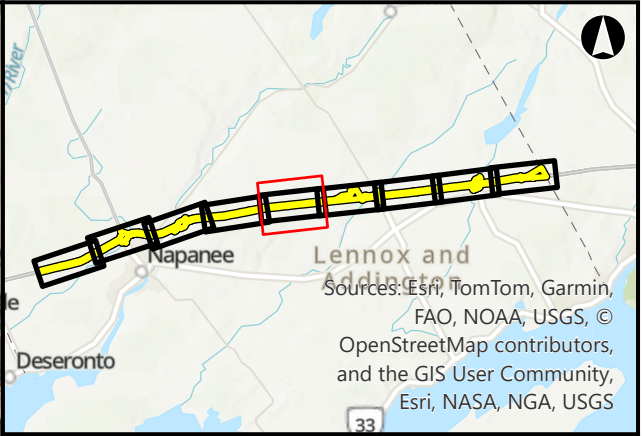
Highway 401 from Belleville to Kingston  
Assignment No. GWP 4016-21-00 Study #2

| Development  |                                        |                                                   |
|--------------|----------------------------------------|---------------------------------------------------|
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| P#: 60734357 |                                        | Figure 10-4                                       |
| AECOM        |                                        |                                                   |

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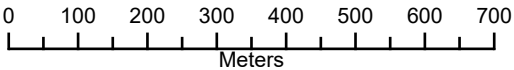
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Legend

- Design Alternatives
- Study Area

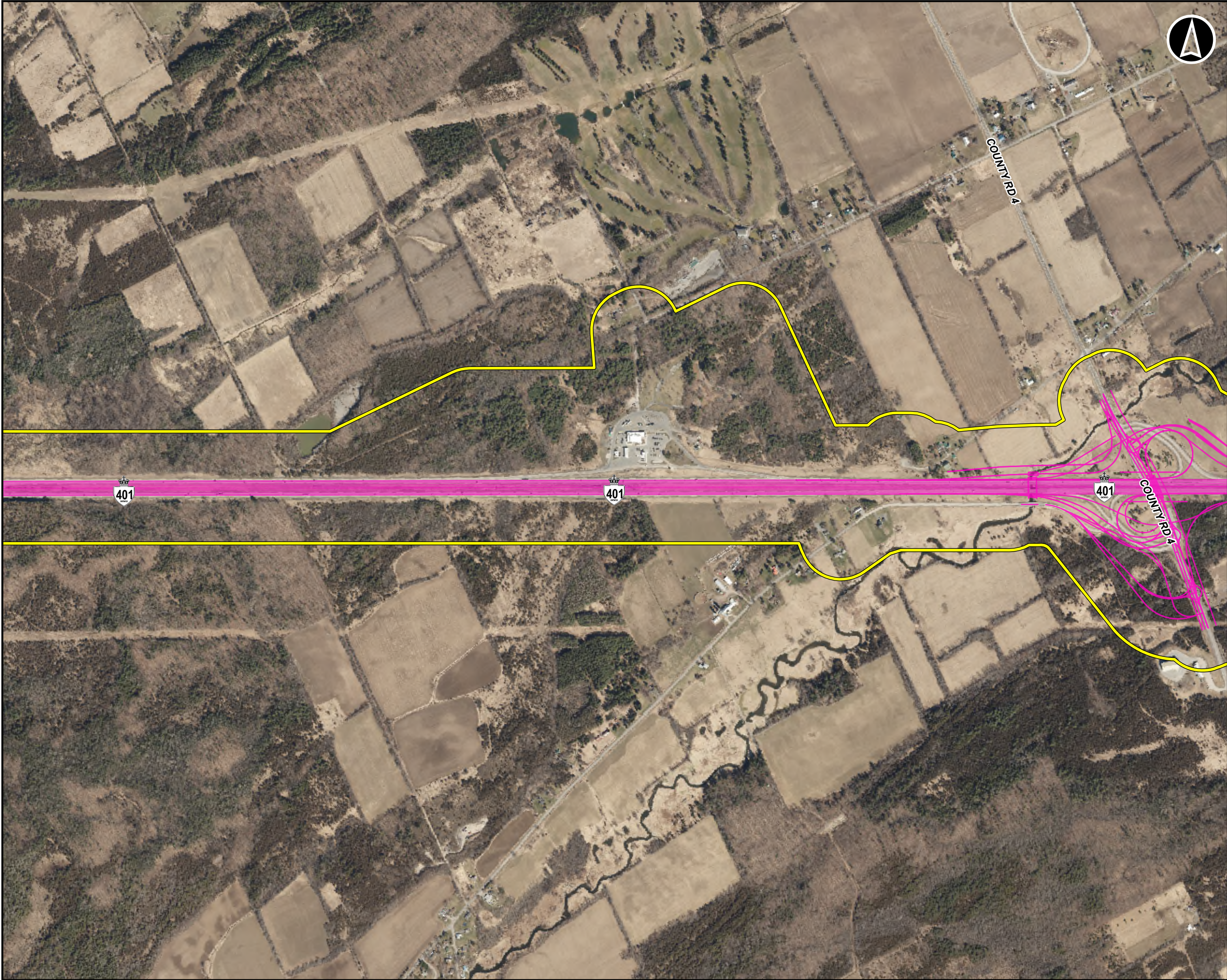
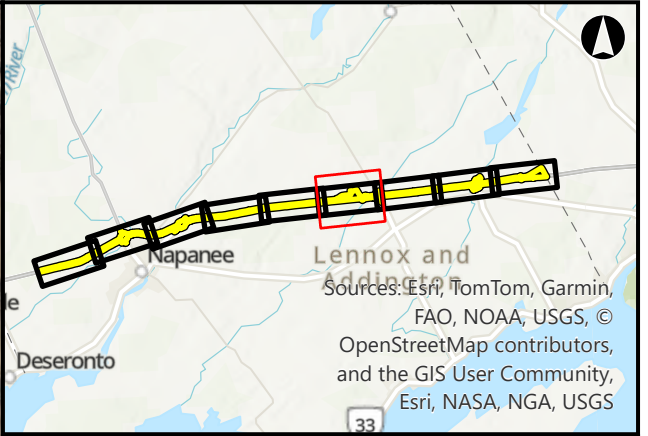


Highway 401 from Belleville to Kingston  
Assignment No. GWP 4016-21-00 Study #2

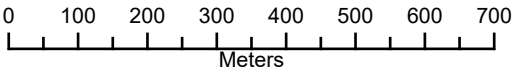
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| P#: 60734357 |                                    | Figure 10-5                                       |
| AECOM        |                                    |                                                   |

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- Legend**
- Design Alternatives
  - Study Area



Highway 401 from Belleville to Kingston  
Assignment No. GWP 4016-21-00 Study #2

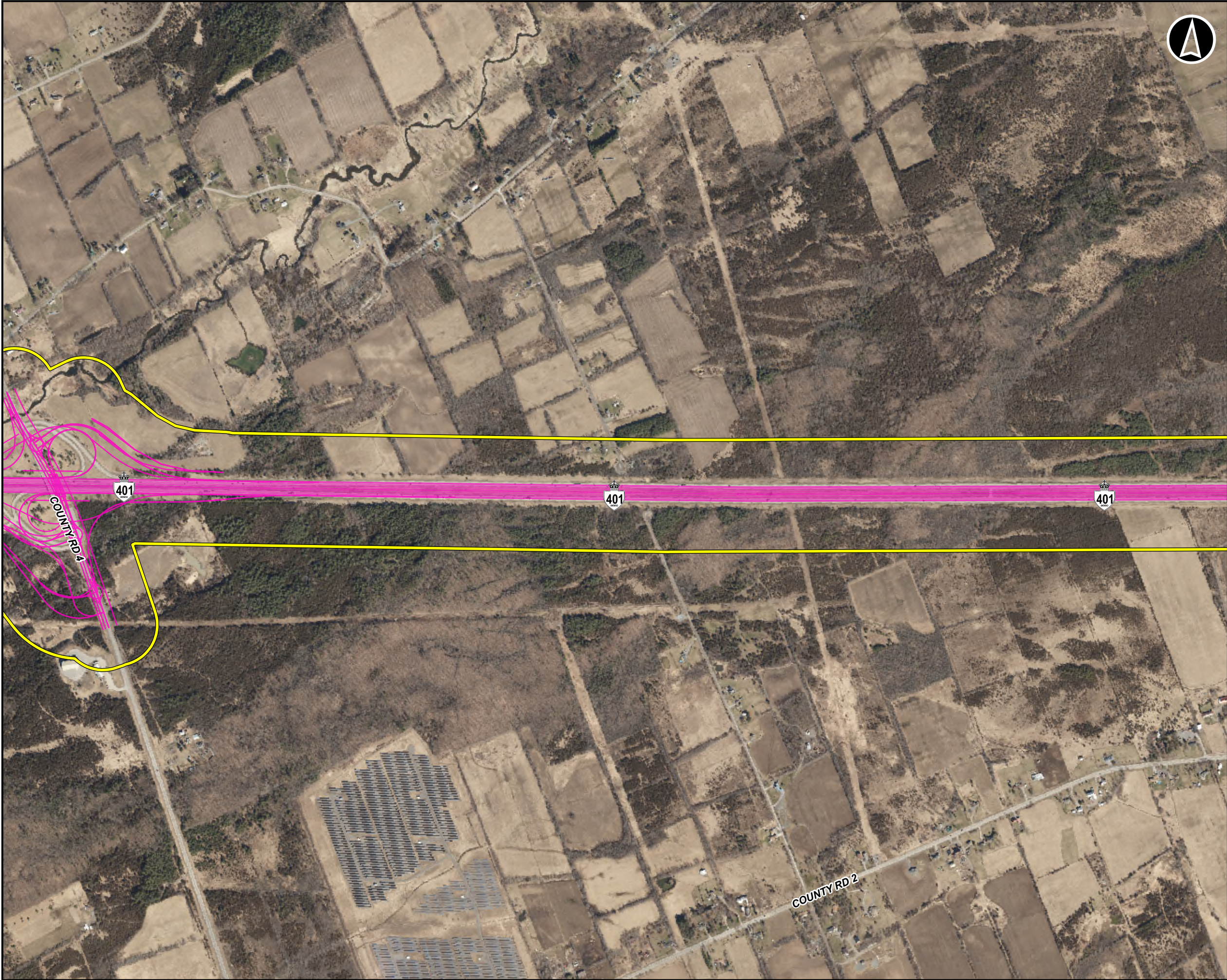
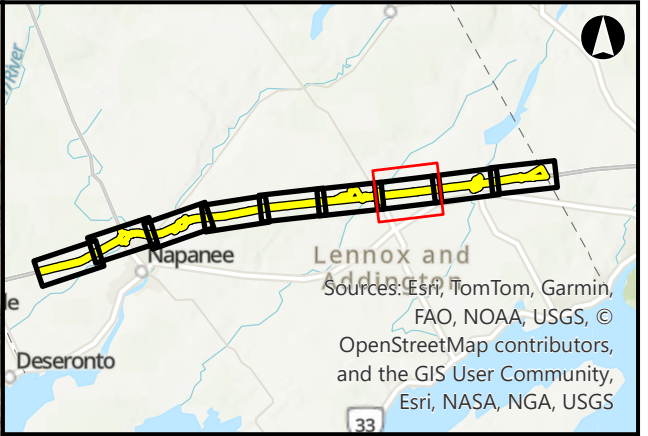
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| P#: 60734357 |                                                   | <b>Figure 10-6</b>                                |

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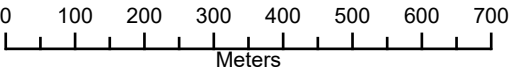
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- Legend**
- Design Alternatives
  - Study Area

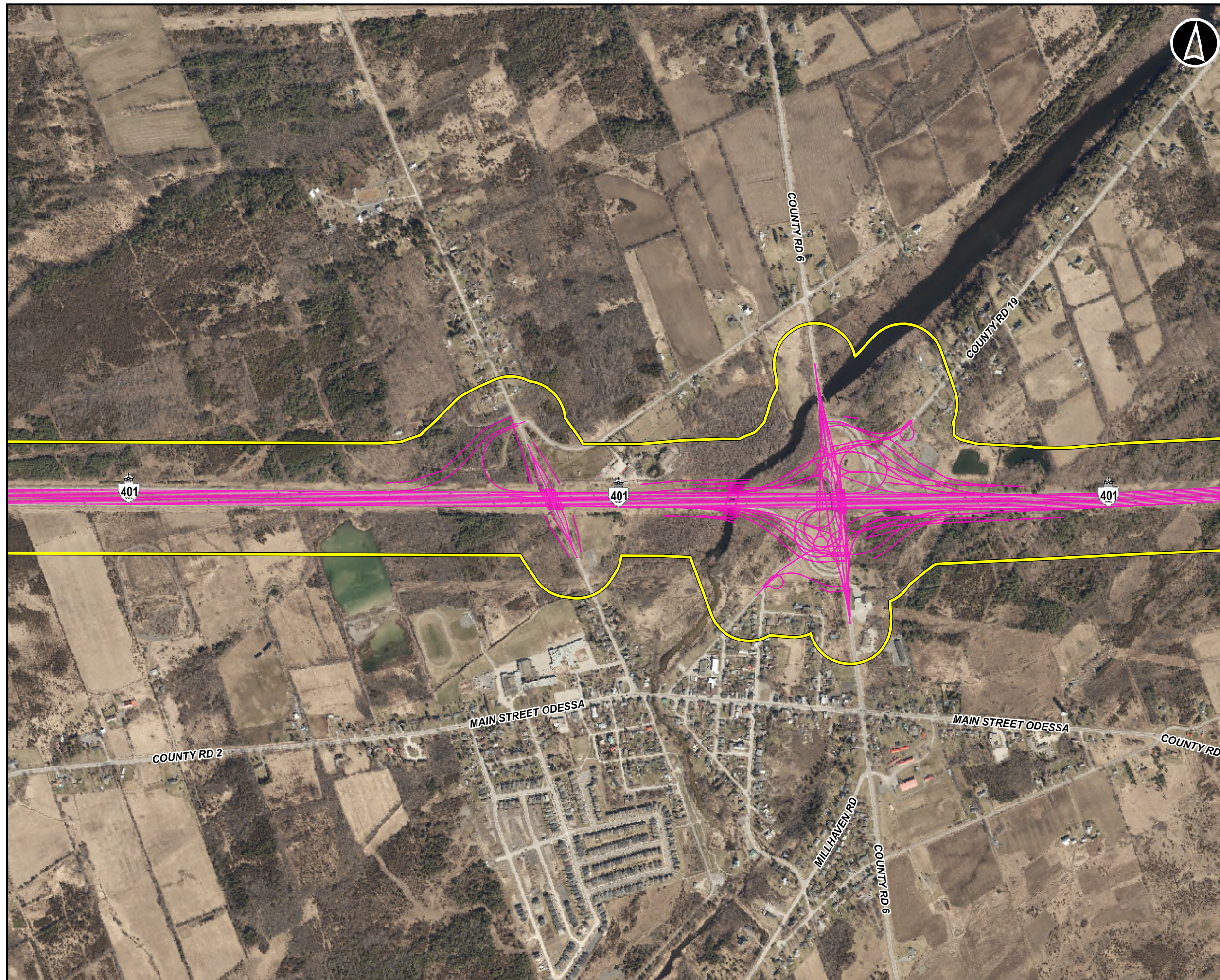
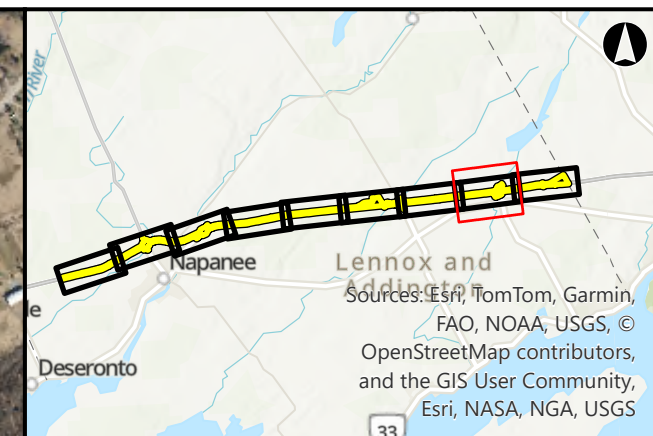


Highway 401 from Belleville to Kingston  
Assignment No. GWP 4016-21-00 Study #2

| Development  |                                    |                                                   |
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| P#: 60734357 |                                    | <b>Figure 10-7</b>                                |
| <b>AECOM</b> |                                    |                                                   |

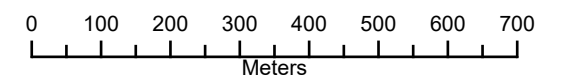
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## Legend

— Design Alternatives  
 Study Area



Highway 401 from Belleville to Kingston  
Assignment No. GWP 4016-21-00 Study #2

Development

Jun, 2026

1:10,900

\* when printed 11"x17"

Datum: NAD 1983 UTM Zone 18N  
Source: MNRF, NRC

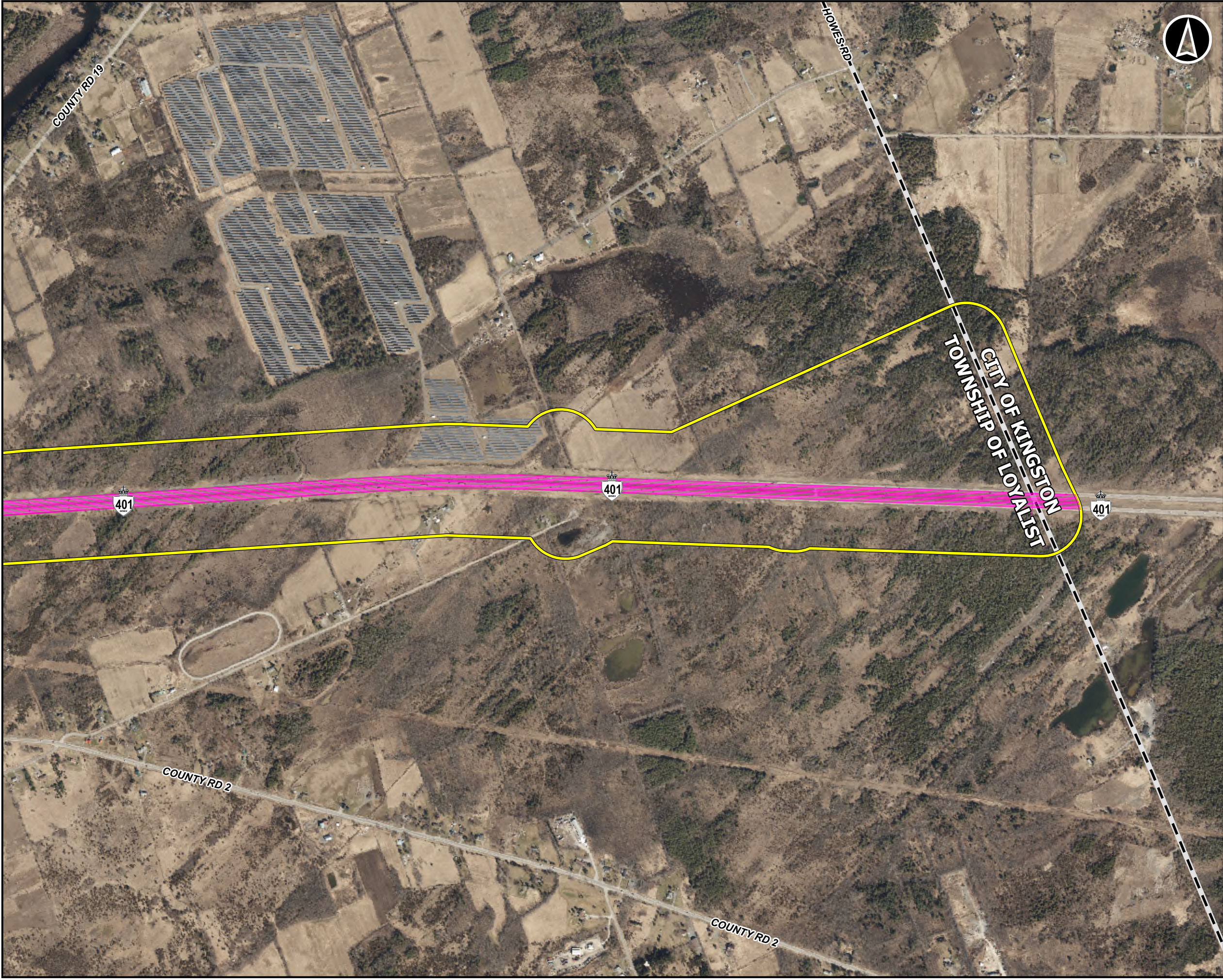
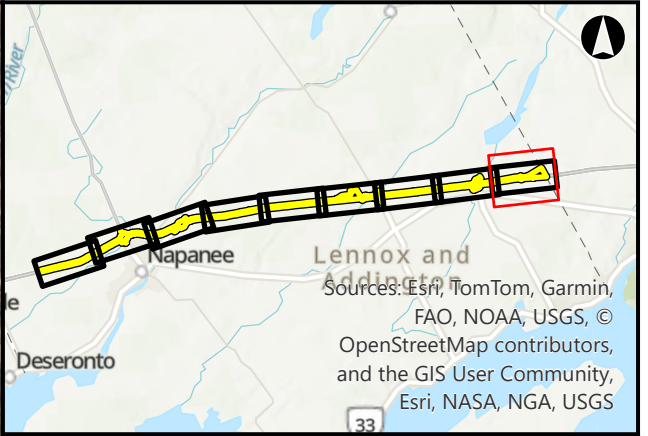
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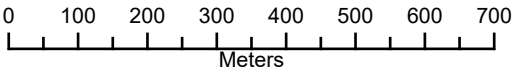
**Figure 10-8**

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- Legend**
- Design Alternatives
  - Study Area



Highway 401 from Belleville to Kingston  
Assignment No. GWP 4016-21-00 Study #2

| Development  |                                    |                                                   |
|--------------|------------------------------------|---------------------------------------------------|
| Jun, 2026    | 1:10,900<br>* when printed 11"x17" | Datum: NAD 1983 UTM Zone 18N<br>Source: MNRF, NRC |
| P#: 60734357 |                                    | Figure 10-9                                       |
| AECOM        |                                    |                                                   |

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# Appendix F

## Cultural Heritage Resource Assessment Report

A decorative graphic element consisting of a thick, dark green curved line that starts from the left edge of the page, dips slightly, and then rises to curve upwards towards the right edge, creating a wave-like shape that separates the text from the bottom of the page.





# Cultural Heritage Resource Assessment Report: Built Heritage Resources and Cultural Heritage Landscapes

Highway 401 / Napanee River Bridge Improvements Preliminary Design and Class  
Environmental Assessment Study (WP 4039-19-01)

Ontario Ministry of Transportation

60734357

October 2026



# Statement of Qualifications and Limitations

The attached Report (the "Report") has been prepared by AECOM Canada ULC ("AECOM") for the benefit of the Client ("Client") in accordance with the agreement between AECOM and Client, including the scope of work detailed therein (the "Agreement").

The information, data, recommendations and conclusions contained in the Report (collectively, the "Information"):

- is subject to the scope, schedule, and other constraints and limitations in the Agreement and the qualifications contained in the Report (the "Limitations");
- represents AECOM's professional judgement in light of the Limitations and industry standards for the preparation of similar reports;
- may be based on information provided to AECOM which has not been independently verified;
- has not been updated since the date of issuance of the Report and its accuracy is limited to the time period and circumstances in which it was collected, processed, made or issued;
- must be read as a whole and sections thereof should not be read out of such context;
- was prepared for the specific purposes described in the Report and the Agreement; and
- in the case of subsurface, environmental or geotechnical conditions, may be based on limited testing and on the assumption that such conditions are uniform and not variable either geographically or over time.

AECOM shall be entitled to rely upon the accuracy and completeness of information that was provided to it and has no obligation to update such information. AECOM accepts no responsibility for any events or circumstances that may have occurred since the date on which the Report was prepared and, in the case of subsurface, environmental or geotechnical conditions, is not responsible for any variability in such conditions, geographically or over time.

