Cultural Heritage Resources Assessment Report: Highway 401 Planning Study East of Brockville, GWP 4111-22-00

Final Report

October 3, 2025

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Stantec

Limitations and Sign-off

The conclusions in the Report titled Cultural Heritage Resources Assessment Report: Highway 401 Planning Study east of Brockville, GWP 4111-22-00 are Stantec's professional opinion, as of the time of the Report, and concerning the scope described in the Report. The opinions in the document are based on conditions and information existing at the time the scope of work was conducted and do not take into account any subsequent changes. The Report relates solely to the specific project for which Stantec was retained and the stated purpose for which the Report was prepared. The Report is not to be used or relied on for any variation or extension of the project, or for any other project or purpose, and any unauthorized use or reliance is at the recipient's own risk.

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Executive Summary

The Ontario Ministry of Transportation (MTO) has retained Stantec Consulting Ltd. (Stantec) to undertake a Planning, Preliminary Design, and Class Environmental Assessment (Class EA) Study on Highway 401 for the replacement and rehabilitation of one bridge and one culvert, and identifying the future Highway 401 footprint for an interim six lanes and ultimate eight lanes, from 0.75 km east of North Augusta Road to 3.3 km west of Maitland Road (approximately 2.6 km), in the Township of Elizabethtown-Kitley, east of Brockville, in the United Counties of Leeds and Grenville. The purpose of the Class EA is to identify a Recommended Plan that addresses current and future transportation needs in the Study Area as part of MTO's review of safety and operational needs for the provincial highway network. The Study is a "Group B" project under the *Class Environmental Assessment for Provincial Transportation Facilities and Municipal Expressways* (MTO 2024).

As part of the Class EA for the Project, a *Cultural Heritage Resources Assessment Report* (CHRAR) is required to document the cultural heritage conditions of the Study Area, identify known and potential built heritage resources (BHRs) and cultural heritage landscapes (CHLs), provide a preliminary impact assessment based on the proposed undertaking and recommend mitigation measures and next steps for properties anticipated to be adversely impacted by the project. The CHRAR has been prepared in accordance with the Ministry of Citizenship and Multiculturalism's (MCM) *Standards and Guidelines for Conservation of Provincial Heritage Properties* (the Standards and Guidelines) issued under Section 25.2 of the *Ontario Heritage Act* (OHA) and MTO's cultural heritage conservation policy process (MCM 2010).

Historical research, municipal and agency data requests, and the field investigation conducted for this CHRAR identified 4 potential BHRs. Transportation structures within the Study Area, including one bridge and one culvert, were screened by MTO's Regional Structural Engineers using the MTO Bridge Screening Form and MTO Structural Culvert Screening Form. None of the transportation structures within the Study Area were determined to contain CHVI.

Following an assessment of impacts, potential indirect impacts resulting from land disturbances were identified for 2801 Oxford Avenue (BHR-1) as a result of the future widening of Highway 401 for an interim six lanes and ultimate eight lanes. To address these potential indirect impacts, the following recommendations have been prepared:

2801 Oxford Avenue: The BHR is located within the Project Footprint and is approximately 43 metres north of the Highway 401 right of way and is therefore at risk of impacts related to vibration effects. To address potential vibration damage, a pre-construction vibration monitoring assessment by a qualified engineer is recommended in order to determine if vibration monitoring is required.

For potential impacts from vibration, the Preferred Option is to avoid indirect impacts by establishing a buffer zone around the BHR to avoid construction activity within 50 metres. This should use appropriate preventive measures such as mapping on construction maps or plans and temporary fencing. Staging and laydown areas should also be non-invasive and avoid the BHR. Where avoidance is not feasible, the alternative option should be applied.

If the 50-metre buffer cannot be avoided, the alternative option to mitigate this risk is for a qualified building condition specialist or engineer to develop a strategy to carry out condition surveys and vibration monitoring, where required. The pre-condition survey may include screening activities to identify critical properties and determine appropriate vibration levels based on structure type, age, and condition. Vibration monitoring may consist of random confirmatory vibration monitoring during construction at the most critical properties. A post-condition survey should be carried out on an as-needed basis to be determined by a qualified building condition specialist or engineer.

The Executive Summary highlights key points from the report only; for complete information and findings, the reader should examine the complete report.

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Project Personnel Biographies are included in Appendix A.

Abbreviations

BHR	Built Heritage Resource
CHER	Cultural Heritage Evaluation Report
CHL	Cultural Heritage Landscape
CHRAR	Cultural Heritage Resources Assessment Report
CHVI	Cultural Heritage Value or Interest
EA	Environmental Assessment
HIA	Heritage Impact Assessment
MCM	Ministry of Multiculturalism and Citizenship
MTO	Ministry of Transportation, Ontario
N/A	Not Applicable
OHA	*Ontario Heritage Act*
OHT	Ontario Heritage Trust
RoW	Right of Way
Stantec	Stantec Consulting Ltd.

1 Introduction

1.1 Study Purpose and Objectives

The Ontario Ministry of Transportation (MTO) has retained Stantec Consulting Ltd. (Stantec) to undertake a Planning, Preliminary Design, and Class Environmental Assessment (Class EA) Study on Highway 401 for the replacement and rehabilitation of one bridge and one culvert, and identifying the future Highway 401 footprint for an interim six lanes and ultimate eight lanes, from 0.75 kilometres (km) east of North Augusta Road to 3.3 km west of Maitland Road (approximately 2.6 km), in the Township of Elizabethtown-Kitley, east of Brockville, in the United Counties of Leeds and Grenville (Figure 1 and Figure 2) detailed in Appendix B. The purpose of the Class EA is to identify a Recommended Plan that addresses current and future transportation needs in the Study Area as part of MTO's review of safety and operational needs for the provincial highway network. The Study is a "Group B" project under the *Class Environmental Assessment for Provincial Transportation Facilities and Municipal Expressways* (MTO 2024).

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Legend

- Study Area
- Expressway / Highway
- Major Road
- Minor Road
- Railway
- Hydro Line
- Unknown Transmission Line
- Watercourse (Intermittent)
- Watercourse (Permanent)
- Waterbody
- Municipal Boundary - Lower Tier
- Municipal Boundary - Upper Tier
- Wooded Area

0 500 1,000 Meters

1:25,000 (At original document size of 11x17)

Notes

1. Coordinate System:NAD 1983 UTM Zone 18N
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2023.

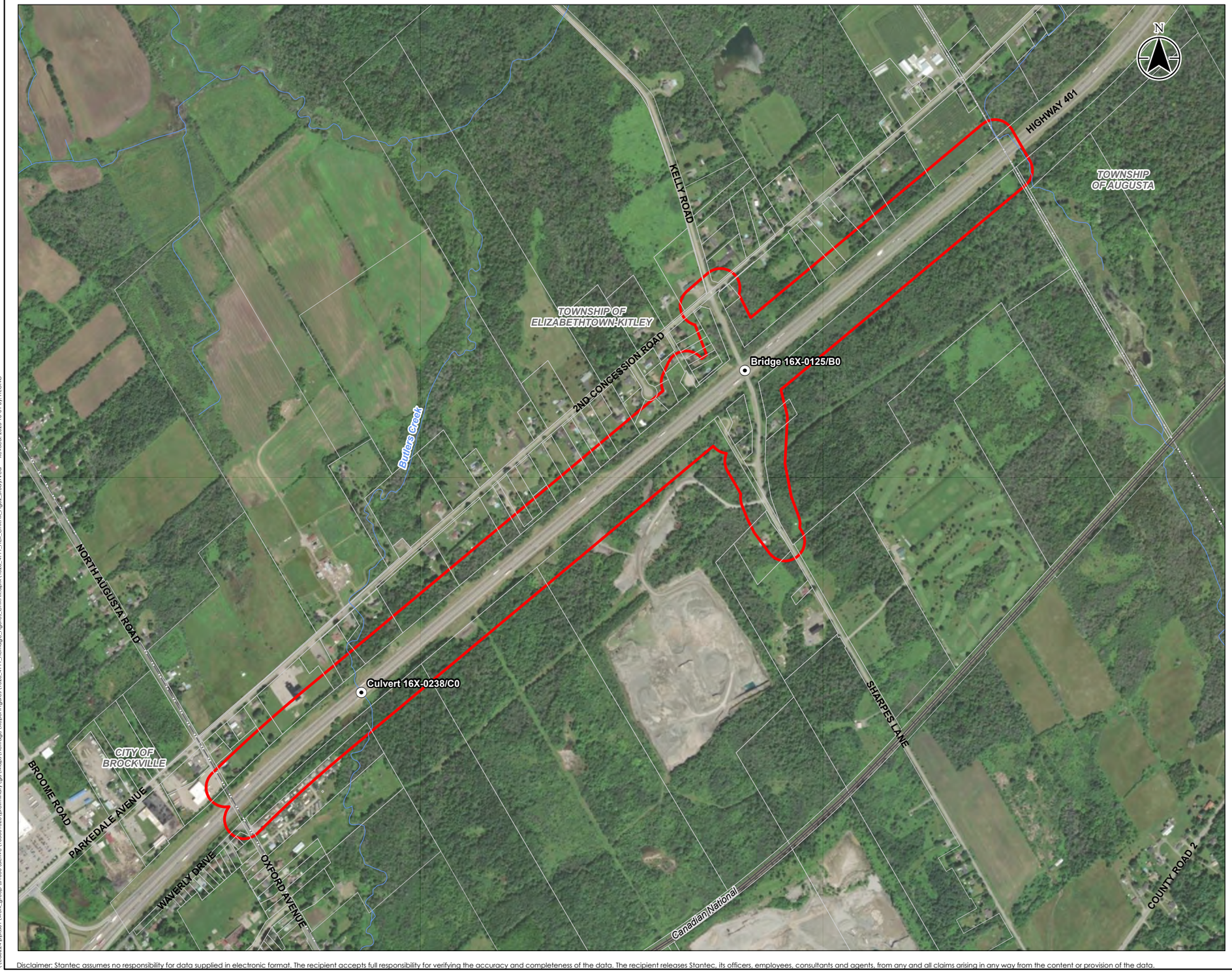
Project Location
United Counties of Leeds and Grenville

