University Drive Bridge Class Environmental Assessment
Environmental Study Report

September 2026

Submitted by:

BT Engineering Inc. and
Entuitive - Joint Venture

509 Talbot Street
London, ON N6A 2S5
519-672-2222

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EXECUTIVE SUMMARY

E-1 INTRODUCTION

A Class Environmental Assessment (EA) Study has been completed to develop a bridge management plan for the University Drive Bridge crossing the North Branch of the Thames River.

This Study considered how to provide a structure that can address the active and vehicular transportation requirements of a growing campus, while respecting the 100-year-old landmark character of the existing bridge which frames the view to the Middlesex Memorial Tower at University College that is a key feature of Western University.

The project completed all phases of the approved Municipal Class EA process (completed meeting requirements of the2023 Class EA) by establishing the need and justification for the project, considering all alternatives and proactively involving the public in developing a Recommended Plan for improvements.

E-1.1 Problem and Opportunity Statement

Problem: The existing bridge is nearing the end of its service life as a vehicular bridge and has insufficient width to suitably accommodate the number of vehicles, pedestrians and cyclists. The EA considered a range of improvement alternatives to address the University's transportation requirements as well as the character of the bridge that is synonymous with Western University's campus collegiate gothic style of architecture.

Opportunity: This Study developed an active transportation focused Recommended Plan that can be integrated with the University's Campus Development Strategy, Open Space Strategy and ongoing campus development.

E-1.2 Study Area

The Study Area is illustrated on **Figure E-1,** is located on the Western University Campus and incudes the University Drive Bridge over the North Branch of the Thames River and adjacent areas. In addition, the study area consultation zone was broadened to include a reach out to the community upstream and downstream of the project.

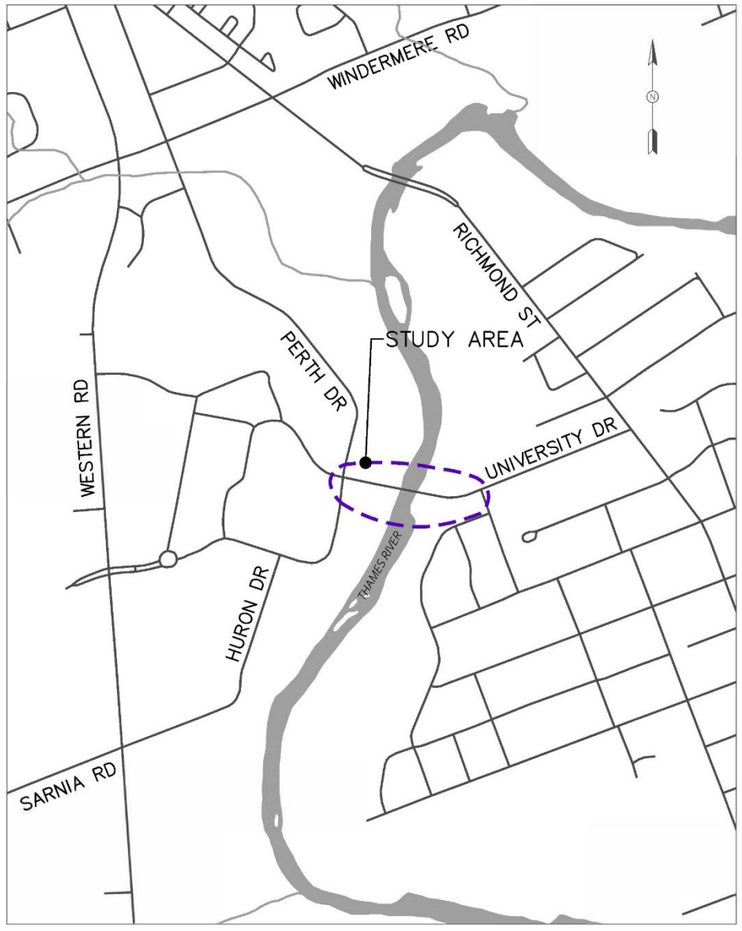


Figure E-1: Study Area

E-1.3 Municipal Class Environmental Assessment (EA) Process

This project was undertaken in accordance with the Provincial EA Act following the "Municipal Class Environmental Assessment" (MCEA) (initiated under the 2015 Class EA and finished under the 2023 Class EA) process, refer to **Figure E-2**. This document specifies the procedures required to plan specific road projects according to an approved planning process. The EA reflects the University Bridge planning for a Schedule C undertaking of a new structure under the jurisdiction of the University of Western.

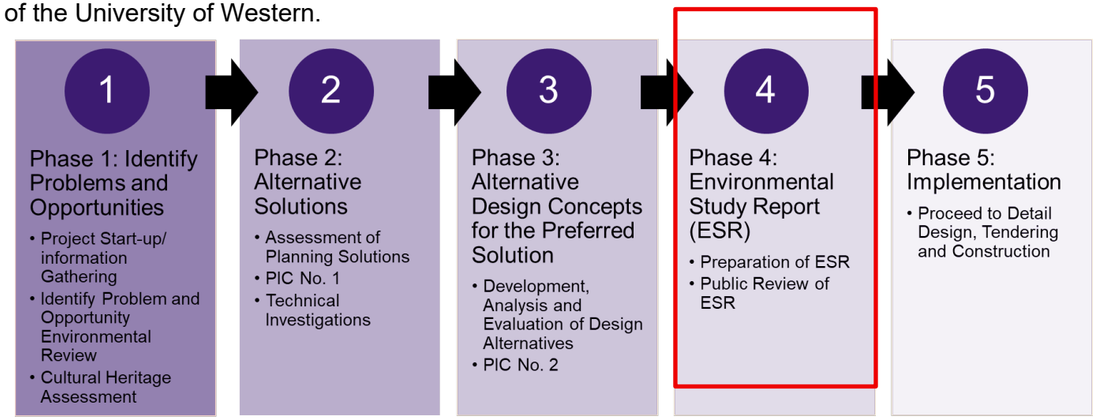


Figure E-2:Municipal Class Environmental Assessment (Class EA) Process

The MCEA process was undertaken in a series of phases commencing with problem identification and culminating in the filing of this Environmental Study Report (ESR). This process includes an evaluation of all reasonable alternatives and the selection of a preferred alternative(s) with acceptable effects (including avoidance and mitigation of any residual adverse effects) on the natural cultural and social environments.

The MCEA process entails five phases:

Phase 1: Identify the Problem

Phase 2: Alternative Solutions

Phase 3: Alternative Design Concepts for the Preferred Solution

Phase 4: ESR

Phase 5: Implementation (included Detailed Design, Tender and Construction phases)

E-2 CONSULTATION

E-2.1 Public and Agency Consultation

The public consultation approach used several techniques to proactively involve the public. The study was carried out in consultation with staff from Western University, external agencies, stakeholders and the public.

The EA process included circulating a draft Study Design Report describing the proposed methodology for the MCEA at the start of the study. The draft Study Design Report was circulated to external agencies. The final Study Design Report is included in **Appendix A**. The Study Design Report circulation was completed as a discretionary public consultation, Step 1.2 of the MCEA Planning and Design Process.

Two Public Information Centres (PICs) were held during the study to present the project, the assessment of alternatives and the Technically Preferred Plan (TPP). These meetings were an integral component of the study – seeking input and comments from the local community/stakeholders. As a result, the following community issues were raised during the Study:

- Support for maintaining the current Collegiate Gothic bridge;
- Prioritizing active transportation;
- Support for the technical recommendation to designate the existing bridge for pedestrians and cyclists only;
- Concern for loss of parking in the Talbot Lot; and
- Some members of the public suggested limiting non-emergency vehicular access across the new bridge.

E-2.2 Indigenous Peoples Engagement

Western University is located in the "Dish With One Spoon Treaty" territory which is the ancestral territory of the Anishinaabek, Haudenosaunee, Lŭnaapèewak and Chonnonton Nations.

Indigenous Peoples engagement was also undertaken as part of the study. The Indigenous Consultation between the Study Team and the respective individual Indigenous communities and their responses/ requests was tracked. A separate spreadsheet has been created for field visits of Indigenous communities requesting to be involved. The engagement included an invitation to the Stage 2 archaeological site visit with Oneida Nation Council of Chiefs, Chippewas of the Thames First Nation, Caldwell First Nation, Aamjiwnaang First Nation, Chippewas of Kettle and Stony Point First Nation, Munsee-Delaware Nation, Oneida Nation of the Thames, Walpole Island First Nation. The Aamjiwnaang First Nation and Oneida of the Thames were present during the Stage 2 fieldwork. Western respects that this engagement is a Nation-to-Nation contact with Western representing the Crown. Indigenous Peoples are Rights Holders and are separate and distinct from public stakeholders.

All Indigenous communities that may have an interest in this Study were sent notification for the Project Initiation, two PICs, review of the archaeology reports, attendance of the Stage 2 field

work and Notice of Study Completion. Indigenous engagement will continue to be updated and tracked into and during the next phases of Detail Design and construction regarding their notification of future permits that have the potential to affect their interests. Western commits to continued information sharing with the Aamjiwnaang First Nation and Oneida of the Thames who have identified an interest in the project through their participation in the Archaeological Assessment work. No other First Nation community identified themselves during the consultations to date.

E-3 ANALYSIS AND EVALUATION

The evaluation of alternatives was completed in a two-step process. The initial step was to consider Alternative Planning Solutions, which included:

1. Do Nothing and continue to post the bridge to limit large vehicular traffic
2. Rehabilitate Existing Bridge
3. New Bridge on the Existing Alignment
    A. New Signature Structure on the Existing Alignment
    B. New Historic Reimagination Structure on the Existing Alignment
4. New Bridge on a New Alignment
    A. New Bridge and Abandonment/Demolition of Existing Structure
    B. Conserve Existing Bridge and Twin with a New Structure

Based on the preliminary review of Alternative Planning Solutions, Alternative 4B was carried forward. There was strong support from the public at PIC 1 for this approach.

Alternative 4B: Conserve and Twin with a new structure is recommended as the preferred Alternative Planning Solution and carried forward to Phase 3 of the EA. Conservation of the existing structure and construction of a new bridge on an adjacent alignment will:

- Better accommodate active transportation, improving safety following a Complete Streets approach with separated space for each mode of travel, leading to the center of Western's campus.
- Create an opportunity for gathering and engaging with the Thames River, Deshkan Ziibi.
- Maintain a gateway into campus and compliment the view to the University Middlesex Memorial Tower.
- Follow conservation best practices for the existing structure.
- Accommodate a growing student population on the east side of the campus.

E-3.1 Generation, Analysis and Evaluation of Preliminary Design Alternatives

The Preliminary Design Alternatives considered in Phase 3 of the EA were categorized under 3 groups:

1) Bridge Alignment Alternatives (new bridge to the north or south of the existing bridge)
2) Structural Alternatives (steel and concrete bridge types)
3) Hydraulic Alternatives (alternative bridge length and spans)

These alternatives were presented to the public at the Public Information Centres (PIC's) and were expanded based on comments received from the public and authorities. Alternatives are described in **Section 4.0**.

The Project Team participated in and reviewed the analysis and evaluation for all alternatives. The Technically Preferred Alternative (TPA) was presented to the public at PIC No. 2.

E-4 RECOMMENDED PLAN

Following PIC No.2, the TPA was subject to refinements based on community input as described in **Section 5.0**. The University Bridge Management Recommended Plan includes:

- South bridge alignment is recommended to be carried forward.
    - Exhibits the best transportation characteristics and minimizes the impacts to the natural, cultural and social environments, land use and property and is anticipated to have a lower cost.
    - Will reduce impacts to the existing infrastructure as well as a Species at Risk (SAR), Kentucky Coffeetree, found at the existing bridge's northwest abutment.

See **Figure E-3** and **Figure E-4**.

- The Concrete Arch bridge is recommended as the Recommended bridge design. This alternative has visual characteristics consistent with existing bridge architectural features, minimizes the risk of ice impacts, and has less riverbank trail impacts. See **Figure E-5** and **Figure E-6.** Aspects of Recommended Plan include:
    - The bridge design criteria is to provide a minimum 100-year service life
    - The Concrete Arch was selected as the preferred hydraulic alternative
    - Span: 127 m, with a main span of 65 m and no pier in the channel.
    - The proposed concrete arch bridge results in no change to water levels, except for localized effects immediately upstream and downstream of the structure. These localized effects are generally confined to University-owned lands, and no impacts to adjacent private property are anticipated.
    - The results of the hydraulic analysis were reviewed and accepted by the Upper Thames River Conservation Authority (UTRCA).
    - Private property owners immediately upstream and downstream of the proposed bridge have been contacted, meeting a condition of the UTRCA review.
    - The public were given the opportunity to offer feedback during the consultation process which will be documented as part of this EA.

- West side features of the Recommended Plan:
  - Realigning University Drive, to the south, eliminates the major vehicle–pedestrian conflicts.
  - The proposed intersection would provide improved safety and allow priority to be given to pedestrians (raised crosswalk and protected signal phasing).
  - The existing intersection operates at Level of Service (LOS[1]) B/C for motorists during peak hours.
  - During the pm peak hour, the LOS for motorists would improve from C to B with the proposed intersection.
  - More significantly, the LOS for pedestrian movements crossing Lambton/Perth Drive would improve from D to A.
  - The Talbot parking lot that provides parking for the Faculty of Music and all of their events will be maintained, and the parking layout has been reviewed to minimize the loss of spaces. The entrance will be adjusted to provide AODA accessibility cross Lambton Drive with a PXO and a raised crosswalk.
  - An extended drop-off zone in front of the Talbot College will also be provided.
- East side features of the Recommended Plan:
  - University Drive and Sunset Drive intersection will have a raised crosswalk.
  - Thames Valley Parkway will be extended under the new bridge and connect to Sunset Drive and the Parkway.
  - Augment traffic calming features for vehicles on campus roadways.
- Existing bridge modifications include the following:
  - Active transportation-focused uses;
  - Separated space for each mode of travel, leading to Western's University College hill.
  - Opportunity for gathering and engaging with the river; and
  - Maintains a gateway into campus and compliment the view to the University Middlesex Memorial Tower.
- Existing City of London multi use path, known as the Thames Valley Parkway (TVP) will be maintained under the bridges with connections to University Drive, Sunset Drive and The Parkway.

Refer to **Figure E-7**.

E-4.1 Statement of Flexibility

The Recommended Plan contains key features with flexibility for refinements during the design phase including:

- Engage Westerns Office of Indigenous Initiatives to invite local Nations to participate in commemorating indigenous past and present stewardship of the lands and the waterway, and vital contributors of our society through co-development of naming, cultural elements, and interpretive features.
- Investigate additional delineation to further separate the movement of pedestrians and cyclist and measures to deter j-walking across the realigned University Drive from the TVP to the south.
- Review additional opportunities to delineate between the movement of pedestrians and cyclists.
- Identify TVP detour routes.
- Potential to extend the Lambton Drive cycle tracks to Huron Drive as part of a future project.
- Potential variations to the drop off area for the Talbot College which has arrivals and departures that include the drop off or pick up of large musical instruments.

[1] Level of Service are measures of the quality of traffic operations at the intersection ranging from LOS A depicting free flow conditions to LOS F depicting congested conditions with significant delays and queuing.