AECOM agrees that the Report represents its professional judgement as described above and that the Information has been prepared for the specific purpose and use described in the Report and the Agreement, but AECOM makes no other representations, or any guarantees or warranties whatsoever, whether express or implied, with respect to the Report, the Information or any part thereof.

Without in any way limiting the generality of the foregoing, any estimates or opinions regarding probable construction costs or construction schedule provided by AECOM represent AECOM's professional judgement in light of its experience and the knowledge and information available to it at the time of preparation. Since AECOM has no control over market or economic conditions, prices for construction labour, equipment or materials or bidding procedures, AECOM, its directors, officers and employees are not able to, nor do they, make any representations, warranties or guarantees whatsoever, whether express or implied, with respect to such estimates or opinions, or their variance from actual construction costs or schedules, and accept no responsibility for any loss or damage arising therefrom or in any way related thereto. Persons relying on such estimates or opinions do so at their own risk.

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This Statement of Qualifications and Limitations is attached to and forms part of the Report and any use of the Report is subject to the terms hereof.

AECOM: 2024-12-21

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# Executive Summary

In 2024 the Ontario Ministry of Transportation of (MTO) initiated two Planning, Preliminary Design and Class Environmental Assessment (Class EA) Studies, Group B, to address current and future transportation needs by developing a plan for the rehabilitation and/or replacement of various bridges and culverts, determining the long-term interchange configuration at seven locations, and establishing the footprint for the interim six and ultimate eight lanes of Highway 401, between the City of Belleville and the City of Kingston. Study #1 (GWP 4022-21-00) includes Highway 401 from 4.3 km east of Highway 37 to 5 km west of County Road 41/Centre Street for a total length of approximately 26 km. Study #2 (GWP 4016-21-00) includes Highway 401 from 5 km west of County Road 41/Centre Street to 8 km west of Kingston Road 38 for a total length of approximately 29 km.

As part of the Study #2 project, the previously approved Palace Road Interchange Technically Preferred Plan, as documented in the *Highway 401 Interchange Improvements at Palace Road Class Environmental Assessment and Preliminary Design Study Transportation Environmental Study Report* (March 2019), was revisited to assess compatibility with an interim and ultimate footprint of Highway 401, as well as to accommodate a potential 130 km/h design speed. However, as the Palace Road Interchange Technically Preferred Plan is now moving forward to Detail Design, advancement of the Napanee River Bridge (Site 17X-0062/B0) improvements from the current Study #2 project is required due to its proximity to Palace Road. As such, the improvements to the Napanee River Bridge are being advanced as a separate Preliminary Design and Class EA Study (WP 4039-19-01) that will include standalone environmental reports and ultimately, documentation in a separate Transportation Environmental Study Report.

This Cultural Heritage Resource Assessment Report (CHRAR) has documented the baseline cultural heritage conditions within the CHRAR Study Area and includes a historical summary of the development of the CHRAR Study Area, an inventory of known and potential Built Heritage Resources, and Cultural Heritage Landscapes (BHRs and CHLs), and a preliminary impact assessment along with recommendations for mitigations and next steps. A total of 11 BHRs and CHLs, including 4 BHRs and 7 CHLs, were identified as properties with potential cultural heritage value or interest (CHVI). The potential BHRs and CHLs primarily represent rural residential properties, farm complexes and natural heritage sites that relate to the late 19<sup>th</sup> century and early 20<sup>th</sup> century settlement of the former Townships of Richmond and North Fredericksburgh, now the Town of Greater Napanee.

Following the evaluation of potential impacts for this Project, it was determined **CHL 5** is anticipated to be directly, adversely impacted by the Project.

- **CHL 5** (Napanee River) is anticipated to experience minimal direct adverse impacts associated with the proposed bridge replacement.

In addition, three structures are located within the CHRAR Study Area and have been screened by MTO's Regional Structural Section Engineers and determined to not have potential CHVI. None of these structures located within the CHRAR Study Area will require further documentation or heritage assessments.

Based on the results of the background research and assessment of impacts to the Project CHRAR Study Area, it has been determined that there will be potential direct and indirect impacts to the potential BHRs and CHLs.

## General Mitigation Measures

The following general mitigation measures should be considered for the Project:

1. Generally, the Project should be planned to avoid negative impacts to all potential BHRs and CHLs. Construction activities and staging should be suitably planned and undertaken to avoid heritage



attributes wherever possible and to avoid unintended negative impacts to identified BHRs and CHLs. Avoidance measures may include, but are not limited to erecting temporary fencing, establishing buffer zones, issuing instructions to construction crews to avoid identified BHRs and CHLs, etc. The Project Team should explore strategies to avoid or mitigate potential impacts to potential BHRs and CHLs identified in this CHRAR while refining the Project Limits during the preliminary design.

2. To ensure all potential BHRs and CHLs listed in **Table 4** within and adjacent to the final design are not adversely indirectly impacted by mechanical vibration during construction, a vibration assessment should be developed by a qualified engineer prior to construction. Should this vibration assessment determine that the structures or landscape features within the potential BHRs and CHLs will be subject to adverse impacts due to vibration, a vibration monitoring plan should be prepared by a qualified engineer and implemented to lessen vibration impacts related to construction.
3. Should there be further refinements to the CHRAR Study Area, particularly with respect to **CHL 6** (Spook Horn Cemetery), a Qualified Person should reassess potential impacts and identify any additional mitigation measures required to avoid, minimize, or manage adverse effects

## Next Steps

1. As noted in **Section 8.1**, **CHL 5** is anticipated to have minimal direct adverse impacts as a result of the bridge replacement. Mitigation measures will focus on minimizing disturbance, maintaining vegetation continuity, and incorporating Indigenous perspectives into design. Refer to **Table 5** for resource-specific mitigation measures and next steps.

## Quality Information

### Prepared by



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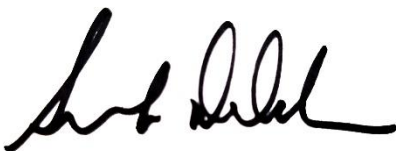
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Senior Social Impact Specialist

## Revision History

| Rev # | Revision Date  | Revised By:           | Revision Description |
|-------|----------------|-----------------------|----------------------|
| 0     | June 2026      | Dawn Chan & Liam Ryan | Draft Preparation    |
| 1     | September 2026 | Dawn Chan & Liam Ryan | MTO Comments         |
| 2     | October 2026   | Dawn Chan & Liam Ryan | Final Report         |

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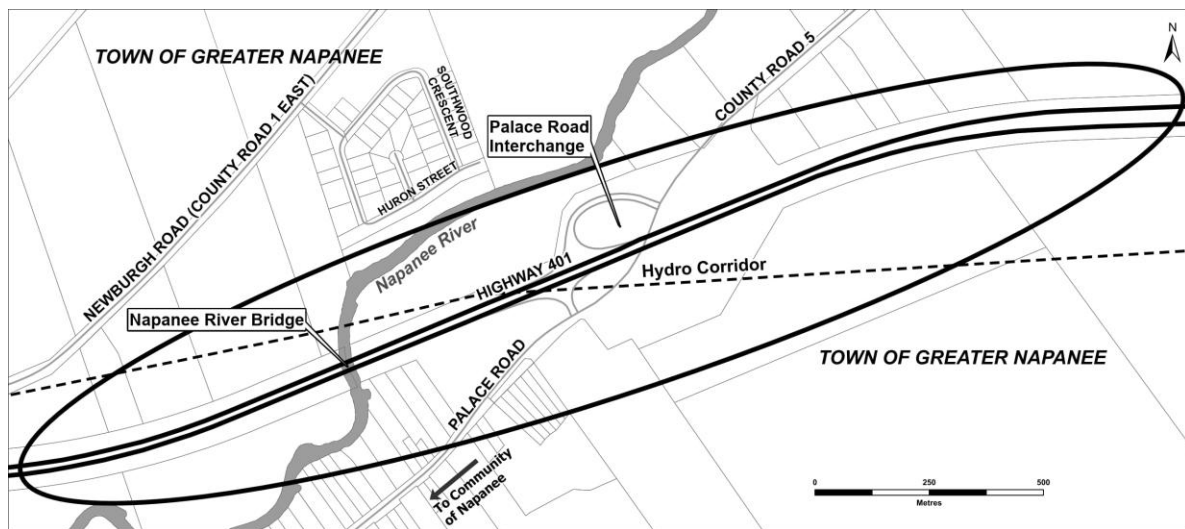
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# 1. Introduction

## 1.1 Project Context

In 2024 the Ontario Ministry of Transportation of (MTO) initiated two Planning, Preliminary Design and Class Environmental Assessment (Class EA) Studies, Group B, to address current and future transportation needs by developing a plan for the rehabilitation and/or replacement of various bridges and culverts, determining the long-term interchange configuration at seven locations, and establishing the footprint for the interim six and ultimate eight lanes of Highway 401, between the City of Belleville and the City of Kingston. Study #1 (GWP 4022-21-00) includes Highway 401 from 4.3 km east of Highway 37 to 5 km west of County Road 41/Centre Street for a total length of approximately 26 km. Study #2 (GWP 4016-21-00) includes Highway 401 from 5 km west of County Road 41/Centre Street to 8 km west of Kingston Road 38 for a total length of approximately 29 km.

As part of the Study #2 project, the previously approved Palace Road Interchange Technically Preferred Plan, as documented in the Highway 401 Interchange Improvements at Palace Road Class Environmental Assessment and Preliminary Design Study Transportation Environmental Study Report (March 2019), was revisited to assess compatibility with an interim and ultimate footprint of Highway 401, as well as to accommodate a potential 130 km/h design speed. Based on this review, no significant modifications to the previously approved configuration are recommended. However, as the Palace Road Interchange Technically Preferred Plan is now moving forward to Detail Design, advancement of the Napanee River Bridge (Site 17X-0062/B0) improvements from the current Study #2 project is required due to its proximity to Palace Road. As such, the improvements to the Napanee River Bridge are being advanced as a separate Preliminary Design and Class EA Study (WP 4039-19-01) that will include standalone environmental reports and ultimately, documentation in a separate Transportation Environmental Study Report. For the general location of the subject Napanee River Bridge Improvements Preliminary Design and Class EA Study, Group B, (WP 4039-19-01), please refer to the Key Plan below.



**Project Key Plan**

This Cultural Heritage Resource Assessment Report (CHRAR) has been prepared to inform the Napanee River Bridge Improvements Preliminary Design and Class EA Study (WP 4039-19-01) and therefore focuses solely on the planned improvements associated with that study. A separate report will be prepared to address the improvements associated with larger Study #2 Study Area.



## 1.2 Purpose of this CHRAR

This CHRAR is intended to inform project planning and design by providing recommendations for the conservation of built heritage resources and cultural heritage landscapes (BHRs and CHLs), within the CHRAR Study Area. The report identifies and assesses potential impacts to the potential BHRs and CHLs from the proposed project design and recommends mitigation strategies where adverse impacts are anticipated (e.g. the CHRAR may recommend an adjustment to the route to avoid impacts to any potential BHRs and CHLs, completion of a Cultural Heritage Evaluation Report, etc.). See **Section 3** for project methodology.

## 2. The Study Area

The Project Limits for the current Class EA study reflects the design modifications to complete the replacement of the Napanee River Bridge including profile refinements to meet environmental, drainage, and fluvial geomorphological requirements, the related property acquisition and the need to tie back into Highway 401. However, given that the Technically Preferred Plan for the reconfiguration of the Palace Rd interchange, as illustrated in **Figure 1**, was previously approved as part of the 2019 Palace Road Class EA it is not being revisited and is not part of the current Class EA study. As part of the current undertaking, a review of the previous CHRAR prepared in support of the 2019 Palace Road TESR was completed and existing conditions within the full Study Area were screened and updated as part of the current undertaking.

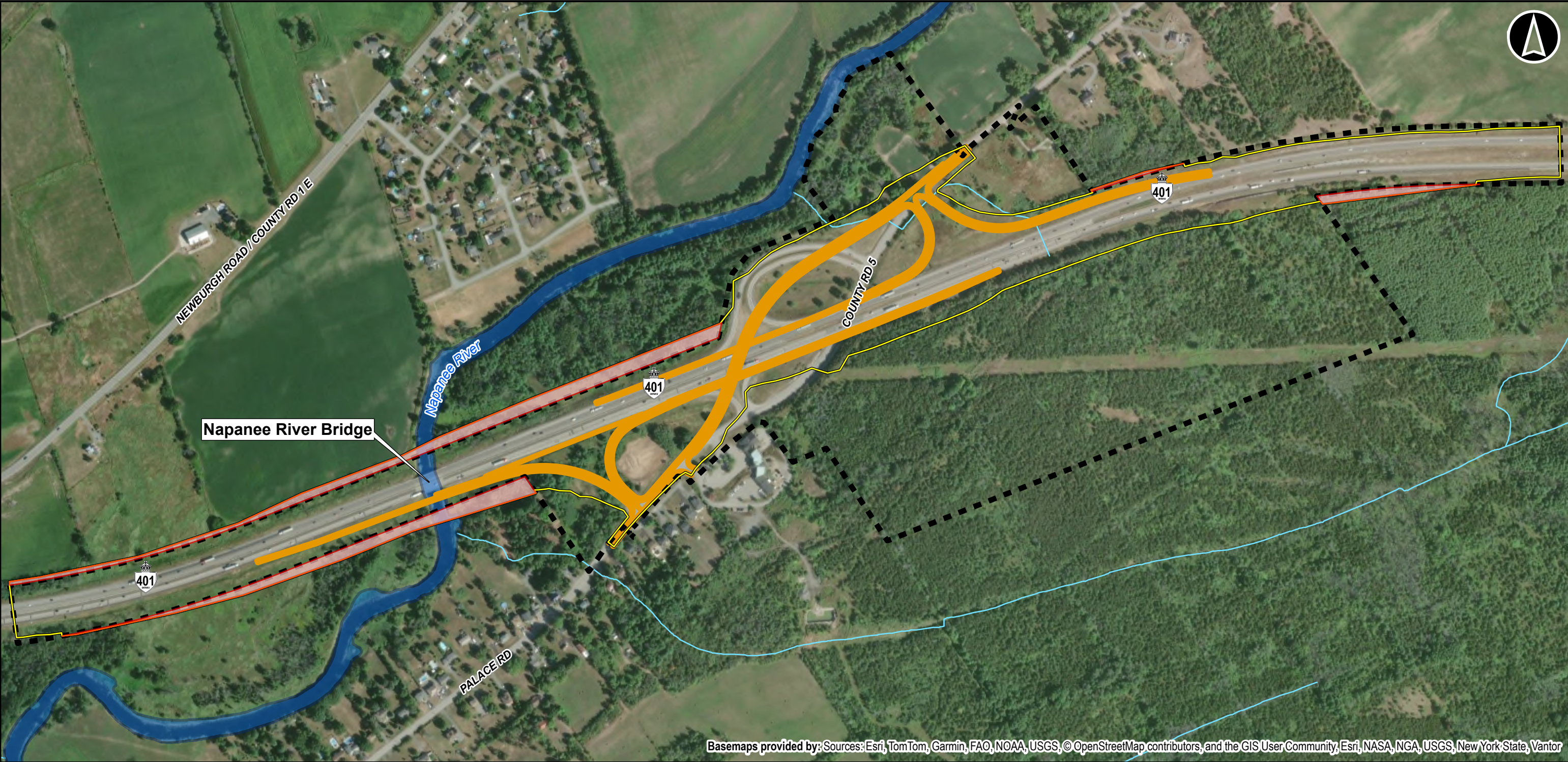
The Study Area, which is currently referred to as the CHRAR Study Area is centred around the MTO owned Highway 401 right-of-way (ROW), which is currently a four-lane divided highway that runs in an east-west direction. The CHRAR Study Area is located within the Town of Greater Napanee and the County of Lennox and Addington. The CHRAR Study Area includes the Project Limits as illustrated in **Figure 2** and **Figure 3**, and the following three Study Zones:

- Study Zone 1 – Project Limits
- Study Zone 2 – 0–25 metres beyond Study Zone 1
- Study Zone 3 – 25–250 metres beyond Study Zone 2

Properties within the Project Limits may be subject to direct impacts from construction activities related to this Project.

The three Study Zones are based on an understanding of potential indirect impacts, including the potential for vibration impacts associated with the construction activities and the transportation of construction materials and personnel. The use of the three Study Zones was determined to encompass a wide enough buffer zone to define the distance at which there may be potential for indirect impacts resulting from the Project. Therefore, MTO's Study Zones capture all the lands that may be affected by the potential direct and indirect adverse impacts from the Project.





Basemaps provided by: Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community, Esri, NASA, NGA, USGS, New York State, Vantor

**Legend**

 Project Limits

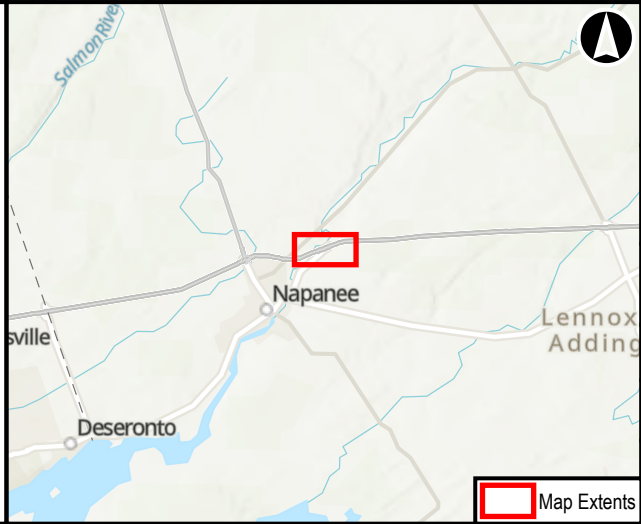
 2019 Approved Palace Road Interchange Technically Preferred Plan (GWP 4197-13-00)

 Existing MTO ROW

 Property Aquisition

 Waterbody

 Watercourse





**Highway 401 / Napanee River Bridge Improvements PD and Class EA Study (WP 4039-19-01)**

Project Limits

0

100

200

300

400

Meters

NAD 1983 UTM Zone 18N

Data Sources:  
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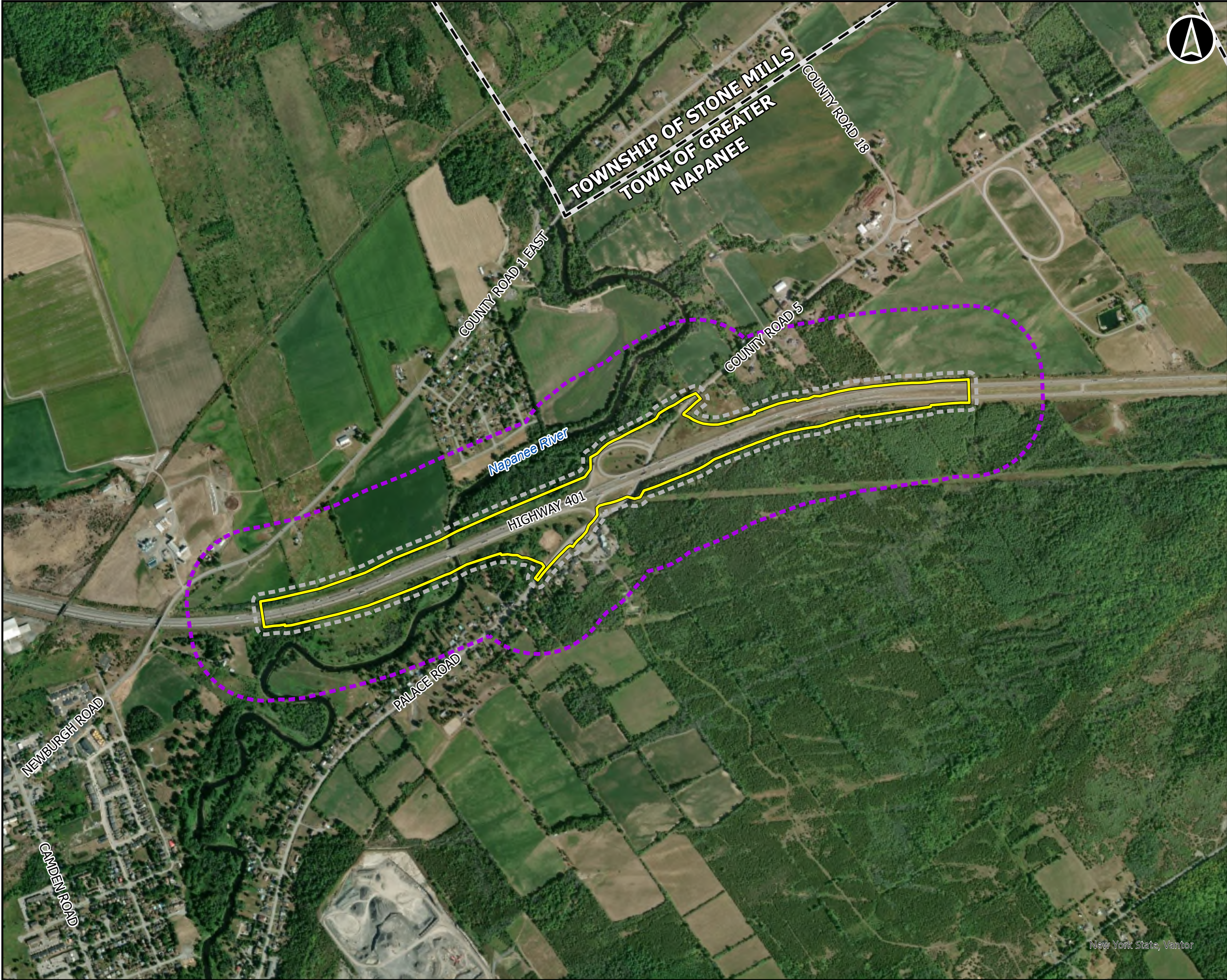
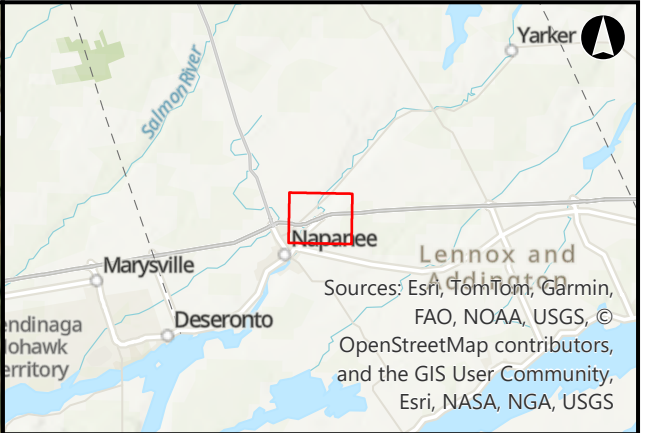
**Figure: 1**

Project Location: Z:\Kiermer\CAKCH\1100\GIS\GISProjects\60736705\00-CAD\_GIS\Graphics\1026-ENV\Design\01\_Report\ENV\40724357\_ENV\Napanee River Bridge.aprx Layout: Generalized Study Area-Napanee River Bridge Date Saved: 6/3/2026 10:56 AM User: michael.w.collins



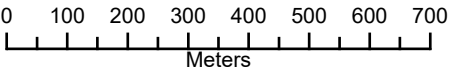






Legend

- Study Zone 1 – Project Limits
- Study Zone 2
- Study Zone 3/CHARAR Study Area
- Municipal Boundary



Hwy 401 / Napanee River Bridge Improvements PD and Class EA (WP 4039-19-01)

CHARAR Study Area overlaid on Aerial Imagery

|           |                                                   |                                            |
|-----------|---------------------------------------------------|--------------------------------------------|
| Aug, 2026 | 1:12,500<br><small>* when printed 11"x17"</small> | Datum: NAD 1983 MTM 9<br>Source: MNRF, NRC |
|-----------|---------------------------------------------------|--------------------------------------------|

|              |  |                 |
|--------------|--|-----------------|
| P#: 60734357 |  | <b>Figure 3</b> |
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## 3. Methodology

### 3.1 Key Tasks

AECOM has prepared this CHRAR according to the requirements identified below:

- Standards and Guidelines for Conservation of Provincial Heritage Properties, 2010 (S&Gs) issued under section 25.2 of the *Ontario Heritage Act* (OHA);
- *Class Environmental Assessment for Provincial Transportation Facilities and Municipal Expressways* (2024) including MTO technical standards and guidance documents;
- *Ontario Heritage Bridge Guidelines for Provincially Owned Bridges* (interim) MTO, Jan 11, 2008 (OHBG); and
- *MTO Environmental Guide for Built Heritage and Cultural Heritage Landscapes* ('MTO Guide,' 2007) (see **Section 3.5** for more detail).