REVA
Prepared by HLONG on 2025-10-01
Technical Review by ABC on yyyy-mm-dd

Client/Project
Ministry of Transportation
Highway 401 Planning Study East of Brockville
(GWP 4111-22-00)

Figure No.
1

Title
Project Location



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Legend

- MTO Structure
- Study Area
- Railway
- Watercourse (Permanent)
- Municipal Boundary - Lower Tier
- Property Boundary

0 250 500 Meters

1:10,000 (At original document size of 11x17)

Notes

1. Coordinate System:NAD 1983 UTM Zone 18N
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2023.

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165001328 REVA
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Client/Project
Ministry of Transportation
Highway 401 Planning Study East of Brockville (GWP 4111-22-00)

Figure No.
2

Title
Study Area

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2 Methodology

2.1 Definition of Study Area

As per Section 3.7 of MTO's *Environmental Guide for Built Heritage and Cultural Heritage Landscapes,* the Study Area is defined as all lands to be affected adversely either through displacement and/or disruption by the proposed highway design and construction with the existing and proposed right-of-way (RoW) (the Project Location) and zones adjacent to or abutting the existing RoW. As per instruction from MTO provided by email in May 2023, the adjacent zone includes a 50-metre buffer around the Project Location. This is based on an understanding of the potential for indirect impacts associated with potential vibration effects.

2.2 Regulatory Requirements

The OHA provides the primary statutory framework for the conservation of cultural heritage resources in Ontario. Conservation of cultural heritage resources is a matter of provincial interest, as reflected in the OHA and Ministry of Citizenship and Multiculturalism (MCM) policies.

The requirement to consider BHRs and CHLs within the highway design and construction process is outlined in MTO's *Environmental Guide for Built Heritage and Cultural Heritage Landscapes* (MTO 2007). The need for the identification, evaluation, management, and conservation of Ontario's cultural heritage is acknowledged as an essential component of the Class EA process in Ontario.

The MTO process for considering cultural heritage resources within the highway design and construction process is based on the OHA policies and guidelines developed by the Ministry of Citizenship and Multiculturalism (MCM) and MTO, including:

- *Standards and Guidelines for Conservation of Provincial Heritage Properties* issued under Section 25.2 of the OHA (MCM 2010)
- *Environmental Guide for Built Heritage and Cultural Heritage Landscapes* (MTO 2007)
- *Ontario Heritage Bridge Guidelines for Provincially Owned Bridges (interim)* (MTO 2008)
- *Class Environmental Assessment for Provincial Transportation Facilities and Municipal Expressways* (MTO 2024)

2.3 Background History

The CHRAR included a program of desktop-based research focused on the Study Area. Local historical resources were consulted, archival documents were reviewed, and a summary of the historical

background of the local area was prepared. In addition, historical mapping was consulted to identify the presence of structures, settlements, and other potential BHRs or CHLs in advance of the field program.

2.4 Community Input

Listings of local, provincial, and nationally designated properties, districts, and easements were collected from the City of Brockville, the Township of Elizabeth-Kitley, the Ontario Heritage Trust (OHT), and MCM. Consultation with these agencies and municipalities within which the Project is proposed was undertaken to determine the presence of designated, listed, or registered heritage properties within the Study Area.

Recognition of protected properties varies greatly and is dependent on the level of CHVI identified or, in some cases, the level of investigation undertaken. For the purpose of this study, any property previously identified by municipal staff or provincial agencies as containing, or having the potential to contain, CHVI was determined to be a known BHR or CHL.

Consultation with the public and Indigenous communities is carried out as part of the broader EA process. A summary of consultation completed as part of the Study Commencement Notification and first Public Meeting is further discussed in Section 3.3.

2.5 Field Program

A windshield survey was conducted by Christian Giansante and Julia Richards, Cultural Heritage Specialists, on March 20, 2024. The Study Area was surveyed for potential and previously identified BHRs and CHLs. Where identified, these were photographed, and their locations recorded. Characteristics of each potential BHR or CHL were noted while in the field and digitally recorded using the ESRI Field Maps Application.

2.6 Screening for Potential Cultural Heritage Value or Interest

In general, buildings and structures of more than 40 years of age were screened for potential CHVI during the survey using the criteria prescribed the MCM *Criteria for Evaluating Potential for Built Heritage Resources and Cultural Heritage Landscapes* (MCM 2022), the MCM *Standards and Guidelines for the Conservation of Provincial Heritage Properties* (MCM 2010), the MTO *Bridge Screening Form,* the MTO *Structural Culvert Screening Form,* as well as professional judgement. The use of the 40-year threshold is generally accepted by both the federal and provincial authorities as a preliminary screening measure for CHVI. This practice does not imply that all buildings and structures more than 40 years of age are inherent of significant heritage value, nor does it exclude exceptional examples constructed within the past 40 years of being of significant cultural heritage value.

Each potential or previously identified BHR and CHL was screened both as an individual structure and as a potential CHL. Where potential or previously identified CHVI was identified, a structure or landscape was assigned BHR number, or CHL number.

2.7 Assessment of Impacts

The assessment of impacts is based on the nature of impacts as defined in *Information Bulletin 3* (MCM 2017). Impacts to heritage resources may be direct or indirect. While not all impacts may be present on this project, they are listed below for clarity. Direct impacts may include, but are not limited to:

- Removal or demolition of all or part of any heritage attribute
- Removal or demolition of any building or structure on the provincial heritage property whether or not it contributes to the cultural heritage value or interest of the property (i.e., non-contributing buildings)
- Any land disturbance, such as a change in grade and/or drainage patterns, that may adversely affect a heritage property, including archaeological resources
- Alterations to the property in a manner that is not sympathetic, or is incompatible, with the cultural heritage value or interest of the property. This may include necessary alterations, such as new systems or materials to address health and safety requirements, energy-saving upgrades, building performance upgrades, security upgrades, or servicing needs
- Alterations for access requirements or limitations to address such factors as accessibility, emergency egress, public access, security
- Introduction of new elements that diminish the integrity of the property, such as a new building, structure or addition, parking expansion or addition, access or circulation roads, and landscape features
- Changing the character of the property through removal or planting trees or other natural features, such as a garden, or that may result in the obstruction of significant views or vistas within, from, or of built and natural features
- Change in use for the provincial heritage property that could result in permanent, irreversible damage or negates the property's cultural heritage value or interest
- Continuation or intensification of a use of the provincial heritage property without conservation of heritage attributes

(MCM 2017)

Indirect impacts to cultural heritage resources are the result of an activity on or near the property that may adversely affect its CHVI and/or heritage attributes. Indirect impacts may include, but are not limited to:

- Shadows that alter the appearance of a heritage attribute or change the visibility of an associated natural feature or plantings, such as a tree Right of Way (RoW), hedge, or garden
- Isolation of a heritage attribute from its surrounding environment, context, or significant relationship

- Vibration damage to a structure due to construction activities on or adjacent to the property
- Alteration or obstruction of a significant view of or from the provincial heritage property from a key vantage point

(MCM 2017)

In addition to adverse impacts identified above, Info Bulletin 3 also identified potential positive impacts. Examples identified include, but are not limited to:

- Changes or alterations that are consistent with accepted conservation principles, such as those articulated in MCM's Eight Guiding Principles in the Conservation of Historic Properties, Heritage Conservation Principles for Land Use Planning, Parks Canada's Standards and Guidelines for the Conservation of Historic Places in Canada
- Adaptive re-use of a property – alteration of a provincial heritage property to fit new uses or circumstances of the of property in a manner that retains its cultural heritage value of interest
- Public interpretation or commemoration of the provincial heritage property

(MCM 2017)

The potential for indirect effects resulting from vibration due to construction and operation activities and the transportation of Project components and personnel were also evaluated. Although the existing effect of traffic and construction vibrations on historical period structures is not fully known, negative effects have been demonstrated on buildings with a setback of less than 40 metres (m) from the curbside (Crispino and D'Apuzzo 2001; Ellis 1987; Rainer 1982; Wiss 1981; National Park Service 2001).
The proximity of Project components to BHRs and CHLs was considered in this assessment, particularly those within 50 metres, to encompass a wide enough buffer zone to account for built resources less than 40 metres from curbside or potential Project activities. A 50 m buffer is applied based on existing secondary source literature, in the absence of a project-specific defined vibration zone of influence. The 50-metre buffer represents a conservative approach to effects identification.