[2] MTO Heritage Bridge Guidelines (Interim) – Jan 11, 2008

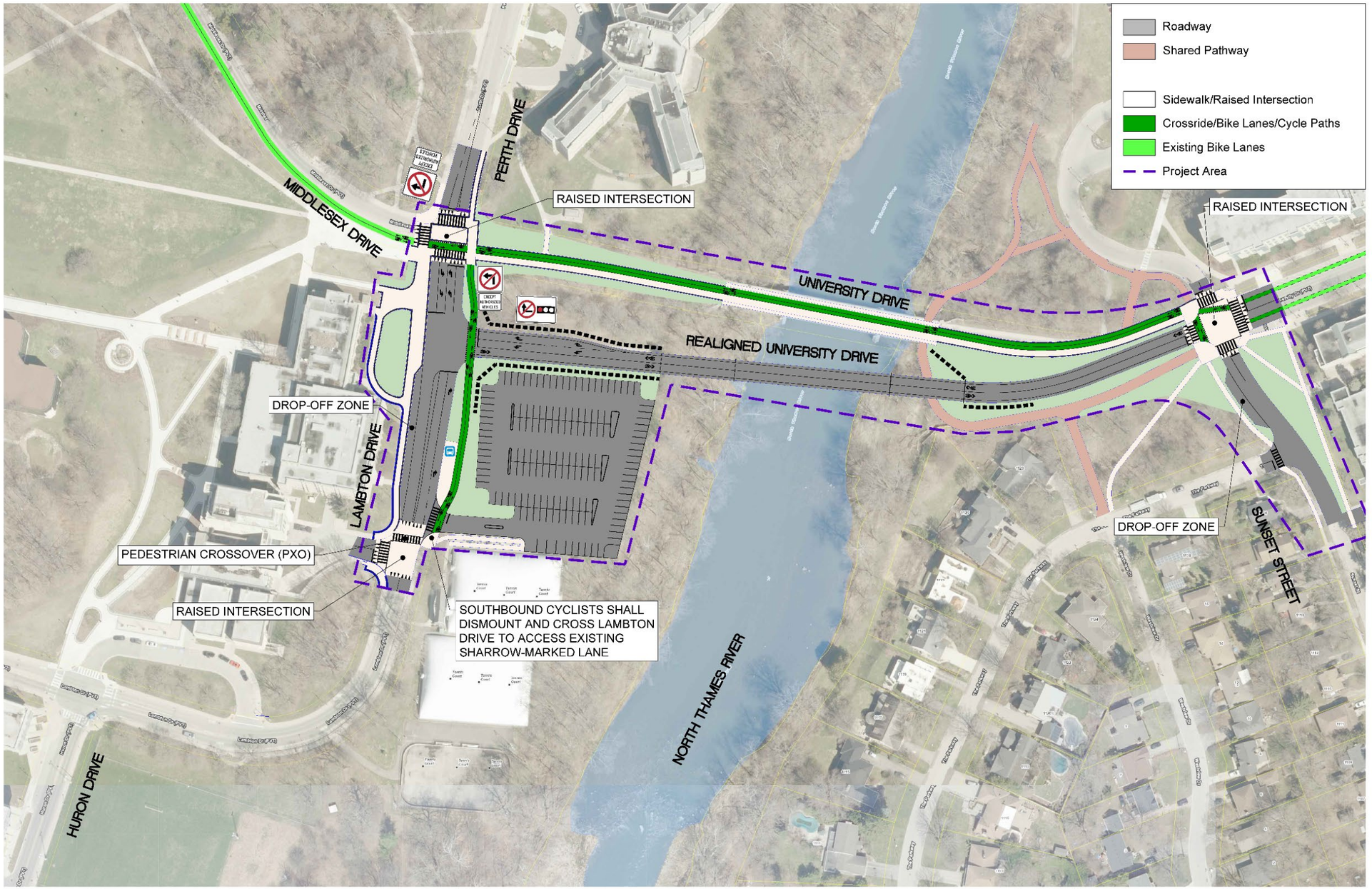


Figure E-3: Recommended Plan

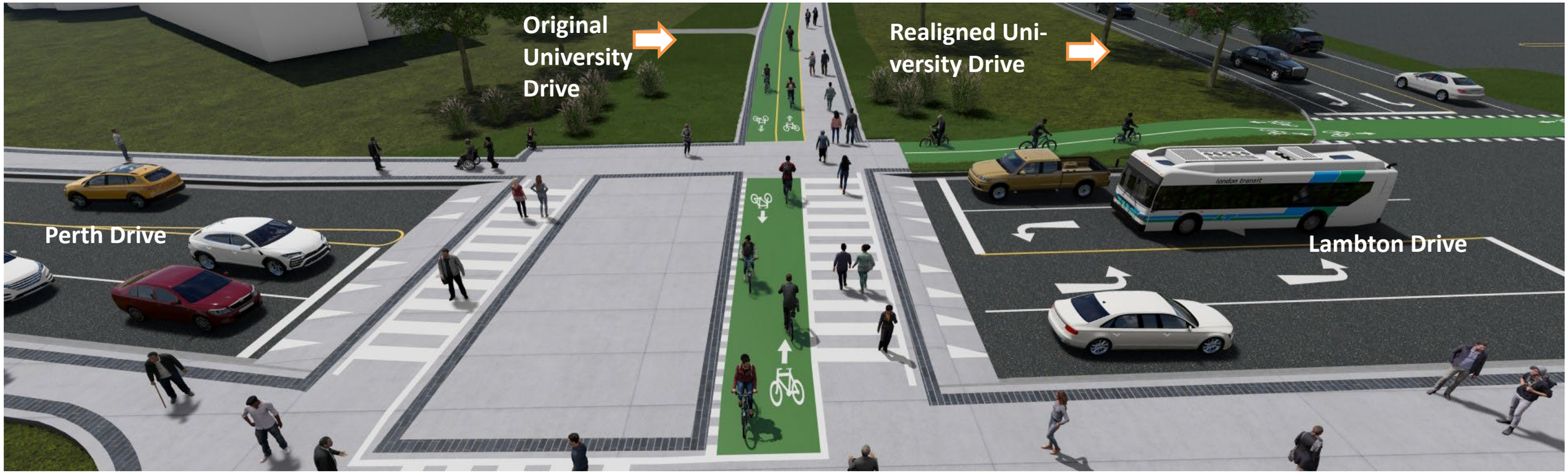
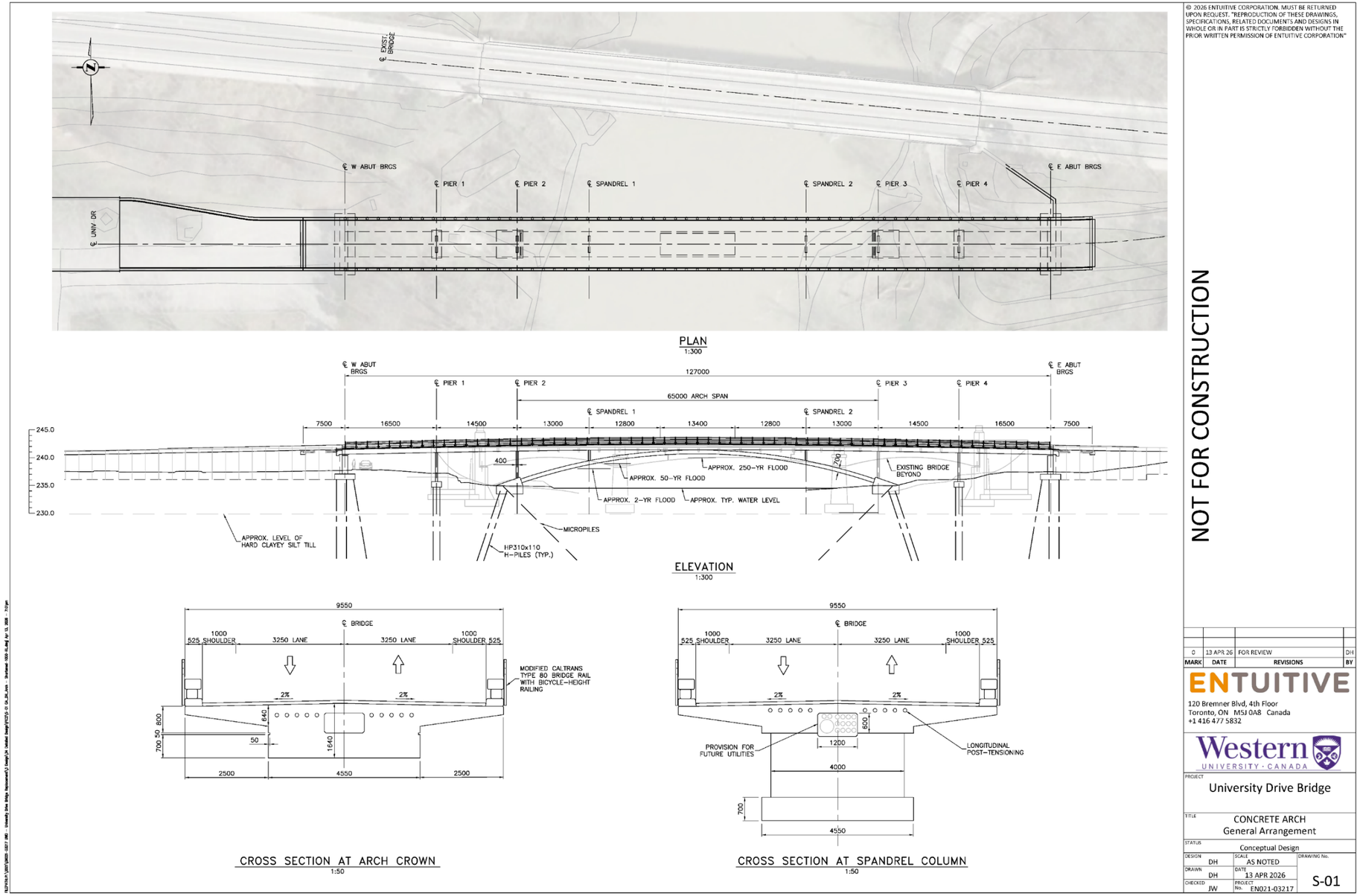


Figure E-4: Rendering of Recommended Realignment of University Drive

Figure E-5: Recommended Bridge



NOT FOR CONSTRUCTION

MARK	DATE	REVISIONS	BY
0	13 APR 26	FOR REVIEW	DH

ENTUITIVE
120 Bremner Blvd, 4th Floor
Toronto, ON M5J 0A8 Canada
+1 416 477 5832

Western UNIVERSITY · CANADA

PROJECT: University Drive Bridge

TITLE: CONCRETE ARCH
General Arrangement

STATUS: Conceptual Design

DESIGN	SCALE	DRAWING No.
DH	AS NOTED	S-01
DRAWN: DH	DATE: 13 APR 2026	
CHECKED: JW	PROJECT No.: EN021-03217	

Figure E-6: Recommended Structure General Arrangement Drawing

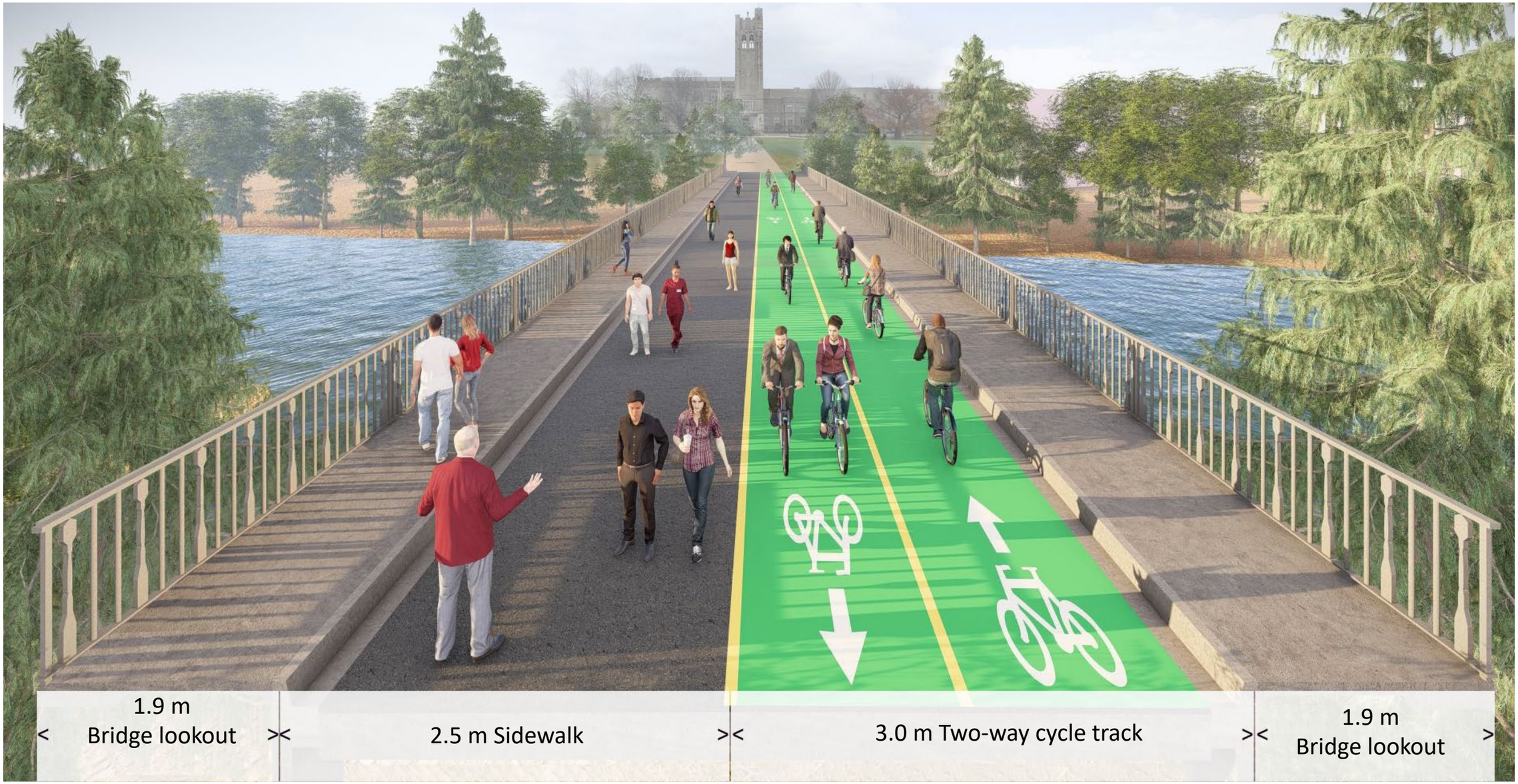


Figure E-7: Existing Bridge Active Transportation Repurposing Improvements

1.0 INTRODUCTION

Western University (Western) has completed a Class Environmental Assessment (EA) Study for improvements to the University Drive Bridge located across the north branch of the Thames River, Deshkan Ziibi, in London, Ontario. The existing bridge is near the end of its service life for vehicular traffic and Western will define a plan for the Thames River crossing. This Study was conducted as a Municipal Schedule C Class Environmental Assessment Study meeting the requirements of the Municipal Class Environmental Assessment (initiated under the 2015 Class EA and finished under the 2023 Class EA). The study culminated in the filing of this Environmental Study Report (ESR) with the Ministry of the Environment, Conservation and Parks (MECP).

1.1 Study Area

The Study Area is located on Western University's campus in London, Ontario and is illustrated in **Figure 1**. The EA Study has also considered effects of the project beyond the limits of the campus. This has included assessment of any changes in water levels during storm events as well as traffic diversion on the wider City of London transportation network, should restrictions be implemented that restrict public vehicular access across the University Drive Bridge on campus. These traffic restrictions occur today when required by the University,

1.2 Study Background

The University Drive Bridge was constructed in the early 1920's in the Collegiate Gothic style which is also reflected in the architectural detailing of buildings on campus. In particular, the limestone masonry of the bridge maintains a material connection to the campus buildings. There is also a need to provide additional space on the bridge to accommodate active modes of transportation (pedestrian and non-motorized bicycles) per the initiatives detailed in Western's Open Space Strategy (2018, and superseded June 2026).

Major rehabilitation of the existing bridge is required to meet current standards for vehicle weight and lane widths.

The University Drive Bridge is an important access link within Westerns campus and is a prominent feature of the University, providing an entry gateway to the West side of campus across the North Branch of the Thames River. This study will evaluate a range of alternatives to address improvements to the University Drive Bridge and will document the decision-making process as part of the Class Environmental Assessment (EA).