Therefore, the following steps were taken:

- Background research using primary and secondary sources to establish a historical context for the CHRAR Study Area and its surrounding environment.
- A review of Municipal Heritage Registers to identify properties that have been designated under Parts IV or V of the *Ontario Heritage Act* or listed on the registers. The following municipal resource was consulted in addition to contacting municipal staff:
  - Town of Greater Napanee Heritage Register (2019).
- A review of available online historic mapping:
  - 1860 *Putnam & Walling Historical County Map (United Counties of Lennox and Addington)*;
  - 1878 *J.H. Meacham & Co. Map (Lennox and Addington County; Township of North Fredericksburgh and Township of Richmond)*;
  - 1916 National Topographic Survey (NTS) Map of Sydenham;
  - 1933 National Topographic Survey (NTS) Map of Sydenham; and
  - 1954 Aerial Photography of Southern Ontario.
- The databases are consulted to identify known BHRs and CHLs within the Study Area through the review of following online searchable databases:
  - Ontario Heritage Trust Conservation Easements;
  - Ontario Heritage Trust's Places of Worship Inventory;
  - Ontario Heritage Trust's Provincial Plaque Program;
  - Ontario Heritage Trust's Ontario Heritage Act Register;
  - Ontario Historical Society's Ontario Heritage Directory and Map;
  - Ontario Genealogical Society's Ontario Cemetery Index;
  - Parks Canada's National Historic Sites;
  - Parks Canada's The Canadian Register of Historic Places on Canada's Historic Places website;
  - Parks Canada's Directory of Federal Heritage Designations;
  - Canadian Heritage River System website; and
  - United Nations Educational, Scientific and Cultural Organization (UNESCO) World Heritage Sites.



- A field review was conducted on April 28, 2026, by Dawn Chan, Cultural Heritage Specialist (AECOM), to document the existing conditions of the CHRAR Study Area from the publicly accessible ROW to confirm and identify potential BHRs and CHLs.
- Property descriptions were prepared in **Table 4** including all identified potential or known BHRs and CHLs within the CHRAR Study Area (see **Section 3.2** for more detail on screening for BHRs and CHLs). Physical descriptions were prepared based on the view visible from the ROW or aerial imagery if the view was obscured (i.e., by vegetation).
- A preliminary impact assessment based on MCM's *Information Bulletin 3: Heritage Impact Assessments for Provincial Heritage Properties, 2017* was undertaken to assess potential property-specific impacts to potential or known BHRs and CHLs within the CHRAR Study Area.
- Recommendations were provided for the alternatives that included mitigation measures to reduce negative impacts from each planning alternative and the next steps required for all potential or known BHRs and CHLs (see **Section 8.2**).

## 3.2 Screening for Potential Cultural Heritage Value or Interest

For this CHRAR, screening for potential cultural heritage value or interest (CHVI) within the CHRAR Study Area was supported by field review, stakeholder engagement and background research including reviewing municipal, provincial and federal heritage databases, historical maps and aerial photographs. (see **Section 3.3** for consultation details).

BHRs and CHLs in this CHRAR are classified and defined as either built heritage resources or cultural heritage landscapes, according to the following definitions provided from the *Standards & Guidelines for Conservation of Provincial Heritage Properties* (2010):

- **Built Heritage Resource (BHR)** – means one or more significant buildings (including fixtures or equipment located in or forming part of a building), structures, monuments, installations, or remains associated with architectural, cultural, social, political, economic, or military history and identified as being important to a community. For the purposes of these Standards and Guidelines, “structures” does not include roadways in the provincial highway network and in-use electrical or telecommunications transmission towers.
- **Cultural Heritage Landscape (CHL)** – means a defined geographical area of heritage significance that human activity has modified and that a community values. Such an area involves a grouping(s) of individual heritage features, such as structures, spaces, archaeological sites, and natural elements, which together form a significant type of heritage form distinct from that of its constituent elements or parts. Heritage conservation districts designated under the Ontario Heritage Act, villages, parks, gardens, battlefields, main streets and neighbourhoods, cemeteries, trails, and industrial complexes of cultural heritage value are some examples.

This CHRAR screens for potential BHRs and CHLs by employing a 40-year threshold. The use of a 40-year-old threshold is an indicator that a property may be of CHVI. While identification of a BHR/CHL that is 40 years old or older does not confer outright heritage significance, this threshold provides a means to identify resources that may retain CHVI. Similarly, if a BHR and CHL is less than 40 years old, this does not preclude the resource from retaining CHVI.

Identified properties were screened using MCM's screening form, Criteria for Evaluating Potential for Built Heritage and Cultural Heritage Landscapes (MCM, 2015). The screening form is used in conjunction with the professional judgment of the qualified person to determine if a more technical Cultural Heritage Evaluation is required. The

following explanatory notes provide additional clarification on the information contained in the Appendices of this report:

- Each potential BHR and CHL has been assigned an identification number, which identifies it as either a BHR or CHL;
- Cultural heritage landscapes in the form of farm complexes have been assigned a CHL identification number;
- Potential BHRs and CHLs were identified by their property boundaries;
- The municipal address locates a potential BHR and CHL;
- A brief description of each potential BHR and CHL, generally consisting of construction period, building materials, roof shape, number of storeys, architectural styles, or influence and alteration based upon visual assessment from the ROW; and
- Heritage recognition refers to a property's protection or heritage status, including designation under the Ontario Heritage Act or listing on a municipal heritage register.

For the methodology related to screening culverts and bridges, see **Section 6.2** of this CHRAR.

### 3.3 Information Gathering

The following stakeholders were contacted to gather information on potential BHRs and CHLs, active and inactive cemeteries, etc. within the CHRAR Study Area:

**Table 1: Record of Information Gathering and Incorporation into the Report**

| Contact                            | Contact Information                                                                      | Date           | Notes                                                                                                                                                                                                                                                                                                                                                                                                           |
|------------------------------------|------------------------------------------------------------------------------------------|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Ministry of Multiculturalism (MCM) | Mariana Nito, Ph.D.,<br>Heritage Advisor<br><br>Mariana.Nito@ontario.ca                  | April 15, 2026 | The MCM was contacted to confirm whether there are any known cultural heritage resources within or adjacent to the CHRAR Study Area.                                                                                                                                                                                                                                                                            |
|                                    |                                                                                          | April 17, 2026 | Mariana Nito, Ph.D., Heritage Advisor, confirmed that there are no provincial heritage properties within or adjacent to the boundaries of the CHRAR Study Area.                                                                                                                                                                                                                                                 |
| Ontario Heritage Trust (OHT)       | Samuel Bayefsky,<br>Real Property Coordinator<br><br>Samuel.Bayefsky@heritagetrust.on.ca | April 15, 2026 | The OHT was contacted to confirm whether there are any known cultural heritage resources within or adjacent to the CHRAR Study Area.                                                                                                                                                                                                                                                                            |
|                                    |                                                                                          | April 22, 2026 | Samuel Bayefsky, Real Property Coordinator, confirmed that there are no conservation easements on properties within or adjacent to the CHRAR Study Area. He also confirmed that the OHT does not have any heritage plaques within or adjacent to the CHRAR Study Area. In addition, he confirmed that there are no properties designated under Part IV of the Ontario Heritage Act within the CHRAR Study Area. |
| Town of Greater Napanee            | Jessica Walters,                                                                         | April 15, 2026 | The Town of Greater Napanee was contacted to confirm whether there are any known                                                                                                                                                                                                                                                                                                                                |



| Contact | Contact Information                             | Date           | Notes                                                                                                                                                                                      |
|---------|-------------------------------------------------|----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|         | Manager of Legislative Services/Municipal Clerk |                | cultural heritage resources within or adjacent to the CHRAR Study Area.                                                                                                                    |
|         | jwalters@greaternapanee.com                     | April 16, 2026 | Jessica Walters, Manager of Legislative Services/Municipal Clerk, confirmed that there are no designated heritage properties within or adjacent to the boundaries of the CHRAR Study Area. |

### 3.4 Indigenous Community Engagement

Consultation is an integral part of the study process and under Section 35 of the Canadian Constitution, the Crown has the Duty to Consult with affected Indigenous communities if a proposed Crown activity or decision has the potential to adversely impact Aboriginal and/or Treaty Rights.

As such, at the project start Indigenous Communication and Engagement was included in the Communication and Consultation Plan prepared for the project and reviewed by the MTO Indigenous Liaison Specialist. The engagement plan detailed the method of notification proposed for this project and demonstrated that the notification requirements of the MTO's Class EA process are being fulfilled. The Indigenous Community contacts for this assignment were established through discussion with MTO's Indigenous Liaison Specialist and included the Alderville First Nation, Curve Lake First Nation, Hiawatha First Nation, Mississaugas of Scugog Island First Nation, Coordinator for Williams Treaties First Nations, Kawartha Nishnawbe, Mohawks of the Bay of Quinte, and the Metis Nation of Ontario Consultation Coordinator.

To date, the MTO Indigenous Specialist has provided notifications for the Study Commencement and Public Information Centre #1 to the identified Indigenous communities. Notification will continue to be provided to the Indigenous communities on the project contact list at key milestones, including the Notice of Completion / Transportation Environmental Study Report (TESR) Submission, which will be provided to the Indigenous communities for review and comment. The TESR will include a summary of the results of the CHRAR as well as the archaeological assessment completed. In addition to the above noted project notifications, an invitation to participate in project fieldwork as Ecological Community Field Liaisons was extended. To date, several of the identified Indigenous communities have expressed an interest in the project.

## 4. CHRAR Study Area Historical Context

The CHRAR Study Area is located within the historical Townships of North Fredericksburgh and Richmond, now the Town of Greater Napanee.

### 4.1 Natural Environment and Physical Setting

The CHRAR Study Area is situated within the Napanee Plain and the Leeds Knobs and Flats physiographic regions of eastern Ontario. The Napanee Plain region is characterized by a flat-to-undulating plain of limestone from which most of the overburden was stripped by glaciers (Chapman and Putnam, 1984: 186). While soil is relatively shallow throughout this region, some deeper glacial till does occur in the stream valleys and depressions where deposits of stratified clay are found. This is the case around Amherst Island to the west of the CHRAR Study Area (Chapman and Putnam, 1984: 186).

Potable water is the single most important resource necessary for any extended human occupation or settlement. Since water sources have remained relatively stable in eastern Ontario after the Pleistocene era, proximity to water can be regarded as a useful index for the evaluation of archaeological site potential. Indeed, distance from water has been one of the most commonly used variables for predictive modeling of site location. Navigable waterways would have provided transportation networks, as well as provided lacustrine resources such as fish, fowl and plants, thereby attracting both pre-contact Indigenous and 19<sup>th</sup> century colonialist settlement. Major potable sources of water in the CHRAR Study Area includes the Napanee River with its associated tributaries.

### 4.2 Pre-Contact Overview of Eastern Ontario

Eastern Ontario has a cultural history that begins approximately 11,000 years ago. The land now encompassed by the County of Lennox and Addington has cultural history, which begins approximately 10,000 years ago and continues to the present. **Table 2** provides a general summary of the history of Indigenous land use and settlement of the area.

The CHRAR Study Area is located in the Crawford's Purchase treaty. This treaty was made by Captain William Crawford on behalf of the Crown and local Indigenous allies including the Mississaugas, the Algonquian and Iroquoian peoples (Ministry of Indigenous Affairs, 2020). In October of 1783, the Crawford's Purchase was signed to surrender Indigenous occupied land along the north shore of eastern Lake Ontario and the St. Lawrence River (Ministry of Indigenous Affairs, 2020). This purchase was designed to provide land to Loyalists who had fought on behalf of the British during the American Revolution and included Indigenous allies and United Empire Loyalists (Ministry of Indigenous Affairs, 2020).

**Table 2: Cultural Chronology for Indigenous Settlement in Eastern Ontario**

| Archaeological Period | Time Period   | Characteristics                                                                                                                                |
|-----------------------|---------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| Early Paleo           | 9000-8400 BCE | <ul style="list-style-type: none"> <li>■ Fluted Points</li> <li>■ Arctic tundra and spruce parkland, caribou hunters</li> </ul>                |
| Late Paleo            | 8400-8000 BCE | <ul style="list-style-type: none"> <li>■ Holcombe, Hi-Lo and Lanceolate Points</li> <li>■ Slight reduction in territory size</li> </ul>        |
| Early Archaic         | 8000-6000 BCE | <ul style="list-style-type: none"> <li>■ Notched and Bifurcate base Points</li> <li>■ Growing populations</li> </ul>                           |
| Middle Archaic        | 6000-2500 BCE | <ul style="list-style-type: none"> <li>■ Stemmed and Brewerton Points, Laurentian Development</li> <li>■ Increasing regionalization</li> </ul> |



|                  |                  |                                                                                                                           |
|------------------|------------------|---------------------------------------------------------------------------------------------------------------------------|
| Late Archaic     | 2000-1800 BCE    | <ul style="list-style-type: none"> <li>■ Narrow Point</li> <li>■ Environment similar to present</li> </ul>                |
|                  | 1800-1500 BCE    | <ul style="list-style-type: none"> <li>■ Broad Point</li> <li>■ Large lithic tools</li> </ul>                             |
|                  | 1500-1100 BCE    | <ul style="list-style-type: none"> <li>■ Small Point</li> <li>■ Introduction of bow</li> </ul>                            |
| Terminal Archaic | 1100-950 BCE     | <ul style="list-style-type: none"> <li>■ Hind Points, Glacial Kame Complex</li> <li>■ Earliest true cemeteries</li> </ul> |
| Early Woodland   | 950-400 BCE      | <ul style="list-style-type: none"> <li>■ Meadowood Points</li> <li>■ Introduction of pottery</li> </ul>                   |
| Middle Woodland  | 400 BCE – 500 CE | <ul style="list-style-type: none"> <li>■ Dentate/Pseudo-scallop Ceramics</li> <li>■ Increased sedentism</li> </ul>        |
|                  | 550-900 CE       | <ul style="list-style-type: none"> <li>■ Princess Point</li> <li>■ Introduction of corn horticulture</li> </ul>           |
| Late Woodland    | 900-1300 CE      | <ul style="list-style-type: none"> <li>■ Agricultural villages</li> </ul>                                                 |
|                  | 1300-1400 CE     | <ul style="list-style-type: none"> <li>■ Increased longhouse sizes</li> </ul>                                             |
|                  | 1400-1650 CE     | <ul style="list-style-type: none"> <li>■ Warring nations and displacement</li> </ul>                                      |
| Contact Period   | 1600-1875 CE     | <ul style="list-style-type: none"> <li>■ Early written records and treaties</li> </ul>                                    |
| Historic         | 1749 CE-present  | <ul style="list-style-type: none"> <li>■ European settlement (French and English)</li> </ul>                              |

## 4.3 County of Lennox and Addington

The county is named respectively in honour of Charles Lennox, Duke of Richmond, who was Ambassador Extraordinary to the Court of France in 1765 and Secretary of State in 1766, and Henry Addington, Viscount Sidmouth, Speaker of the House of Commons from 1789 to 1791, and Chancellor of the Exchequer and Prime Minister of Great Britain (Middleton, 1927; Herrington 1913: 30). Settlement in the area began in 1784 with the immigration of American Loyalists (Middleton, 1927). The county was originally set apart by Colonel Simcoe in 1792, but neither had a sufficient population to justify the election of a separate Member of the Legislature, so Lennox was joined with Hastings and Northumberland, while Addington was joined with County of Islands off Kingston, called Ontario (Middleton, 1927). In 1798, Lennox and Addington became one constituency, with variations of the two together over the years (Middleton, 1927). The union was made permanent in an Act of 1860 (Middleton, 1927).

### 4.3.1 Town of Greater Napanee

The Town of Napanee, in 1927, existed in the Township of Richmond (Middleton, 1927). The name of the town was derived from Appanea Falls, where a grist mill was erected by Robert Clark in 1786 (Middleton, 1927). In 1812, the mill was rented to Allan Macpherson, who also kept a general store, where the post office resided (Middleton, 1927). The first plan for the village was made in 1831, surveyed between East and West Streets, and Water and Thomas Streets (Greater Napanee, 2025). Napanee had almost two dozen buildings and was slowly developing as a port, exporting timber grain, and potash (Greater Napanee, 2025). In 1852 it became a police village, meaning it could tax the community to pay for services of a constable (Greater Napanee, 2025). In 1855, the village was incorporated as an independent municipality (Greater Napanee, 2025).

In 1856, the Grand Trunk Railway arrived in the community, adding to the economic gain and resulting in the growth of the area (Greater Napanee, 2025). The Town Hall was also built the same year (Greater Napanee, 2025). The town became the County Seat for Lennox and Addington County in 1863 (Greater Napanee, 2025).

Due to the abundance of water power, Napanee experienced a growth during the period of the industrial expansion between 1870 and 1880 (Greater Napanee, 2025). The added prosperity of the merchants and industrialists resulted in the construction of many more homes, that still exist in the area today (Greater Napanee, 2025).

By the 20<sup>th</sup> century, Napanee was quieter, with a static population of civil servants, officials, merchants, and retired farmers (Greater Napanee, 2025). The area, in 1927, was known for its industries of foundries, iron works, paper mills, sawmills, furniture and mining machinery factories, a canning factory, creamery, and cheese factory (Middleton, 1927).

The Town of Greater Napanee formed in 1998 with the amalgamation of the Town of Napanee, Richmond Township, North and South Fredericksburgh Township, and Adolphustown (Government of Ontario, 2022).

#### **4.3.1.1 Former Township of North Fredericksburgh**

The original Township of Fredericksburgh was first settled in 1783, with the markers for the first lot lines being established in 1784. The town was originally settled by the King's Royal Yorkers, Butler's Rangers, and Jessup's Rangers under Major James Rogers. At the time, the new township was referred to as "Third Town of Cataraqui", but would later be renamed to Fredericksburgh, after Prince August Frederick, the Duke of Sussex, and the ninth child of King George III. In order to accommodate the veterans that were moving into the growing township, land was taken from the nearby Adolphustown and given to Fredericksburgh (South Fredericksburgh Heritage, 2025a).

The township's unique geography meant that there was a long narrow bay that effectively bisected the town into north and south sections. This would prove to be a major impediment to north-south communication and resulted in the township's residents being divided into 'north' and 'south' factions. The township was eventually split in two in June 1857 by an act of the Legislative Assembly of Upper Canada, creating the Townships of North Fredericksburgh and South Fredericksburgh (South Fredericksburgh Heritage, 2025a).

The Township of North Fredericksburgh was eventually amalgamated in 1998 alongside Town of Napanee, Richmond Township, South Fredericksburgh Township, and Adolphustown to form the Town of Greater Napanee (Government of Ontario, 2022).

#### **4.3.1.2 Former Township of Richmond**

The Township of Richmond took comparatively longer to be settled than its surrounding townships largely due to the dense forests, swampland, and clay-like soil surrounding it, which made it difficult to establish farmsteads and homes in the area. Despite this, many of Richmond's earliest settlers relocated to the area due to difficulties in Fredericksburgh Township as disputes over property boundaries and duplicate ownerships of lots were commonplace (Hall, 2023a).

In 1786, a grist mill was built by the government at the falls on the Napanee River, which attracted more people to settle in the area. The grist mill was later purchased by Richard Cartwright who had plans to further develop the area with additional cloth, tavern, and distillery mills for the township.

Prior to 1815, most of Napanee's new settlers were established south of the Napanee River within Fredericksburgh Township. However, when Allan Macpherson, a leading local businessman, militia leader, magistrate and Napanee's first postmaster, built his house on the north side of the river in 1826, it effectively became the social centre of Napanee (Ontario Heritage Trust, 2026; Hall, 2023). This attracted new settlers to the area that would later become Richmond Township. A post office constructed in 1820 also brought more traffic to the area and hotels were later constructed to keep up with the town's growing prosperity (Hall, 2023a).

The mills lining parts of the Napanee River provided a steady source of employment for the township's new residents and new industries establishing themselves in the area, such as Gibbard's Furniture Factory. These new industries only served to attract more people into the township. The arrival of the railway into the township in 1856 brought even more settlers to the area, which in turn grew these industries and the township into the 19<sup>th</sup> century (Hall, 2023a).



The Township of Richmond was eventually amalgamated in 1998 alongside Town of Napanee, North and South Fredericksburgh Township, and Adolphustown to form the Town of Greater Napanee (Government of Ontario, 2022).

## 4.4 Historical Overview of Highway 401

Kings Highway 401 (Highway 401) is a primary route across the west, central, and eastern portions of southern Ontario. During the 1930s southern Ontario needed an east to west highway. With the increase in automobile dependency many of the major trans-provincial roads were becoming congested, including Highway 2. In the late 1930s, under the direction of Thomas B. McQuesten the planning for the provincial highway began and construction began after World War II (Shragge, 2007). In 1947, the first section of the controlled-access highway was completed between West Hill in Scarborough and Oshawa (Bever, 2020). This stretch of highway was known as Highway 2A and in 1952 Highway 2A was renamed Highway 401, the year in which the 400 series highway numbering was introduced into Ontario.

Beginning in the 1950s and continuing until the completion of Highway 401 in 1968, those communities that suffered the most congestion were prioritized along the alignment (Bever, 2020). The high priority sections included:

- Windsor to Tilbury
- London to Woodstock
- Milton to Toronto
- Oshawa to Port Hope
- Trenton to Belleville
- Kingston to Gananoque

The remaining sections of Highway 401 were completed during the 1960s. In 1965, the Premier of Ontario John Robarts designated Highway 401 as the Macdonald-Cartier Freeway paying respect to Sir John A. Macdonald and George-Étienne Cartier (Annual Report, 1966).

Today, Highway 401 is 818 kilometres in total length and terminates in the west at Highway 3 in Windsor and at the Ontario-Quebec border in the east. It is now a vital economic corridor (Bever, 2020).

## 4.5 Review of Historical Mapping and Aerial Photography

A review of historical mapping and aerial photography was undertaken to understand the changing landscape and built environment within the CHRAR Study Area. To determine the presence of historical features, 19<sup>th</sup> century historic county maps, 20<sup>th</sup> century topographic maps and aerial photography were reviewed. These maps and aerial photographs provided an excellent overview of land development throughout the CHRAR Study Area.

### 4.5.1 19<sup>th</sup> Century Mapping

The 1860 *Putnam & Walling Map of the Counties of Lennox and Addington* and 1878 *H. Meacham & Co. Map of the United Counties of Frontenac, Lennox and Addington* were reviewed to determine the presence of 19<sup>th</sup> century settlements within the CHRAR Study Area. It should be noted that not all historic structures of interest, particularly farmhouses and smaller homesteads, were mapped systematically as this would have been beyond the intended scope. In addition, given that atlases were funded by subscription, preference with regard to the level of detail included was given to subscribers. As such, the absence of structures or other features on historic atlas maps does not preclude the presence of historic development at the time the area was surveyed.

The 1860 *Putnam & Walling Map of the United Counties of Lennox and Addington (Township of North Fredericksburgh and the Township of Richmond)* (**Figure 4**) illustrate that the CHRAR Study Area is largely rural in nature, with a number of concession roads already established by the mid-19<sup>th</sup> century. Many historical farmsteads are illustrated along the east-west concession roads, with portions of these farms falling within the CHRAR Study Area. Some of the farmsteads located within the Township of Richmond north of the CHRAR Study Area have portions of the Napanee River running east-west through their farmlands. Within the CHRAR Study Area, the river acts as a natural boundary between the Townships of Richmond and North Fredericksburgh. The Township of Richmond is depicted on the north side of the Napanee River, while the Township of North Fredericksburgh is on the south side of the river. Additionally, the Town of Napanee is depicted on the map located just southwest of the CHRAR Study Area, and the Grand Trunk Railway (GTR) is depicted on the map running east-west, cutting through the Town of Napanee and crossing the Napanee River before turning south and heading towards North Fredericksburgh.