3 Existing Conditions

3.1 Study Area

The Study Area is situated in eastern Ontario within the City of Brockville, a single-tier municipality, and the Township of Elizabethtown- Kitley, in the United Counties of Leeds and Grenville. The Study Area extends along Highway from 0.75 km east of North Augusta Road to 3.3 km west of Maitland Road (approximately 2.6 km). The Study Area is located within Lots 1-7 and Common, Concession 2, of the former Township of Elizabethtown.

3.2 Background and Historical Research

3.2.1 Physiography

The Study Area is situated in the Leeds Knobs and Flats and Smiths Falls Limestone Plain physiographic regions of southern Ontario.

The Leeds Knobs and Flats encompasses the St. Lawrence River near Gananoque and the Thousand Islands consisting of knobs of granite and other Precambrian rocks. This landscape of rock knobs and clay flats occupies an area of about 385 square miles, a typical section of which is seen along Highway 2 between Kingston and Brockville (Chapman and Putnam 1984: 196). In areas of good drainage, there is an acidic soil similar to those of Renfrew County. However poorly drained and near neutral soils are also found. Dairy farming was the mainstay of this area as it was in most parts of eastern Ontario. The deep clay soils promote excellent yields of hay, silage corn, oats, and mixed grain, which have historically been the chief crops (Chapman and Putnam 1984: 196).

The Smiths Falls Limestone Plain is the largest and most continuous tract of shallow soil over limestone in Southern Ontario and covers nearly 1,400 square miles. For the most part, this plain supported a hardwood forest in which sugar maple was the dominant tree. The shallow soils vary greatly in texture from clays to light loams, sands, and even gravels, although they are all classed within the Farmington series. Surface stoniness is common. Drainage is often impeded so that seeding is delayed even though later in the summer they become exceedingly droughty (Chapman and Putnam 1984: 196-197). The "front" of this area, along the banks of the St. Lawrence River, was part of the original townships laid out to accommodate the United Empire Loyalists who took up land here in 1781 and following years. The harsh climate of the area limited wheat production, which was a major component of the agricultural output in much of central and western Ontario during the middle part of the 19th century. Instead, the agricultural industry gravitated towards cheesemaking in the latter half of the century (Chapman and Putnam 1984: 197).

3.2.2 Indigenous Context

Indigenous peoples have lived in present-day southern Ontario for thousands of years, beginning with the retreat of the glaciers and gradual end of the Ice Age over 10,000 years ago (Ellis 1990). Contact between Indigenous peoples in Canada and European culture began in the 16th century (Loewen and Chapdelaine 2016). The nature of Indigenous settlement size, population distribution, and material culture shifted as European settlers encroached upon their territory (Ellis 1990).

During the early post-contact period the north shore of Lake Ontario was occupied by two distinct peoples with different cultural traditions: the Michi Saagiig Nishnaabeg (Mississauga Anishinaabeg) and the Huron-Wendat. Both Huron and Mississauga traditional history indicate that the Huron-Wendat and Mississauga co-habited in the region (Kapyrka 2015). Traditionally, the Huron-Wendat were farmers and fishermen-hunter-gatherers with a population of between 30,000 and 40,000 individuals. The Huron-Wendat traveled widely across a territory stretching from the Gaspé Peninsula in the Gulf of Saint Lawrence, along both sides of the Saint Lawrence River, and throughout the Great Lakes.

The Mississauga traditional homeland stretched along the north shore of Lake Ontario and its tributary rivers from present-day Gananoque in the east to Long Point on Lake Erie in the west (Kapyrka 2015). In the winter the communities dispersed into smaller groups and travelled in-land to the north, to the area around present-day Bancroft and the Haliburton Highlands. Mississauga oral history relates that their ancestors occupied this part of southern Ontario from the time of the last deglaciation (Kapyrka 2015).

The Study Area is located on land traditionally part of the Crawford's Purchases Treaties, one of three made by or on behalf of Captain Crawford. The first Treaty was enacted in 1783 and covered a large tract of land that encompassed the north shore of the eastern side of Lake Ontario and the St Lawrence River (Boileau 2020). The purchases were made by Captain William Crawford who purchased the land from the Mississauga who traditionally occupied the land (Boileau 2020). This land was in turn granted primarily to British Empire Loyalists who fought or supported Britian during the American Revolutionary War and had left America (Boileau 2020).

3.2.3 County of Leeds and Grenville

3.2.3.1 Survey and Settlement

In 1783 the Treaty of Paris was signed and Great Britain recognized the independence of the United States of America. This resulted in a wave of Loyalist emigration out of the fledgling United States and towards Quebec. Many Loyalists from New York State left from American docks along Lake Ontario and the St. Lawrence River and crossed to the British side in what was then the Province of Quebec. Frederick Haldimand was the colonial governor of Quebec and in the summer of 1783 decided to settle these Loyalist settlers along land from Long Sault to the Bay of Quinte (Craig 1963: 4).

To settle the Loyalists, eight townships were surveyed in 1783 and 1784 along the St. Lawrence River. Originally these townships were simply referred to as Townships 1 through 8. After Haldimand's departure from Canada these townships became known as the "Royal Townships" because Lord Dorchester named the eight townships after the children of George III. The township of Elizabethtown was originally

Township Number 8 and was the westernmost of the Royal Townships (Fryer 1984: 102). The Townships of Escott and Yonge were surveyed a few years after the Royal Townships in 1788 and 1794 respectively (McKenzie 1967).

Land allocation in the Royal Townships was done according to military rank, with civilians and privates receiving 100 acres of land. Noncommissioned officers received 200 acres of land, officers 500 acres of land, captains 700 acres of land, and field officers 1,000 acres of land (Fryer 1984: 105). Most of the military veterans that settled in Elizabethtown Township were members of the Loyal Rangers (Fryer 1984: 106). The Loyal Rangers was created in 1781 when several smaller Loyalist units were amalgamated. The Rangers were led by Edward Jessup and served primarily along the frontier between Quebec and Vermont (Tuller 2020).

Settlement along the banks of the St. Lawrence River favored the front lots which fronted onto the River, which was the primary means of transportation at the time (McKenzie 1967). In 1788, another set of townships were surveyed west of the Royal Townships including Lansdowne, Leeds, and Escott. The Township of Yonge Front, now Front of Yonge, was surveyed in 1794. These later townships were surveyed using the Single Front System and land was granted to military veterans based on rank, as had been done previously with the Royal Townships (McKenzie 1967).

In 1791, the Province of Quebec was divided into Upper Canada and Lower Canada at the behest of the United Empire Loyalists. The division maintained French laws and customs in Lower Canada but established English Common Law in Upper Canada, which the Loyalists were accustomed to in the former Thirteen Colonies and Great Britain (Craig 1964: 17).

3.2.4 Township of Elizabethtown

3.2.4.1 19th Century Development

In 1802, a town plot was laid out for Elizabethtown in the southern parts of Lots 11 and 12. Concession 1 along the St. Larence River. The hamlet was originally laid out by Ensign William Buell and was known initially as “Buell’s Bay.” By 1808, the settlement was renamed Elizabethtown and was chosen as the district town for the Johnston District (Heritage Brockville 2024). A jail and courthouse were built in the community in 1810. By 1811 the community contained 26 buildings and a growing population. In the summer of 1812, the hamlet was renamed Brockville in honour of General Isaac Brock, who died in the War of 1812. The War was significant to the Township for its location along the St. Lawrence, and proximity to the American border (McKenzie 1967). In 1832, Brockville was the first community in Upper Canada to be incorporated (Heritage Brockville 2024).

The Township of Elizabethtown also prospered during the first decades of the 19th century. According to *Smith’s Canadian Gazetteer,* the township had a population of 6,437 in 1846 and had five gristmills and nine sawmills (Smith 1846: 53). The variable soil of the township and the unpredictability of the local wheat harvest led to most of the forested land in the township being logged and cleared (Austin 2009). Smith described Brockville as a “handsome town” of mostly stone buildings with a population of 2,111 (Smith 1846: 21).

Historical mapping from 1861 indicated that the Township of Elizabethtown and Town of Brockville were more densely populated than the surrounding townships along the river (Figure 3). Many of the parcels were shown as occupied, and by 1861 Brockville had developed a street grid although the parcels surrounding Brockville were rural. The population increase continued in 1881 as the majority of township parcels became occupied (Figure 4).