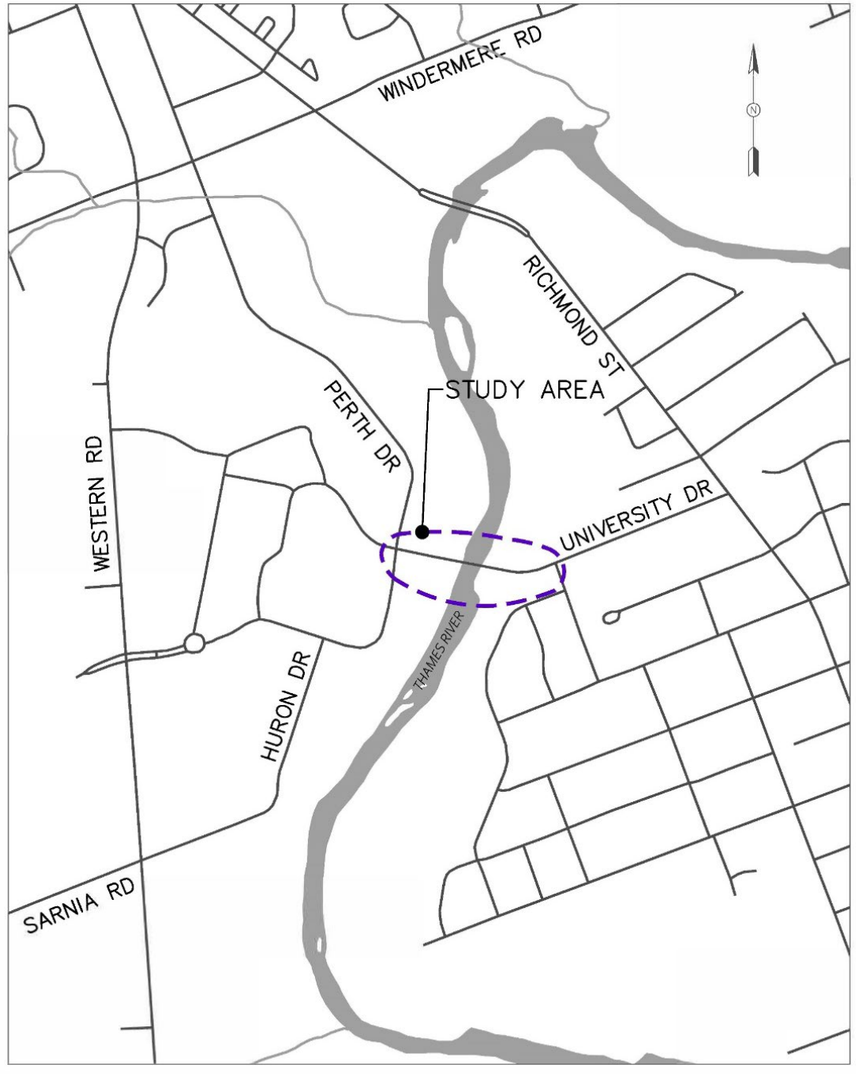


Figure 1: Study Area

1.3 Existing Bridge

The existing University Bridge was initially constructed in 1922. The structure is a steel girder bridge with the girders shaped to provide an arch profile. The exterior faces of the girders are concealed with a concrete facing that was part of the original construction. The girders are continuous over the piers with bearings at the abutments and at each side of the central drop-in span.

The bridge was modified and repaired over the years from 1965 to 2014 with a major modification to widen the useable sidewalk width and replace part of the deck in 2002.

A detailed inspection of the structure, including a load evaluation, was completed in 2016 titled University Drive Bridge Structural Assessment, prepared for Western University by Webster Engineering Services Ltd. in association with Parsons Inc. dated January 16, 2016. This report indicated that the structure was experiencing severe deficiencies in the bearings and drop-in-span support locations. The remaining fatigue life of the bridge structure was identified as “undefined” due to unobservable details, although no fatigue cracking was noted as being observed.

The capacity of the bridge was confirmed by a load test conducted on March 28, 2016 under the observation of Webster Engineering Services Ltd. using a 60-tonne GVWR test vehicle. The test indicated that the load could be supported, and the results were used to confirm the posting limit of the bridge at that time.

Bracing repairs were undertaken in 2016 to correct identified critical member loss conditions. Additional rehabilitation was undertaken in 2019. The abutment and drop-in span bearings were replaced and the hinge at the drop-in-span support was extensively reinforced. Minor concrete repairs were also undertaken.

Inspection reports completed in 2019, 2020, 2021 and 2022 indicated the current condition of the bridge and the need for continued load restrictions for vehicular traffic. Further inspections completed during the EA by Entuitive identified the need for structural repairs to be completed within the 5-year horizon.

The bridge remains open to restricted traffic and is subject to continued inspections.

1.4 Problem and Opportunity Statement

The University Drive Bridge over the North Branch of the Thames River was one of the first structures constructed on the Western University campus in the early 1920’s. Over the past 102 years, this structure has become an icon, synonymous with Western University’s campus gothic style of architecture. The original bridge opening is illustrated in **Photo 1**.

Photo 1: Original Bridge Opening

The structure is nearing the end of its service life for vehicular traffic. The plan has considered a range of alternatives to conserve architectural elements of the existing bridge while also achieving the University’s transportation requirements over a future life span of 100 years. These conservation alternatives include[2]:

1. Retention of existing bridge with no major modifications undertaken;
2. Restoration of missing or deteriorated elements where physical or documentary evidence (e.g. photographs or drawings) exist for their design;
3. Rehabilitation of the existing bridge with sympathetic modification;
4. Retention of existing bridge with sympathetically designed new structure in proximity;
5. Rehabilitation of the existing bridge for active transportation plus construction of a new bridge for vehicular traffic;
6. Retention of bridge as a monument for viewing purposes only;
7. Relocation of smaller, lighter single span bridge to an appropriate new site for continued use (see 4) or adaptive re-use (see 5); and
8. Bridge removal and replacement with a sympathetically designed structure.

The current structure (bridge) deck has been modified from its original cross section to accommodate and serve the increased volumes of active transportation in the form of pedestrians, cyclists and road users in the form of vehicles. The vehicular traffic crossing this bridge has destinations both within the Western campus and beyond. A significant volume of traffic through the University today does not need to travel through the campus to access other destinations in greater

[2] MTO Heritage Bridge Guidelines (Interim) – Jan 11, 2008

London. A previous Western study determined that approximately 40% of the vehicular traffic crossing the bridge is comprised of trips external to Western, i.e. cut through traffic.

The Campus Development Strategy (2026) encourages sustainable modes of travel throughout the campus (transit, walking, and cycling) and identifies the need for future transportation infrastructure to accommodate Western's planned growth. Reducing vehicular traffic and trips not required to travel through the campus is a goal outlined in the Toward Western at 150, Western University Strategic Plan (2021).

The problem statement was summarized as:

"Improvements to the University Drive bridge are required to safely and reliably accommodate all modes of transportation. The existing bridge is nearing the end of its service life as a vehicular bridge and requires significant repairs. This Class Environmental Assessment will consider a range of improvement alternatives to address the University's transportation requirements while respecting the character of the iconic image of the bridge and the Middlesex Memorial Tower at University College that is synonymous with Western University."

Photo 2 illustrates the view of University Hill and the Middlesex Memorial Tower west of the bridge.

Photo 2: View of University Hill and Middlesex Memorial Tower from the Bridge

2.0 STUDY PROCESS

This Study was conducted as a Schedule C EA Study for replacement of the University Drive bridge over the North Branch of the Thames River, meeting the requirements of the Municipal Class Environmental Assessment (MCEA) (initiated under the amended 2015 Class EA and finished under the 2023 Class EA). The study concludes with the filing of this Environmental Study Report that meets the requirements of Schedule C EA Study.

This Study has completed all requirements under the MCEA process by establishing the need and justification for the project, considering all reasonable alternatives with acceptable effects on the natural, social and cultural environments, and proactively involving the public in defining a Recommended Plan.

2.1 Guiding Principles

The MCEA is an approved planning document that defines groups of projects and activities and the EA processes which Western is committed to follow. The process provides a decision-making framework for effectively meeting the requirements of the *Environmental Assessment Act*.

The study approach reflects the following Ministry of the Environment, Conservation and Parks (MECP) guiding principles for EA studies which are found in the MCEA (Amended 2023):

- Consider all reasonable alternatives.
- Provide a comprehensive assessment of the environment.
- Utilize a systematic and traceable evaluation of net effects.
- Undertake a comprehensive public consultation program.
- Provide clear and concise documentation of the decision-making process and the public consultation program.
- Documentation and “bump-up” principles and processes.
- Environmental clearance processes.

The approved MCEA process is extensive, with significant consultation and outreach to agencies and the public.

2.2 Environmental Assessment Act Requirements

The EA Study followed the MCEA process, thereby meeting the requirements of the Municipal Engineer Association’s MCEA (Amended 2015 and 2023). The Study was initiated as a Schedule C EA based on the range on anticipated effects and capital cost of the project.

The EA included two Public Information Centres (PICs) and concluded with the preparation of this Environmental Study Report. Following this approach, the public will be provided with a 30-day review period to review the Study’s conclusions.

The initial step in the MCEA process, was the preparation of a Draft Study Design Report (SDR) that was made available to the regulatory agencies for comment. This satisfies discretionary Step 1.2 of the MCEA process. A breakdown of the steps to complete the Schedule C Class EA are shown in **Figure 2.**

2.3 Consultation Program

Over the course of the Study, input was solicited from the public, stakeholders, agencies and Rights Holders (Indigenous Communities). Input was collected through meetings, the project website, and discussions/communication with interested parties. The Study approach was to work collaboratively with interested parties to address issues and reach a consensus on the preferred design.

The following sections provide a summary of the consultation activities held during the Study.

2.3.1 Notices

Notices for the Study were advertised on the Western website www.uwo.ca/fm/projects/capital_projects/ud_bridge.html, mailed/emailed to the project contact list, and published as follows:

Notice of Study Commencement

- London Free Press – Saturday August 20, 2022
- Emails/Letters/Flyers – Monday, August 22, 2022

Notice of Public Information Centre No. 1

- London Free Press – Wednesday, November 9, 2022 and Saturday, November 12 2022
- Emails/Letters/Flyers – Week of November 7, 2022

Notice of Public Information Centre No. 2

- London Free Press – Wednesday, May 6, 2026 and Saturday, May 9 2026
- Emails/Letters/Flyers – Week of April 29, 2026

Notice of Study Completion

- London Free Press – Wednesday, September 16, 2026 and Saturday, September 19, 2026
- Emails/Letters/Flyers – Week of September 14, 2026.

Notices were mailed to adjacent property owners and business owners within the Study Area. Additional notices were also hand-delivered to a group of properties located in closest proximity to the bridge. In total, approximately 232 individual letters were distributed to adjacent property owners, agencies and stakeholders for each PIC.

See **Appendix B** for copies of the study notices. **Appendix C** includes Indigenous Peoples consultation correspondence. **Appendix D** includes select correspondence received from interested individuals, ministries and agencies.

EXHIBIT A.2. MUNICIPAL CLASS EA PLANNING AND DESIGN PROCESS NOTE: This flow chart is to be read in conjunction with Part A of the MCEA

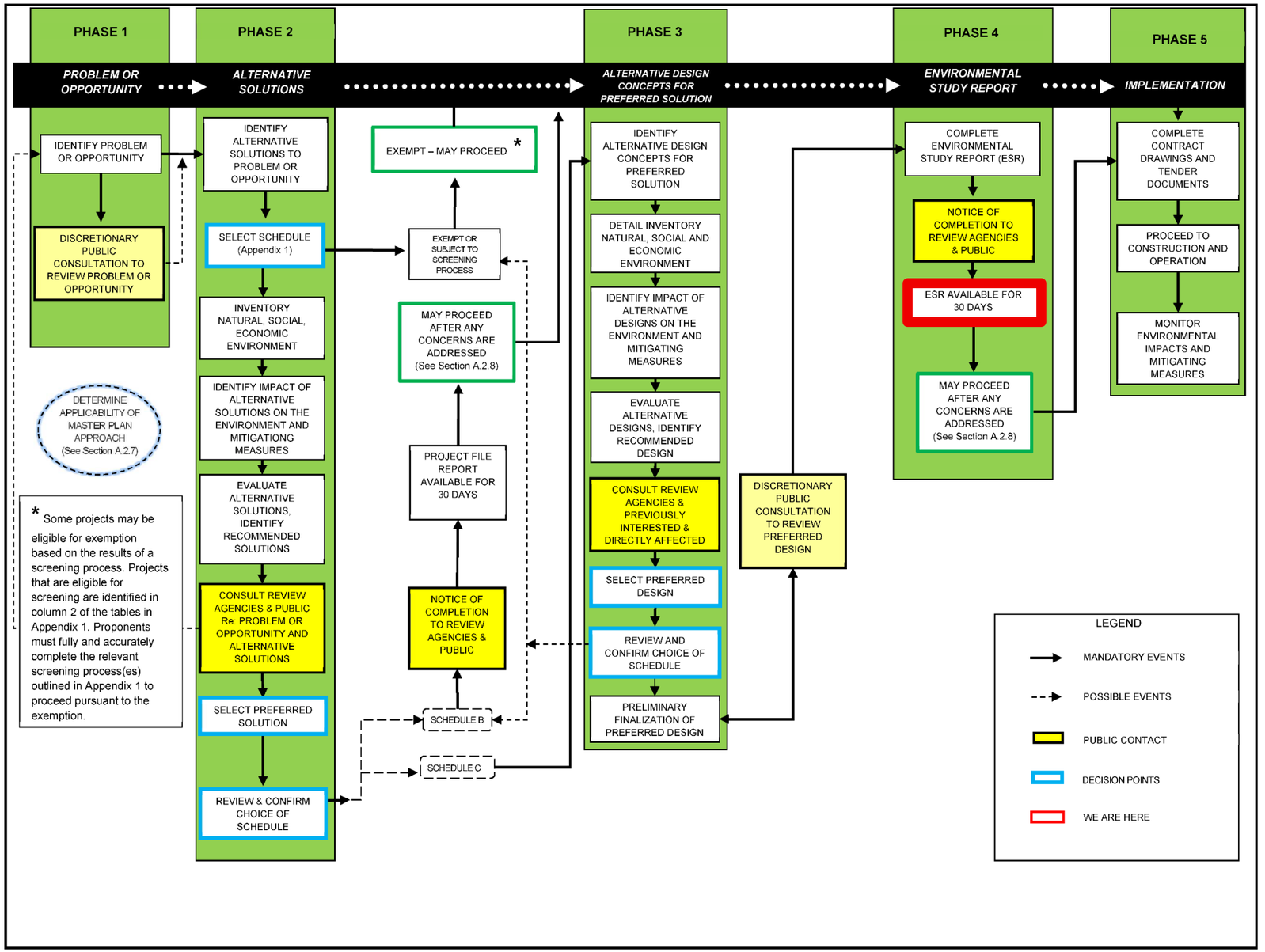


Figure 2: MCEA Process

2.3.2 Contact List

A public/agency mailing list was developed at the start of the Study and was updated throughout the duration. The following sections identify the stakeholders, agencies and communities contacted.

2.3.3 Stakeholder Consultation

All agencies or groups that may have had an interest in the project or any documentation to contribute to the Study were contacted at the start of the EA for their input. The following ministries, agencies and stakeholders were invited to attend the public meetings:

Federal Agencies

- Fisheries and Oceans Canada
- Transport Canada

Provincial Agencies

- Ministry of Environment, Conservation, and Parks
- Ministry of Natural Resources
- Ministry of Indigenous Affairs
- Ministry of Municipal Affairs and Housing
- Ministry of Northern Development, Mines, Natural Resources and Forestry
- Ministry of Citizenship and Multiculturalism
- Ministry of Tourism, Culture and Sport

2.3.4 Indigenous Peoples Consultation

Western has a constitutional duty to consult with Indigenous Communities with traditional land use or interests within the Study Area. Notices were sent to the Indigenous Communities within the vicinity of the Study Area notifying them of the Study start-up and key milestones. Those contacted included:

- Aamjiwnaang First Nation
- Bkejwanong Territory (Walpole Island First Nation)
- Chippewas of Kettle and Stony Point First Nation
- Chippewas of the Thames First Nation
- Caldwell First Nation
- Munsee-Delaware Nation
- Oneida Nation of the Thames
- Delaware Nation

Western has committed to keeping all Indigenous Communities updated on the progress of the study and invited Indigenous field monitors to participate during future environmental fieldwork. The Indigenous correspondence is found in **Appendix C**.

2.4 Public Information Centres

Two PICs were held during the Study to present the project, the assessment of alternatives and the Technically Preferred Plan (TPP). These meetings were an integral component of the Study – seeking input and comments from the local community/stakeholders. Public and agency representatives were encouraged to provide input/feedback. Western and consultant staff were available to respond to any verbal comments/questions at the online events and during the subsequent 2-week comment period.

See **Appendix B** for the PIC Summary Reports.