The 1878 *H. Meacham & Co. Map of the United Counties of Frontenac, Lennox and Addington (Townships of North Fredericksburgh and Richmond)* (**Figure 5**) shows that the CHRAR Study Area remained largely rural. Many of the farmsteads identified on the 1860 map continue to be depicted along the east-west concession roads, with portions of their associated farmland extending into the CHRAR Study Area. The river still runs through the CHRAR Study Area, forming the boundary between the Townships of Richmond and North Fredericksburgh. Although the Town of Napanee remains located southwest of the CHRAR Study Area, it appears more developed and has expanded slightly eastward compared to the earlier map, with additional structures now shown along the concession roads. The GTR also remains in its previous alignment.

## 4.5.2 20<sup>th</sup> Century Mapping

Two NTS maps, and one historical aerial photograph were used to illustrate the development of the CHRAR Study Area over the course of the 20<sup>th</sup> century.

The 1916 NTS map of Sydenham (**Figure 6**) depicts the CHRAR Study Area within a largely rural context. Similar to the 19<sup>th</sup> century mapping (**Figure 4** and **Figure 5**), the Napanee River also runs east-west through the CHRAR Study Area, dividing the Townships of Richmond and North Fredericksburgh, while the Town of Napanee continues to be located just southwest of the CHRAR Study Area, although the development on the eastern boundaries of the town appear to have grown, with more structures appearing along the roadways. The GTR tracks run east-west towards the CHRAR Study Area before turning south in the Town of Napanee and heading towards North Fredericksburgh. The majority of the structures (farmhouses and barn structures) within the CHRAR Study Area, continue to be primarily along the north and south sides of Palace Road.

The 1933 NTS map of Sydenham (**Figure 7**) also depicts the CHRAR Study Area within a largely rural context. Similar to the 1916 NTS map, the Napanee River runs east-west through the CHRAR Study Area, dividing the Townships of Richmond and North Fredericksburgh. The Town of Napanee continues to be located just southwest of the CHRAR Study Area. The GTR tracks run east-west towards the CHRAR Study Area before turning south in the Town of Napanee and heading towards North Fredericksburgh. The majority of structures within the CHRAR Study Area remain primarily along the north and south sides of Palace Road.

The 1954 aerial photograph (**Figure 8**) confirms that the CHRAR Study Area remained predominantly rural, characterized by extensive agricultural fields and wooded areas, with minimal new development. The imagery also indicates that construction of Highway 401 within the Study Area had not yet commenced. Similar to the 19<sup>th</sup>-century mapping and the 1916 and 1933 NTS maps, the Town of Napanee is depicted to the west of the CHRAR Study Area, and the Grand Trunk Railway is shown running east-west through the Town of Napanee, crossing the Napanee River before turning south and continuing toward North Fredericksburgh.



## 5. Existing Conditions

### 5.1 Overview

In general, the CHRAR Study Area passes through lands that have been in agricultural use for over 100 years.

A field review was conducted to record the existing conditions of the CHRAR Study Area. The field review was conducted to document the current character of the area and to identify potential BHRs and CHLs that may be still extant as identified during the review of the historical map set. The existing conditions with select overview photographs are summarized below. One photograph of the Napanee River from Highway 401 utilizes a Google Street View due to safety concerns of stopping on Highway 401 to capture views of the river.

The CHRAR Study Area consists primarily of Highway 401 and rural concession roads (Newburgh Road and Palace Road) that consist of single-family, rural residential properties, farmsteads, wooded areas, vacant rural lots, and agricultural fields. The CHRAR Study Area overlaps the Town of Greater Napanee.

A total of 11 potential BHRs and CHLs, including 7 potential CHLs and 4 potential BHRs, were identified during the field review and are summarized in **Table 4** and mapped in **Figure 9**. **Table 4** provides each property's heritage recognition, location and address, resource type, a photograph (where available), and a summary of the potential design, historical, and contextual value identified through the background research for this CHRAR.

Most of the BHRs and CHLs identified are buildings associated with the agricultural economy of the region in the late 19<sup>th</sup> and early to mid-20<sup>th</sup> centuries. Existing BHRs and CHLs are on historical transportation routes; the concession roads. In some cases, the farming unit remains intact forming an evolved cultural heritage landscape reflecting the historic development of the rural fixed farming culture of southern Ontario. These properties are comprised of one or more residences, barns, other outbuildings, fencing, field patterns and other features that express a long history and pattern of use.

### 5.2 Highway 401

Highway 401 is an east-west provincial highway spanning the extent of southern Ontario. Within the CHRAR Study Area, the highway includes two lanes of traffic in each direction divided by either a concrete median or grassed boulevard. The grade of the highway is relatively flat, and both sides have narrow paved shoulders. Within the CHRAR Study Area the Highway 401/Palace Road Interchange provides access to local roads.



**Photograph 1:**

View of the Highway 401 and Palace Road Interchange, looking south (AECOM, April 2026)



**Photograph 2:**

View of the Highway 401 and Palace Road Interchange, looking north (AECOM, April 2026)

## 5.3 Newburgh Road (County Road 1 East)

Newburgh Road, occasionally referred to as County Road 1 East, begins west of the CHRAR Study Area at Camden Road in the Town of Greater Napanee, where it travels northeastward, passing over Highway 401, before continuing northeastward. After passing through Yarker, the road continues eastward before ending at County Road 38. Newburgh Road is located in the north portion of the CHRAR Study Area and runs parallel to the Napanee River.

The properties along Newburgh Road within the CHRAR Study Area retain a rural context and include undeveloped treed areas and vacant, rural lots, rural residential homes, and historical farm complexes.

The road surface is asphalt and contains one lane of traffic in both directions with narrow paved, and gravel shoulders. The grade of the road is relatively flat throughout the CHRAR Study Area. A number of culverts run along Newburgh Road that allow water to flow under private driveways and the public roadway. In addition, power lines made of timber run the length of Newburgh Road.

A total of 5 BHRs and CHLs, (**CHL 1, CHL 2, CHL 3, CHL 4, and BHR 1**) are located within the CHRAR Study Area along Newburgh Road and were identified as potential BHRs and CHLs during the field review (**Table 4**).



**Photograph 3:**

View of Newburgh Road within the CHRAR Study Area, looking east (AECOM, April 2026)

## 5.4 Palace Road (County Road 5)

Palace Road, occasionally referred to as County Road 5, begins west of the CHRAR Study Area at Centre Street South in the Town of Greater Napanee, where it travels northeastward, intersecting with Highway 2 and crossing under Highway 401, before continuing eastward and ending at Lennox and Addington Road 4 (County Road 4). Palace Road is located in the south portion of the CHRAR Study Area and runs parallel to the Napanee River.

The south portion of Palace Road within the CHRAR Study Area is dominated by residential single-family homes. Some of the properties in this area are set back from the ROW. Properties along Palace Road within the north portion of the CHRAR Study Area include undeveloped treed areas and grassy lots, rural residential homes, and some



historical farm complexes. Some of the farm complexes appear to have been abandoned, as the remains of driveways and paved areas indicate the former presence of structures on these properties.

The road surface north of the CHRAR Study Area is asphalt and contains one lane of traffic in both directions with narrow gravel shoulders and steep ditches. The road south of the CHRAR Study Area is consistent with the area north of the CHRAR Study Area, although this section of the road also contains a narrow gravel sidewalk located on both sides of the road. The grade of the road is relatively flat throughout the CHRAR Study Area. A number of culverts run along Palace Road that allow water to flow under private driveways and the public roadway. In addition, power lines made of timber run the length of Palace Road.

A total of 6 BHRs and CHLs, (**CHL 6, CHL 7, BHR 2, BHR 3, and BHR 4**) are located within the CHRAR Study Area along Palace Road and were identified as potential BHRs and CHLs during the field review (**Table 4**).



**Photograph 4:**

View of Palace Road south of the CHRAR Study Area, looking west (AECOM, April 2026)

## 5.5 Napanee River

The Napanee River travels through the CHRAR Study Area in a general north to south direction. The Napanee River begins in Camden Lake, flowing in an eastward direction into marshlands and into Napanee Lake before flowing in a general southward direction. It travels through several communities, including Greater Napanee before draining into the Bay of Quinte on Lake Ontario. First Nations including the Wendat, Anishinaabeg, and Haudenosaunee used the river as a source of sustenance and travel, moving inland from the Bay of Quinte and Lake Ontario. Settlers used the Napanee River for water power, building mills for grain, lumber, and other industries, establishing communities along the river.

Through the CHRAR Study Area, the Napanee River takes a meandering course, with the banks of the river containing natural landscapes covered with trees, woodlands, and brush. Beyond the banks are a mix of agricultural fields and residential communities. Within the CHRAR Study Area, only one structure crosses the Napanee River, the Highway 401 Napanee River Bridge (see **Section 6.2** for details on this structure).

The Napanee River has been identified as a potential BHR and CHL (**CHL 5**). BHRs and CHLs.



**Photograph 5:**

View of the Napanee River in the north end of the CHRAR Study Area, looking south (AECOM, April 2026)



## 6. BHRs and CHLs within the CHRAR Study Area

Based on the background research, field review, application of the 40-year threshold, and professional judgement, a total of 11 potential BHRs and CHLs were identified within the CHRAR Study Area. The potential BHRs and CHLs are primarily located along the rural roadscapes, as discussed above.

**Table 4** provides a summary of known or potential BHRs and CHLs located within the CHRAR Study Area. **Table 4** includes location/address, property type, heritage recognition, a brief property description and a photograph of each of the potential BHRs and CHLs identified within the CHRAR Study Area. The known or potential BHRs and CHLs have been identified on maps included in **Figure 9**.

### 6.1 Transportation Related Structures within the CHRAR Study Area

Three structures are located within the CHRAR Study Area and have been screened by MTO's Regional Structural Section Engineers using the MTO Structural Culvert Heritage Screening Form and MTO Bridge Screening Form as they were identified as being older than 40 years. The screening is done to determine if the structures have potential CHVI. If they are identified as having potential CHVI then a CHER would be required. Following the screening by MTO, these structures were determined not to have CHVI. As a result, none of the transportation related structures within the CHRAR Study Area will require further heritage assessments. The results of the screening are summarized in **Table 3** below.

**Table 3: Summary of Structures within the CHRAR Study Area**

| MTO ID #    | Structure Name                    | Construction Date | Structure Category | Structure Type                                               | Results of Screening for Potential CHVI |
|-------------|-----------------------------------|-------------------|--------------------|--------------------------------------------------------------|-----------------------------------------|
| 17X-0062/B0 | Napanee River Bridge <sup>1</sup> | 1960              | Bridge             | Frame; Rigid Frame, Slab (Reinforced Cast-In-Place Concrete) | No CHVI                                 |
| 17X-0063/B2 | Palace Overhead (WBL)             | 1960              | Bridge             | Beam/Girder; Plate I Girder (Steel)                          | No CHVI                                 |
| 17X-0063/B1 | Palace Overhead (EBL)             | 1960              | Bridge             | Beam/Girder; Plate I Girder (Steel)                          | No CHVI                                 |

### 6.2 Summary of BHRs and CHLs

A total of 11 potential BHRs and CHLs (4 BHRs and 7 CHLs) were identified by AECOM during the field review (**Table 4**). These properties have no formal heritage recognition, but have the potential for CHVI pending further evaluation.

Of the 11 potential BHRs and CHLs identified within the CHRAR Study Area, one of the potential BHRs and CHLs is a cemetery:

- **CHL 6** – Spook Horn Cemetery

<sup>1</sup> This MTO structure spans across **CHL 5** (Napanee River) within the CHRAR Study Area. See **Table 5** below for more information regarding specific impacts of the proposed bridge replacement alternatives on **CHL 5**.

Table 4: Known or Potential BHRs and CHLs within the CHRAR Study Area

| Feature IDs  | Location/ Address              | Resource Type | Heritage Status  | Description of Property                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Photograph of Property                                                                                         |
|--------------|--------------------------------|---------------|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|
| <b>CHL 1</b> | 395 Newburgh Road, Napanee, ON | Farmstead     | None (Potential) | <p><b>Design</b></p> <p>Farmhouse</p> <ul style="list-style-type: none"> <li>▪ Roof Type: Hipped with Dormers</li> <li>▪ Number of Storeys: Two-and-a-half</li> <li>▪ Style Design: Edwardian-Classical</li> <li>▪ Structural Material: Red Brick</li> <li>▪ Roof Material: Metal</li> <li>▪ Notable Features: Symmetrical façade, sash windows with shutters, a brick chimney, and a large front verandah with decorative brackets and balusters atop fieldstone piers</li> <li>▪ Additions: One rear addition</li> </ul> <p>Farmstead</p> <ul style="list-style-type: none"> <li>▪ Outbuildings: a gambrel roof barn with multiple additions, multiple concrete and steel silos, multiple drivesheds, and a large storage shed.</li> <li>▪ Landscape features: a gravel laneway connecting domestic and production areas, agricultural fields, manicured lawns, and mature trees.</li> </ul> <p><b>Historical</b></p> <ul style="list-style-type: none"> <li>▪ Farmstead is historically located in the east half of Lot 25, Concession 2 in the Township of Richmond.</li> <li>▪ A house in the vicinity of <b>CHL 1</b> is first depicted on the 1916 NTS Map (<b>Figure 6</b>).</li> </ul> <p><b>Contextual</b></p> <ul style="list-style-type: none"> <li>▪ The farmstead contributes to the rural character of Newburgh Road in the Town of Greater Napanee.</li> </ul> |  <p>(AECOM, April 2026)</p> |



| Feature IDs | Location/ Address                                                | Resource Type | Heritage Status     | Description of Property                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Photograph of Property                                                                                         |
|-------------|------------------------------------------------------------------|---------------|---------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|
| CHL 2       | 334 Church Street,<br>Napanee,<br>ON<br><br>(Riverside Cemetery) | Cemetery      | None<br>(Potential) | <p><b>Design</b></p> <ul style="list-style-type: none"> <li>The cemetery contains headstones that date from the early 19<sup>th</sup> century to the present day. The headstones are largely visible from the ROW.</li> <li>A mausoleum sits adjacent to the entrance to the cemetery.</li> <li>A series of winding, gravel paths wrap around the cemetery.</li> <li>Mature trees can be found scattered across the different sections of the cemetery.</li> </ul> <p><b>Historical</b></p> <ul style="list-style-type: none"> <li><b>CHL 2</b> is historically located in Lot 25, Concession 2 of Richmond Township.</li> <li>The cemetery is first depicted in the 1860 <i>Putnam &amp; Walling Illustrated Historical Atlas</i> (<b>Figure 4</b>).</li> <li>The cemetery served the historic community of Richmond Township.</li> </ul> <p><b>Contextual</b></p> <ul style="list-style-type: none"> <li>The Riverside Cemetery is currently associated with the Town of Greater Napanee.</li> <li>The cemetery is currently operational.</li> <li>The cemetery contributes to the rural, residential character of Newburgh Road in the Town of Greater Napanee.</li> </ul> |  <p>(AECOM, April 2026)</p> |

| Feature IDs | Location/ Address                  | Resource Type | Heritage Status     | Description of Property                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Photograph of Property                                                                                         |
|-------------|------------------------------------|---------------|---------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|
| CHL 3       | 342 East Street,<br>Napanee,<br>ON | Farmstead     | None<br>(Potential) | <p><b>Design</b></p> <p>Farmhouse</p> <ul style="list-style-type: none"> <li>▪ Roof Type: Cross-Gable</li> <li>▪ Storeys: One-and-a-half</li> <li>▪ Style Design: Gothic Revival</li> <li>▪ Structural Material: Wood Frame and Siding</li> <li>▪ Roof Material: Metal</li> <li>▪ Notable Features: Large enclosed front porch</li> </ul> <p>Farmstead</p> <ul style="list-style-type: none"> <li>▪ Outbuildings: a gambrel roof barn with multiple additions, multiple concrete silos, multiple drivesheds, and a large storage shed.</li> <li>▪ Landscape features: a gravel laneway, manicured lawns, and mature trees.</li> </ul> <p><b>Historical</b></p> <ul style="list-style-type: none"> <li>▪ Farmstead is historically located in Lot 26, Concession 1 in the Township of Richmond.</li> <li>▪ A farmhouse in the vicinity of <b>CHL 2</b> is first depicted on the 1878 <i>H. Meaford &amp; Co. Illustrated Historical Atlas</i> (<b>Figure 5</b>).</li> </ul> <p><b>Contextual</b></p> <ul style="list-style-type: none"> <li>• The farmstead contributes to the rural character of Newburgh Street in the Town of Greater Napanee.</li> </ul> |  <p>(AECOM, April 2026)</p> |



| Feature IDs | Location/ Address              | Resource Type | Heritage Status  | Description of Property                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Photograph of Property                                                                                         |
|-------------|--------------------------------|---------------|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|
| CHL 4       | 425 Newburgh Road, Napanee, ON | Farmstead     | None (Potential) | <p><b>Design</b></p> <p>Farmhouse</p> <ul style="list-style-type: none"> <li>▪ Roof Type: Hipped</li> <li>▪ Number of Storeys: Two</li> <li>▪ Style Design: Italianate</li> <li>▪ Structural Material: Red Brick</li> <li>▪ Roof Material: Metal</li> <li>▪ Notable Features: Balanced, symmetrical façade, large, two-storey bay sections with decorative, stonework pieces, framing a central portico entrance with decorative trim and columns, large, stylized cornices with decorative brackets, a second-storey balcony above the portico entrance, and a pair of brick chimneys</li> <li>▪ Additions: One rear addition</li> </ul> <p>Farmstead</p> <ul style="list-style-type: none"> <li>▪ Outbuildings: a gambrel roof barn, a storage shed, an apple barn, the remains of a potential round barn, and a potential driveshed.</li> <li>▪ Landscape features: a gravel laneway, fenced paddocks, agricultural fields, manicured lawns, and mature trees.</li> </ul> <p><b>Historical</b></p> <ul style="list-style-type: none"> <li>▪ Farmstead is historically located in the east half of Lot 26, Concession 3 in the Township of Richmond.</li> <li>▪ A farmhouse in the vicinity of <b>CHL 3</b> is first depicted on the 1916 NTS Map (<b>Figure 6</b>).</li> </ul> |  <p>(AECOM, April 2026)</p> |

| Feature IDs | Location/ Address | Resource Type | Heritage Status  | Description of Property                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Photograph of Property                                                                                         |
|-------------|-------------------|---------------|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|
|             |                   |               |                  | <b>Contextual</b> <ul style="list-style-type: none"> <li>The farmstead contributes to the rural character of Newburgh Road in the Town of Greater Napanee.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                |
| CHL 5       | Napanee River     | Waterway      | None (Potential) | <b>Design</b> <ul style="list-style-type: none"> <li>The river begins at Camden Lake, where it curves eastward to pass through marshlands and Napanee Lake. The river then flows southward, passing through a number of small communities (i.e. Yarker, Camden East, and Newburgh) and Greater Napanee, before ending at the Bay of Quinte on Lake Ontario.</li> <li>The river's landscape is primarily natural and flows through woodlands and small rural communities.</li> </ul> <b>Historical</b> <ul style="list-style-type: none"> <li>The river, originally named <i>Appanea</i>, served as a source of sustenance and as a travel route for the Wendat, Anishinaabeg, and Haudenosaunee Peoples during the pre-contact period (Lennox and Addington County Museums &amp; Archives, n.d; Hall, 2023c).</li> <li>During the post-contact period, the river also served as a source of power for mills along the river's edge and played a major role in the settlement of its surrounding communities.</li> </ul> <b>Contextual</b> <ul style="list-style-type: none"> <li>The river contributes to the rural and natural character of the area.</li> <li>The wooded and natural landscape along the banks of the Napanee River contributes to the views of the river.</li> </ul> |  <p>(AECOM, April 2026)</p> |



| Feature IDs  | Location/ Address              | Resource Type | Heritage Status  | Description of Property                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Photograph of Property                                                                                         |
|--------------|--------------------------------|---------------|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|
|              |                                |               |                  | <ul style="list-style-type: none"> <li>The river also acts as a physical landmark in the area.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                |
| <b>BHR 1</b> | 480 Newburgh Road, Napanee, ON | House         | None (Potential) | <p><b>Design</b></p> <p>Farmhouse</p> <ul style="list-style-type: none"> <li>Roof Type: Cross-Gable</li> <li>Storeys: One-and-a-half</li> <li>Style Design: Gothic Revival</li> <li>Structural Material: Red Brick</li> <li>Roof Material: Metal</li> <li>Notable Features: Asymmetrical façade, one arched entryway on the upper half-storey, large front verandah that connects to a side deck, an upper half-storey balcony above the verandah, and ornate bargeboard trim.</li> <li>Additions: One rear addition</li> </ul> <p><b>Historical</b></p> <ul style="list-style-type: none"> <li>The farmhouse was once part of a larger farmstead that was historically located in the west half of Lot 26, Concession 7 in the Township of North Fredericksburgh.</li> <li>A farmhouse in the vicinity of <b>BHR 1</b> is first depicted on the <i>1860 Putnam &amp; Walling Illustrated Historical Atlas (Figure 4)</i>.</li> </ul> <p><b>Contextual</b></p> <ul style="list-style-type: none"> <li>The property contributes to the rural, residential character of Newburgh Road in the Town of Greater Napanee.</li> </ul> |  <p>(AECOM, April 2026)</p> |

| Feature IDs | Location/ Address   | Resource Type | Heritage Status  | Description of Property                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Photograph of Property                                                                                         |
|-------------|---------------------|---------------|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|
| CHL 6       | Spook Horn Cemetery | Cemetery      | None (Potential) | <p><b>Design</b></p> <ul style="list-style-type: none"> <li>▪ The site is situated on a raised terrace along the Napanee River, backing onto private properties along Palace Road.</li> <li>▪ The general area of the cemetery is distinguished by natural features such as overgrown, dense brush and mature trees.</li> <li>▪ To the south of the cemetery is a horn-shaped point of land, likely inspiring the name of the cemetery (True North Archaeological Services, Preceding)</li> <li>▪ No headstones are visible from the public ROW.</li> </ul> <p><b>Historical</b></p> <ul style="list-style-type: none"> <li>▪ The cemetery is set within Lot 25, Concession 7 of North Fredericksburgh Township.</li> <li>▪ The cemetery is believed to have been connected to Clarksville, one of the oldest and most historic settlements within Greater Napanee (South Fredericksburgh, 2025b).</li> <li>▪ Archaeological investigations completed in 1960s hypothesized that the cemetery was founded shortly after 1786 following the arrival of the first Loyalists into Napanee (South Fredericksburgh, 2025b).</li> <li>▪ The cemetery is believed to have been abandoned after 1840 (South Fredericksburgh, 2025b).</li> <li>▪ No available historical mapping has depicted the cemetery.</li> <li>▪ The number of memorials found connected to the cemetery is currently unknown.</li> </ul> |  <p>(AECOM, April 2026)</p> |



| Feature IDs  | Location/ Address            | Resource Type | Heritage Status  | Description of Property                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Photograph of Property                                                                                         |
|--------------|------------------------------|---------------|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|
|              |                              |               |                  | <b>Contextual</b> <ul style="list-style-type: none"> <li>The cemetery contributes to the rural character of Palace Road in the Town of Greater Napanee.</li> <li>The Spook Horn Cemetery was likely associated with the historic community of Clarksville.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                |
| <b>CHL 7</b> | 760 Palace Road, Napanee, ON | Farmstead     | None (Potential) | <b>Design</b><br>Farmhouse <ul style="list-style-type: none"> <li>Roof Type: Cross-Gable</li> <li>Storeys: Two</li> <li>Style Design: Gothic Revival</li> <li>Structural Material: Brick and Stucco Siding</li> <li>Roof Material: Metal</li> <li>Notable Features: Asymmetrical façade, a large, enclosed front porch, and a brick chimney on the gable end</li> <li>Additions: One rear addition</li> </ul> Farmstead <ul style="list-style-type: none"> <li>Outbuildings: A gable-roof barn, and a driveshed.</li> <li>Landscape features: a gravel laneway, agricultural fields, manicured lawns, treelines dividing the domestic and production areas, and mature trees.</li> </ul> <b>Historical</b> <ul style="list-style-type: none"> <li>The farmstead is historically located in the east half of Lot 23, Concession 7 in the Township of North Fredericksburgh.</li> <li>A farmhouse in the vicinity of <b>CHL 7</b> is first depicted on the 1916 NTS Map (<b>Figure 6</b>).</li> </ul> |  <p>(AECOM, April 2026)</p> |