The population of Elizabethtown Township would begin to decrease in the last decades of the 19th century, shrinking from 5,373 in 1871 to 4,726 in 1891 (Dominion Bureau of Statistics 1953). During the same period, the Town of Brockville grew from 5,102 to 8,791 (Dominion Bureau of Statistics 1953). The decrease of population in the Township and growth of the Town was part of a broader trend of urbanization in the late 19th and early 20th centuries. The emergence of industrialization and urbanization increased the number of wage workers required in cities and towns. At the same time, improvements in farm equipment and the mechanization of farming meant that less labour was required on a farm (Sampson 2012). This encouraged out-migration from rural areas to the burgeoning cities of Ontario (Drummond 1987: 30).

3.2.4.2 20th Century Development

The population of Elizabethtown Township slightly rebounded in 1901, rising to 4,872. However, the population once again began to decline, falling to 3,743 in 1921, the lowest it would reach during the 20th century. The population of Brockville continued to grow, rising from 8,940 in 1901 to 10,043 in 1921 (Dominion Bureau of Statistics 1953).

In 1917, the roadway hugging the St. Lawrence River and known as King Street in Brockville was incorporated into King's Highway 2. The road was the first provincial route to span the province and began in Windsor and terminated at the Quebec border near Montreal (Steeves 2020). King's Highway 2 would be the primary Windsor to Quebec route in the province until the construction of Highway 401 after the Second World War.

Like much of North America, the Township of Elizabethtown and Town of Brockville would experience steady growth in the post-war period. Between 1941 and 1951 the Township of Elizabethtown increased in population from 4,811 to 5,739 and the Town of Brockville increased from 11,342 to 12,301 (Dominion Bureau of Statistics 1953). In 1951, Brockville began annexing surrounding portions of Elizabethtown Township and in 1962 was reincorporated as the City of Brockville (Dominion Bureau of Statistics 1953; Morrison 2012).

Topographic Mapping from the 20th century indicates that Brockville was a developed town with numerous structures built along the street grid. The Study Area outside the town remained largely rural, with structures clustered around what is now County Road 2 (Figure 5). By 1940, much of the study area remained the same, largely rural and forested with Brockville sprawling into the surrounding area (Figure 6).

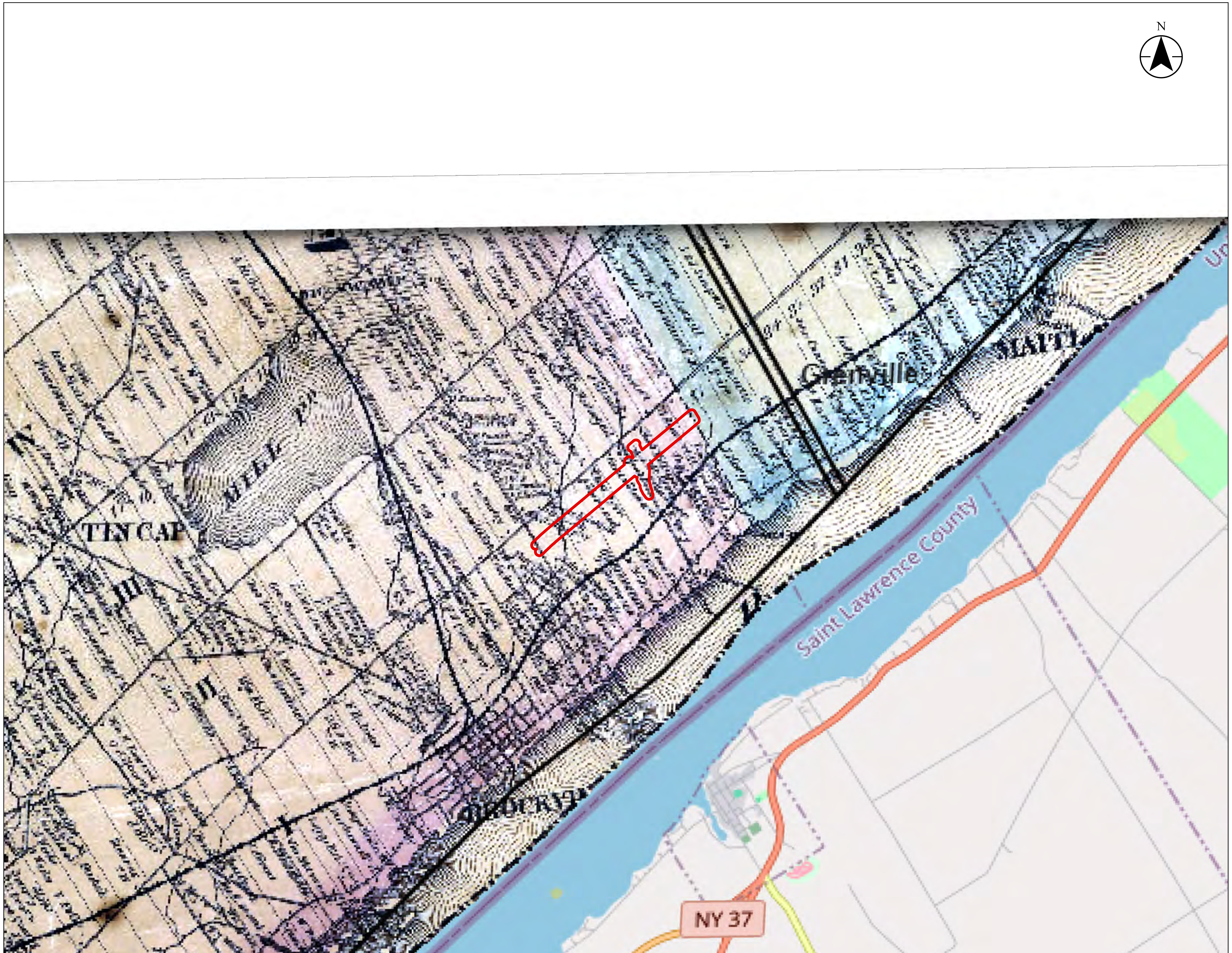
In 2000, the Township of Elizabethtown amalgamated with the neighbouring Township of Kitley to form the Township of Elizabethtown-Kitley (Government of Ontario 2020). The City of Brockville experienced a

slight contraction in population in the early 21st century. The population of the City of Brockville was 22,116 in 2021, a slight increase from 2016, at 21,116 (Statistics Canada 2024d).

3.2.5 Highway 401

By the 1930s, congestion along Highway 2 was becoming increasingly frequent. Highway 2 was a two-lane highway that ran from Windsor to the Quebec/Ontario border. The highway passed through many downtown areas along its route and a new road was needed to bypass these towns. Plans were developed before the Second World War for a new limited access highway through the Windsor-Quebec border corridor to ease congestion; however, the war effort limited the government's ability to undertake large-scale transportation projects. Following the war, the first portion of the new highway was completed in Scarborough in 1947. Initially known as Highway 2A, its name was changed to Highway 401 in 1952 (Bevers 2024). The part of the proposed route between Trenton and Belleville, located partially within the Study Area, was completed in the late 1950s (Bevers 2024; Department of Highways Ontario [DHO] 1959: 27).

Construction of Highway 401 continued in phases until 1968. Modifications to Highway 401 have been constant since before the final stretches were even completed, with widening taking place in Metropolitan Toronto during the 1960s. In 1965, the highway was ceremoniously named "MacDonald-Cartier Freeway" in memory of John A. MacDonald and George Etienne Cartier, noted advocates for Canadian confederation.



Stantec

Legend

Study Area

NOT TO SCALE

Notes

1. Coordinate System:NAD 1983 UTM Zone 18N
2. Walling. 1861. *Historical County Map of Leeds County. Kingston:* Putnam and Walling.

Project Location
United Counties of Leeds and Grenville

165001328 REVA
Prepared by HLONG on 2025-10-01
Technical Review by ABC on yyyy-mm-dd

Client/Project
Ministry of Transportation
Highway 401 Planning Study East of Brockville
(GWP 4111-22-00)

Figure No.
3

Title
Historical Mapping, 1861

\\ca0224-ppfss01\work_group\01650\active\165001328\preliminary\gis\Maps\Heritage\ReportFigures\1328_4111_Heritage_Figures_CHRAR.aprx\1328_4111_HER_CHRAR_Fig03_hm_1861 Revised: 2025-10-01 By: HLONG

Stantec

Legend

Study Area

NOT TO SCALE

Notes

1. Coordinate System:NAD 1983 UTM Zone 18N
2. Leavitt, Thadeus W.H. 1879. *History of Leeds and Grenville County. Ontario* Brockville: Recorder Press.