2.4.1 PIC No. 1

The first PIC for this study was held on November 15 to November 30, 2022. A virtual live presentation and questions and answers session was held on November 17, 2022, from 6:00 to 8:00 pm. The PIC No. 1 exhibits presented an overview of the MCEA process, background information, the need and justification of the study, alternative solutions, the project schedule, and next steps.

Forty-nine (49) people registered at PIC No. 1. Comments were received from those that participated in the PIC or who reviewed the exhibits online. Thirty-three (33) comment sheets were submitted at PIC No. 1 and during the subsequent two-week comment period.

The primary issues and concerns received from the PIC include:

- Respect Iconic Setting of Project
  - Ensure the existing bridge architecture matches the character of the University and original aesthetics.
  - Appreciation for the historical features (Collegiate Gothic style).
- Reduce Vehicular Use of the Bridge
  - Strongly support closure of the bridge to non-transit vehicles / non-emergency vehicles (non-campus vehicles).
  - Reduce vehicle traffic, ensure an active transportation safe road width.
- Accommodating Transit Service
  - Design the new twin bridge to support buses, potential future Light Rapid Transit System (LRT) or campus shuttles.
- Protection of the Environment
  - Protect Thames River - Deshkan Ziibi and surrounding ecological habitat (factor in winter salt use on the bridge).
  - Include information from the Citizen Science Data Collection report for records of Species at Risk (SAR).
  - Reiterate Western's commitment to being a leader in sustainability.
- Support for EA Recommendations
  - Support for the Conserve and Twinning bridge solution.
- Maintain Public Vehicular Access

  - Support not closing traffic access on the main artery bridge.
- Safety
  - Provide traffic signals / alert systems for pedestrians if there are oncoming emergency vehicles or buses approaching the bridge or the active transportation link to the Welcome Plaza.
- Create Drop-off Area at Sunset Drive
  - Designate / create passenger pickup/drop-off area between bridge and Richmond Street to the east.

2.4.2 PIC No. 2

The second PIC for this study was held on May 13 to May 27, 2026. A virtual live presentation and questions and answers session was held on May 13, 2026, from 1:00 to 3:00 pm. The PIC No. 2 exhibits presented mitigation findings, roadway and bridge design alternatives, the Technically Preferred Plan (TPP) and next steps.

Seventy-three (73) people registered at PIC No. 2. Comments were received from those that participated in the PIC or who reviewed the exhibits online. Twenty-five (25) comment sheets were submitted following PIC No. 2 during the subsequent two-week comment period.

The primary issues and concerns identified from discussion with the public include:

- Questions or comments regarding parking availability and access concerns;
- Comments or questions regarding pedestrian and cyclist safety, and requests for improved cycling and pedestrian connections.

3.0 EXISTING CONDITIONS

The existing conditions of the traffic and transportation, natural and cultural environment, socio-economic environment, and land use and property are described in this section.

3.1 Traffic and Transportation

University Drive carries an average two-way traffic volume of approximately 7,000 vehicles /day and is a major gateway to Western for vehicular traffic (personal vehicles, trucks and emergency services), pedestrians, cyclists and transit riders. Traffic volumes have been recorded at various locations within Western's Campus. The most recent count at the intersection of University Drive and Lambton/Perth Drives was recorded in November 2025 and a summary is provided in **Figure 3**. The highest traffic volumes were observed during the pm peak hour. A copy of the count is attached in **Appendix E**. The western leg of the intersection (Middlesex Drive) currently allows westbound traffic exiting the intersection. It is proposed that Middlesex Drive would remain one-way westbound but would be restricted to buses and University vehicles.

The intersection is focal point for Western with the total volume of pedestrians almost equal to the volume of vehicle traffic. Pedestrian safety is an issue of growing importance for Western and throughout the City of London. Observations at the existing intersection, as confirmed by the recorded traffic volumes, identify that the major movements for motorist crossing the University Drive structure are to and from the south (Lambton Drive). This is in direct conflict with the major movement of pedestrians. Realigning University Drive to the south would significantly reduce the potential conflicts between motorists and pedestrians as shown in **Figure 4**. The heavy westbound left-turn movement also conflicts with eastbound cyclists on Middlesex Drive. With no opposing motor vehicle traffic, left turning motorists are less aware of the opposing movement of cyclists. In an effort to help mitigate this, a sign was added to the intersection as shown in **Figure 5**.

There are no records of any collisions involving pedestrians or cyclists at the intersection and it is not possible to identify how many "close calls" might have occurred over the years at this location due to those existing conflicts. As the number of conflicts at an intersection (crossing paths of vehicles or vehicles/cyclists/pedestrians) increase in frequency the probability of collisions is increased.

At the intersection of University Drive and Sunset Drive, the existing turning movements were also recorded in November 2025. A summary of the pm peak hour volumes from those most recent traffic counts is provided in **Figure 6**.

3.2 Traffic Operations

An analysis of the existing intersection operations was completed using Synchro Version 11 as summarized in **Table 1**. Copies of the analysis reports are provided in **Appendix E**. The traffic operations were also examined by developing a micro-simulation of intersection operations during the critical pm peak hour period.

The existing intersection was found to be capable of operating at Level of Service (LOS) B for vehicle traffic during the AM and Mid-day peak hours and LOS C during the PM peak hour. However, a multi-modal level of service was examined for pedestrians. This identified that for pedestrian movements a LOS D is provided with the existing intersection configuration. Level of Service is a qualitative measure of the quality of traffic service based on factors such as travel time, maneuverability and delay and is graded on a scale from A to F. A LOS of A indicates low delay, and a LOS F reflects major delays (failure) and frequent back-ups. Most campus intersections would be expected to operate at a LOS B or C.

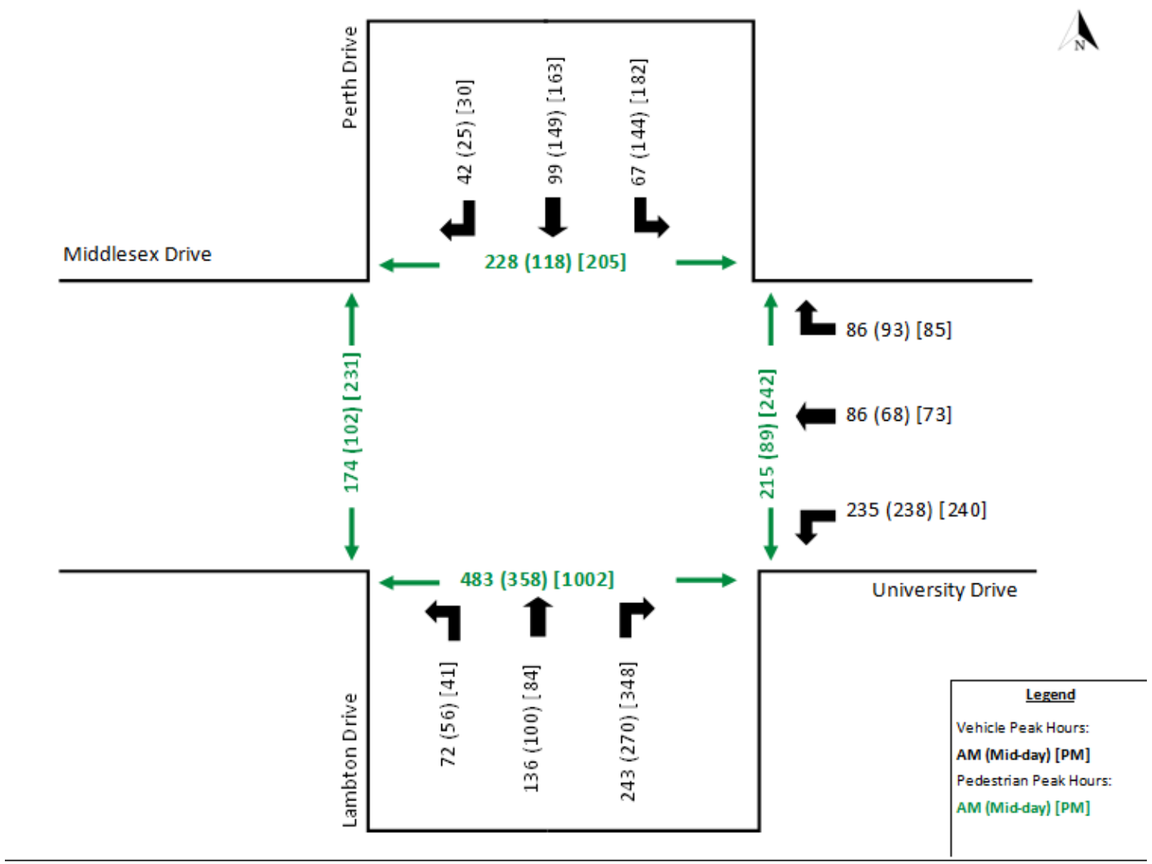


Figure 3: 2025 Peak Hour Traffic Demands

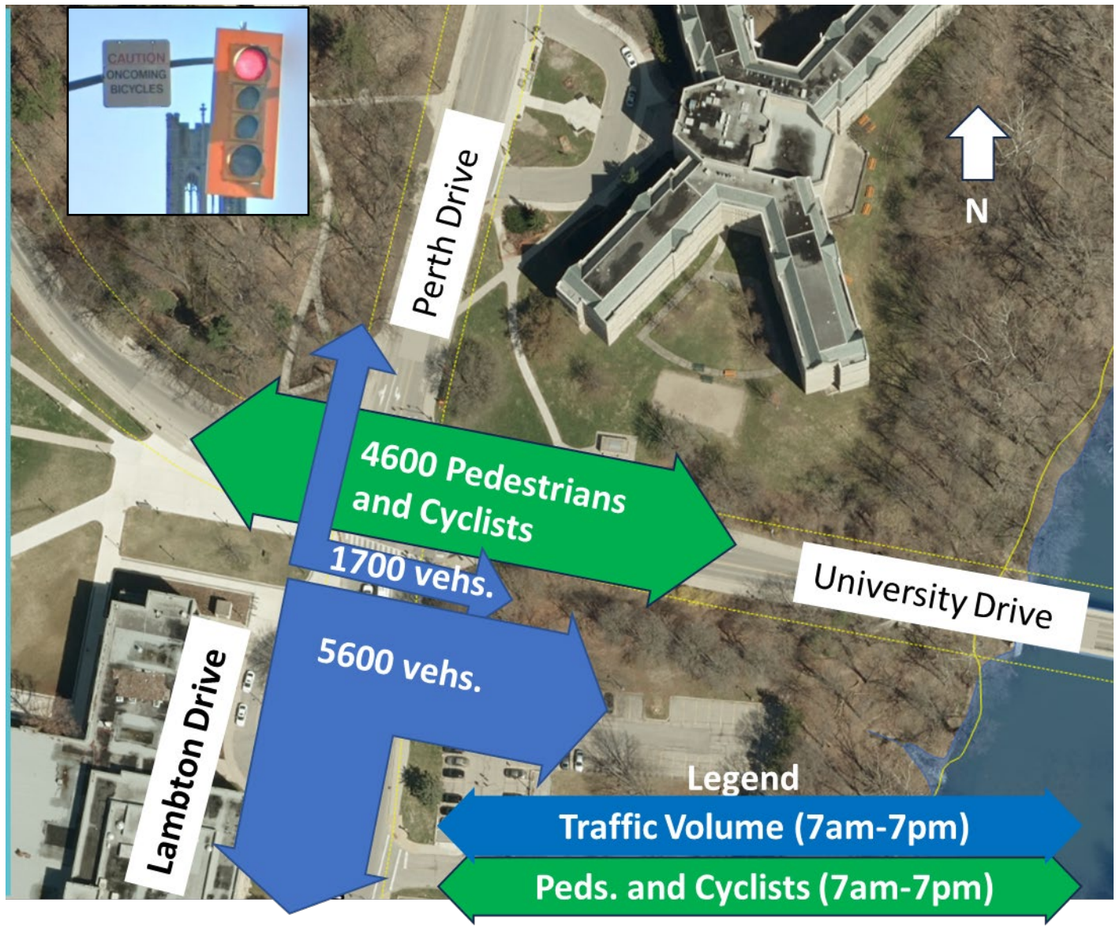


Figure 4: Major Traffic Movements (Total 12-hour volumes updated November 18, 2025)

Figure 5: Existing University Drive and Lambton/Perth/Middlesex Drive Intersection

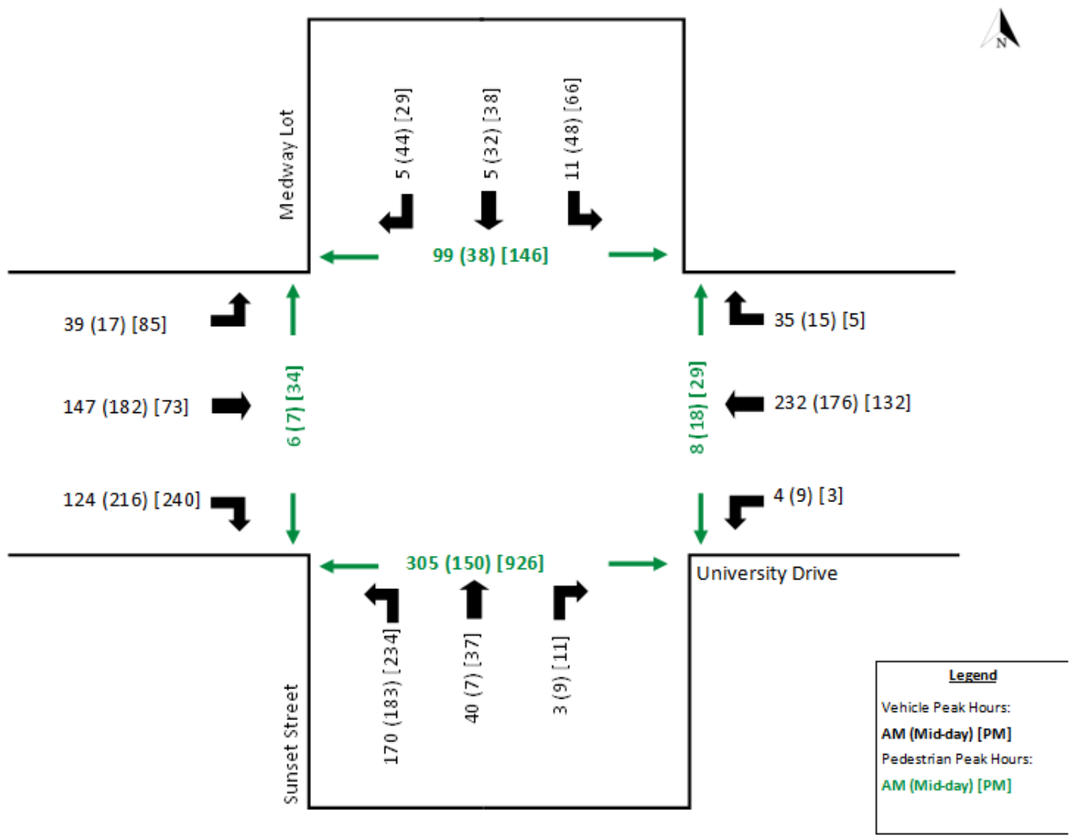


Figure 6: 2025 Peak Hour Traffic Demands (University Drive and Sunset Drive)

Table 1: Existing University Drive and Lambton/Perth Drive Intersection Operations

Time Period	Movement	V/C	Delay (s)	Vehicle LOS	95th % Queue (m)
AM Peak Hour	WBL	0.43	17.1	B	42.8
	WBTR	0.30	8.4	A	25.7
	NBL	0.23	30.1	C	19.9
	NBT	0.38	31.6	C	44.0
	NBR	0.65	9.2	A	25.0
	SBL	0.17	20.6	C	13.9
	SBTR	0.22	19.5	B	25.3
	Overall		16.2	B	
Mid-day Peak Hour	WBL	0.50	18.7	B	39.5
	WBTR	0.22	11.6	B	23.8
	NBL	0.23	30.6	C	19.2
	NBT	0.20	28.8	C	26.1
	NBR	0.59	9.6	A	21.8
	SBL	0.23	21.1	C	18.6
	SBTR	0.25	18.9	B	28.8
	Overall		13.8	B	
PM Peak Hour	WBL	0.80	33.0	C	#82.6
	WBTR	0.20	10.6	B	20.7
	NBL	0.17	30.5	C	15.4
	NBT	0.27	31.4	C	32.0
	NBR	0.70	11.7	B	28.9
	SBL	0.59	31.4	C	44.2
	SBTR	0.42	25.6	C	55.0
	Overall		23.8	C	

- 95th percentile volume exceeds capacity, queue may be longer

Reducing the conflicts that exist between vehicles and pedestrians with the existing intersection configuration by introducing a pedestrian only phase to the existing traffic signal operation (often referred to as a Pedestrian Scramble or a Barnes Dance) was considered and found to not be feasible with the existing intersection geometry. The addition of a protected pedestrian phase would reduce the capacity that would be available for vehicular traffic. An analysis of the critical PM peak hour, summarized in **Table 2**, found that the overall intersection operations would be reduced to LOS E and the existing demand would exceed the available roadway capacity for key vehicle movements at the intersection.