| Feature IDs  | Location/ Address            | Resource Type | Heritage Status  | Description of Property                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Photograph of Property                                                                                         |
|--------------|------------------------------|---------------|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|
|              |                              |               |                  | <b>Contextual</b> <ul style="list-style-type: none"> <li>The farmstead contributes to the rural, residential character of Palace Road in the Town of Greater Napanee.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                |
| <b>BHR 2</b> | 776 Palace Road, Napanee, ON | House         | None (Potential) | <b>Design</b> <ul style="list-style-type: none"> <li>Roof Type: Hipped</li> <li>Storeys: Two</li> <li>Style Design: Vernacular Italianate</li> <li>Structural Material: Wood Frame and Synthetic Siding</li> <li>Roof Material: Asphalt</li> <li>Notable Features: Balanced, symmetrical façade, enclosed, central, portico entrance, and decorative brackets under the eaves of the hipped roof,</li> <li>Additions: One side addition</li> </ul> <b>Historical</b> <ul style="list-style-type: none"> <li>The house was once part of a larger farmstead that was historically located in the east half of Lot 25, Concession 7 in the Township of North Fredericksburgh.</li> <li>A house in the vicinity of <b>BHR 2</b> is first depicted on the 1916 NTS Map (<b>Figure 6</b>).</li> </ul> <b>Contextual</b> <ul style="list-style-type: none"> <li>The property contributes to rural, residential character of Palace Road in the Town of Greater Napanee.</li> </ul> |  <p>(AECOM, April 2026)</p> |



| Feature IDs  | Location/ Address                  | Resource Type | Heritage Status     | Description of Property                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Photograph of Property                                                                                         |
|--------------|------------------------------------|---------------|---------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|
| <b>BHR 3</b> | 798 Palace Road,<br>Napanee,<br>ON | House         | None<br>(Potential) | <p><b>Design</b></p> <ul style="list-style-type: none"> <li>▪ Roof Type: Hipped</li> <li>▪ Storeys: Two</li> <li>▪ Style Design: Vernacular Victorian farmhouse</li> <li>▪ Structural Material: Wood Frame and Synthetic Siding</li> <li>▪ Roof Material: Asphalt</li> <li>▪ Notable Features: Balanced, symmetrical façade, central portico entrance, low pitched hipped roofline, large vertical sash windows, and a brick chimney on the side elevation</li> <li>▪ Additions: One rear addition</li> </ul> <p><b>Historical</b></p> <ul style="list-style-type: none"> <li>▪ The house was once part of a larger farmstead that was historically located in the east half of Lot 25, Concession 7 in the Township of North Fredericksburgh.</li> <li>▪ A house in the vicinity of <b>BHR 3</b> is first depicted on the 1916 NTS Map (<b>Figure 6</b>).</li> </ul> <p><b>Contextual</b></p> <ul style="list-style-type: none"> <li>▪ The property contributes to the rural, residential character of Palace Road in the Town of Greater Napanee.</li> </ul> |  <p>(AECOM, April 2026)</p> |

| Feature IDs  | Location/ Address                   | Resource Type | Heritage Status     | Description of Property                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Photograph of Property                                                                                         |
|--------------|-------------------------------------|---------------|---------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|
| <b>BHR 4</b> | 1011 Palace Road,<br>Napanee,<br>ON | House         | None<br>(Potential) | <p><b>Design</b></p> <ul style="list-style-type: none"> <li>▪ Roof Type: Hipped</li> <li>▪ Storeys: Two</li> <li>▪ Style Design: Vernacular Edwardian Foursquare</li> <li>▪ Structural Material: Wood Frame and Synthetic Siding</li> <li>▪ Roof Material: Metal</li> <li>▪ Notable Features: Asymmetrical façade, foursquare form, large undecorated cornice, simplified cornice brackets, octagonal feature window, shallow segmental arch headers and multi pane windows and a brick chimney.</li> <li>▪ Additions: One rear addition</li> </ul> <p><b>Historical</b></p> <ul style="list-style-type: none"> <li>▪ The house was once part of a larger farmstead that was historically located in the east half of Lot 25, Concession 7 in the Township of North Fredericksburgh.</li> <li>▪ A house in the vicinity of <b>BHR 4</b> is first depicted on the 1933 NTS Map (<b>Figure 6</b>).</li> </ul> <p><b>Contextual</b></p> <ul style="list-style-type: none"> <li>▪ The property contributes to the rural, residential character of Palace Road in the Town of Greater Napanee.</li> </ul> |  <p>(AECOM, April 2026)</p> |



## 7. Potential Impacts Assessment

### 7.1 Description of the Proposed Undertaking

The Napanee River Bridge Improvements are being undertaken as part of the Highway 401 Preliminary Design and Class EA Study. The project is being advanced to address the aging Napanee River Bridge structure and to accommodate the future Highway 401 corridor footprint, including protection for an ultimate eight-lane cross-section. The bridge improvements must also be coordinated with the previously approved Highway 401 / Palace Road and County Road 41 interchange projects.

The proposed undertaking includes replacement of the existing Napanee River Bridge, associated highway grading works, construction staging areas, and temporary works required to maintain traffic operations during construction. Construction activities may require roadway profile adjustments, earthworks, drainage modifications, temporary access routes, utility relocations (if required), and property acquisition to accommodate the preferred bridge design and future highway widening requirements. Bridge construction and staging would occur on both the north and south sides of the existing Highway 401 alignment while maintaining consideration for the ultimate future lane configuration.

As part of the project two bridge alternatives are being considered:

#### Bridge Alternative 1 – Single Span

- 44 m long single span structure satisfies hydraulic and fluvial geomorphology requirements.
- Require profile raise along Highway 401 to meet freeboard water level requirements.
- Bridge type is Precast Concrete NU Girder.
- Bridge construction and staging to the north and south of the existing structure and Highway 401. Consideration for ultimate future lane locations.
- No pier construction required in the Napanee River and only removal of existing piers is required.

#### Bridge Alternative 2 – Three Span

- 48 metres long multi-span structure satisfies hydraulic and fluvial geomorphology requirements. Minimizes profile raise along Highway 401 to meet freeboard water level requirements.
- Bridge type is Precast Concrete Box Girder.
- Pier construction required in the Napanee River which needs to be staged with removal of existing piers (higher construction complexity and potential disturbance to watercourse).
- Bridge construction and staging to the north and south of the existing structure and Highway 401. Consideration for ultimate future lane locations.

In addition to the bridge replacement itself, the cultural heritage assessment considers potential impacts associated with highway grading, construction staging areas, temporary access routes, property acquisition, future Highway 401 widening protection, drainage works, utility relocations (if required), and other ancillary construction activities occurring within the study area. The impacts of the Project are presented on **Figure 9** in **Appendix A**.

### 7.2 Screening for Potential Impacts

As stated in Section 3 of the 2007 MTO Guide, the development of transportation facilities has the potential to affect BHRs and CHLs through various means, including but not limited to:

- Displacement of resources caused by removal or demolition; and
- Disruption of resources by the introduction of physical, visual, audible, or atmospheric elements that are not in keeping with the character and setting of the cultural BHR and CHL.

The potential impacts of the proposed undertaking were evaluated according to MCM *Information Bulletin 3: Heritage Impact Assessments for Provincial Heritage Properties, 2017*. This preliminary impact assessment will assist with project planning and design. Avoidance of impacts to all potential BHRs and CHLs is the preferred alternative.

MCM's Information Bulletin 3 defines "impact" as a change, either positive or adverse, in an identified cultural BHR and CHL resulting from a particular activity. Information Bulletin 3 identifies impacts as direct adverse impacts, indirect adverse impacts, and positive impacts an activity may have on a cultural BHR and CHL. Examples of direct and indirect adverse impacts include the following:

- Direct adverse impacts such as removal or demolition of a building or structure, changes in grade or drainage patterns, alteration/limitations to property access, introduction of new elements, etc.
- Indirect adverse impacts such as introduction of shadows, isolation from surrounding environment, vibration damage to structures, alteration, or obstruction of views to or from a property, etc.

Positive impacts are defined as those that may positively affect a property by conserving or enhancing its CHVI and have not been identified in this CHRAR. This preliminary impact assessment identifies an impact, either direct or indirect, if a proposed project activity may have a permanent and irreversible negative effect on a potential heritage property. The assessment of preliminary impacts is based on the location and features of each property and the description of the proposed project activities, including an evaluation for each planning alternative where alternatives are proposed that may have different impacts on a potential heritage property.

In this CHRAR, recommendations are based upon the assumption that an identified potential BHR and CHL property has CHVI. Mitigation recommendations for proposed construction alternatives prioritize, where possible, avoidance of impacts to identified properties. Where the design cannot be altered to avoid a property, recommendations have been provided that reduce negative impacts to a property's CHVI.

## 7.3 Potential Impacts of the Proposed Work on Potential BHRs and CHLs

While the current study references the earlier heritage review completed to inform the preceding 2019 Palace Rd. Class EA and includes an update of existing conditions within the Study Area, the potential for impact resulting from the current undertaking relates to the Napanee River Bridge Improvements and the intent to accommodate 8 lanes along Highway 401 including profile refinements needed to meet environmental, drainage, and fluvial geomorphological requirements. While the bridge will accommodate the future 8 lanes along Highway 401 there is no timing for this widening improvement and therefore the bridge construction will consider an interim tie-in to the existing Highway 401 with consideration for 6 lanes in the future for the section stretching from west of the Napanee River Bridge to east of Palace Road as defined by the Project Limits. Primary impacts therefore relate to replacement of the Napanee River Bridge, profile refinements to meet environmental, drainage, and fluvial geomorphological requirements, design modifications to tie back into Highway 401, and the related property acquisition.

A preliminary impact assessment was undertaken to assess potential property-specific impacts to potential BHRs and CHLs within the CHRAR Study Area to help determine next steps in project planning and design. Potential impacts to identified BHRs and CHLs were assessed for all planning alternatives proposed within the CHRAR Study Area. Where alternatives exist, potential impacts associated with each alternative were identified, described, and compared to assist in the evaluation and selection of a preferred alternative. It should be noted that avoidance of negative impacts to all potential BHRs and CHLs is the preferred mitigation option. Next steps regarding cultural heritage resources are provided in **Section 8.2**.



## **7.4 Preliminary Impact Assessment of the CHRAR Study Area**

The preliminary impact assessment was based on the Project Limits as previously identified. The potential BHRs and CHLs were reviewed to determine whether they may be impacted by the Project. The results of the preliminary impact assessment on potential BHRs and CHLs and recommended mitigation measures and next steps are included in **Table 5**.

Table 5: Impacts to Known or Potential BHRs and CHLs and Proposed Mitigations

| Feature ID   | Location/ Address              | Discussion of Impacts                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Proposed Mitigations and Next Steps                                                                                                                                        |
|--------------|--------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>CHL 1</b> | 395 Newburgh Road, Napanee, ON | <p><b>No Direct Adverse Impacts Anticipated:</b></p> <p>A portion of <b>CHL 1</b> is located within Study Zone 3 (<b>Figure 9</b>). The Project Limits for the Project shown on <b>Figure 9</b> indicates that there are no proposed construction activities for the Project within Study Zone 3. No direct adverse impacts to the built heritage resource or potential cultural heritage landscape features associated with <b>CHL 1</b> are anticipated.</p> <p>Therefore, no direct adverse impacts to <b>CHL 1</b> are anticipated.</p> | <p>Continue to avoid direct adverse impacts to the property. No further mitigation or next steps are required.</p> <p>See general recommendations in <b>Section 8</b>.</p> |
| <b>CHL 2</b> | 334 Church Street, Napanee, ON | <p><b>No Direct Adverse Impacts Anticipated:</b></p> <p>A portion of <b>CHL 2</b> is located within Study Zone 3 (<b>Figure 9</b>). The Project Limits shown on <b>Figure 9</b> indicates that there are no proposed construction activities for the Project within Study Zone 3. No direct adverse impacts to the built heritage resource or potential cultural heritage landscape features associated with <b>CHL 2</b> are anticipated.</p> <p>Therefore, no direct adverse impacts to <b>CHL 2</b> are anticipated.</p>                 | <p>Continue to avoid direct adverse impacts to the property. No further mitigation or next steps are required.</p> <p>See general recommendations in <b>Section 8</b>.</p> |
| <b>CHL 3</b> | 342 East Road, Napanee, ON     | <p><b>No Direct Adverse Impacts Anticipated:</b></p> <p>A portion of <b>CHL 3</b> is located within Study Zones 2 and 3 (<b>Figure 9</b>). The Project Limits shown on <b>Figure 9</b> indicates that there are no proposed construction activities for the Project within Study Zone 2 and 3. No direct adverse impacts to the built heritage resource or potential cultural heritage landscape features associated with <b>CHL 3</b> are anticipated.</p>                                                                                 | <p>Continue to avoid direct adverse impacts to the property. No further mitigation or next steps are required.</p> <p>See general recommendations in <b>Section 8</b>.</p> |



| Feature ID   | Location/ Address              | Discussion of Impacts                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Proposed Mitigations and Next Steps                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|--------------|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|              |                                | Therefore, no direct adverse impacts to <b>CHL 3</b> are anticipated.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>CHL 4</b> | 425 Newburgh Road, Napanee, ON | <p><b>No Direct Adverse Impacts Anticipated:</b></p> <p>A portion of <b>CHL 4</b> is located within Study Zone 3 (<b>Figure 9</b>). The Project Limits shown on <b>Figure 9</b> indicates that there are no proposed construction activities for the Project within Study Zone 3. No direct adverse impacts to the built heritage resource or potential cultural heritage landscape features associated with <b>CHL 4</b> are anticipated.</p> <p>Therefore, no direct adverse impacts to <b>CHL 4</b> are anticipated.</p>                                                                                                                                                                                                                                                                                                                                                                               | <p>Continue to avoid direct adverse impacts to the property. No further mitigation or next steps are required.</p> <p>See general recommendations in <b>Section 8</b>.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>CHL 5</b> | Napanee River                  | <p><b>Direct Adverse Impacts Anticipated:</b></p> <p>The proposed replacement of the existing Napanee River Bridge (Site 17X-0062/B0) is located within <b>CHL 5</b> and intersects Study Zones 1, 2, and 3 (<b>Figure 9</b>). As noted in <b>Table 3</b>, the Napanee River Bridge has been screened by MTO and determined to not have CHVI. Two bridge replacement alternatives are under consideration:</p> <ul style="list-style-type: none"> <li>Single-span option (44 m): This alternative would require a profile raise along Highway 401 to meet freeboard requirements but would avoid construction of new piers within the Napanee River. It would involve removal of the existing piers only.</li> <li>Multi-span option (48 m): This alternative would minimize the required profile raise; however, it impacts the Napanee River, as it requires piers to be built in the water.</li> </ul> | <p><b>Preferred Option:</b></p> <p>Select the single-span (44 m) bridge replacement alternative, which avoids the introduction of new piers within the Napanee River.</p> <p><b>Non-Preferred Option:</b></p> <p>If the Preferred Option is not feasible, the multi-span (48 m) alternative may be considered. This option would require removal of the existing piers and construction of new piers within the Napanee River.</p> <p>Regardless of the bridge replacement alternative selected, <b>CHL 5</b> is anticipated to experience minimal direct adverse impacts. The following mitigation measures and next steps shall therefore be reviewed and implemented.</p> <p><b>Mitigation:</b></p> <ul style="list-style-type: none"> <li>The Project should be planned in a manner that minimizes direct and indirect impacts to the <b>CHL 5</b>. Wherever possible, bridge infrastructure should be set</li> </ul> |

| Feature ID | Location/ Address | Discussion of Impacts                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Proposed Mitigations and Next Steps                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
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|            |                   | <p>Based on current information, direct adverse impacts to cultural heritage resources are anticipated to be minimal. This conclusion is supported by the fact that the proposed works are largely confined to, or immediately adjacent to, areas that have been previously disturbed as a result of the original bridge construction and ongoing corridor use. As such, the potential for cultural heritage resources within the primary construction footprint is considered low.</p> <p>However, some potential for direct adverse impacts remains, particularly in areas extending beyond previously disturbed limits and, for the multi-span option, in association with in-water works. In addition, the extent of prior disturbance has not been fully verified, and there remains potential for deeply buried or unidentified resources, particularly in proximity to the Napanee River.</p> <p>Accordingly, mitigation measures and recommended next steps are provided in the following section.</p> | <p>back from the riverbanks, avoiding encroachment on the natural landscape. Bridge infrastructure placement should:</p> <ul style="list-style-type: none"> <li>○ Maintain continuity of riverbank vegetation.</li> <li>○ Minimize physical disturbance within the river corridor.</li> </ul> <ul style="list-style-type: none"> <li>▪ Engage with relevant Indigenous communities throughout the project. Confirm their interest in participating, and provide opportunities for meaningful involvement, including participation in field investigations where appropriate. Engagement should also seek to identify and understand any potential impacts to Aboriginal and Treaty rights. Relevant project documentation, including the Archaeological Assessment Report and the Transportation Environmental Study Report, should be shared with participating Indigenous communities to support informed input. The project team will remain available to meet with interested communities throughout the study process and will carefully consider all information received, including Indigenous Knowledge and/or possible community concerns.</li> </ul> <p><b>Next Steps:</b></p> <ul style="list-style-type: none"> <li>▪ Construction staging areas should be designed to maximize the distance from the river to prevent accidental adverse impacts. Any staging areas built in natural areas along the river should be fully removed and the land returned to pre-construction conditions.</li> <li>▪ Where avoidance is not feasible and infrastructure must be located near riverbanks, restoration measures shall be implemented through a site-specific Landscape Plan, developed in coordination ecological specialists, and relevant regulatory agencies, as appropriate, and informed by this report and applicable natural heritage</li> </ul> |



| Feature ID   | Location/ Address                | Discussion of Impacts                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Proposed Mitigations and Next Steps                                                                                                                                                                                                                                                                                                                                                    |
|--------------|----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|              |                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <p>studies to support both ecological and cultural heritage landscape objectives.</p> <ul style="list-style-type: none"> <li>All required archaeological assessments will be completed prior to construction in accordance with provincial standards and guidelines. Appropriate mitigation will be undertaken through licensed archaeological investigation and reporting.</li> </ul> |
| <b>BHR 1</b> | 480 Newburgh Road, Napanee, ON   | <p><b>No Direct Adverse Impacts Anticipated:</b></p> <p><b>BHR 1</b> is located within Study Zones 2 and 3 (<b>Figure 9</b>). The Project Limits shown on <b>Figure 9</b> indicates that there are no proposed construction activities for the Project within Study Zones 2 and 3. No direct adverse impacts to the built heritage resource associated with <b>BHR 1</b> are anticipated.</p> <p>Therefore, no direct adverse impacts to <b>BHR 1</b> are anticipated.</p> | <p>Continue to avoid direct adverse impacts to the property. No further mitigation or next steps are required.</p> <p>See general recommendations in <b>Section 8</b>.</p>                                                                                                                                                                                                             |
| <b>CHL 6</b> | Spook Horn Cemetery <sup>2</sup> | <p><b>No Direct Adverse Impacts Anticipated:</b></p> <p><b>CHL 6</b> is located within Study Zones 2 and 3 (<b>Figure 9</b>). The Project Limits shown on <b>Figure 9</b> indicates that there are no proposed construction activities for the Project within Study Zones 2 and 3. No direct adverse impacts to the potential cultural heritage landscape features associated with <b>CHL 6</b> are anticipated.</p>                                                       | <p>Continue to avoid direct adverse impacts to the property. No further mitigation or next steps are required.</p> <p>See general recommendations in <b>Section 8</b>.</p>                                                                                                                                                                                                             |

<sup>2</sup> Based on the background research conducted by AECOM's archaeological team, consultation with the Bereavement Authority of Ontario (BAO), and review of available mapping, sketches, photographs, cemetery management input, and the True North Archaeological Services' draft Stage 1–3 Archaeological Assessment (AA), AECOM was able to confirm with sufficient certainty the cemetery's limits. As such, the potential for unmarked burials associated with this cemetery to exist outside of the soon to be registered legal cemetery boundaries is considered unlikely.

| Feature ID   | Location/ Address            | Discussion of Impacts                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Proposed Mitigations and Next Steps                                                                                                                                        |
|--------------|------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|              |                              | Therefore, no direct adverse impacts to <b>CHL 6</b> are anticipated.                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                            |
| <b>CHL 7</b> | 760 Palace Road, Napanee, ON | <p><b>No Direct Adverse Impacts Anticipated:</b></p> <p>A portion of <b>CHL 7</b> is located within Study Zone 3 (<b>Figure 9</b>). The Project Limits shown on <b>Figure 9</b> indicates that there are no proposed construction activities for the Project within Study Zone 3. No direct adverse impacts to the built heritage resource or potential cultural heritage landscape features associated with <b>CHL 7</b> are anticipated.</p> <p>Therefore, no direct adverse impacts to <b>CHL 7</b> are anticipated.</p> | <p>Continue to avoid direct adverse impacts to the property. No further mitigation or next steps are required.</p> <p>See general recommendations in <b>Section 8</b>.</p> |
| <b>BHR 2</b> | 776 Palace Road, Napanee, ON | <p><b>No Direct Adverse Impacts Anticipated:</b></p> <p>A portion of <b>BHR 2</b> is located within Study Zone 3 (<b>Figure 9</b>). The Project Limits for the Project shown on <b>Figure 9</b> indicates that there are no proposed construction activities for the Project within Study Zone 3. No direct adverse impacts to the built heritage resource associated with <b>BHR 2</b> are anticipated.</p> <p>Therefore, no direct adverse impacts to <b>BHR 2</b> are anticipated.</p>                                   | <p>Continue to avoid direct adverse impacts to the property. No further mitigation or next steps are required.</p> <p>See general recommendations in <b>Section 8</b>.</p> |
| <b>BHR 3</b> | 798 Palace Road, Napanee, ON | <p><b>No Direct Adverse Impacts Anticipated:</b></p> <p><b>BHR 3</b> is located within Study Zone 2 and 3 (<b>Figure 9</b>). The Project Limits shown on <b>Figure 9</b> indicates that there are no proposed construction activities for the Project within Study Zones 2 and 3. No direct adverse impacts to the built heritage resource associated with <b>BHR 3</b> are anticipated.</p>                                                                                                                                | <p>Continue to avoid direct adverse impacts to the property. No further mitigation or next steps are required.</p> <p>See general recommendations in <b>Section 8</b>.</p> |



| Feature ID   | Location/ Address             | Discussion of Impacts                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Proposed Mitigations and Next Steps                                                                                                                                        |
|--------------|-------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|              |                               | Therefore, no direct adverse impacts to <b>BHR 3</b> are anticipated.                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                            |
| <b>BHR 4</b> | 1011 Palace Road, Napanee, ON | <p><b>No Direct Adverse Impacts Anticipated:</b></p> <p>A portion of <b>BHR 4</b> is located within Study Zone 3 (<b>Figure 9</b>). The Project Limits shown on <b>Figure 9</b> indicates that there are no proposed construction activities for the Project within Study Zone 3. No direct adverse impacts to the built heritage resource associated with <b>BHR 4</b> are anticipated.</p> <p>Therefore, no direct adverse impacts to <b>BHR 4</b> are anticipated.</p> | <p>Continue to avoid direct adverse impacts to the property. No further mitigation or next steps are required.</p> <p>See general recommendations in <b>Section 8</b>.</p> |

## 8. Conclusion and Recommendations

### 8.1 Conclusion

This CHRAR has documented the baseline cultural heritage conditions within the CHRAR Study Area and includes a historical summary of the development of the CHRAR Study Area, an inventory of known or potential BHRs and CHLs and a preliminary impact assessment along with recommendations for mitigations and next steps. A total of 11 potential BHRs and CHLs, including 4 BHRs and 7 CHLs, were identified as properties with potential CHVI. The potential BHRs and CHLs primarily represent rural residential properties, farm complexes and natural heritage sites that relate to the late 19<sup>th</sup> century and early 20<sup>th</sup> century settlement of the former Townships of Richmond and North Fredericksburgh, now the Town of Greater Napanee.