Project Location

165001328 REVA
Prepared by HLONG on 2025-10-01
Technical Review by ABC on yyyy-mm-dd

Client/Project

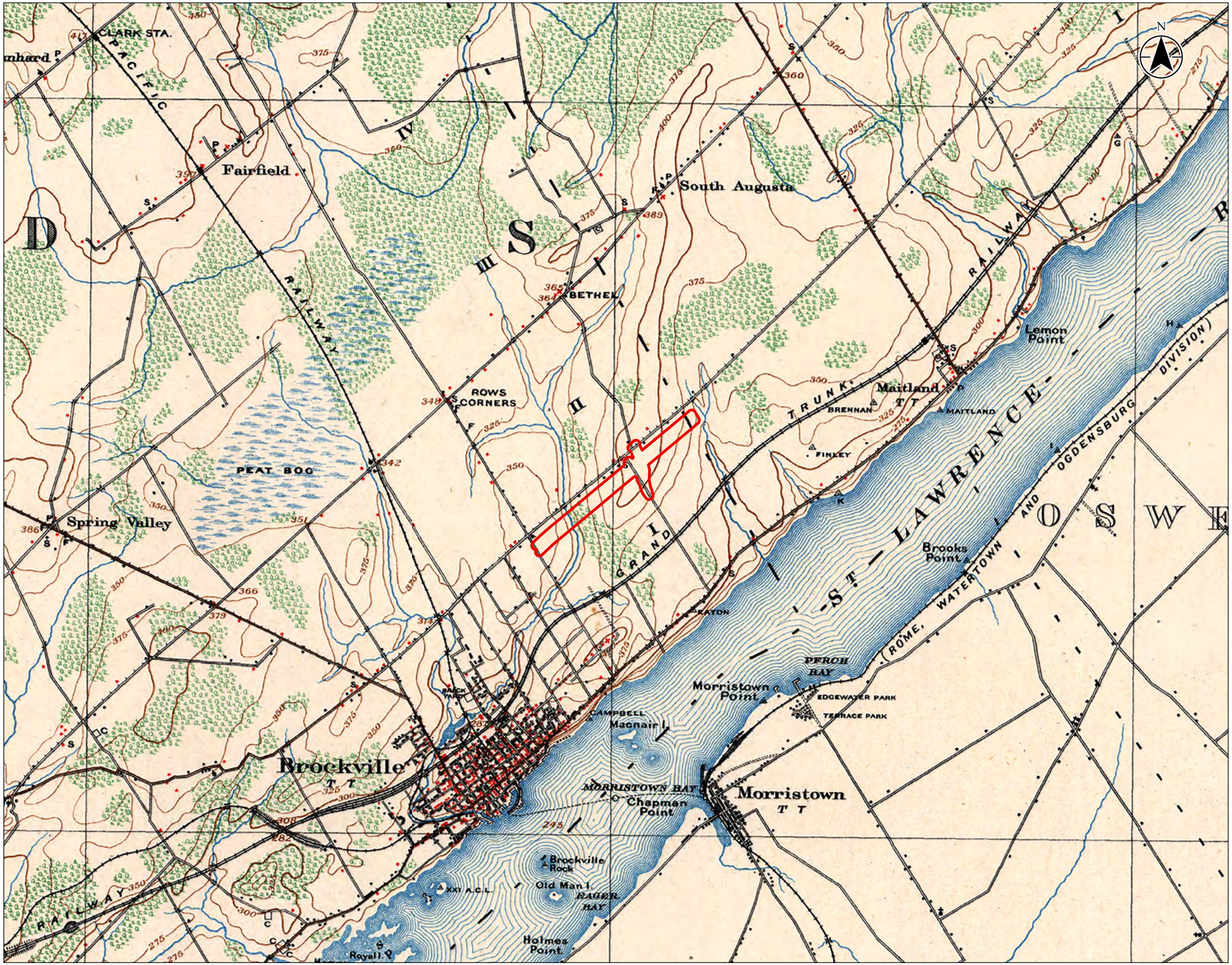
Ministry of Transportation
Highway 401 Planning Study East of Brockville
(GWP 4111-22-00)

Figure No.

4

Title

Historical Mapping, 1879



Stantec

Legend

Study Area

NOT TO SCALE

Notes

1. Coordinate System:NAD 1983 UTM Zone 18N
2. Department of Militia and Defense. 1908. *Topographic Map, Mallorytown Sheet.* Department of Militia and Defense. 1908. Topographic
3. Department of Militia and Defense. 1908. *Topographic Map, Brockville Sheet.*

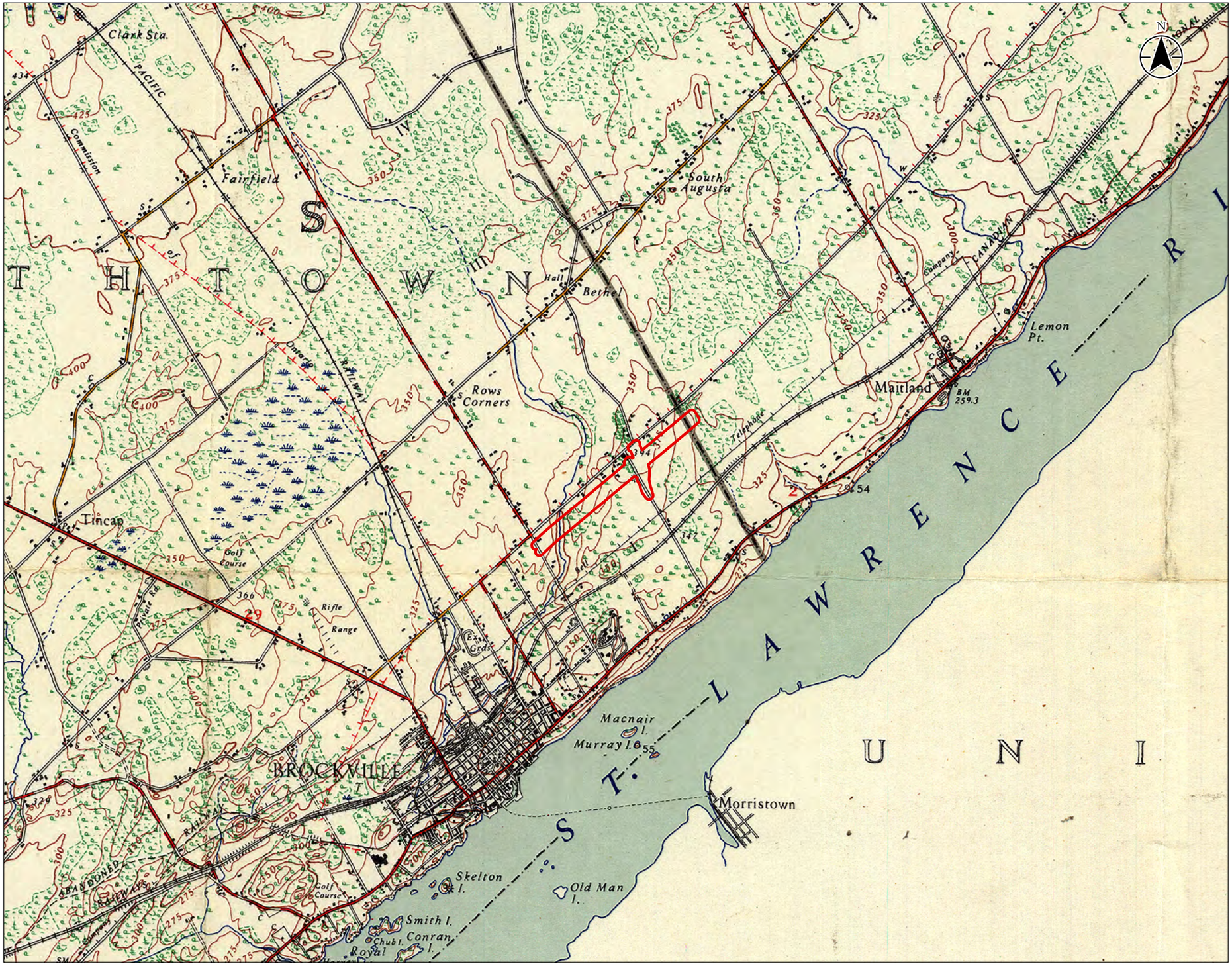
Project Location
United Counties of Leeds and Grenville

165001328 REVA
Prepared by HLONG on 2025-10-01
Technical Review by ABC on yyyy-mm-dd

Client/Project
Ministry of Transportation
Highway 401 Planning Study East of Brockville (GWP 4111-22-00)

Figure No.
5

Title
Topographic Mapping, 1908



Stantec

Legend

Study Area

NOT TO SCALE

Notes

1. Coordinate System:NAD 1983 UTM Zone 18N
2. Department of Militia and Defense. 1940. *Topographic Map, Brockville Sheet.*

Project Location United Counties of Leeds and Grenville	165001328 REVA Prepared by HLONG on 2025-10-01 Technical Review by ABC on yyyy-mm-dd

Client/Project

Ministry of Transportation
Highway 401 Planning Study East of Brockville
(GWP 4111-22-00)

Figure No.

6

Title

Topographic Mapping, 1940

3.3 Data Collection and Community Input

3.3.1 Data Collection

To identify previously identified BHRs or CHLs, the MCM, OHT, the Township of Elizabethtown-Kitley and City of Brockville were contacted. The results of the information request are presented in Table 1.