Table 2: University Drive and Lambton/Perth Drive Intersection Operations (with an exclusive Pedestrian Phase)

Time Period	Movement	V/C	Delay (s)	Vehicle LOS	95th Queue (m)
PM Peak Hour	WBL	1.13	128.7	F	#129.1
	WBTR	0.45	40.9	D	41.0
	NBL	0.17	32.3	C	15.4
	NBT	0.28	33.0	C	32.3
	NBR	1.08	111.6	F	#132.2
	SBL	0.48	27.1	C	43.2
	SBTR	0.43	27.2	C	56.2
	Overall		74.5	E	

- 95th percentile volume exceeds capacity, queue may be longer

As noted previously, the pm peak period represents the most critical time period for traffic operations. A Synchro analysis of the critical PM peak hour traffic operations at the intersection of University Drive and Sunset Drive/Medway Parking Lot entrance is summarized in **Table 3**. During the PM peak hour the intersection was found to operate at a reasonable level of service (LOS C).

Table 3: Existing University Drive and Sunset Drive/Medway Parking Lot Intersection Operations

Time Period	Movement	V/C	Delay (s)	Vehicle LOS	95th Queue (m)
PM Peak Hour	EBLT	0.40	19.4	B	76.9
	EBR	0.47	14.6	B	37.2
	WBLTR	0.40	19.6	B	78.1
	NBLTR	0.42	32.1	C	30.0
	SBLTR	0.39	23.4	C	22.1
	Overall		20.3	C	

3.3 Existing Multi Use Paths

The Thames Valley Parkway (TVP) is the City of London's primary multi-use trail situated along the 3 branches of the Thames River. It is approximately 45 kilometres in length and is linked to over 150 kilometres of additional pathways connecting all corners of the city.

Within the Study Area, the TVP currently runs along the east side of the Thames River beneath the University Drive Bridge and is an essential linkage within the City's pathway network. Modifications to the TVP and repairs to any potential damage to the pathway should be approved by London's Parks Department which maintains the TVP.

3.4 Natural Environment

Existing natural environment conditions within the Study Area are described in this section. The Natural Environment Memorandum is found in **Appendix F**.

3.4.1 Physiography Soils and Drainage

The Thames River and its tributaries within London flow through these defined spillway features, providing important ecological and biodiversity corridors. The spillway features are narrow physiographic landforms characterized as former glacial meltwater channels, now typically containing river systems. These areas act as drainage channels for meltwater, featuring sandy soils, high groundwater recharge, and relatively large, irregular forest patches. [3]

The generalized surficial geology of the spillways includes glaciofluvial outwash composed of sand gravel and cobbles. Golder carried out soil sampling at the University Drive bridge. The soil

[3] Physiography of Southern Ontario, Chapman. L.J. Putnam 1984.

conditions on the east side of the river consisted of silts, sand and gravel over sandy silt till and sand and gravel. On the west side layers of silt, silty clay and clayey silt till.[4]

3.4.2 Climate Change

The Study considered the impacts of climate change and the effectiveness of adaptation strategies to reduce Western's vulnerability. Strategies being implemented as part of or in conjunction with this ESR include:

- The dedication of the existing University bridge to provide pedestrian and cycling infrastructure to encourage active transportation;
- Improved access to transit services; and
- Low impact design to meet the University's water retention target and mitigate increased precipitation due to climate change.

Relocating University Drive to a new location is not anticipated to produce an increase or decrease in greenhouse gas emissions based on the following:

- Vehicle trips along the corridor will be generated by a redistribution of cars from existing roads; and no new trips generated by future development; and
- The construction will not be a significant source of greenhouse gasses.

3.4.3 Source Water Protection

The Thames-Sydenham and Region Source Protection Plan identifies policies to protect municipal drinking water against existing and future threats in compliance with the *Clean Water Act, 2006* (Ontario Regulation 287/07). The *Clean Water Act* requires municipalities to notify Source Protection Authorities and Committees when the municipalities receive applications that could create or modify a transport pathway. [5]

3.4.4 Water Wells

A secondary source review identified a water well in the vicinity of the University Bridge, refer to **Figure 7**.

3.4.5 Surface Water Features

The North Thames River is the primary surface water feature in the Study Area. There is a 30-40 m wide riparian zone buffer exists along the banks of the river in the Study Area, dominated by Manitoba Maple (*Acer negundo*), Sycamore (*Platanus occidentalis*), Silver Maple (*Acer saccharinum*) and Basswood (*Tilia americana*). This riparian corridor has been heavily impacted through human activity (i.e. trails), wind blown trees from a lack of adjacent woodlands to buffer this area, and invasive species such as Common Buckthorn (*Rhamnus cathartica*). The riverbanks are nearly at grade with the water level encountered during the spring site visit, resulting in a large floodplain containing scattered trees, many of which are damaged from beaver activities. The floodplain extends approximately 20 m inland from the edge of the river. Moderate erosion is present along the river shoreline, likely the result of fluctuating water levels during storm events and tree clearing resulting from beaver activities and windthrow. Six (6) stormwater outlets were observed along the shorelines of the river, each showing signs of erosion and channel instability as indicated by the placement of riprap and cobble in an attempt to stabilize the failing outlet channels. See **Appendix F**, **Environmental Investigations**.

Upstream Morphology

The river extends as a flat or large ponded area with minimal visible flow from 150 m upstream southward to the bridge crossing. The width of the upstream channel ranges from 35 to 50 m and is variable depending on the time of year. Depths range from an average of 0.4 m to an observed local maximum of 0.8 m near the centre of the channel (i.e. the thalweg). Substrate is predominantly cobble and gravel covered by a thin layer of silty sand and algal growth. Woody debris and overhanging limbs offer good quality aquatic habitat along both the east and west upstream banks. Save for woody debris, no in-water refugia were observed (e.g. large cobble, boulders, stums, submerged logs) throughout this reach. Schools of *Leuciscidae* spp. and Darters (Tessellated or Johnny) were observed along the shorelines, predominantly in areas of accumulated woody debris. Fish were not visible beyond the shoreline due to naturally occurring (in the context of surrounding stormwater outlets and developed lands) turbid conditions in the river.

Bridge Crossing Morphology

River channel morphology is much the same at the bridge crossing as it is upstream. The west and east abutments sit back (>20 m) from the water's edge during both the spring and summer site visits. The west pier, although not entirely surrounded by water, sits within the wetted shoreline of the river where water is an average depth of 0.3 m. The east pier is entirely within the river channel, regardless of season, where water is an average depth of 0.5 m. The width of the channel between the east edge of the east pier and the rock-protected shoreline is approximately 8 m. Schools of Darters were observed around the west pier.

Downstream Morphology

The river extends from the bridge downstream as a flat for approximately 45 m before transitioning to a riffle/run which continues beyond the remainder of the assessed zone (105 m). Depths are shallower in this reach, with exposed cobble, boulders and rocky shoals creating small pools between segments of riffles. A review of historical satellite imagery of the Study Area appears to show an infrequent seasonal barrier forming due to low water levels and subsequent exposure of the rocky shoal.

[4] Preliminary Geotechnical Investigation Proposed Upgrading University Drive Bridge University of Western Ontario London Ontario, Golder Associates 1988.

[5] Thames-Sydenham and Region Source Protection Region (TSR SPR), January, 2022,

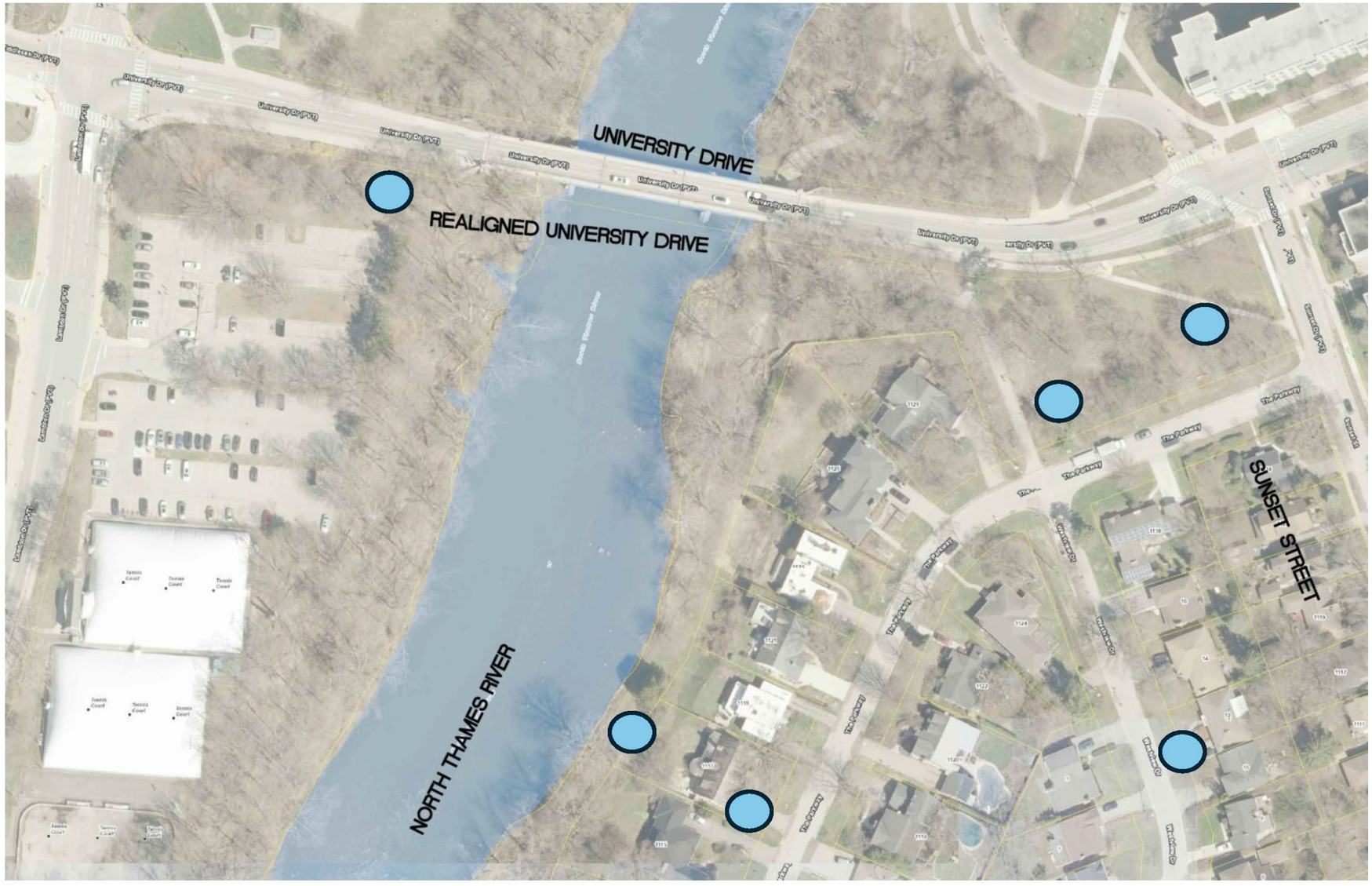


Figure 7: Water Wells

3.4.6 Fish and Fish Habitat

Historical fish community data were available for the North Thames River in 2015 and for Medway Creek in 2013; a cool water creek approximately 550 m north of the bridge crossing, see **Table 4**.

Table 4: Results of the MNRF Fisheries Information Request – North Thames River and Medway Creek

Common Name	Scientific Name	Waterbody Observed
Blackside Darter	*Percina maculata*	North Thames River and Medway Creek
Bluegill	*Lepomus macrochirus*	Medway Creek
Bluntnose Minnow	*Pimephales notatus*	Medway Creek
Brook Stickleback	*Culaea inconstans*	North Thames River
Central Stoneroller	*Campostoma anomalum*	Medway Creek
Fantail Darter	*Etheostoma flabellare*	Medway Creek
Golden Redhorse	*Moxostoma erythrurum*	North Thames River and Medway Creek
Greenside Darter	*Etheostoma blennioides*	North Thames River and Medway Creek
Johnny Darter	*Etheostoma nigrum*	North Thames River and Medway Creek
Logperch	*Percina caprodes*	North Thames River
Longnose Dace	*Rhinichthys cataractae*	North Thames River and Medway Creek
Mimic Shiner	*Notropis volucellus*	North Thames River and Medway Creek
Redhorse species	*Moxostoma sp.*	North Thames River
Northern Hog Sucker	*Hypentelium nigricans*	North Thames River and Medway Creek
Quillback	*Carpiodes cyprinus*	Medway Creek
Rainbow Darter	*Etheostoma caeruleum*	North Thames River and Medway Creek
River Chub	*Nocomis micropogon*	North Thames River and Medway Creek
Rock Bass	*Ambloplites rupestris*	North Thames River and Medway Creek
Rosyface Shiner	*Notropis rubellus*	North Thames River
Silver Redhorse	*Moxostoma anisurum*	Medway Creek
Smallmouth Bass	*Micropterus dolomieu*	North Thames River and Medway Creek
Spotfin Shiner	*Cyprinella spiloptera*	North Thames River and Medway Creek
Stonecat	*Noturus flavus*	Medway Creek
Striped Shiner	*Luxilus chrysocephalus*	North Thames River and Medway Creek
White Sucker	*Catostomos commersonii*	North Thames River and Medway Creek

None of the above species are listed under the ESA or the federal *Species at Risk Act* (SARA). Due to the direct connection of Medway Creek to the North Thames River, it is likely that fish community composition at the bridge has the potential to include all Medway Creek fishes. Records of aquatic SAR in the vicinity of the Study Area were obtained from the Department of Fisheries and Ocean's (DFO) online SAR mapping and are included below in **Table 5**. Species of Special Concern (SC), THR and END species are included.

Table 5: DFO Online SAR Mapping

Common Name	Scientific Name	Listing (Federal / Provincial)	Notes
Black Redhorse	*Moxostoma duquesnei*	THR / THR	Critical Habitat
Northern Sunfish	*Lepomis peltastes*	SC / SC	-
Silver Shiner	*Notropis photogenis*	THR / THR	Critical Habitat
Wavy-rayed Lampmussel	*Lampsilis fasciola*	SC / THR	-

The entire aquatic environment within the Study Area is identified by DFO as protected habitat under the SARA and areas within which Critical Habitat is found for the Black Redhorse and Silver Shiner.

The Upper Thames River Conservation Authority (UTRCA) confirmed the capture of an individual Black Redhorse in Fish Creek in September 2023. Additionally, UTRCA has recently conducted thorough aquatic sampling and identified Black Redhorse at ten different locations within the Fish Creek Watershed. The recent discovery of this rare and endangered fish in the Thames River marks the first sighting in over two decades, as reported by CBC News. The UTRCA issued a media release on February 13, 2024, to confirm the discovery of Black Redhorse within the Fish Creek Watershed.

According to the DFO habitat needed for species survival must be designated as critical habitat. The smaller headwater tributaries within Fish Creek have cooler, cleaner water, with reduced levels of contaminants, sediment, and road salt than in the mainstem of the Thames. Sampling has now demonstrated that cold water habitat is suitable for Black Redhorse in smaller headwater tributaries. The Fish Creek Watershed Report Card available on the UTRCA's website, identifies Fish Creek as a sub-watershed of the Northern Thames River, situated north of London and closer to Lucan.

The Thames River mainstem at Western is unlikely to be suitable habitat for Black Redhorse because of the river size, warmer temperature, and high silt loads and turbidity than in a headwater tributary. The proposed University Drive bridge improvements will not involve in water works and will not impact fish habitat. We believe that the recent discoveries of Black Redhorse in Fish Creek are unlikely to impact plans for the University Drive bridge.