Following the evaluation of potential impacts for this Project, it was determined that **CHL 5** is anticipated to be directly, adversely impacted by the Project.

- **CHL 5** (Napanee River) is anticipated to experience minimal direct adverse impacts associated with the proposed bridge replacement.

In addition, three structures are located within the CHRAR Study Area and have been reviewed by MTO's Regional Structural Section Engineers. None of these structures located within the CHRAR Study Area will require further documentation or heritage assessments.

### 8.2 Recommendations

Based on the results of the background data collection and assessment of impacts to the Project CHRAR Study Area, it has been determined that there will be potential direct and indirect impacts to the potential BHRs and CHLs.

#### 8.2.1 General Mitigation Measures

The following general mitigation measures are recommended:

1. Generally, the Project should be planned to avoid negative impacts to all potential BHRs and CHLs. Construction activities and staging should be suitably planned and undertaken to avoid heritage attributes wherever possible and to avoid unintended negative impacts to identified BHRs and CHLs. Avoidance measures may include, but are not limited to erecting temporary fencing, establishing buffer zones, issuing instructions to construction crews to avoid the potential BHRs and CHLs, etc. The Project Team should explore strategies to avoid or mitigate potential impacts to potential BHRs and CHLs identified in this CHRAR while refining the Project Limits during the preliminary design.
2. To ensure all potential BHRs and CHLs listed in **Table 4** within and adjacent to the final design are not adversely indirectly impacted by mechanical vibration during construction, a vibration assessment should be developed by a qualified engineer prior to construction. Should this vibration assessment determine that the structures or landscape features within the potential BHRs and CHLs will be subject to adverse impacts due to vibration, a vibration monitoring plan should be prepared by a qualified engineer and implemented to lessen vibration impacts related to construction.



3. Should there be further refinements to the CHRAR Study Area, particularly with respect to **CHL 6** (Spook Horn Cemetery), a Qualified Person should reassess potential impacts and identify any additional mitigation measures required to avoid, minimize, or manage adverse effects

## **8.2.2 Next Steps**

1. As noted in **Section 8.1**, **CHL 5** is anticipated to have minimal direct adverse impacts as a result of the bridge replacement. Mitigation measures will focus on minimizing disturbance, maintaining vegetation continuity, and incorporating Indigenous perspectives into design. Refer to **Table 5** for resource-specific mitigation measures and next steps.

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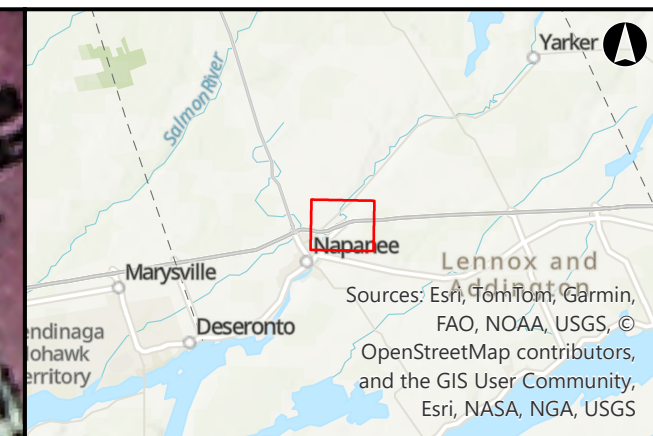
Environmental Reference for Highway Design.



# Appendix **A**

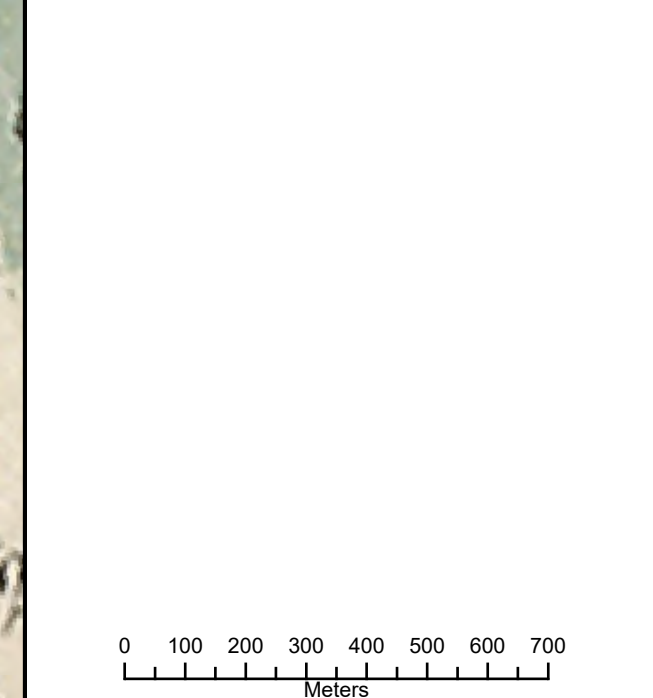
## CHRAR Mapping





### Legend

-  Study Zone 1 – Project Limits
-  Study Zone 2
-  Study Zone 3/CHRRAR Study Area



**Cultural Heritage Resource Assessment Report: Built Heritage Resources and Cultural Heritage Landscapes – Highway 401 from Belleville to Kingston (GWP 4197-13-00): Advancement of Napanee River Bridge PD/EA**

CHRAR Study Area overlaid on 1860 *H.F. Walling Map of the Counties of Lennox and Addington*

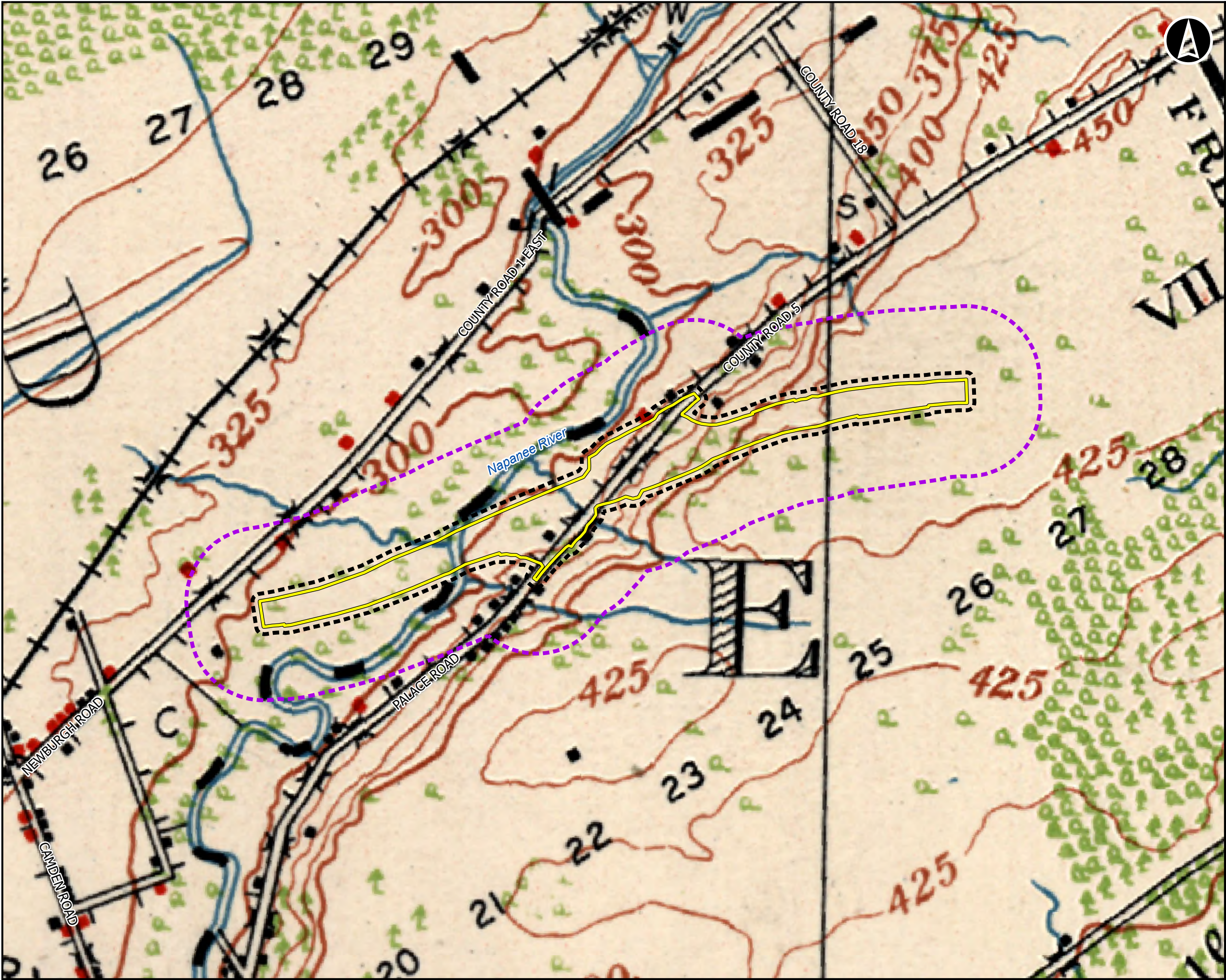
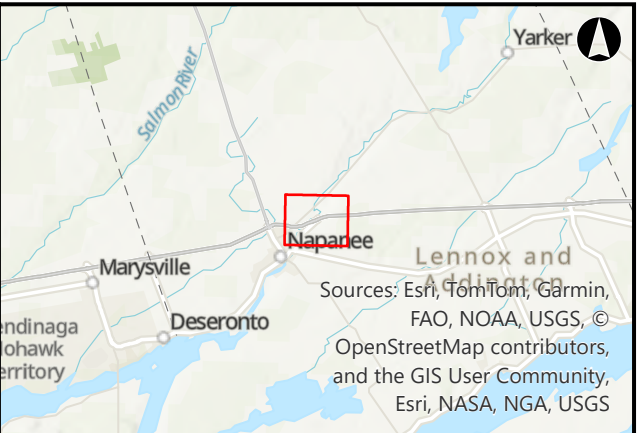
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| <b>AECOM</b> |                        | <b>Figure 4</b>                            |

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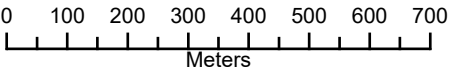






**Legend**

- Study Zone 1 – Project Limits
- Study Zone 2
- Study Zone 3/CHRAR Study Area



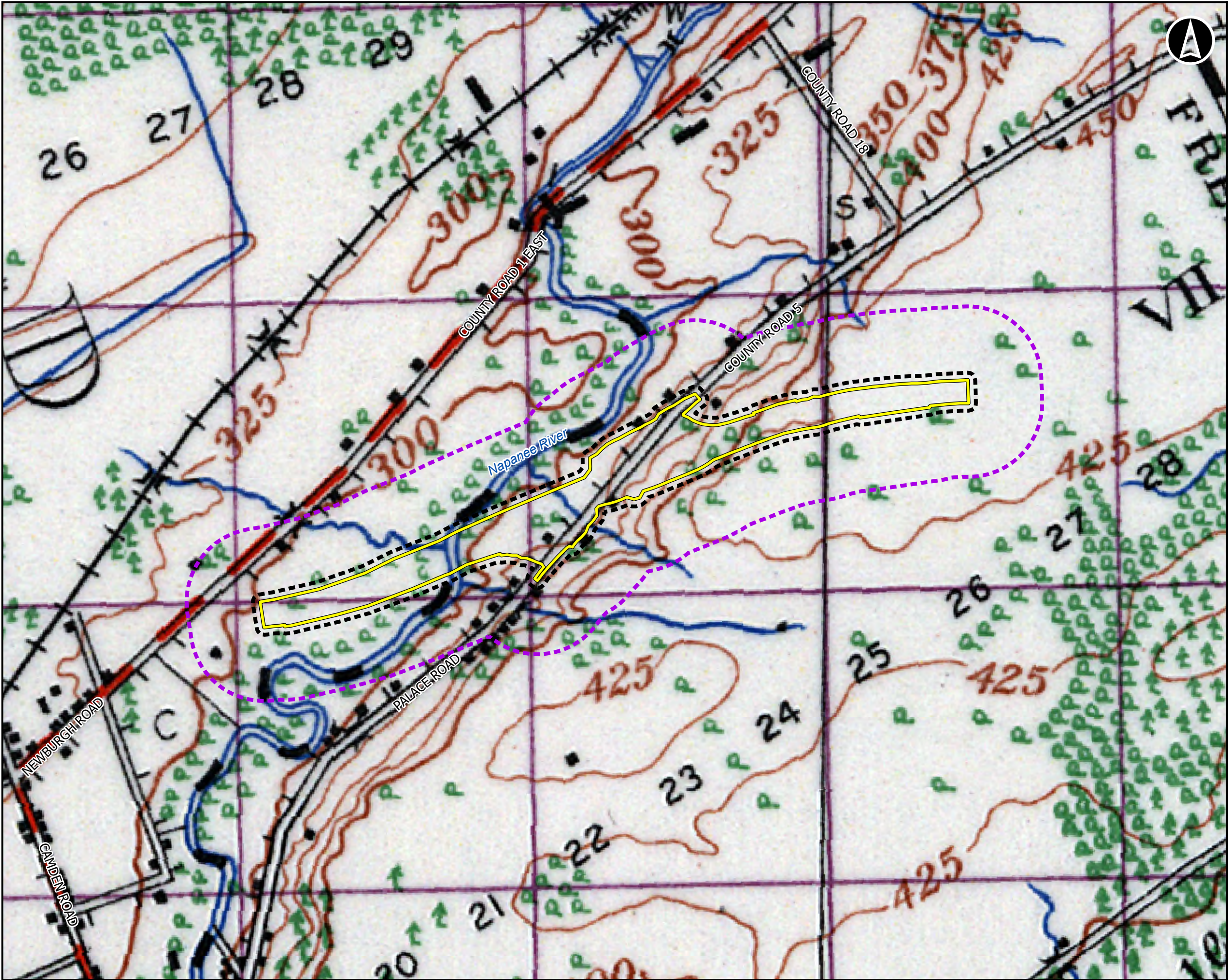
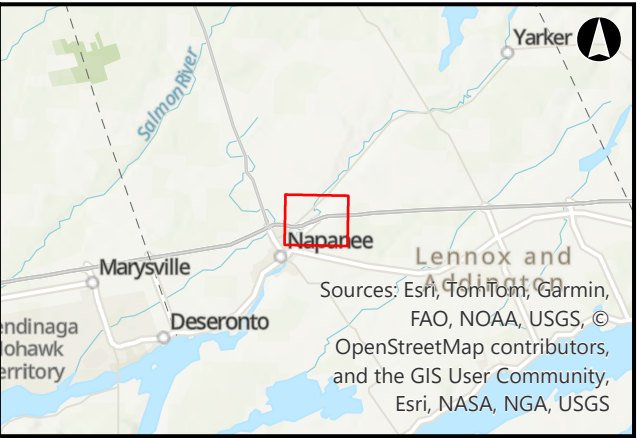
**Cultural Heritage Resource Assessment Report: Built Heritage Resources and Cultural Heritage Landscapes – Highway 401 from Belleville to Kingston (GWP 4197-13-00): Advancement of Napanee River Bridge PD/EA**

CHRAR Study Area overlaid on the 1916 National Topographic Series Map

|              |                                                   |                                            |
|--------------|---------------------------------------------------|--------------------------------------------|
| Aug, 2026    | 1:12,500<br><small>* when printed 11"x17"</small> | Datum: NAD 1983 MTM 9<br>Source: MNRF, NRC |
| P#: 60734357 |                                                   | <b>Figure 6</b>                            |
| <b>AECOM</b> |                                                   |                                            |

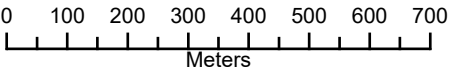
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**Legend**

- Study Zone 1 – Project Limits
- Study Zone 2
- Study Zone 3/CHRAR Study Area



**Cultural Heritage Resource Assessment Report: Built Heritage Resources and Cultural Heritage Landscapes – Highway 401 from Belleville to Kingston (GWP 4197-13-00): Advancement of Napanee River Bridge PD/EA**

CHRAR Study Area overlaid on the 1933 National Topographic Series Map

|              |                                                   |                                            |
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| P#: 60734357 |                                                   | <b>Figure 7</b>                            |
| <b>AECOM</b> |                                                   |                                            |

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# Appendix **B**

## Summary Resumes



## Dawn Chan, BA, Diploma. Heritage Conservation, CAHP-Intern

Role: Cultural Heritage Specialist, Report Writer

### Education

Diploma, Heritage Conservation, Willowbank School of Restoration Arts, 2023

BA (Honours), Archaeology and Heritage Studies, Wilfrid Laurier University, 2019

### Years of Experience

With AECOM: 2  
With Other Firms: 4

### Professional Affiliations

Canadian Association of Heritage Professionals (CAHP) (Intern)

## Professional History

Dawn Chan is a versatile professional with a well-rounded understanding of heritage conservation and planning. She holds an Honours Bachelor of Arts in Archaeology and Heritage Studies and a Diploma in Heritage Conservation. Her work in heritage conservation and municipal heritage planning included conducting historical research and architectural analysis of historical structures and assisting with the development of conservation guidelines for heritage conservation districts and heritage properties. This experience has provided her with in-depth knowledge of the process of evaluating built heritage resources and cultural heritage landscapes for cultural heritage value and identifying heritage attributes. Furthermore, her hands-on experience in masonry conservation has also provided her with a deep understanding of conservation management plans and the development of highly specialized guidelines for handling heritage materials. Her current role as a Junior Cultural Heritage Specialist at AECOM is to provide expert historical research and architectural analysis of potential built heritage resources, and to develop comprehensive conservation plans and mitigation measures for heritage properties in Ontario for major clients.

## Select Project Experience

### Large Infrastructure Experience

**Ontario Ministry of Transportation (MTO). Highway 401 Improvements: Kingston to Gananoque. Cultural Heritage Resource Assessment Report: Built Heritage Resources and Cultural Heritage Landscapes (CHRAR), (2025-Present).** Junior Cultural Heritage Specialist & Report Writer. Develops the CHRAR for the Study Area, identifying cultural heritage landscapes and built heritage resources that may be directly or indirectly impacted by project activities. Provides mitigation measures and recommended next steps for each identified cultural heritage resource.

**Metrolinx/City of Hamilton. Light Rail Transit Project. Heritage Impact Assessments (HIAs), (2025-Present).** Junior Cultural Heritage Specialist & Report Writer. Develops two (2) HIAs, evaluating potential construction impacts and recommending alternative solutions and mitigation measures to conserve heritage attributes. Supports the development of three (3) additional HIAs by completing revisions and addressing client comments.

**Metrolinx/City of Hamilton. Light Rail Transit Project. Cultural Heritage Evaluation Reports (CHERs), (2024-Present).** Junior Cultural Heritage Specialist & Report Writer. Develops five (5) CHERs for the project. Conducts archival research to document the history and evolution of each property, assesses existing conditions, completes comparative analyses of similar heritage properties, and undertakes cultural heritage evaluations using the criteria outlined in Ontario Regulations 9/06 and 10/06.

**Metrolinx/City of Hamilton. Light Rail Transit Project. Heritage Interpretation Strategy (HIS), (2024-Present).** Junior Cultural Heritage Specialist & Report Writer. Assists on the drafting and revisions for the project-wide heritage management plan, including providing technical advice on the handling of heritage materials from built heritage resources for the Project. Other tasks to support the HIS include refining report content and addressing client and agency comments.

**WSP (MTO). Highway 413 Preliminary Design and Assessment of Environmental Impacts. Cultural Heritage Evaluation Reports (CHERs), (2024-Present).** Junior Cultural Heritage Specialist & Report Writer. Prepared six (6) CHERs for the project. Supporting tasks included conducting archival research to establish the history and evolution of each property, assessing

existing conditions, completing comparative analyses of similar heritage properties in the area, and undertaking cultural heritage evaluations using the criteria outlined in Ontario Regulations 9/06 and 10/06.

**MTO. Highway 11/Simcoe County Road 93 Bridge Replacement and Interchange Reconstruction Detail Design and Class Environmental Assessment Study (G.W.P. 2306-16-00), (2026).** Cultural Heritage Evaluation Report (CHER): 548 Penetanguishene Road. (2026). Junior Cultural Heritage Specialist & Report Writer. Prepared the CHER for the property. Supporting tasks included conducting archival research to establish the property's history and evolution, assessing existing conditions, completing a comparative analysis of similar heritage properties in the area, and undertaking a cultural heritage evaluation using the criteria outlined in Ontario Regulations 9/06 and 10/06.

**Metrolinx/City of Hamilton. Light Rail Transit Project. Strategic Conservation Plans (SCPs), (2024-2025).** Junior Cultural Heritage Specialist & Report Writer. Developed two (2) CHERs for the project., assesses existing conditions of the properties and their heritage attributes, determine potential salvageable heritage attributes, and create an action plan and timeline to address deficiencies. Supported the development of one (1) additional SCP by providing technical advice on the proper removal and storage of salvageable heritage attributes

**Metrolinx/City of Hamilton. Light Rail Transit Project. Frid Street OMSF run-in track, and the Main Street West/Dundurn Street South Realignment. Heritage Impact Assessment (HIA): 606 Aberdeen Avenue, (2025).** Junior Cultural Heritage Specialist & Report Writer. Prepared the HIA evaluating the impacts of construction and providing alternative solutions and mitigative measures to preserve the heritage attributes of the properties where needed.

### Municipal Experience

**Regional Municipality of Peel. Kennedy Road Sanitary Trunk Sewer Project. Cultural Heritage Report: Existing Conditions and Preliminary Impact Assessment (CHR), (2026).** Junior Cultural Heritage Specialist & Report Writer. Prepared the CHR for the Study Area, identifying cultural heritage landscapes or built heritage resources located within the Study Area that were anticipated to be directly or indirectly impacted by Project activities. The CHR then provided mitigation measures and next steps for each identified cultural heritage resource. Cultural Heritage Evaluation Reports are to be undertaken for all impacted resources.

**City of Brampton. Downtown Flood Protection Project. Cultural Heritage Evaluation Report (CHER) and Heritage Impact Assessments (HIA), (2025).** Junior Cultural Heritage Specialist & Report Writer. Completed the cultural heritage evaluation of two (2) properties using criteria outlined in Ontario Regulation 9/06, which included the following supporting tasks: archival research to establish the history and evolution of each property and an assessment of the properties' existing conditions. The HIA component of the report evaluated the impacts of construction and provided alternative solutions and mitigative measures to preserve the heritage attributes of the properties where needed.

**Town of Caledon. Airport Road Widening from Mayfield Road to King Street. Cultural Heritage Documentation Report and Salvage Plan: Pipes and Drums Building, (2025).** Junior Cultural Heritage Specialist & Report Writer. Prepared the Documentation and Salvage Plan for the Pipes and Drums Building (13899 Airport Road), which documented the existing conditions of the property and determined the materials and heritage attributes that could be retained for salvage or commemorative purposes.

**City of Sudbury. College Street Underpass. Cultural Heritage Evaluation Report (CHER): College Street Underpass, (2025):** Junior Cultural Heritage Specialist & Report Writer. Prepared the CHER for the underpass, which included the following supporting tasks: archival research to establish the history and evolution of the bridge, an assessment of the bridge's existing conditions, a comparative analysis of similar bridges in the area, and a cultural heritage evaluation using criteria outlined in Ontario Regulation 9/06.

**City of Sudbury. College Street Underpass. Cultural Heritage Report (CHR): Existing Conditions and Preliminary Impact Assessment, (2024).** Junior Cultural Heritage Specialist & Report Writer. Assisted in the development of the CHR, identifying cultural heritage landscapes or built heritage resources located within the Study Area that were anticipated to be directly or indirectly impacted by Project activities. The CHR then provided mitigation measures and, where needed, next steps for each identified cultural heritage resource.