Table 1 Agency and Municipal Request Results

Agency	Contact	Results
MCM	Karla Barboza, Team Lead, Heritage	Not aware of provincial heritage properties located within the Study Area.
OHT	Sammy Bayefsky, Real Property Coordinator	One identified – former Brockville Psychiatric Hospital in the Township of Elizabethtown-Kitley 1209 County Rd 2, Brockville, ON. Based on review, this property is not located near the Study Area.
Township of Elizabethtown-Kitley	N/A (online form)	No response.
City of Brockville	N/A (online form)	No response

3.3.2 Community Input

Consultation with the general public and Indigenous communities was carried out as part of the broader EA process. No comments related to BHRs and CHLs were identified by Indigenous communities or the general public during the Study Commencement process. Should BHRs or CHLs be identified as the EA process continues, these findings will be incorporated into the report. A full compilation of comments received is contained in the *Highway 401 Planning Study east of Brockville, GWP 4111-22-00 Study Commencement Comments Package* and *Public Information Centre 1 Draft Summary Report* (Stantec 2024a; Stantec 2024b).

3.4 Identification of Known and Potential Built Heritage Resources and Cultural Heritage Landscapes

As described in Section 2.5, a windshield and pedestrian survey of the Study Area was undertaken to identify potential BHRs and CHLs within the Study Area. Where identified, the site was photographically documented from publicly accessible roadways, and its location was digitally recorded.

During the course of the survey, a total of 70 properties were identified as containing potential built heritage resources or cultural heritage landscapes based on the application of the 40-year threshold. Of these 70 properties, four properties were identified to have the potential for cultural heritage value or

interest (CHVI) based on a screening of the property based on the criteria of *O. Reg. 9/06*. These properties contain residences, barns, and farmsteads. No properties had been previously identified.

The Study Area is situated along Highway 401 within the City of Brockville and the Township of Elizabethtown- Kitley Highway. Highway 401 within the Study Area is a four-lane divided highway. The roadway is paved in asphalt and has asphalt shoulders (Photo 1).

In general, the character of the Study Area is residential with some rural areas. Most of the potential built heritage resources within of the Study Area are former mid-to late 19th century farmsteads converted to residential use and mid-20th century residences such as ranch and split-level style houses (Photo 2 and Photo 3). In general, the residences in this part of the Study Area are set on large lots and are surrounded by mature trees. While there are some farmsteads located within the Study Area, these properties have been altered over the years to support modern agricultural practices such as monoculture farming and are not considered cultural heritage landscapes (Photo 4 and Photo 5). The majority of the Study Area can be characterized as residential, and these structures are all situated close to one another and have a slight setback from the road.

Photo 1 Highway 401, looking west from Guild Road

Photo 2 Representative Mid- 20th century ranch style residence at 2831 Concession 2, looking southeast

Photo 3 Representative mid-20th century split-level residence at 2803 Concession 2, looking southeast

Photo 4 Representative photo of a new build farmhouse located at 2863 Concession 2

Photo 5 Representative photo of mid-to-late 19th century barns on farmstead at 2863 Concession 2

As described in Section 2.6 known and potential BHRs and CHLs were assessed based on the MCM *Criteria for Evaluating Potential for Built Heritage Resources and Cultural Heritage Landscapes* (MCM 2016) and the MCM *Standards and Guidelines for the Conservation of Provincial Heritage Properties* (MCM 2010), which was supplemented by historical research, field investigations, and professional judgement. If a property contained a known or potential BHR or CHL, it was assigned a number.

Following application of the screening criteria and identification of known BHRs and CHLs, four (4) potential BHRs were identified (Figure 7). An inventory of the potential and known BHRs and CHLs is provided in Table 2.

Table 2 Known and Potential Built Heritage Resources and Cultural Heritage Landscapes

Municipal Address	Type of Property	Heritage Recognition	Description of Known or Potential CHVI	BHR/CHL Number	Photograph
2801 Oxford Avenue	Residence	Identified during field review	This property contains a residence and a barn. The residence is a one and one half storey structure with a side facing gable roof clad in asphalt shingles. The exterior of the residence is clad in painted brick and contains some segmental arch window openings with rectangular replacement windows and some wood sash windows. The foundation of the residence is stone. The barn has a gable roof structure clad in metal and an exterior clad in wood. Both the residence and barn were likely built between 1860 and 1890. The residence contains potential design or physical value as a representative example of a mid-to-late 19th century Ontario vernacular structure. The barn has potential design or physical value as a representative mid-to-late 19th century gable roofed barn.	BHR-1	 
2863 Concession 2	Residence	Identified during field review	This property contains a residence, a barn, and two outbuildings. The residence was built between 2015 and 2018 while the barn and outbuildings were likely built between 1900 and 1910. The residence is a contemporary one and one half storey structure with a multi gable roof clad in asphalt shingles. The exterior of the residence is clad in siding and angel brick and contains replacement windows. The foundation is poured concrete. The residence does not have potential heritage value. The barn has a gambrel roof clad in metal and the exterior is clad in wood; the foundation is obscured. The outbuildings are also clad in wood with painted blue trim. The barn has potential design or physical value as a representative gambrel roofed barn.	BHR-2	

Municipal Address	Type of Property	Heritage Recognition	Description of Known or Potential CHVI	BHR/CHL Number	Photograph
					
2905 Concession 2	Residence	Identified during field review	This property contains a residence and an outbuilding. The residence is a one and one half storey structure with a side facing gable roof clad in metal. The exterior of the residence is clad in siding and contains rectangular window openings with replacement windows. The foundation is obscured. The residence was likely constructed between 1840 and 1890. The residence has potential design or physical value as a representative example of a mid to late 19th century Ontario vernacular structure.	BHR-3	
2923 Concession 2	Residence	Identified during field review	This property contains a residence. The residence is a one and one half storey structure with a red brick chimney. The side gable roof is clad in asphalt shingles. The exterior of the residence is clad in siding and contains rectangular window openings with replacement windows. The foundation is poured concrete. The residence was likely constructed between 1830 and 1890. The residence contains potential design or physical value as a representative example of a mid to late 19th century Ontario vernacular structure.	BHR-4	

3.5 Transportation Structures within the Study Area

Transportation structures within the Study Area, including one bridge and one culvert, were screened by MTO's Regional Structural Engineers using the MTO *Bridge Screening Form* and MTO *Structural Culvert Screening Form.* None of the transportation structures within the Study Area were determined to contain CHVI. As a result, none of the transportation structures within the Study Area require further cultural heritage assessment. The results of the screening are summarized in Table 3.

Table 3 Transportation Structure Screening Summary

Bridge/Culvert Name	Bridge/Culvert Site Number	Year Built	Screening Results
Butler Creek Culvert	16X-0238/C0	1959	Low potential for CHVI identified
Sharpes Lane Underpass	16X-0125/B0	1967	Low potential for CHVI identified

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Legend

- Built Heritage Resource
- Study Area
- Railway
- Watercourse (Permanent)
- Municipal Boundary - Lower Tier
- Property Boundary

0 250 500 Meters

1:10,000 (At original document size of 11x17)

Notes

1. Coordinate System:NAD 1983 UTM Zone 18N
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2023.

Project Location
United Counties of Leeds and Grenville

165001328 REVA
Prepared by HLONG on 2025-10-01
Technical Review by ABC on yyyy-mm-dd

Client/Project
Ministry of Transportation
Highway 401 Planning Study East of Brockville
(GWP 4111-22-00)

Figure No.
7

Title
Potential Built Heritage and Cultural Heritage Landscapes

\\ca0224-ppfss01\work_group\01650\active\165001328\preliminary\gis\Maps\Heritage\ReportFigures\1328_4111_Heritage_Figures_CHRAR.aprx\1328_4111_HER_CHRAR_Fig07_BHR_CHL Revised: 2025-10-01 By: HLONG

4 Preliminary Impact Assessment

4.1 Description of Proposed Undertaking

The proposed work includes the replacement and rehabilitation of one bridge and one culvert along Highway 401 bridges and culverts, and identifying the future Highway 401 footprint for an interim six lanes and ultimate eight lanes, from 0.75 km east of North Augusta Road to 3.3 km west of Maitland Road (approximately 2.6 km). This includes structures and intersections on Highway 401 including the Sharpes Lane underpass and the Butler Creek Culvert. The replacement of the Butler Creek Culvert is proposed as part of the project. Three alternatives for the realignment and ultimate replacement of the Sharpes Lane Underpass are proposed. The Butler Creek Culvert and the Sharpes Lane Underpass are not located within the vicinity of an identified BHR or CHL, and as such an alternative analysis is not required as the potential for impacts is the same within each alternative. These alternatives are depicted in Appendix B and specific information related to the alternatives is included in Appendix C.

4.2 Identification of Preliminary Potential Project Specific Impacts and Proposed Mitigation Measures

Table 4 contains an assessment of potential impacts. Potential impacts of the proposed undertaking were evaluated in accordance with MCM's *Info Bulletin 3* (see Section 2.7). Within Table 4, the term Project Location refers to the MTO RoW and the footprint of all proposed alternatives.