There is potential for the Wavy-rayed Lampmussel and Northern Sunfish within the Study Area. Due to the potential presence of these SAR and due to the extent of information available online, fish community sampling was not undertaken within the Study Area. Existing conditions in the Study Area appear to be suitable for the Black Redhorse, Northern Sunfish, Silver Shiner and the Wavy-rayed Lampmussel based on habitat requirements for each species. Although these species are generally intolerant of siltation (an existing condition in the Study Area), other features including depth of water, thermal regime and presence of host-fish (in the case of the Wavy-rayed Lampmussel) are enough to satisfy a screening for these species.

Schools of one or more unknown Darter species, likely Tessellated, Johnny or a hybrid, were observed along the shorelines and around the west pier. Predated shells of the Eastern Elliptio (Elliptio complanata) were observed, discarded along the shorelines.

3.4.7 Terrestrial

A site inspection was completed of the Study Area on September 15, 2022. The preliminary site evaluation was undertaken with Roots Environmental and representatives from BTE. In general, the purpose of the site assessment was to identify any trees that may be considered 'significant'. 'Significant' as it relates to arboriculture typically includes those trees that may be considered endangered or threatened under the ESA or as having a high value. Usually, trees have been designated under the *Ontario Heritage Act* (OHA) based on a unique value. A Heritage Tree is a large individual tree that would be irreplaceable based on age, rarity, and size, in addition to historical, ecological, botanical, and aesthetic value.

The results of the preliminary site evaluation showed that there are no significant heritage trees in the Study Area that are or would be designated under the OHA. Further, it appears that there are no definitive trees such as White Walnut, Butternut or American Chestnut in the Study Area that would be subject to the ESA. It should be noted that one juvenile Black Walnut was observed within the forest unit on the east side of the bridge. While it appears that this specimen is Black Walnut, it may be prudent to test the genetics of this tree to confirm that it is indeed not a Butternut. Other tree species within the Study Area include a variety of ornamental plantings and numerous Sycamore trees.

In summary, there appears to be no 'significant' trees within the Study Area that would prevent the implementation of any of preliminary proposed undertakings based on a preliminary analysis.

Woodland and riparian communities within the valleyland on both sides of the North Thames River were found to be heavily impacted by urban uses, including an active trail system, passive trails, University Drive Bridge and associated roadways. Woodland cover was found to be a mix of largely deciduous species, including Sycamore (*Platanus occidentalis*), Basswood (*Tilia americana*), Silver Maple (*Acer saccharinum*), Hard Maple (*Acer saccharum*), Green Ash (*Fraxinus pennslyvanica*), Black Walnut (*Juglans nigra*), Black Maple (*Acer nigrum*), Crack Willow (*Salix fragilis*) and Northern Catalpa (*Catalpa speciosa*).

A potential Butternut or Black Walnut tree was identified on the east side of the North Thames River during the site investigation in September 2022. This specimen was a small seedling and presented hybrid characteristics of both a Butternut and Black Walnut. GPS coordinates were taken and dependant on the selected alternative for a potential new bridge crossing. It is recommended that this tree be genetically tested to determine if it is a true Butternut and if there are any requirements for protection or registration/permitting under the *Endangered Species Act* (ESA).

No other rare or SAR species were observed during the site investigations. During information sessions for the project, specimens of the American Chestnut (*Castanea dentata*) (Endangered) were noted in the Study Area and specifically, in the southwest corner of the bridge. Upon site review, these trees were found to be Horse chestnut (*Aesculus hippocastanum*).

Recommendations to minimize impacts to wildlife (i.e. timing of works, exclusion fencing, etc.) will form part of mitigation measures for any future works.

Permanent habitat loss associated with the new infrastructure footprint, as well as temporary losses within the construction area require vegetation removal from the significant woodland may involve the removal of portions of the Lowland Deciduous Forest Ecosite (FODM7) on both sides of the valley. Both native and non-natives species, including Red Maple, Sycamore, Black Locust, Black Cherry, Manitoba Maple, Basswood, and occasional Black Walnut. Approximately 33% of the plants inventoried at the University Bridge are considered non-native, including seven that are considered invasive. Woodland removals could be mitigated through planting of appropriate native species, as close to the site of disturbance as possible.[6]

3.4.8 Avifauna and Bats

The existing bridge has the potential to support nesting Barn Swallow (identified through the desktop review) and SAR bat species (Little Brown Myotis and Northern Myotis). Further assessment will be required for any significant alternations to the existing bridge that could impact use by these species.

Disturbance or destruction of nests during the nesting period, which can be mitigated by scheduling tree/vegetation removal, and alteration to bridge components where nesting occurs, outside the breeding bird season. Surveys during 2017 did not identify nesting by Barn Swallows on the University Drive bridge, but Cliff Swallows (currently not listed, but under consideration) were observed nesting at this location. Surveys to confirm occupancy by at-risk species should be completed prior to alteration or construction to ensure that appropriate measures under the *ESA* are taken.[5]

3.4.9 Reptiles

Within the North Thames River, observations were made for the Snapping Turtle and Midland Painted Turtle. The Snapping Turtle is listed as a species of Special Concern under the ESA. The river likely provides a corridor function for turtle and other herptiles in the area.

[6] London Rapid Transit Project – Environmental Impact Study, WSP 2018.

3.4.10 Species at Risk

A desktop review was completed for the Study Area prior to site investigations to identify any known natural heritage features. This review included the:

- Natural Heritage Information Centre (NHIC) Make-a-Map: Natural Areas; and
- City of London Official Plan and interactive maps.

The NHIC documents occurrences for Species at Risk (SAR) and rare species within the 1-km square that includes the Study Area. These occurrences include the Spiny Softshell (*Apalone spinifera*) (Endangered) (END), Barn Swallow (*Hirundo rustica*) (Threatened) (THR), Butternut (*Juglans cinerea*) (END), Northern Map Turtle (*Graptemys geographica*) (Special Concern) (SC) and Snapping Turtle (*Chelydra serpentina*) (SC). No wetlands (evaluated or unevaluated) or Areas of Natural and Scientific Interest (ANSIs) were mapped within the Study Area.

The City of London Official Plan Map Five – Natural Heritage identifies the presence of the North Thames River and an associated Significant Valleyland feature along both sides.

A Kentucky Coffeetree, located north of the eastern bridge abutment, is likely to be impacted if a new bridge abutment is required for the existing bridge.

3.5 Cultural Environment

Existing cultural environment conditions within the Study Area are described in this section.

3.5.1 Built Resources and Cultural Landscapes

3.5.1.1 History of the Bridge

In 2019, WSP Canada Inc. was retained by the City of London to complete a Cultural Heritage Evaluation Report (CHER) of the University Bridge as part of a Transit Project Assessment Process (TPAP) for the proposed London Bus Rapid Transit (BRT) system. The completion of the study resulted in determining that the University Bridge demonstrated significant cultural value or interest. A Heritage Impact Assessment is required to identify appropriate mitigation measures.

The University Bridge was the first structure built on the Western University campus in 1923. It was oriented across the Thames River to frame the view from Richmond Street towards the University College building and the Middlesex Memorial Tower. The bridge is important in defining, maintaining and supporting the character and architectural aesthetic of the University's campus, refer to **Photo 3**.[7]

The bridge remained largely unaltered since its construction until 1973 when the top rail and spindles on the south side of the bridge, and a portion of those on the north side, were replaced due to damage. Extensive repairs were made in 2003 including:

- Replacing the decorative balustrade with a steel railing;
- Reducing the size and rebuilding the end plinths;
- Replacement of the light standards;
- Resurfacing the asphalt road; and
- Active transportation modifications including adding cycling lanes and replacing the sidewalks.

Photo 3: Historical Photo of the Opening of the University Drive Bridge, 1924

3.5.1.2 History of the Thames River

The Thames River was formally designated as a Canadian Heritage River on August 14, 2000. Canadian Heritage Rivers are "recognized for their outstanding contributions to the country's cultural heritage, natural heritage, and recreational opportunities.[8]" This is an honorific recognition, without a formal review and approval process.

The Thames River is a major river in Southern Ontario. Its watershed encompasses a significant portion of the extreme southwest of Ontario. The river is within one of the most productive agricultural areas in Canada, with distinctive rural farm and village landscapes.

3.5.1.3 Cultural Heritage Impact Assessment

A Heritage Impact Assessment (HIA) was undertaken to evaluate the impact of a proposal development, building alteration or site alteration on a built heritage resource(s) or a cultural heritage landscape(s) and recommends mitigative measures or alternative development

[7] Cultural Heritage Evaluation Report: University Bridge, WSP 2019.

[8] thamesriver.on.cav

approaches to conserve the existing attributes of that resource/landscape. This report is in accordance with the *Ontario Planning Act* (RSO 1990). The Cultural Heritage Impact Assessment is found in **Appendix G**.

Conservation of the existing structure involves several approaches to safeguard the existing attributes and values associated with the existing bridge. Conservation includes preserving the existing elements below the bridge deck (including the piers, arched concrete spans, and cantilevered sidewalk supports). It could also involves restoring the decorative stone plinths, knee walls, balustrade and ornamental lights using documentary and photographic evidence of the original bridge to guide the works.

Conservation of the existing structure and construction of a new bridge on an adjacent alignment will:

- Safely accommodate all modes of transportation.
- Comply with University planning objectives.
- Follow conservation best practices for the existing structure.
- Reduce costs and risks associated with construction.
- Provide opportunities to enhance trail connectivity.

This approach utilizes the value of the existing structure for:

- Cultural heritage.
- Reuse for utilities.
- Significantly reducing the overall cost of the new structure.

The new structure can salvage the space available on the existing bridge for active transportation focused uses, allowing the new bridge cross section to be narrower.

Design guidance for the new bridge should ensure that the new bridge is respecting the cultural setting and attributes of the built form. The new structure will be subordinate to, compatible with and distinguishable from the existing structure.

3.5.2 Archaeology

3.5.2.1 Stage 1 Archaeology Assessment

The Stage 1 background study included a review of current land use, historic and modern maps, past settlement history for the area and consideration of topographic and physiographic features, soils and drainage. It also involved a review of previously registered archaeological resources within 1 km of the project area and previous archaeological assessments within 50 m. The background study indicated that the project area had potential for the recovery of archaeological resources due to the proximity (i.e., within 300 m) of features that signal archaeological potential, namely:

- Registered archaeological sites (AgHh-72);
- The proximity to a primary water source (North Thames River);
- Mapped 19th-century transportation routes (Richmond Street, Huron Street, Regent Street);
- Mapped 19th-century structures (grist mill);
- Listed cultural and existing sites (Western University, University Drive Bridge); and
- The City of London's *Archaeological Management Plan* identifies the project area as having archaeological potential.

As the project area was in proximity to features that signal archaeological potential, a Stage 1 property inspection was conducted to evaluate the current conditions of the property area and its integrity. The Stage 1 Archaeological Assessment is found in **Appendix H**.

Based on Stage 1 background research and property inspection, the following recommendations were made:

- A portion of the project area was previously assessed (1.26 ha; 35.0%; WSP 2018; Map 5); no further assessment work is recommended for these areas (**Figure 8**).
- The grassed and wooded areas within the project area, as shown on **Figure 8** (1.08 ha; 30.0%), are not obviously disturbed, retain archaeological potential and are recommended for Stage 2 assessment. As these lands are non-ploughable, the Stage 2 assessment should consist of a standard test pit survey at a 5 m transect interval, in keeping with provincial standards.
- Portions of the project area have been previously disturbed (0.72 ha; 20.0%) and are considered to no longer retain archaeological potential (**Figure 8**). These areas have been photo documented, and no further assessment work is recommended.
- The areas of slope (0.22 ha; 6.1%) within the project area are considered not to retain archaeological potential (**Figure 8**). These areas have been photo documented, and no further assessment work is recommended.
- No in-water impacts are planned for the University Drive Bridge Replacement. If in-water impacts are planned, the areas within the North Thames River (0.32 ha; 8.9%) require marine assessment and the Marine Archaeology Checklist must be completed.

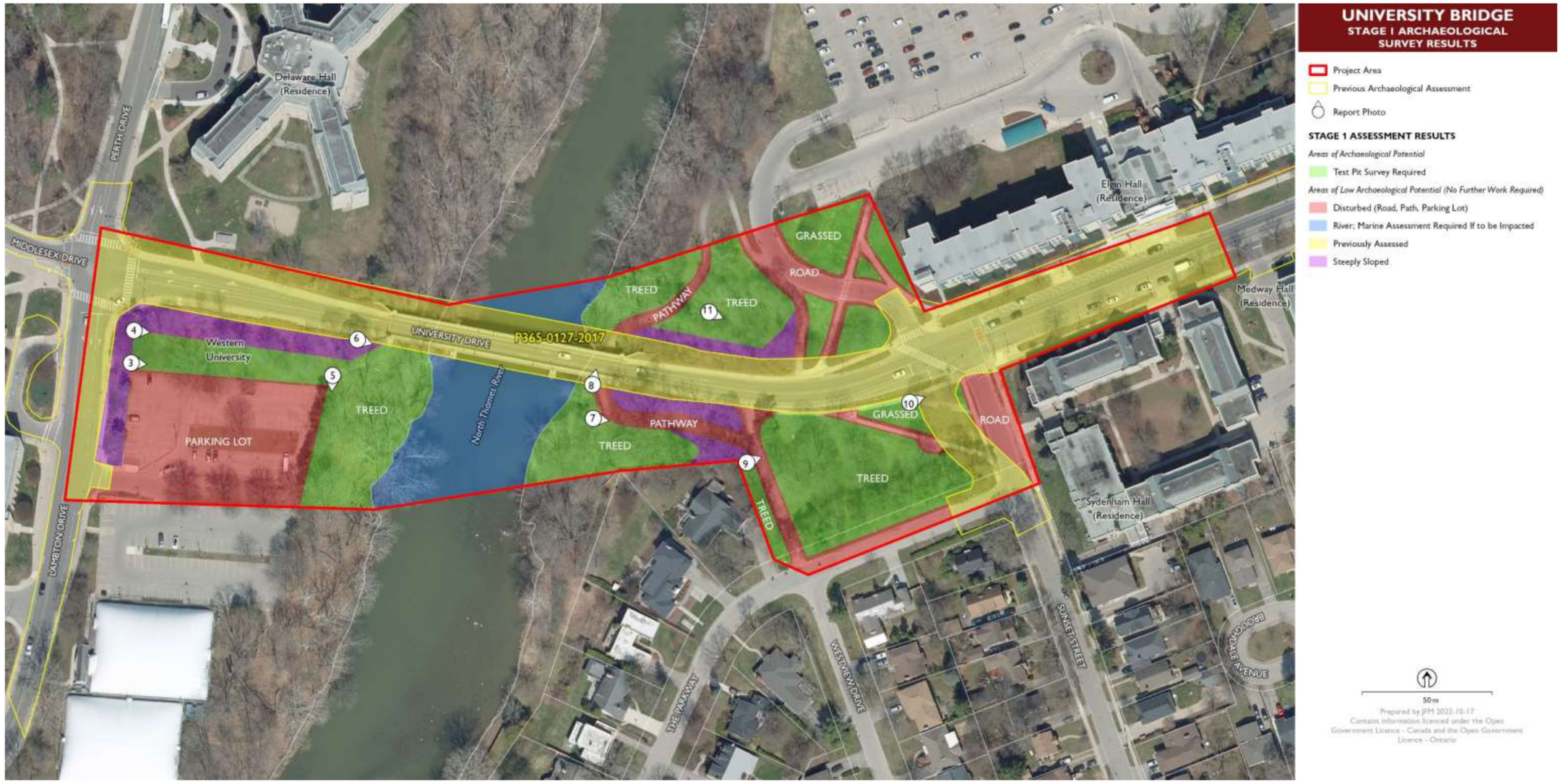
3.5.2.1 Stage 2 Archaeological Assessment

Stage 2 fieldwork was conducted on April 23, 2025. A Stage 2 archaeological assessment was conducted for the Western University Bridge Replacement Project (Project No. 9M5173), located in the City of London, Ontario. The project area is roughly 0.69 ha (1.7 ac) in size and is located within Lot 16, Concession 3, in the Geographic Township of London, Middlesex County. The previous Stage 1 assessment revealed that the project area had potential for the discovery of archaeological resources, and a Stage 2 survey was recommended. The Stage 2 assessment (test pit survey at a 5 m interval) did not result in the documentation of archaeological resources. As such, no further archaeological assessment is recommended. The Stage 2 Archaeological Assessment is found in **Appendix H**.