## Liam Ryan, MES, MCIP, RPP, CAHP

Role: Senior Cultural Heritage Specialist and Planner, Senior Technical Reviewer

| Education                                                       | Years of Experience                  | Professional Affiliations                                                                                          |
|-----------------------------------------------------------------|--------------------------------------|--------------------------------------------------------------------------------------------------------------------|
| MES, Environmental Studies:<br>Planning, York University, 2022. | With AECOM: 5<br>With Other Firms: 2 | Professional Member of Canadian Association of Heritage Professionals (CAHP)                                       |
| BA (Hons), Anthropology,<br>University of Waterloo, 2019.       |                                      | Member of the Ontario Professional Planner Institute (OPPI)<br>Member of the Canadian Institute of Planners (MCIP) |

### Professional History

Liam Ryan specializes in preparing and managing Cultural Heritage Evaluation Reports (CHERs) for municipal clients. He has extensive experience evaluating properties under Ontario Regulation 9/06 of the Ontario Heritage Act, supporting municipalities in identifying cultural heritage value and defining heritage attributes to inform designation, planning, and development review processes. His work includes leading CHERs for a range of property types, from individual built heritage resources to complex cultural heritage landscapes. Liam regularly works with municipal stakeholders and public-sector clients throughout the Greater Toronto Area and southern Ontario to deliver defensible, policy-aligned cultural heritage evaluations. His experience also includes supporting Heritage Impact Assessments (HIAs), contributing to Heritage Conservation District studies, and preparing supporting documentation, including archival research, land-use history analysis, and comparative municipal evaluations. His expertise in cultural heritage evaluation and municipal policy frameworks enables him to provide clear, strategic advice that supports informed decision-making and balances conservation objectives with development pressures. Liam's leadership in project management and stakeholder engagement ensures the delivery of high-quality CHERs that align with provincial standards and municipal heritage priorities.

### Large Infrastructure Experience

**WSP (MTO). Highway 413 Transportation Corridor Route Planning. Cultural Heritage Evaluation Reports (CHER). (2021-Present).** Cultural Heritage Lead and Cultural Heritage Planner. Provides technical oversight and writing support to the cultural heritage team, collaborating closely with the Ministry of Transportation of Ontario (MTO) to deliver CHERs supported by historical research and evaluation of properties in accordance with Ontario Regulations 9/06 and 10/06. Plays a key role as writer, reviewer, and project manager for 48 CHERs completed as part of Stage 2 of the Highway 413 Transportation Corridor Environmental Assessment (EA). This work includes three complex CHERs for river crossing locations, involving the evaluation of cultural heritage landscapes. Also leads and supports presentations to the client and Indigenous Nations, communicating evaluation findings and responding to feedback to inform project decision-making.

**Metrolinx. Hamilton Light Rail Transit Project. Cultural Heritage Evaluation Reports (CHERs). (2025-Present).** Cultural Heritage Lead and Cultural Heritage Planner. Provides technical oversight and writing support to the cultural heritage team on upwards of 10 CHERs, maintaining accuracy and high-quality project deliverables. The CHERs evaluate each property using Ontario Regulation 9/06 and 10/06 under the Ontario Heritage Act to determine its Cultural Heritage Value or Interest (CHVI) and heritage attributes.

**Metrolinx. QEW Credit River Bridge Improvement Project: Heritage Attribute Interim Monitoring Report (HAIMR) 7, 8 & 9 (2024-2025).** Cultural Heritage Lead & Cultural Heritage Planner. The HAIMR reports were prepared during the course of the Project and included a summary of construction activities that have occurred on the site and a summary of inspections completed by the client, as well as any observations related to protection of the heritage values of the existing Bridge.

### Municipal Experience

**Town of Whitby. Water Street Improvement between Brock Street South and South Blair Street, Cultural Heritage Evaluation Report (CHER): Port Whitby and Port Perry Railway Corridor. (2026-Present).** Cultural Heritage Lead and Cultural Heritage Planner. Provides technical review and writing support to the cultural heritage team, maintains technical accuracy and quality of project deliverables. Directs the evaluation of the former railway corridor under Ontario Regulation 9/06 of the Ontario Heritage Act to determine the Cultural Heritage Value or Interest (CHVI) and the associated heritage attributes.

Oversees the archival and historical research, land use analysis, site condition assessments, and comparative evaluation of similar municipal properties to support report preparation.

**Regional Municipality of Peel. Kennedy Road Sanitary Trunk Sewer Project. Evaluation Report (CHER): Orangeville Brampton Railway. (2026-Present).** Cultural Heritage Lead and Cultural Heritage Planner. Provides technical review and writing support to the cultural heritage team, maintains technical accuracy and quality of project deliverables. Directs the evaluation of a former railway corridor under Ontario Regulation 9/06 of the Ontario Heritage Act to determine the Cultural Heritage Value or Interest (CHVI) and the associated heritage attributes. Oversees the archival and historical research, land use analysis, site condition assessments, and comparative evaluation of similar municipal properties to support report preparation.

**City of London. Wellington Gateway: London Bus Rapid Transit. Cultural Heritage Evaluation Reports (CHERs) and Heritage Impact Assessments. (2021-2026).** Cultural Heritage Lead and Cultural Heritage Planner. Developed and reviewed CHERs and HIAs assessing four cultural heritage resources in accordance with Ontario Regulation 9/06 of the Ontario Heritage Act. Determined cultural heritage value or interest (CHVI) and heritage attributes through comprehensive archival research, land use and development history analysis, field investigations, and comparative evaluation of similar municipal properties. The HIAs evaluated potential impacts of proposed construction and developed alternative solutions and mitigation measures to conserve identified heritage attributes.

**City of Brampton. Downtown Brampton Flood Protection Project. Cultural Heritage Evaluation Reports (CHERs) and Heritage Impact Assessments (HIA). (2024-2025).** Cultural Heritage Lead and Cultural Heritage Planner. Provided technical review and writing support to the cultural heritage team, maintained technical accuracy and quality of project deliverables. Lead the client-facing meetings, managed project timelines, and coordinated tasks to maintain schedule adherence. The integrated CHERs and HIAs included the cultural heritage evaluation of five cultural heritage resources using the criteria outlined in Ontario Regulation 9/06 of the Ontario Heritage Act. The reports included archival research to establish the history and evolution of each cultural heritage resource and assessed existing conditions via photographic documentation. The reports evaluated potential impacts of proposed construction and developed alternative solutions and mitigation measures to conserve identified heritage attributes.

**Toronto Port Authority. Billy Bishop Toronto City Airport – Runway End Safety Area. Cultural Heritage Evaluation Reports (CHERs) and Heritage Impact Assessments (HIAs). (2025).** Cultural Heritage Lead and Cultural Heritage Planner. Provided technical review and writing support to the cultural heritage team, maintained technical accuracy and quality of project deliverables. Lead the client-facing meetings, managed project timelines, and coordinated tasks to maintain schedule adherence. Directed the preparation of integrated CHER and HIA reports evaluating properties under Ontario Regulation 9/06 of the Ontario Heritage Act, assessing potential development impacts, and developing alternative solutions and mitigation measures to conserve identified heritage attributes.

**City of Greater Sudbury. Cultural Heritage Evaluation Report (CHER) and Heritage Impact Assessment (HIA): College Street Underpass. (2025).** Cultural Heritage Lead and Cultural Heritage Planner. Provided technical review and writing support to the cultural heritage team. Led client-facing meetings, managed project timelines, and coordinated tasks to maintain schedule adherence. The CHER included the cultural heritage evaluation of the underpass using the criteria outlined in Ontario Regulation 9/06 of the Ontario Heritage Act. It also included archival research to establish the history and evolution of each property, as well as an assessment of existing conditions. The HIA evaluated potential impacts of proposed construction and developed alternative solutions and mitigation measures to conserve identified heritage attributes.

**Regional Municipality of Peel. Detailed Design, Contract Administration and Construction Inspection Airport Road Improvements Project. Cultural Heritage Evaluation Report (CHER) and Heritage Impact Assessment (HIA): 15421 Airport Road, Caledon East, Ontario. (2023- 2024).** Cultural Heritage Planner. Evaluated the property at 15421 Airport Road in accordance with Ontario Regulation 9/06 of the Ontario Heritage Act to determine cultural heritage value and identify heritage attributes. Prepared an integrated CHER and HIA report assessing the impacts of proposed development and recommending mitigation measures and design alternatives to avoid or minimize adverse effects on heritage resources.



# Sarah De Decker, MA

Senior Social Impact Specialist

## Education

Masters of Archaeology,  
University of Leuven, Belgium,  
2006.

Hon. BA Archaeology and  
Anthropology, University of  
Toronto, 2005

## Licenses/Registrations

Professional Archaeologist  
(Ontario)

## Professional Affiliations

Ontario Archaeological Society

## Years of Experience

With AECOM: 3.5  
With Other Firms/Positions: 18

## Volunteer

Town of Caledon Municipal  
Heritage Committee

## Professional History

Sarah De Decker is a public policy and social impact specialist with over 20 years of experience in strategic policy development, government relations, community engagement, and impact assessment in both the public and private sector. Prior to joining AECOM as a Social Impact Specialist, Sarah held management positions at the Ontario Ministries of Transportation, Indigenous Affairs and Municipal Affairs and Housing which required policy analyses, legislative development, stakeholder engagements, and Indigenous consultations to advance socio-economic and transportation related priorities. Sarah has been involved in large, cross-government projects in various sectors including transportation and transit, Indigenous socio-economic development, cultural heritage and archaeological assessments, and municipal governance and planning initiatives. Sarah has extensive expertise in interpreting municipal, provincial, and federal environmental policies and legislation and in conducting community and Indigenous engagements by building strong working relationships while meeting regulatory requirements.

Sarah's work at AECOM includes providing senior level advice and project oversight in the design and completion of social impact and socio-economic assessments for large-scale infrastructure planning and design projects from across Canada. To establish socio-economic baselines, she has led teams conducting research, interviews with key community leaders, members and stakeholders, designing and leading engagements with public, stakeholder, Indigenous groups, and supporting proponent-led consultation activities. Sarah collaborates with other professionals, agencies from all levels of government, and community members to identify project impacts and recommended mitigations that support client goals. Sarah also has a technical background in archaeology and holds a Professional Archaeological Licence (Ontario) and is a volunteer member of the Town of Caledon Heritage Committee where she provides Municipal Council advice and support on heritage related matters.

## Project Experience

**AECOM, Marten Falls First Nation Community Access Road, Ontario, (2025- present).** Supported a team of social impact specialists in addressing comments on the Community Wellbeing Study as part of the project's environmental assessment process. This work was completed under a single discipline that integrated socio-community conditions, public safety, social and physical determinants of health, and economics. Responsibilities included addressing comments from regulators and Indigenous communities and incorporating changes into the Final Community Wellbeing Report.

**AECOM, Billy Bishop City Airport, PortsToronto (2024-2025).** Led a team of socio-economic professionals in the design and implementation of a socio-economic analysis of community values in relation to the extension of the Runway End Safety Area (RESA). Included research and analysis of various economic and community-focused reports and data to establish the existing conditions related to residential, recreational and economic use values, identification of key stakeholders and community members for targeted interviews to both validate existing conditions and assess the potential impacts of various RESA alternatives, drafting of reports, tables and figures for the project Environmental Assessment report and presentation of findings at public information and engagement sessions.

**AECOM, Highway 413 Project, Ministry of Transportation (2024-present).** Senior team member contributing to the overall public consultation effort for the project, including development of materials for public consultation and information sharing (virtual and in person), drafting of the Environmental Impact Assessment Report (EIAR) and senior review for Socio-Economic technical report.

**AECOM, Nain Airport, Nain, Newfoundland and Labrador (2023-2024).** Lead for all facets of design and implementation of Indigenous and community consultation and social assessment aspects for a coordinated impact assessment process for a proposed new airport site in Nain, Labrador. Worked with the proponent team and directly with the Nain community leaders to engage in effective community consultation, including an in-person Open House, conduct targeted interviews with key community members from various sectors, and coordinate an in-community consultation session for this critical infrastructure project.

**AECOM, Alto/High-Frequency Rail (HFR) Indigenous Relations and Socio-Economic Research (2023-2024).** Led a team in the design and completion of several socio-economic related research papers to help inform Indigenous socio-economic benefit capture for this landmark public initiative. Has support the client's efforts in planning, coordinating, and executing various Indigenous engagement initiatives for the procurement and pre-planning phases of a federal environmental assessment process. Worked with the client to engage over 40 Indigenous communities and organizations in Ontario and Quebec to promote effective community consultation and promote Indigenous economic reconciliation thru identification of socio-economic benefits and opportunities for Indigenous economic participation.

## Previous Experience

**Ministry of Transportation, Manager System Optimization Office, Toronto, Ontario (2021-2022).** Managed a team of 12 policy staff in providing technical analysis and recommendations on the optimization of Ontario's transportation network including analysis and stakeholder engagements with transit providers to advance the integration of the GTHA transit network. Led policy team in ongoing research and analysis related to the province's managed lanes policies (HOV, HOT), mobility pricing options, and emerging Mobility-as-a-Service approaches (prior to AECOM).

**Ministry of Indigenous Affairs, Manager Social Policy Office (2017-2021):** Managed a team of 8 policy advisors to analyze and support Indigenous engagement and input into a range of socio-economic projects and initiatives, including education, justice, and health care. Led policy staff in engagements with Indigenous representatives and ministry staff to contribute to new investments, policies and/or legislative amendments in support of Indigenous community priorities including the development of an emergency program to support Indigenous communities during on the onset of the COVID-19 pandemic, dedicated funding for Indigenous-led mental health initiatives (prior to AECOM).

**Ministry of Municipal Affairs and Housing, Manager Local Government Policy, Toronto, Ontario (2016):** Managed a team of 8 policy advisors in the comprehensive review of four pieces of legislation - Municipal Act, City of Toronto Act, the Municipal Conflict of Interest Act, and the Municipal Elections Act. Facilitated internal and external stakeholder engagements on the development of policy options through presentations to key stakeholders such as the City of Toronto and the Association of Municipalities of Ontario (AMO). Led the team through the government approvals process for legislative changes on various municipal governance, land use planning, and elections policy issues (prior to AECOM).

**Ministry of Municipal Affairs and Housing, Indigenous Policy Specialist, Ontario (2014-2016):** Led the development of the Ministry's first comprehensive Indigenous Relations Policy within one year of joining the ministry including engagements on how the policy could support engagement with Indigenous partners (prior to AECOM).

**Ministry of Aboriginal Affairs, Senior Policy Advisor, Ontario (2011-2014):** Conducted policy research and analysis and led inter-ministerial working groups to develop policy proposals and make recommendations to management on Indigenous issues, including heritage and burial interests and Métis relations. (prior to AECOM).

**Ministry of Transportation, Regional Archaeologist, Ontario (2009-2011):** Managed workflow and deliverables from several archaeological and heritage consultants from procurement through to project completion on numerous MTO environmental assessments to ensure compliance in the planning, designing, and building of transportation corridors. (prior to AECOM).

**Archeoworks Inc., Field Director and Report Writer (Licence #P305), Toronto, Ontario (2006-2009):** Led fieldwork and drafted reports for numerous Stage 1 – 4 archaeological assessments in the GTHA and surrounding region to satisfy provincial / municipal Environmental Assessment requirements and in compliance with *Ontario Heritage Act* standards and guidelines for archaeologists (prior to AECOM).



# **Appendix C**

## **MCM Checklist**

# 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

Highway 401 / Napanee River Bridge Improvements Preliminary Design and Class Environmental Assessment Study

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

Town of Greater Napanee

Proponent Name

Ontario Ministry of Transportation

Proponent Contact Information

## Screening Questions

|                                                                                  | Yes                      | No                                  |
|----------------------------------------------------------------------------------|--------------------------|-------------------------------------|
| 1. Is there a pre-approved screening checklist, methodology or process in place? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

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 <b>not</b> to be of cultural heritage value? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

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 <i>Ontario Heritage Act</i> as being of cultural heritage value? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b. a National Historic Site (or part of)?                                                                                   | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| c. designated under the <i>Heritage Railway Stations Protection Act</i> ?                                                   | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| d. designated under the <i>Heritage Lighthouse Protection Act</i> ?                                                         | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| e. identified as a Federal Heritage Building by the Federal Heritage Buildings Review Office (FHBRO)?                       | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| f. located within a United Nations Educational, Scientific and Cultural Organization (UNESCO) World Heritage Site?          | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

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? | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| b. has or is adjacent to a known burial site and/or cemetery?                                 | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| c. is in a Canadian Heritage River watershed?                                                 | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| d. contains buildings or structures that are 40 or more years old?                            | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |

## 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? | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| b. has a special association with a community, person or historical event?                                                                       | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| c. contains or is part of a cultural heritage landscape?                                                                                         | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |

**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



## Instructions

Please have the following available, when requesting information related to the screening questions below:

- a clear map showing the location and boundary of the property or project area
  - large scale and small scale showing nearby township names for context purposes
- the municipal addresses of all properties within the project area
- the lot(s), concession(s), and parcel number(s) of all properties within a project area

For more information, see the Ministry of Tourism, Culture and Sport's Ontario Heritage Toolkit or Standards and Guidelines for Conservation of Provincial Heritage Properties.

In this context, the following definitions apply:

- **qualified person(s)** means individuals – professional engineers, architects, archaeologists, etc. – having relevant, recent experience in the conservation of cultural heritage resources.
- **proponent** means a person, agency, group or organization that carries out or proposes to carry out an undertaking or is the owner or person having charge, management or control of an undertaking.

### 1. Is there a pre-approved screening checklist, methodology or process in place?

An existing checklist, methodology or process may already be in place for identifying potential cultural heritage resources, including:

- one endorsed by a municipality
- an environmental assessment process e.g. screening checklist for municipal bridges
- one that is approved by the Ministry of Tourism, Culture and Sport (MTCS) under the Ontario government's Standards & Guidelines for Conservation of Provincial Heritage Properties [s.B.2.]

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

### 2. Has the property (or project area) been evaluated before and found not to be of cultural heritage value?

Respond 'yes' to this question, if all of the following are true:

A property can be considered not to be of cultural heritage value if:

- a Cultural Heritage Evaluation Report (CHER) - or equivalent - has been prepared for the property with the advice of a qualified person and it has been determined not to be of cultural heritage value and/or
- the municipal heritage committee has evaluated the property for its cultural heritage value or interest and determined that the property is not of cultural heritage value or interest

A property may need to be re-evaluated, if:

- there is evidence that its heritage attributes may have changed
- new information is available
- the existing Statement of Cultural Heritage Value does not provide the information necessary to manage the property
- the evaluation took place after 2005 and did not use the criteria in Regulations 9/06 and 10/06

**Note:** Ontario government ministries and public bodies [prescribed under Regulation 157/10] may continue to use their existing evaluation processes, until the evaluation process required under section B.2 of the Standards & Guidelines for Conservation of Provincial Heritage Properties has been developed and approved by MTCS.

To determine if your property or project area has been evaluated, contact:

- the approval authority
- the proponent
- the Ministry of Tourism, Culture and Sport

### 3a. Is the property (or project area) identified, designated or otherwise protected under the *Ontario Heritage Act* as being of cultural heritage value e.g.:

- i. designated under the *Ontario Heritage Act*
  - individual designation (Part IV)
  - part of a heritage conservation district (Part V)

## Individual Designation – Part IV

A property that is designated:

- by a municipal by-law as being of cultural heritage value or interest [s.29 of the *Ontario Heritage Act*]
- by order of the Minister of Tourism, Culture and Sport as being of cultural heritage value or interest of provincial significance [s.34.5]. **Note:** To date, no properties have been designated by the Minister.

## Heritage Conservation District – Part V

A property or project area that is located within an area designated by a municipal by-law as a heritage conservation district [s. 41 of the *Ontario Heritage Act*].

For more information on Parts IV and V, contact:

- municipal clerk
- Ontario Heritage Trust
- local land registry office (for a title search)

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ii. subject of an agreement, covenant or easement entered into under Parts II or IV of the *Ontario Heritage Act*

An agreement, covenant or easement is usually between the owner of a property and a conservation body or level of government. It is usually registered on title.

The primary purpose of the agreement is to:

- preserve, conserve, and maintain a cultural heritage resource
- prevent its destruction, demolition or loss

For more information, contact:

- Ontario Heritage Trust - for an agreement, covenant or easement [clause 10 (1) (c) of the *Ontario Heritage Act*]
- municipal clerk – for a property that is the subject of an easement or a covenant [s.37 of the *Ontario Heritage Act*]
- local land registry office (for a title search)

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iii. listed on a register of heritage properties maintained by the municipality

Municipal registers are the official lists - or record - of cultural heritage properties identified as being important to the community.

Registers include:

- all properties that are designated under the *Ontario Heritage Act* (Part IV or V)
- properties that have not been formally designated, but have been identified as having cultural heritage value or interest to the community

For more information, contact:

- municipal clerk
- municipal heritage planning staff
- municipal heritage committee

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iv. subject to a notice of:

- intention to designate (under Part IV of the *Ontario Heritage Act*)
- a Heritage Conservation District study area bylaw (under Part V of the *Ontario Heritage Act*)

A property that is subject to a **notice of intention to designate** as a property of cultural heritage value or interest and the notice is in accordance with:

- section 29 of the *Ontario Heritage Act*
- section 34.6 of the *Ontario Heritage Act*. **Note:** To date, the only applicable property is Meldrum Bay Inn, Manitoulin Island. [s.34.6]

An area designated by a municipal by-law made under section 40.1 of the *Ontario Heritage Act* as a **heritage conservation district study area**.

For more information, contact:

- municipal clerk – for a property that is the subject of notice of intention [s. 29 and s. 40.1]
- Ontario Heritage Trust



- v. included in the Ministry of Tourism, Culture and Sport's list of provincial heritage properties

Provincial heritage properties are properties the Government of Ontario owns or controls that have cultural heritage value or interest.

The Ministry of Tourism, Culture and Sport (MTCS) maintains a list of all provincial heritage properties based on information provided by ministries and prescribed public bodies. As they are identified, MTCS adds properties to the list of provincial heritage properties.

For more information, contact the MTCS Registrar at [registrar@ontario.ca](mailto:registrar@ontario.ca).

### **3b. Is the property (or project area) a National Historic Site (or part of)?**

National Historic Sites are properties or districts of national historic significance that are designated by the Federal Minister of the Environment, under the *Canada National Parks Act*, based on the advice of the Historic Sites and Monuments Board of Canada.

For more information, see the National Historic Sites website.

### **3c. Is the property (or project area) designated under the *Heritage Railway Stations Protection Act*?**

The *Heritage Railway Stations Protection Act* protects heritage railway stations that are owned by a railway company under federal jurisdiction. Designated railway stations that pass from federal ownership may continue to have cultural heritage value.

For more information, see the Directory of Designated Heritage Railway Stations.

### **3d. Is the property (or project area) designated under the *Heritage Lighthouse Protection Act*?**

The *Heritage Lighthouse Protection Act* helps preserve historically significant Canadian lighthouses. The Act sets up a public nomination process and includes heritage building conservation standards for lighthouses which are officially designated.

For more information, see the Heritage Lighthouses of Canada website.

### **3e. Is the property (or project area) identified as a Federal Heritage Building by the Federal Heritage Buildings Review Office?**

The role of the Federal Heritage Buildings Review Office (FHBRO) is to help the federal government protect the heritage buildings it owns. The policy applies to all federal government departments that administer real property, but not to federal Crown Corporations.

For more information, contact the Federal Heritage Buildings Review Office.

See a directory of all federal heritage designations.

### **3f. Is the property (or project area) located within a United Nations Educational, Scientific and Cultural Organization (UNESCO) World Heritage Site?**

A UNESCO World Heritage Site is a place listed by UNESCO as having outstanding universal value to humanity under the Convention Concerning the Protection of the World Cultural and Natural Heritage. In order to retain the status of a World Heritage Site, each site must maintain its character defining features.

Currently, the Rideau Canal is the only World Heritage Site in Ontario.

For more information, see Parks Canada – World Heritage Site website.

## **Part B: Screening for potential Cultural Heritage Value**

### **4a. Does the property (or project area) contain a parcel of land that has a municipal, provincial or federal commemorative or interpretive plaque?**

Heritage resources are often recognized with formal plaques or markers.