Table 4 Preliminary Impact Assessment and Mitigation Measures

Reference Number	Location	Resource Type	Type and Description of Potential/Anticipated Impact	Proposed Mitigation and Next Steps
BHR-1	2801 Oxford Avenue	Residence	**Vibration Damage:** The property is located 42m north of the Highway 401 alignment. However, construction activities associated with replacement of the Butler Creek Culvert are proposed a minimum of 350m east of the structure. Construction activities associated with the realignment and replacement of the Sharpes Lane Underpass are located 1500m east of the structure. Therefore, the property is not at risk of direct or indirect impacts from the replacement of the Butler Creek Culvert or from the replacement of the Sharpes Lane Underpass. Where the future expansion of Highway 401 is proposed, vibration monitoring may be required.	**Preferred Approach:** Establish a 50 metre buffer zone around the BHR to mitigate vibration risks to the property. **Alternative Option:** If a buffer zone cannot be established, a pre-construction vibration monitoring assessment by a qualified engineer is recommended in order to determine if vibration monitoring is required.
BHR-2	2863 Concession 2	Residence	**No Direct or Indirect Impacts Anticipated:** The property is located 120m north of the Highway 401 alignment. Construction activities associated with replacement of the Butler Creek Culvert are proposed more than 1000m west of the structure. Construction activities associated with the realignment and replacement of the Sharpes Lane Underpass are located 250m east of the structure. Therefore, the property is not at risk of direct or indirect impacts and no mitigation measures or further cultural heritage studies are required.	Continued avoidance is recommended.
BHR-3	2905 Concession 2	Residence	**No Direct or Indirect Impacts Anticipated:** The property is located 135m north of the Highway 401 alignment. Construction activities associated with replacement of the Butler Creek Culvert are proposed a more than 1000m west of the structure. Construction activities associated with the realignment and replacement of the Sharpes Lane Underpass are located 450m west of the structure. Therefore, the property is not at risk of direct or indirect impacts and no mitigation measures or further cultural heritage studies are required.	Continued avoidance is recommended.
BHR-4	2921 Concession 2	Residence	**No Direct or Indirect Impacts Anticipated:** The property is located 138m north of the Highway 401 alignment. Construction activities associated with replacement of the Butler Creek Culvert are proposed a more than 1000m west of the structure. Construction activities associated with the realignment and replacement of the Sharpes Lane Underpass are located 130m west of the structure. Therefore, the property is not at risk of direct or indirect impacts and no mitigation measures or further cultural heritage studies are required.	Continued avoidance is recommended.

4.2.1 Summary of Impacts

Following an assessment of impacts in Table 4, potential indirect impacts were identified for BHR-1 (2801 Oxford Avenue). This resource is located adjacent to the Highway 401 right of way. The resource is potentially subject to vibration impacts caused by land disturbances as a result of the future widening of Highway 401.

For potential impacts from vibration, the Preferred Approach is to avoid indirect impacts by establishing a buffer zone around the BHRs and CHL to avoid construction activity within 50 metres. This should use appropriate preventive measures such as mapping on construction maps or plans and temporary fencing. Staging and laydown areas should also be non-invasive and avoid the BHR.

If the 50-metre buffer cannot be avoided, the alternative option to mitigate this risk is for a qualified building condition specialist or engineer to develop a strategy to carry out condition surveys and vibration monitoring, where required. The pre-condition survey may include screening activities to identify critical properties and determine appropriate vibration levels based on structure type, age, and condition. Vibration monitoring may consist of random confirmatory vibration monitoring during construction at the most critical properties. A post-condition survey should be carried out on an as-needed basis to be determined by a qualified building condition specialist or engineer.

5 Recommendations

Based on a review of the proposed alternatives for the replacement of the Butler Creek Culver and Sharpe's Lane underpass, all three alternatives will result in no direct or indirect impacts to potential built heritage resources or cultural heritage landscapes as part of the project. The future widening of Highway 401 for an interim six lanes and ultimate eight lanes may result in potential indirect impacts to BHR-1 (2801 Oxford Avenue).

For potential impacts from vibration, the Preferred Option is to avoid indirect impacts by establishing a buffer zone around the BHR to avoid construction activity within 50 metres. This should use appropriate preventive measures such as mapping on construction maps or plans and temporary fencing. Staging and laydown areas should also be non-invasive and avoid the BHR. Where avoidance is not feasible, the alternative option should be applied.

If the 50-metre buffer cannot be avoided, the alternative option to mitigate this risk is for a qualified building condition specialist or engineer to develop a strategy to carry out condition surveys and vibration monitoring, where required. The pre-condition survey may include screening activities to identify critical properties and determine appropriate vibration levels based on structure type, age, and condition. Vibration monitoring may consist of random confirmatory vibration monitoring during construction at the most critical properties. A post-condition survey should be carried out on an as-needed basis to be determined by a qualified building condition specialist or engineer.

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Appendices

Appendix A Project Personnel Biographies

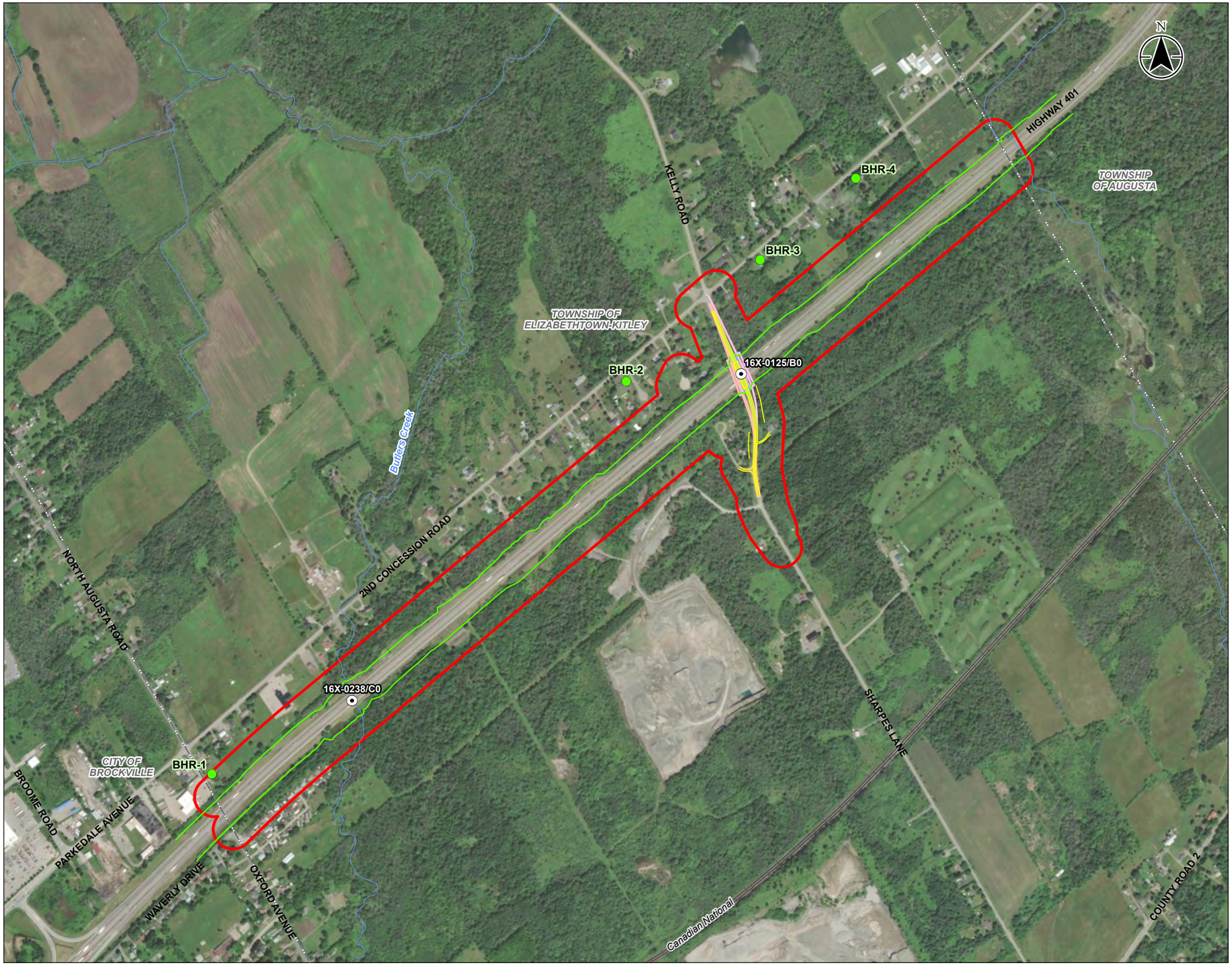
Christian Giansante, CAHP: Christian Giansante is a Cultural Heritage Consultant with Stantec. Christian has gathered significant experience working with federal heritage buildings across Canada through a variety of complex projects ranging from restoration to rehabilitation. He has regularly participated in design workshops for proposed projects at heritage buildings; conducted thorough reviews of proposed designs and has provided recommendations for how to best implement projects into historic buildings through the completion of Heritage Impact Assessment and Strategic Conservation Plans. Christian has worked closely federal, provincial, and municipal heritage groups and various consultants engaged on projects. He has also managed and created heritage guidance documents and technical conservation briefs for facilities management teams at heritage buildings; he has completed archival research on historic buildings including gathering historic photos, plans, specifications; and he has also created and managed an inventory of cultural properties (artwork, artefacts, etc.). Christian appreciates taking the time to understand a place and its story to try and preserve its character while making it viable for contemporary use. Christian received his Bachelor of Engineering in Architectural Conservation and Sustainability from Carleton University. The program was based in civil engineering studies with additional focus placed on design, heritage conservation, adaptability and sustainable construction. Specialized courses include Building Science, Historic Site Recording and Assessment, Green Building Design, Architectural Technology, and Urban Planning.