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 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*.

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.



Map 14: Stage 1 Archaeological Survey Results Showing Areas of Potential

Figure 8: Stage 1 Archaeology Assessment Findings

3.6 Socio-Economic Environment

Existing socio-economic environment conditions within the Study Area are described in this section.

3.6.1 Existing Land Use

The University Drive Bridge is an important access link to Western and is a prominent feature of the University, providing an entry gateway to the campus across the North Branch of the Thames River. The University Bridge alignment frames the view of the Middlesex Memorial Tower to west.

The adjacent land uses include university residences and parking lots, university lecture halls with tennis court facilities on the west side of the river along Lambton Drive. Private residences are located along the eastern shore of the North Thames River south of University Drive. Refer to **Figure 9**.

Following the river along the eastern shore is a multi use trail system referred to as 'Thames Valley Parkway'.

3.6.2 Long Term Planning

Western has completed long term planning studies for the university grounds, including the Study Area, that document Western's goals and vision for the University's physical and academic growth based on projected enrollment. The following sections summarize elements of these reports that are applicable to the University Drive Bridge with respect to the vision and planning objectives of Western.

3.6.2.1 Western University Campus Master Plan (2015)

The Western University Campus Master Plan (June 2015) focuses on the challenges facing the Western Campus for the coming decades. Foremost among those challenges is the ability to accommodate continued growth while respecting the essential qualities of the campus and ensuring efficient, modern space and safe access around the campus. The Campus Master Plan identified key initiatives, including:

- Improve Campus Connectivity - emphasis on improving pedestrian/bicycle connectivity and the potential for rapid transit.
- Creation of High-Quality Public Spaces – creating public spaces that contribute to a sense of place consistent with Western's history and future.
- Identification of Campus Gateways - the sense of place and arrival at Western augmented by the use of new developments, sites, open space and pedestrian improvements to emphasize the principal gateways.

The Plan recognizes University Drive as a major "Arrival Drive" as part of the Proposed Movement and Open Space concept. Further in Chapter 6.1 Future Transportation Strategies, two key components were Active Transportation in the form of walking and cycling infrastructure.

The Campus Development Strategy (2026) supersedes the 2015 Plan. It has adapted the key development initiatives proposed in 2015 to align with updated University priorities and changes in learning as well as to be reflective of new land acquisitions that have occurred in the last decade:

It states, "The planned twinning of the University Drive bridge will improve access to the campus from the east, creating separated access for vehicular, cycling and pedestrian traffic. This investment will promote pedestrian safety, and rectify existing traffic flow issues, while maintaining the historic character views to UC Hill and University College and creating an opportunity for a new, expansive welcome plaza on the west side of the Thames River."

3.6.2.2 Western's Open Space Strategy (April 2018)

The purpose of Western's Open Space Strategy (April 2018) was to identify opportunities to accommodate future growth on campus, increase pedestrian safety, and integrate higher order bus transit through the campus. This strategy started with an inventory of existing conditions that identified key opportunities to improve the campus, including the need to improve pedestrian safety, accommodate improved transit service and improve the quality of open spaces.

Network Recommendations from the Strategy include:

- Limit access to the University Drive bridge to bicycles, pedestrians, Bus Rapid Transit vehicles, and designated university vehicles.
- Create a dedicated pedestrian drop-off area at Sunset Drive which provides access to the Medway parking lot but restricts public vehicle access across the bridge.

The Open Space Strategy identified the implementation of the University Drive Bridge as a medium-term priority project occurring between 2023 and 2027.

The Open Space Strategy (2026) supersedes the 2018 version and was developed in tandem with Western's Campus Development Strategy (CDS) (2026). Working alongside this and other campus-wide strategies, the Open Space Strategy plays a vital role in shaping the public realm, improving mobility and connectivity, and influencing infrastructure. The objective is to strengthen ecological corridors, improve walkability and active transportation routes, enhance access to natural features such as the Thames River, and provide high-quality outdoor spaces

The updated strategy reflects that the City did not move forward with the Bus Rapid Transit project through campus, as well as shifts in mobility patterns. This also includes twinning the University Drive bridge.

3.6.2.3 Towards Western at 150 - Western University Strategy Plan (April 2021)

Western University's Strategic Plan was undertaken to address the University's post pandemic recovery plan. The Strategic Plan commits to:

- Enhance Western's campus by investing in the quality, accessibility, and beauty of the physical environment.
- Increase the space for students to gather by creating more "collision spaces" for collaborative gathering and study areas.

Figure 9: Study Area Features

3.6.3 Utilities

The existing bridge provides the utilities connection across the North Branch of the Thames River. The utilities bundled under the existing bridge include:

- Watermain – 12” diameter
- Hydro - 5 kw line
- Gas - Abandoned 4” diameter
- Western Technology Services (WTS) Cable

3.6.4 Noise

This noise assessment completed in accordance with the Ministry of the Environment, Conservation and Park’s (MECP) Environmental Noise Guideline - Stationary and Transportation Sources - Approval and Planning (NPC-300) (August 2013). The Noise Report is found in **Appendix I**.

The sound levels were calculated at Noise Sensitive Areas (NSAs) using TNM 3.2 modelling software for an existing condition in year 2025, at the earliest planned construction year (2030) and 10 years after construction completion in year 2040 (with or without the project). To determine the noise impacts, sound levels were calculated in the outdoor living area (OLA) (16-hour Equivalent Sound Level, L_{eq} (16)) and the plane of a bedroom or living/dining room window (8-hour Equivalent Sound Level, L_{eq} (8)). See **Figure 10**.

The noise assessment involved the following:

- Prediction of sound levels at five (5) representative receiver sites adjacent to the Study Area to assess the impact on the OLAs (daytime) and plane of windows (nighttime);
- Assessment of sound levels for existing conditions (2025), earliest planned construction (2030) and 10 years after construction, with and without the project (2040); and
- Review the TNM outputs to determine if noise mitigation is warranted at those receiver sites and in the Study Area.

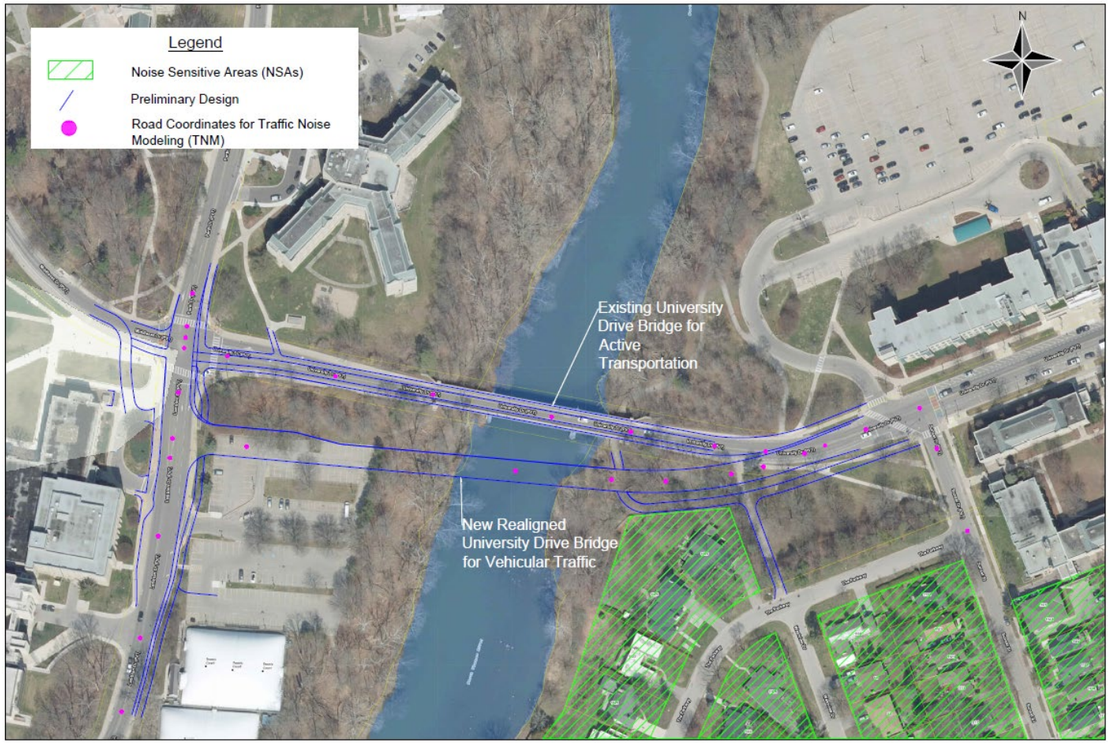


Figure 10: Noise Study Area

The representative receiver sites, as shown in **Figure 11,** included:

- Receiver Site 1: 1129 The Parkway
- Receiver Site 2: 1125 The Parkway
- Receiver Site 3: 1123 The Parkway
- Receiver Site 4: 1121 The Parkway
- Receiver Site 5: 1119 The Parkway

The assessment of the impact of the predicted sound levels utilized the MECP Environmental Noise Guideline. The significance of a noise impact has been assessed considering the objective of 55 dBA (daytime, L_{eq} (16)) at the OLA, and 50 dBA (nighttime, L_{eq} (8)) at the plane of window.

The sound level increases from the existing condition (2025) to the build out year (2030) and 10-year horizon (2040) are as shown in **Table 6** and **Table 7**. See **Appendix I** – Appendix A for the TNM output tables.

Table 6: Daytime Existing and Future Sound levels

Receiver Sites	2025 Leq (dBA)	2030 Leq (dBA)	2040 Leq (with the project) (dBA)	2040 Leq (without the project) (dBA)
1	53.1	55	55.5	53.8
2	51.4	53	53.4	52.1
3	50	51.3	51.8	50.6
4	48.8	50	50.5	49.5
5	47.9	49	49.4	48.6

Table 7: Nighttime Existing and Future Sound levels

Receiver Sites	2025 Leq (dBA)	2030 Leq (dBA)	2040 Leq (with the project) (dBA)	2040 Leq (without the project) (dBA)
1	47.9	49.9	50.5	48.6
2	45.8	47.4	49	46.5
3	43.9	45.2	45.7	44.5
4	42.6	43.8	44.3	43.3
5	41.1	42.1	42.6	41.8

Based on the predicted sound levels at the OLA and plane of window for each of the representative receiver sites, no mitigation is required. It would not be economically or technically feasible to construct a noise barrier for 1129 The Parkway, given that the sound level in the future with the project is approximately 55 dBA during the day and 50 dBA at night. However, during the course of the EA study the University acquired the property at 1129 The Parkway. See **Figure 11.**

Figure 11: Representative Receiver Site Locations

4.0 EVALUATION OF ALTERNATIVES

The analysis and evaluation of alternatives is a central requirement of the MCEA process. Alternative Planning Solutions were generated to define alternatives to the project. Following the selection of the preferred Planning Solution, Preliminary Design Alternatives were developed. Alternatives that were not viable, had significant impacts, or had substantially poorer safety or traffic performance compared with other alternatives, were not considered reasonable alternatives.

4.1 Evaluation Methodology

The qualitative evaluation methodology is used where there are few alternatives and a low number of competing criteria among the alternatives being compared. The qualitative evaluation method involves comparing impacts in narrative terms, without the explicit weighting of criteria or producing numerical ratings. This method uses "professional judgment" to compare alternatives. A qualitative approach was used for the evaluation of the Alternative Planning Solutions, Alignment Alternatives and Bridge Alternatives.

Six categories or factor groups were considered for each evaluation when applicable. Within each of these factor groups are sub-criteria, described narratively and ranked with symbols, which define the measure and the relative differences of magnitude of impact or benefit. The factor groups are:

- Transportation
- Natural Environment
- Cultural Environment
- Social Environment
- Land Use and Property
- Cost

Where there were no differences between the alternatives in a factor group, then the group was not used to evaluate the alternatives.

Under each of the six global factors listed above, there were a number of sub-factors selected for which measurements could be made. These sub-factors were the individual descriptors for the evaluation. The selection of the sub-factors is very important to the decision-making process because they must adequately describe the issue or aspect of the study area to be evaluated and the unique features of each alternative. Any aspect regarding an alternative, where there are differences among alternatives, is incorporated into the decision-making process by including it as a sub-factor. Generally, the process begins by establishing a long list of potential sub-factors through discussions with the Project Team. Then, for each group of alternatives being evaluated, the sub-factors are reviewed and screened by eliminating those that were considered equal or not applicable among the alternatives.

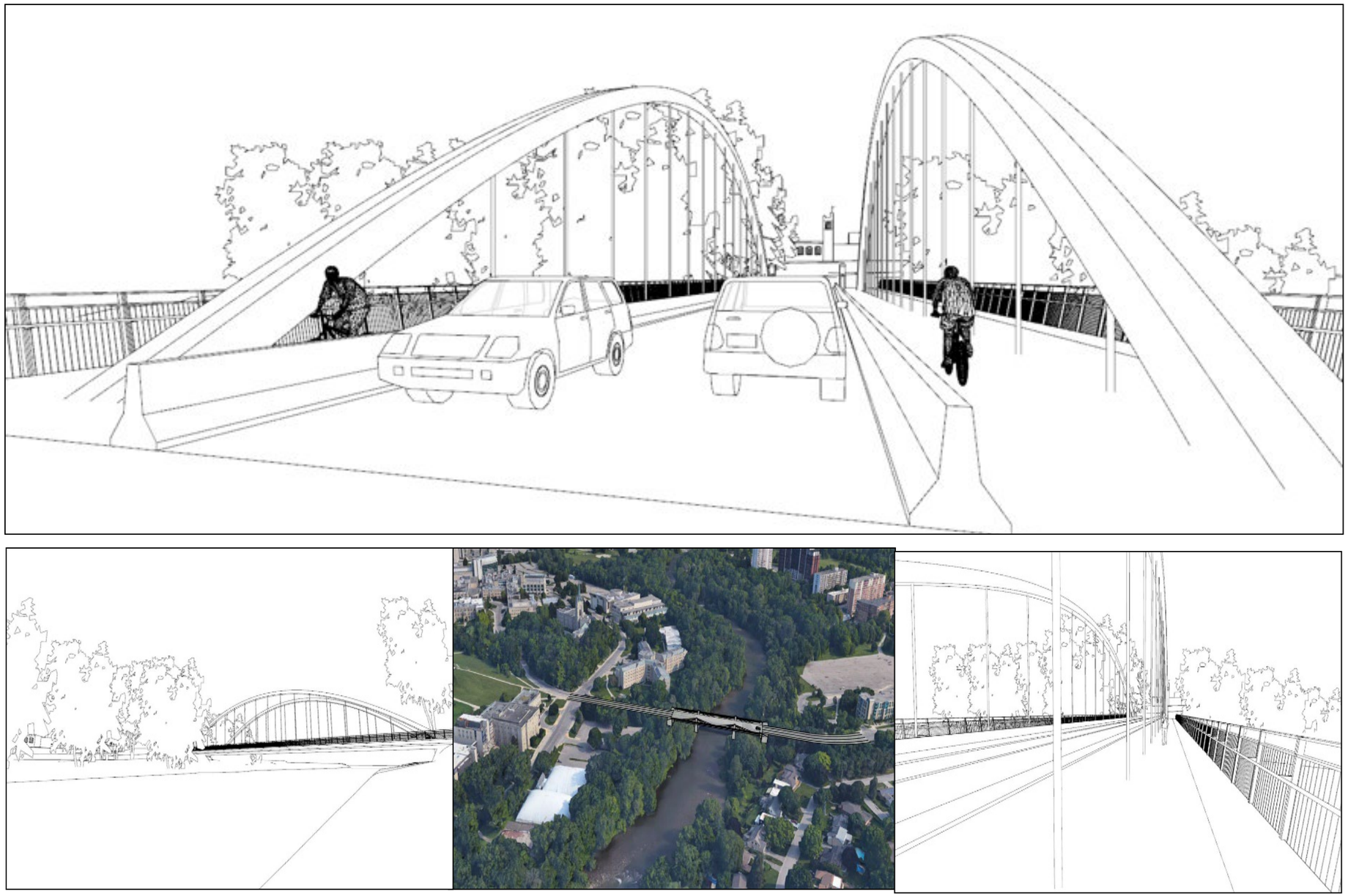
4.2 Alternatives to the Undertaking – Planning Alternatives (Class EA Phase 2)

The *Environmental Assessment Act* requires that all reasonable and feasible Planning Solutions be identified and evaluated at the start of the Study. Planning Solutions represent alternative ways or methods of addressing the Problem or Opportunity Statement (**Section 1.4**) specific to this study. These alternatives consider the overall needs of the Study Area and identify alternative approaches to address the need for improvements. The Alternative Planning Solutions Report is found in **Appendix J**.