Plaques are prepared by:

- municipalities
- provincial ministries or agencies
- federal ministries or agencies
- local non-government or non-profit organizations

For more information, contact:

- municipal heritage committees or local heritage organizations – for information on the location of plaques in their community
- Ontario Historical Society's Heritage directory – for a list of historical societies and heritage organizations
- Ontario Heritage Trust – for a list of plaques commemorating Ontario's history
- Historic Sites and Monuments Board of Canada – for a list of plaques commemorating Canada's history

**4b. Does the property (or project area) contain a parcel of land that has or is adjacent to a known burial site and/or cemetery?**

For more information on known cemeteries and/or burial sites, see:

- Cemeteries Regulations, Ontario Ministry of Consumer Services – for a database of registered cemeteries
- Ontario Genealogical Society (OGS) – to locate records of Ontario cemeteries, both currently and no longer in existence; cairns, family plots and burial registers
- Canadian County Atlas Digital Project – to locate early cemeteries

In this context, adjacent means contiguous or as otherwise defined in a municipal official plan.

**4c. Does the property (or project area) contain a parcel of land that is in a Canadian Heritage River watershed?**

The Canadian Heritage River System is a national river conservation program that promotes, protects and enhances the best examples of Canada's river heritage.

Canadian Heritage Rivers must have, and maintain, outstanding natural, cultural and/or recreational values, and a high level of public support.

For more information, contact the Canadian Heritage River System.

If you have questions regarding the boundaries of a watershed, please contact:

- your conservation authority
- municipal staff

**4d. Does the property (or project area) contain a parcel of land that contains buildings or structures that are 40 or more years old?**

A 40 year 'rule of thumb' is typically used to indicate the potential of a site to be of cultural heritage value. The approximate age of buildings and/or structures may be estimated based on:

- history of the development of the area
- fire insurance maps
- architectural style
- building methods

Property owners may have information on the age of any buildings or structures on their property. The municipality, local land registry office or library may also have background information on the property.

**Note:** 40+ year old buildings or structure do not necessarily hold cultural heritage value or interest; their age simply indicates a higher potential.

A building or structure can include:

- residential structure
- farm building or outbuilding
- industrial, commercial, or institutional building
- remnant or ruin
- engineering work such as a bridge, canal, dams, etc.

For more information on researching the age of buildings or properties, see the Ontario Heritage Tool Kit Guide Heritage Property Evaluation.



## Part C: Other Considerations

### **5a. Is there local or Aboriginal knowledge or accessible documentation suggesting that the property (or project area) is considered a landmark in the local community or contains any structures or sites that are important to defining the character of the area?**

Local or Aboriginal knowledge may reveal that the project location is situated on a parcel of land that has potential landmarks or defining structures and sites, for instance:

- buildings or landscape features accessible to the public or readily noticeable and widely known
- complexes of buildings
- monuments
- ruins

### **5b. Is there local or Aboriginal knowledge or accessible documentation suggesting that the property (or project area) has a special association with a community, person or historical event?**

Local or Aboriginal knowledge may reveal that the project location is situated on a parcel of land that has a special association with a community, person or event of historic interest, for instance:

- Aboriginal sacred site
- traditional-use area
- battlefield
- birthplace of an individual of importance to the community

### **5c. Is there local or Aboriginal knowledge or accessible documentation suggesting that the property (or project area) contains or is part of a cultural heritage landscape?**

Landscapes (which may include a combination of archaeological resources, built heritage resources and landscape elements) may be of cultural heritage value or interest to a community.

For example, an Aboriginal trail, historic road or rail corridor may have been established as a key transportation or trade route and may have been important to the early settlement of an area. Parks, designed gardens or unique landforms such as waterfalls, rock faces, caverns, or mounds are areas that may have connections to a particular event, group or belief.

For more information on Questions 5.a., 5.b. and 5.c., contact:

- Elders in Aboriginal Communities or community researchers who may have information on potential cultural heritage resources. Please note that Aboriginal traditional knowledge may be considered sensitive.
- municipal heritage committees or local heritage organizations
- Ontario Historical Society's "Heritage Directory" - for a list of historical societies and heritage organizations in the province

An internet search may find helpful resources, including:

- historical maps
- historical walking tours
- municipal heritage management plans
- cultural heritage landscape studies
- municipal cultural plans

Information specific to trails may be obtained through Ontario Trails.

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# Appendix G

## Recommended Plan

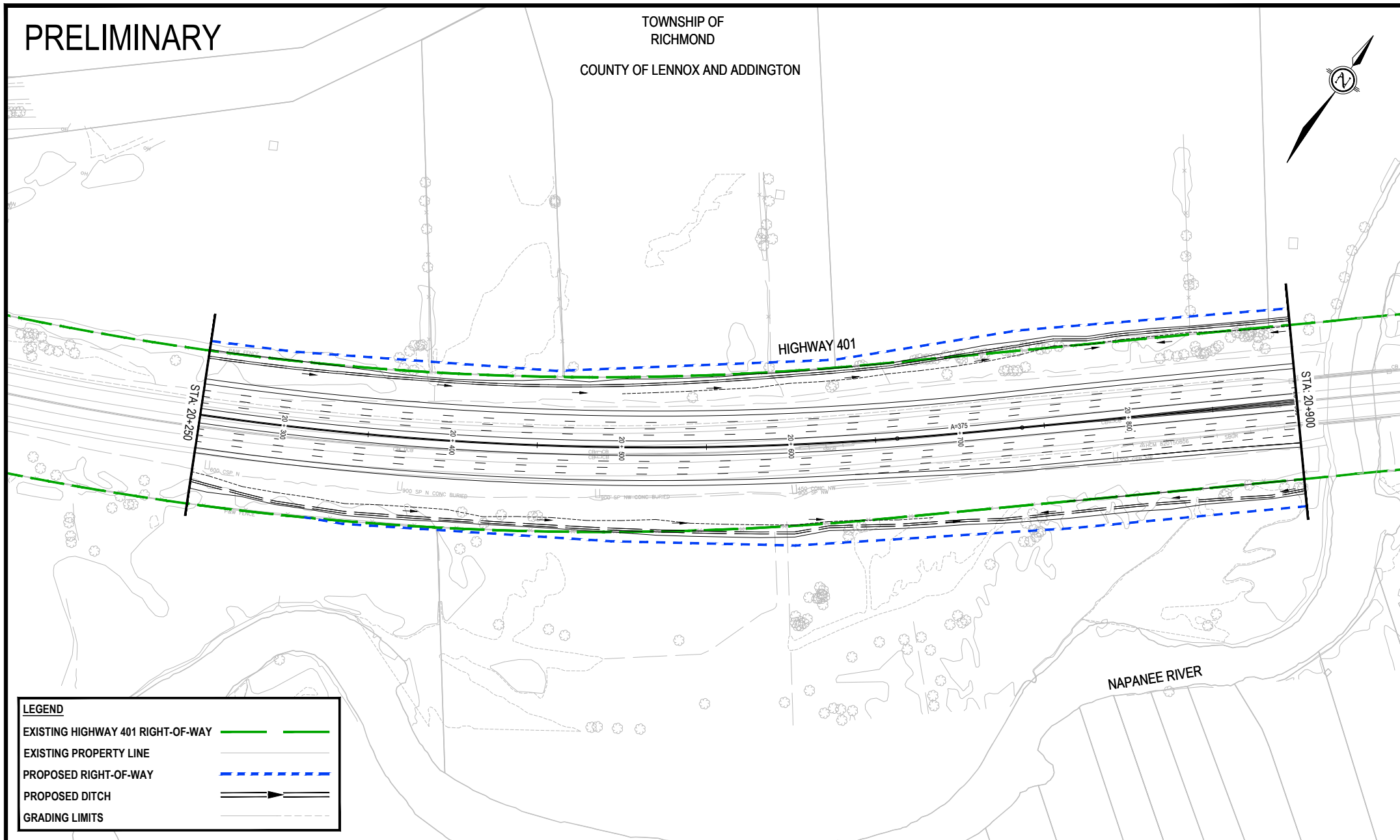






PRELIMINARY

TOWNSHIP OF  
RICHMOND  
COUNTY OF LENNOX AND ADDINGTON



**LEGEND**

- EXISTING HIGHWAY 401 RIGHT-OF-WAY
- EXISTING PROPERTY LINE
- PROPOSED RIGHT-OF-WAY
- PROPOSED DITCH
- GRADING LIMITS

**AECOM**

**Ontario** Ministry of  
Transportation

HIGHWAY 401 IMPROVEMENTS FROM 5 KM WEST OF COUNTY ROAD  
41/CENTRE STREET TO 5 KM WEST OF COUNTY ROAD 38 (STUDY 2)  
HIGHWAY 401 / NAPANEE RIVER TO PALACE ROAD INTERCHANGE  
ASSIGNMENT NO. 4023-E-0028  
GWP 4016-21-00

**KEY MAP**



HIGHWAY 401  
RECOMMENDED PLAN  
STATION 20+250 TO STATION 20+900

SCALE  
25m 0m 50m

PLATE

1

PRELIMINARY

TOWNSHIP OF  
NORTH FREDERICKSBURGH

COUNTY OF LENNOX AND ADDINGTON

NAPANEE RIVER

HIGHWAY 401

PALACE ROAD

W/S RAMP

SE RAMP

MATCH  
EXISTING

LEGEND

EXISTING HIGHWAY 401 RIGHT-OF-WAY

EXISTING PROPERTY LINE

PROPOSED RIGHT-OF-WAY

PROPOSED DITCH

GRADING LIMITS

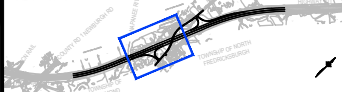
AECOM

Ontario Ministry of  
Transportation

HIGHWAY 401 IMPROVEMENTS FROM 5 KM WEST OF COUNTY ROAD  
41/CENTRE STREET TO 5 KM WEST OF COUNTY ROAD 38 (STUDY 2)  
HIGHWAY 401 / NAPANEE RIVER TO PALACE ROAD INTERCHANGE

ASSIGNMENT NO. 4023-E-0028  
GWP 4016-21-00

KEY MAP



HIGHWAY 401  
RECOMMENDED PLAN  
STATION 20+900 TO STATION 10+667

SCALE

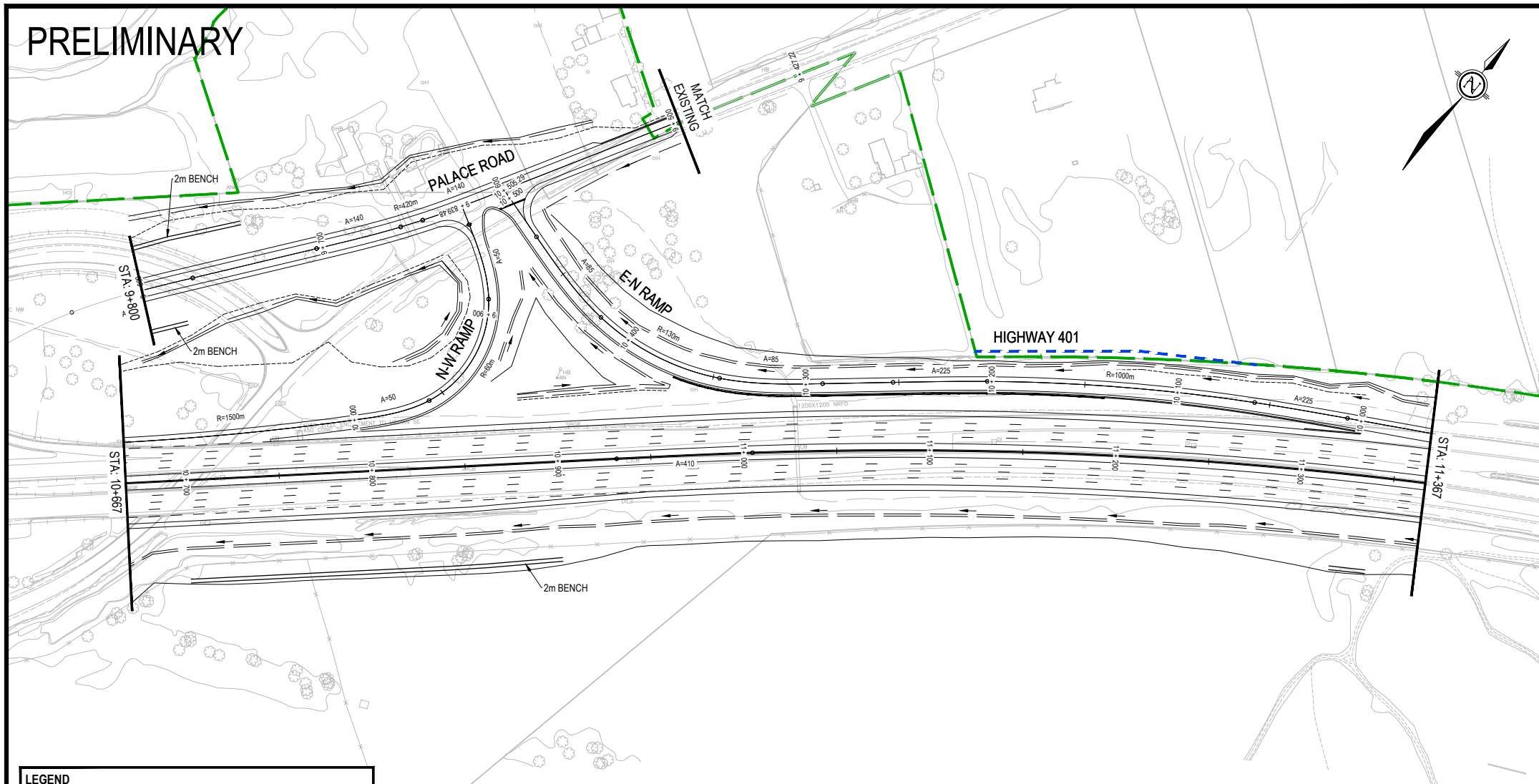
25m 0m 50m

PLATE

2



PRELIMINARY



| LEGEND                            |  |
|-----------------------------------|--|
| EXISTING HIGHWAY 401 RIGHT-OF-WAY |  |
| EXISTING PROPERTY LINE            |  |
| PROPOSED RIGHT-OF-WAY             |  |
| PROPOSED DITCH                    |  |
| GRADING LIMITS                    |  |

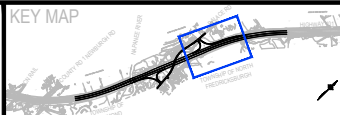
TOWNSHIP OF  
NORTH FREDERICKSBURGH

COUNTY OF LENNOX AND ADDINGTON

**AECOM**

**Ontario** Ministry of  
Transportation

HIGHWAY 401 IMPROVEMENTS FROM 5 KM WEST OF COUNTY ROAD  
41/CENTRE STREET TO 5 KM WEST OF COUNTY ROAD 38 (STUDY 2)  
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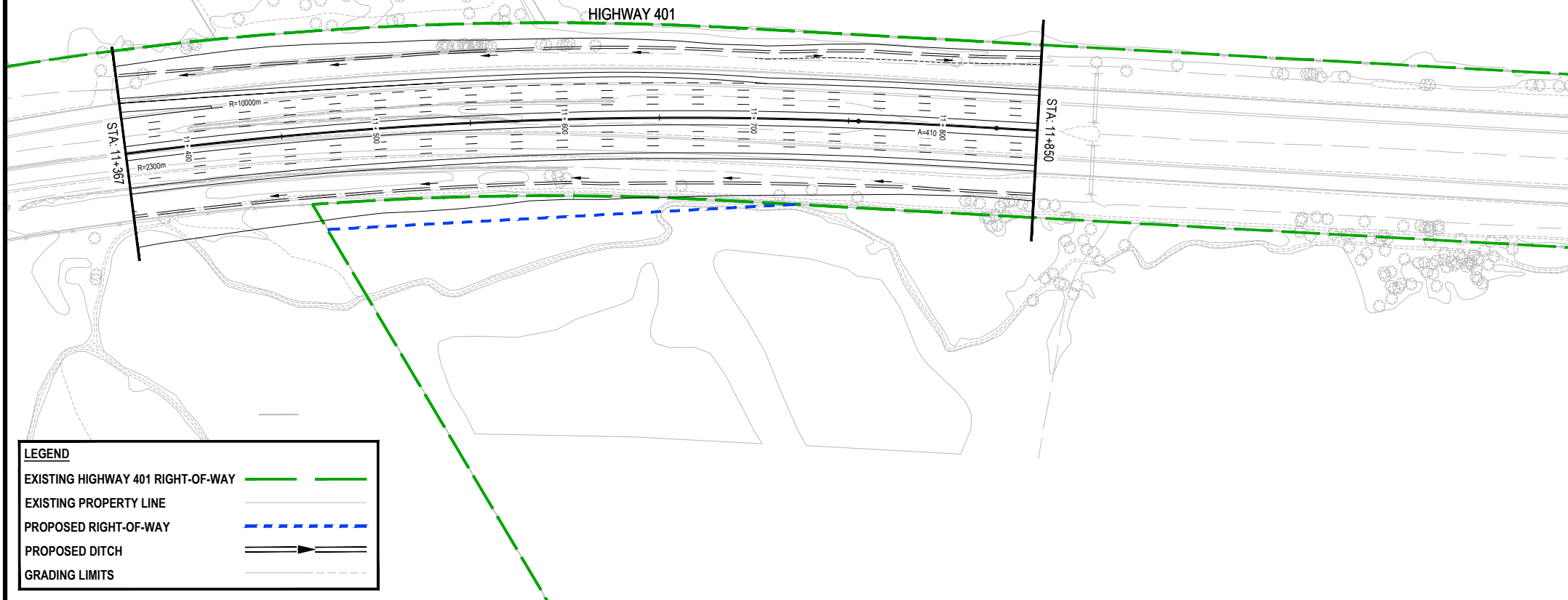
HIGHWAY 401  
RECOMMENDED PLAN  
STATION 10+667 TO STATION 11+367

SCALE

PLATE  
**3**

PRELIMINARY

TOWNSHIP OF  
NORTH FREDERICKSBURGH  
COUNTY OF LENNOX AND ADDINGTON

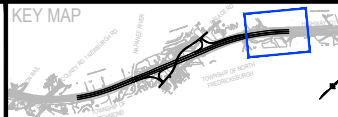


| LEGEND                            |  |
|-----------------------------------|--|
| EXISTING HIGHWAY 401 RIGHT-OF-WAY |  |
| EXISTING PROPERTY LINE            |  |
| PROPOSED RIGHT-OF-WAY             |  |
| PROPOSED DITCH                    |  |
| GRADING LIMITS                    |  |

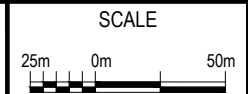
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**Ontario** Ministry of  
Transportation

HIGHWAY 401 IMPROVEMENTS FROM 5 KM WEST OF COUNTY ROAD  
41/CENTRE STREET TO 5 KM WEST OF COUNTY ROAD 38 (STUDY 2)  
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HIGHWAY 401  
RECOMMENDED PLAN  
STATION 11+367 TO STATION 11+850

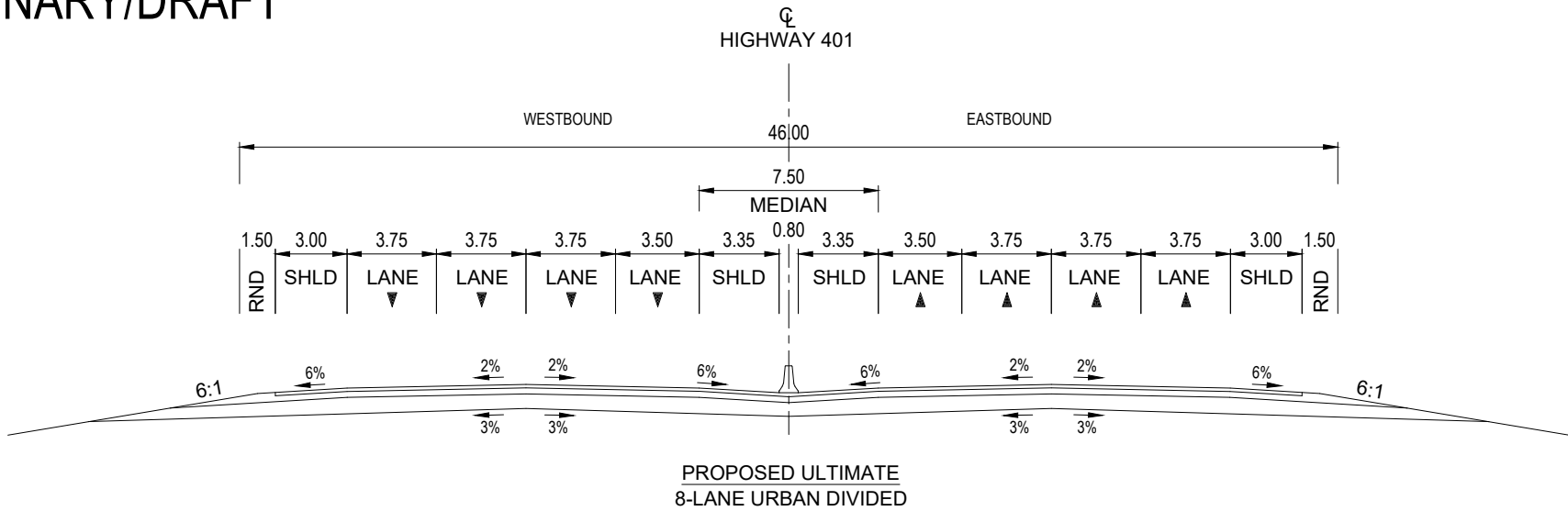
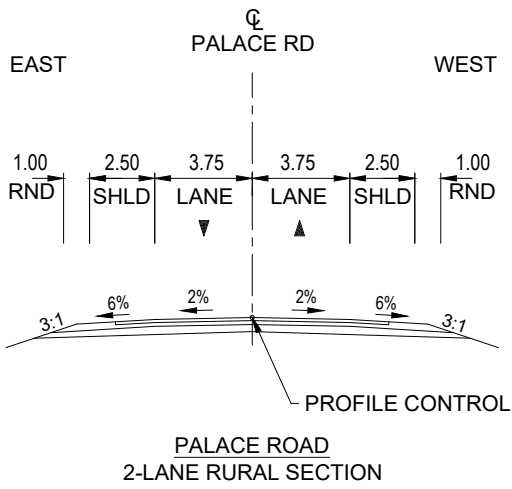
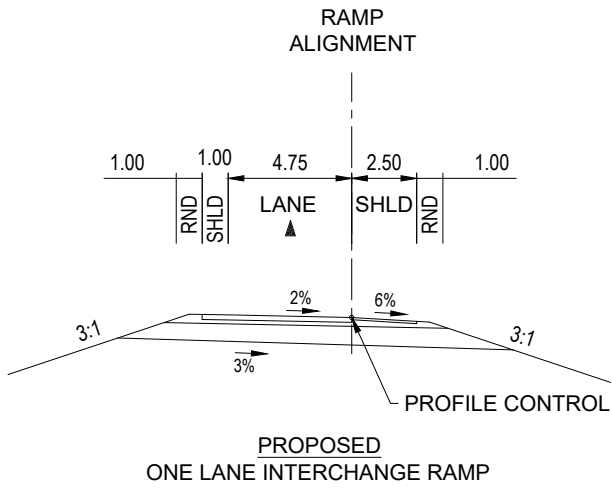


PLATE

4

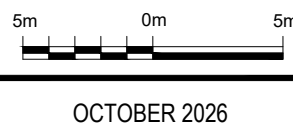


PRELIMINARY/DRAFT



HIGHWAY 401 IMPROVEMENTS FROM 5 KM WEST OF COUNTY ROAD 41/CENTRE STREET TO 5 KM WEST OF COUNTY ROAD 38 (STUDY 2)  
HIGHWAY 401 / NAPANEE RIVER TO PALACE ROAD INTERCHANGE  
ASSIGNMENT NO. 4023-E-0028  
GWP 4016-21-00

HIGHWAY 401 / PALACE ROAD  
TYPICAL SECTIONS  
- PROPOSED -



DWG  
5