Julia Richards, MA: Julia brings over five years experience in the fields of history and heritage in a variety of roles; history education, youth and community engagement, and museum exhibits. Her research interests in university centred around women's and gender history - especially fashion history which is an extremely interesting area to analyze - as well as ancient Greek and Egyptian history. As a Cultural Heritage Specialist, Julia is responsible for performing research and analysis to determine heritage value on a variety of projects, utilizing several criteria including architecture styles, occupancy history, and history of the property.

Lashia Jones, MA, CAHP: Lashia Jones is a Senior Cultural Heritage Specialist and member of Stantec's Environmental Services Team, with experience in identifying, evaluating and planning for cultural heritage resources. Ms. Jones is a member of the Canadian Association of Heritage Professionals, and has a Master's Degree in Canadian Studies from Carleton University, specializing in Heritage Conservation. Ms. Jones has worked for both public and private sector clients, providing a variety of cultural heritage services including heritage impact assessments, cultural heritage evaluations, inventories of cultural heritage resources, heritage conservation districts, heritage master plans, conservation plans and cultural heritage bridge evaluations. Ms. Jones is well versed with local, provincial and national tools for the identification, evaluation and planning best practices for cultural heritage resources, including the Ontario Heritage Act, Provincial Policy Statement, Planning Act, Environmental Assessment Act, Ontario Heritage Tool Kit, Standards and Guidelines for the Conservation of Provincial Heritage Properties and the Standards and Guidelines for the Conservation of Historic Places in Canada. Lashia's role on various project types has given her experience in public engagement and consultation, constructive dialogue with clients, heritage committees, local councils and multi-disciplinary project teams.

Meaghan Rivard, MA, CAHP: Meaghan Rivard is Stantec's Senior Heritage Consultant with experience in the identification, evaluation, and documentation of heritage resources as well as expertise in the environmental assessment process as it pertains to heritage resources. Ms. Rivard is a member of the Canadian Association of Heritage Professionals and works across disciplines in a variety of settings from municipal conservation planning to transportation infrastructure and environmental assessments. Ms. Rivard has experience managing and executing all aspects of Cultural Heritage Evaluation Reports (CHERs), Cultural Heritage Assessment Reports (CHARs), Heritage Impact Assessments (HIAs), Strategic Conservation Plans (SCPs), and Documentation and Salvage Reports, among others. She has assessed more than 2,500 properties as part of windshield surveys and directed large scale inventory work across the province working under various classed environmental assessments (EAs). In addition to EA related work, Meaghan continues to be actively involved in the assessment of individual properties. Here she utilizes knowledge in the identification, evaluation, and documentation of heritage resources alongside expertise in the assessment of proposed change and preparation of options to mitigate negative impacts on heritage resources. Meaghan is focused on regulatory satisfaction balanced with an admiration for the heritage of our province.

Appendix B Alternative Mapping



Stantec

Legend

- Built Heritage Resource
- MTO Structure
- Railway
- Watercourse (Permanent)
- Study Area
- Municipal Boundary - Lower Tier

Alternative Design

- Alternative 1
- Alternative 1 - Preferred
- Alternative 2
- Alternative 3
- Highway 401 - Grading

0 250 500 Meters

1:10,000 (At original document size of 11x17)

Notes

1. Coordinate System:NAD 1983 UTM Zone 18N
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2023.

Project Location
United Counties of Leeds and Grenville

165001328 REVA
Prepared by HLONG on 2025-10-01
Technical Review by JWH on 2025-06-26

Client/Project
Ministry of Transportation
Highway 401 Planning Study East of Brockville (GWP 4111-22-00)

Figure No.
Appendix B

Title
Preferred Design and Alternative Designs

Revised: 2025-10-01 By: HLONG

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Appendix C Alternatives Discussion

S Sharpe's Lane

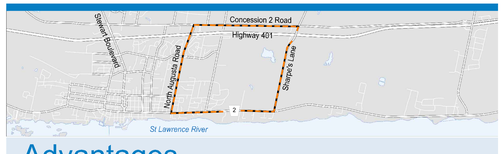
Bridge Improvement Alternatives

LEGEND
- New Roadway
- New Structure
- Property Required
- Limit of Existing MTO Right-of-way

100 m
1:2000

1 Replace on existing alignment

Bridge closed with detour

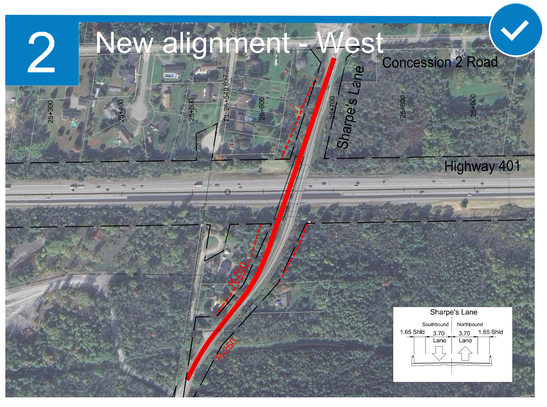


Advantages
- Retains existing alignment of Sharpe's Lane
- Less property required compared to Alternatives 2 and 3
- Faster method of construction compared to staged construction with single lane
- Lower construction staging cost compared to keeping bridge open during construction

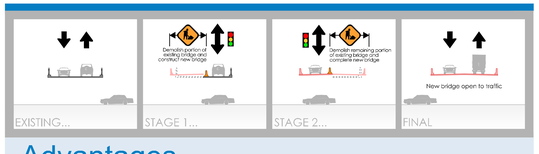
Disadvantages
- Impacts 2 hydro poles
- Introduces up to 8 km of travel for traffic to cross Highway 401 via detour route

Note: The final detour route will be confirmed in consultation with the affected municipalities.

2 New alignment - West



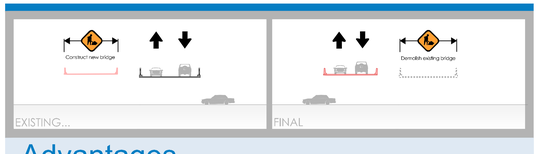
Bridge open with single lane



Advantages
- Retains existing alignment of Sharpe's Lane
- Maintains access across Highway 401 during construction
- Less property required compared to Alternatives 2 and 3

Disadvantages
- Impacts 2 hydro poles
- Minor traffic delays due to single lane of traffic across the bridge during construction
- Longer construction duration compared to closing the bridge
- Higher construction staging cost compared to closing the bridge

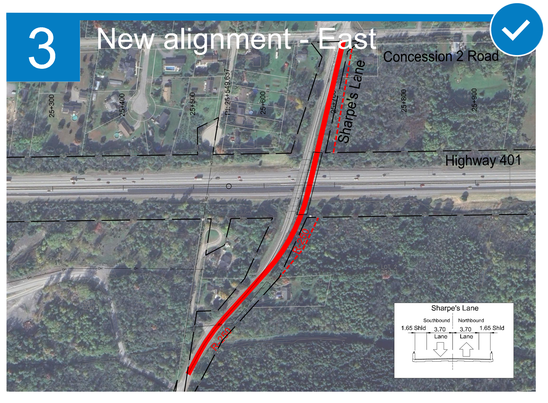
Bridge open with two lanes



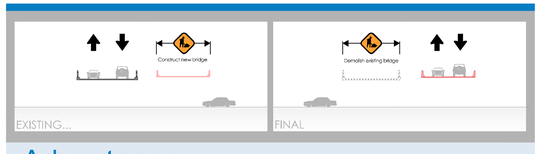
Advantages
- Maintains access across Highway 401 during construction with minimal impacts to traffic
- Similar construction duration as closing the bridge
- Similar construction staging cost as closing the bridge
- No hydro pole impacts

Disadvantages
- Requires alignment shift on Sharpe's Lane
- Requires more property compared to Alternatives 1 and 3
- Significantly higher cost compared to replacing on existing alignment

3 New alignment - East



Bridge open with two lanes



Advantages
- Maintains access across Highway 401 during construction with minimal impacts to traffic
- Similar construction duration as closing the bridge
- Similar construction staging cost as closing the bridge

Disadvantages
- Requires alignment shift on Sharpe's Lane
- Results in undesirable horizontal curve on bridge
- Requires more property compared to Alternative 1
- Impacts 3 hydro poles
- Significantly higher cost compared to replacing on existing alignment

A range of alternatives for replacing this bridge have been developed. A preliminary screening has been carried out to identify the alternatives that should be carried forward for further consideration.

Carried-forward

Screened-out

Do Nothing

Disadvantages
- Does not accommodate short-term or long-term structure needs