The evaluation of Alternative Planning Solutions selects the most reasonable alternatives that address the Problem and Opportunity Statement. The Alternative Planning Solutions for this Study are summarized as follows:

1. Do Nothing – The "Do Nothing" strategy must be considered as mandated by the Class EA. It represents a baseline to which other approaches can be compared. This alternative would maintain the existing 2-lane bridge in its current location without any rehabilitation or repairs.
2. Rehabilitate Existing Bridge – The "Rehabilitate Existing Bridge" strategy would conserve the existing structure by making required repairs/restorations.
3. New Bridge on the Existing Alignment – The "New Bridge on the Existing Alignment" strategy would construct a new bridge on the existing alignment and remove the existing structure. Sub-alternatives for this Planning Solution include:
    - 3A. Signature Structure on the Existing Alignment (see **Figure 12**) - Elegant, landmark structure that frames the view while approaching campus, with an architectural connection to campus as well as a distinct symbolism of its own.
    - 3B. Historic Reimagination Structure on the Existing Alignment (see **Figure 13**) - Reimagination of the existing structure using the same spans and abutment location but with the necessary added width to provide the vehicle and active transportation space.
4. New Bridge on a New Alignment – The "New Bridge on New Alignment" strategy would construct a new bridge on a different alignment. Sub-alternatives for this Planning Solution include:
    - 4A. New Bridge and Abandonment/Demolition of the Existing Structure – This alternative would construct a new signature or historically reimagined structure on an adjacent alignment and would abandon and remove the existing bridge following construction of the new bridge.
    - 4B. New Signature Bridge and Conserve Existing Structure (see **Figure 14**) - This alternative would construct a new signature structure on an adjacent alignment and would conserve the existing structure through preservation, restoration or rehabilitation.

The evaluation of Alternative Planning Solutions selects the most reasonable alternative that addresses the University's objective of providing a safe and reliable crossing of the Thames River for traffic generated by the University, focusing on active transportation and transit service. A preliminary assessment of each Alternative Planning Solution is presented in **Table 8**. This assessment was provided for public review and comment.

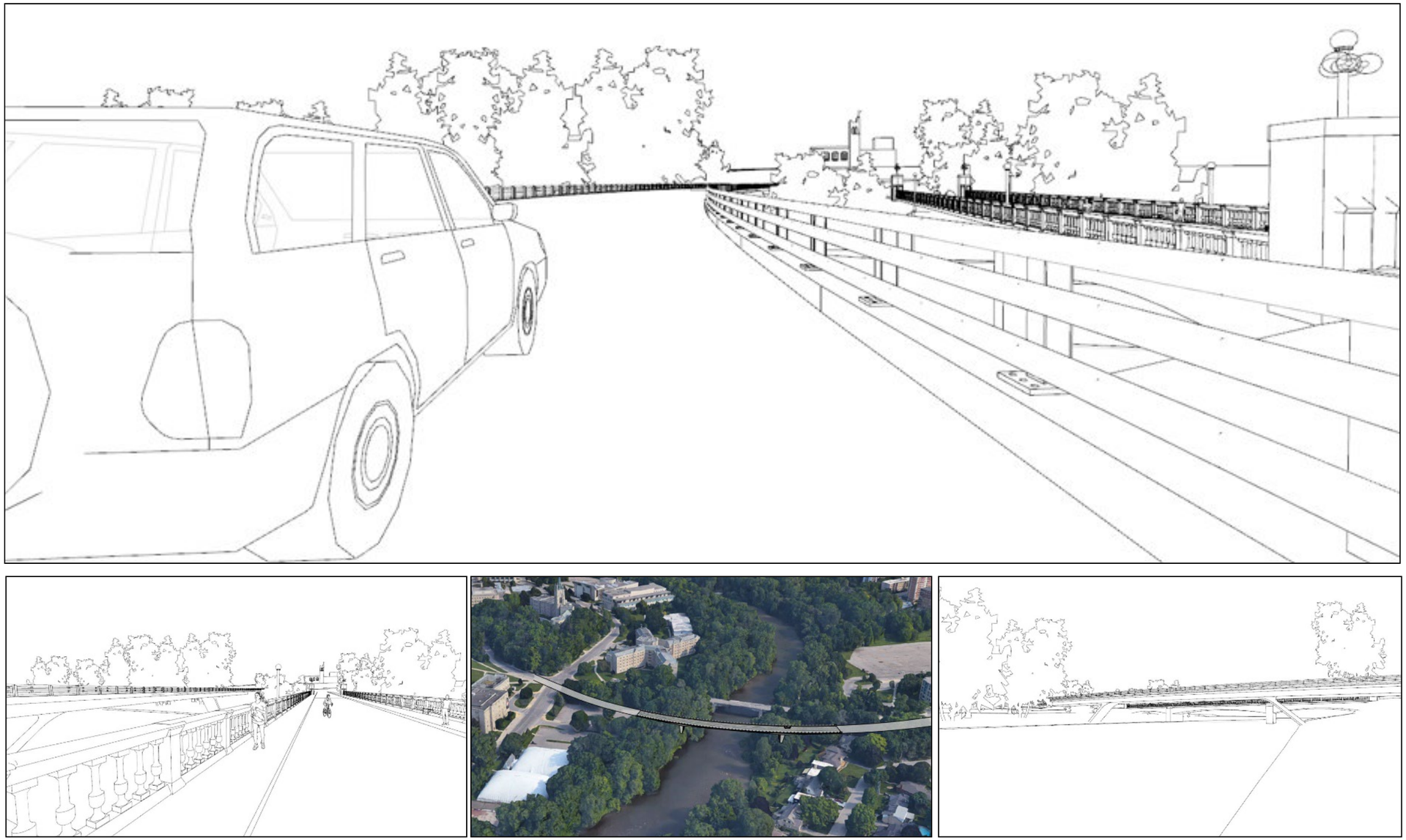


Note: These graphics illustrate a representative approach for this alternative.

Figure 12: Signature Structure on the Existing Alignment

Note: These graphics illustrate a representative approach for this alternative.

Figure 13: Historic Reimagination Structure on the Existing Alignment



Note: These graphics illustrate a representative approach for this alternative.

Figure 14: New Bridge and Conserve Existing Structure

Table 8: Preliminary Assessment of Alternative Planning Solutions

Screening Criteria	Alternative 1: Do Nothing	Alternative 2: Rehabilitate Existing Bridge	Alternative 3: New Bridge, Existing Alignment		Alternative 4: New Bridge, New Alignment	
			3A: New Modern Signature Structure	3B: New Historic Reimagination Structure	4A: New Bridge and Abandonment / Demolition of Existing Structure	4B: Conserve Existing and Twin with a New Bridge
Transportation						
Does this strategy accommodate vehicular traffic?	× The existing structure is nearing the end of its service life and requires significant repair if it is required to accommodate vehicular traffic loading.	× The existing structure is nearing the end of its service life and requires significant modifications if it is required to accommodate vehicular traffic loading.	✓ A new structure will accommodate vehicular traffic (removing load limits).	✓ A new structure will accommodate vehicular traffic (removing load limits).	✓ A new structure will accommodate vehicular traffic (removing load limits).	✓ A new structure will accommodate vehicular traffic (removing load limits).
University Master Planning Objectives						
Does this strategy align with the University's planning objectives (i.e. Strategic Plan, Master Plan and Open Space Strategy)?	× Not carried forward. See screening criteria for Transportation.	× Rehabilitation of the existing bridge will not allow for improved functionality of the bridge for active transportation modes. Defers the eventual replacement required to accommodate vehicular loading.	× A new structure will align with the University's planning objectives. However, this alternative does not align with the Master Planning principle to maintain and enhance the traditional historic architectural character of the campus (see Master Planning Principle #5 from the Campus Master Plan).	× A new structure will align with the University's planning objectives. However, this alternative does not align with the Master Planning principle to maintain and enhance the traditional historic architectural character of the campus (see Master Planning Principle #5 from the Campus Master Plan).	× A new structure will align with the University's planning objectives. However, this alternative does not align with the Master Planning principle to maintain and enhance the traditional historic architectural character of the campus (see Master Planning Principle #5 from the Campus Master Plan).	✓ A new structure (for vehicular traffic while conserving the existing structure for pedestrians and cyclists) will align with the University's planning objectives. Conserving the existing bridge aligns with the Master Planning principle to maintain and enhance the traditional historic architectural character of the campus (see Master Planning Principle #5 from the Campus Master Plan).
Cultural Environment						
Will the strategy maintain the sightlines to/from University College Hill? Does this strategy allow for the conservation of the existing structure?	× Not carried forward. See screening criteria	× From a heritage perspective, the degree of rehabilitation required to accommodate	× A new signature structure does not provide conservation matching the collegiate gothic style of structures on campus.	× A historically reimagined structure has potential to interpret the collegiate gothic style of structures on campus but can also be seen as	× This alternative does not maintain the existing location for arrival on campus or the sightlines to the tower. It	✓ This alternative allows for the retention of the existing bridge with a new structure in proximity that meets the recommended standard for new design

Screening Criteria	Alternative 1: Do Nothing	Alternative 2: Rehabilitate Existing Bridge	Alternative 3: New Bridge, Existing Alignment		Alternative 4: New Bridge, New Alignment	
			3A: New Modern Signature Structure	3B: New Historic Reimagination Structure	4A: New Bridge and Abandonment / Demolition of Existing Structure	4B: Conserve Existing and Twin with a New Bridge
Ministry of Tourism, Culture and Sport's (MTCS) best practices requires consideration of the following conservation options/strategies.	for Transportation.	vehicular traffic, and active transportation would require extensive modifications that would not retain heritage value.	Consideration will be given to retention/salvage of bridge elements for an existing monument, and full recording/documentation of the structure prior to demolition. This alternative only maintains the existing location for arrival on campus and the sightlines to the tower. It represents the loss of existing material and form.	mimicking the existing style in a new bridge. Replication does not follow conservation best practices. Consideration will be given to retention/salvage of bridge elements for an existing monument, and full recording/documentation of the structure prior to demolition. This alternative only maintains the existing location for arrival on campus and the sightlines to the tower. It represents the loss of existing material and form.	represents the loss of existing material and form. Abandonment will ultimately result in the demolition of the bridge since it will continue to deteriorate, become unsafe, and require removal.	(distinguishable from, subordinate to and visually compatible with its setting). In addition, there is opportunity for elements of the existing structure to be restored to the original design (based on the original bridge drawings and historical photographs). Conserving the existing bridge will also maintain the existing sightlines of University College Hill. This alternative provides an opportunity to protect and conserve the existing value found in the bridge design, materials, form and location.
Natural Environment						
Does this strategy have permanent impacts to the natural and social environments?	× Not carried forward. See screening criteria for Transportation.	× Not carried forward. See screening criteria for Transportation.	- Temporary works will result in increased impacts to the natural environment and in-water works. This alternative will also have minor impacts related to construction of a new bridge.	× Temporary works will result in increased impacts to the natural environment and in-water works. This alternative will also have minor impacts related to construction of a new bridge including impacts to the row of chestnut trees located on the southwest side of the bridge.	× Not carried forward. See screening criteria for Cultural Environment.	- Minor impacts related to construction of a new bridge. Permanent impacts can be minimized by placement of the new bridge piers out of the river.

Screening Criteria	Alternative 1: Do Nothing	Alternative 2: Rehabilitate Existing Bridge	Alternative 3: New Bridge, Existing Alignment		Alternative 4: New Bridge, New Alignment	
			3A: New Modern Signature Structure	3B: New Historic Reimagination Structure	4A: New Bridge and Abandonment / Demolition of Existing Structure	4B: Conserve Existing and Twin with a New Bridge
Affordability						
Does this approach provide good value for money?	× Not carried forward. See screening criteria for Transportation.	× Not carried forward. See screening criteria for Transportation.	× This approach provides less value for money as it requires a substantial investment in temporary works for the relocation/replacement of existing infrastructure (i.e. utilities, watermain) and temporary active transportation infrastructure. This strategy also does not make use of residual life in the existing structure for pedestrians and cyclists.	× This approach provides less value for money as it requires a substantial investment in temporary works for the relocation/replacement of existing infrastructure (i.e. utilities, watermain) and temporary active transportation infrastructure. This strategy also does not make use of residual life in the existing structure for pedestrians and cyclists.	× Not carried forward. See screening criteria for Cultural Environment.	✓ This approach provides good value for money by making use of the existing structure to accommodate active transportation and support existing infrastructure (i.e. utilities). This approach minimizes the need for temporary works. The advantage of this alternative is that it reduces the need for temporary and permanent relocation of utilities (estimated cost savings: $2-3 M). This alternative also eliminates the need for a wider new structure (bike lanes, sidewalks or multi-use paths) because they are maintained on the existing structure). The cost saving of this component is approximately $2 M. The cost advantage of this alternative is in the order of $4-5 M.
Constructability						
Does this approach have risks related to implementation?	× Not carried forward. See screening criteria for Transportation.	× Not carried forward. See screening criteria for Transportation.	Temporary works will be required to accommodate active transportation and to support existing infrastructure.	Temporary works will be required to accommodate active transportation and to support existing infrastructure.	× Not carried forward. See screening criteria for Cultural Environment.	Temporary works are not required which significantly reduces risks related to implementation.

Screening Criteria	Alternative 1: Do Nothing	Alternative 2: Rehabilitate Existing Bridge	Alternative 3: New Bridge, Existing Alignment		Alternative 4: New Bridge, New Alignment	
			3A: New Modern Signature Structure	3B: New Historic Reimagination Structure	4A: New Bridge and Abandonment / Demolition of Existing Structure	4B: Conserve Existing and Twin with a New Bridge
Recommendations (following PIC 1)						
	× Not carried forward.	× Not carried forward.	× Not carried forward.	× Not carried forward.	× Not carried forward.	✓ **Recommended as the preferred Alternative Planning Solution.** • Safely accommodate all modes of transportation. • Comply with University planning objectives. • Follow conservation best practices for the existing structure. • Reduce costs and risks associated with construction. • Provide opportunities to enhance trail connectivity This approach utilizes the value of the existing structure for: • Culture. • Reuse for utilities. • Significantly reduces the overall cost of the new structure. The new structure can salvage the space available on the existing bridge for active transportation focused uses, allowing the new bridge cross section to be narrower.

4.2.1 Conclusions and Recommendations

The evaluation of Alternative Planning Solutions recommends the most reasonable alternative that addresses the Problem and Opportunity Statement. Based on the preliminary review of Alternative Planning Solutions, Alternative 4B, New Bridge (New Alignment) and Conserve Existing Structure is recommended to be carried forward in the EA process. This Planning Solution addresses the problem statement by conserving the existing structure and providing an adjacent structure to accommodate vehicular traffic. Conserving the existing structure follows best management practices for historically significant structures and minimizes the need for temporary works to accommodate active transportation and infrastructure. This technical recommendation was presented at the first PIC for public and stakeholder feedback. This technical recommendation was supported by the public.

4.3 Analysis and Evaluation of Preliminary Design Alternative (EA Phase 3)

4.3.1 New Vehicular Bridge Alignment Evaluation

The evaluation of the new vehicular bridge alignment alternatives compared a new vehicular bridge alignment to the north of the future active transportation spine (Alternative 1) or a new alignment to the south (Alternative 2). The locations of the preliminary design alternatives are illustrated in **Figure 15.** The detailed evaluation of the bridge alignments is found in **Appendix K**.

Table 9 describes the factor and sub-factor criteria used to evaluate the new vehicular bridge alignment alternatives based on comparative measurements. Either alignment may include full vehicle access (existing conditions, restricted access (restricting public vehicles by time of day, day of week or months (school year), or no public vehicular access (limiting vehicle use to transit or campus vehicles only).

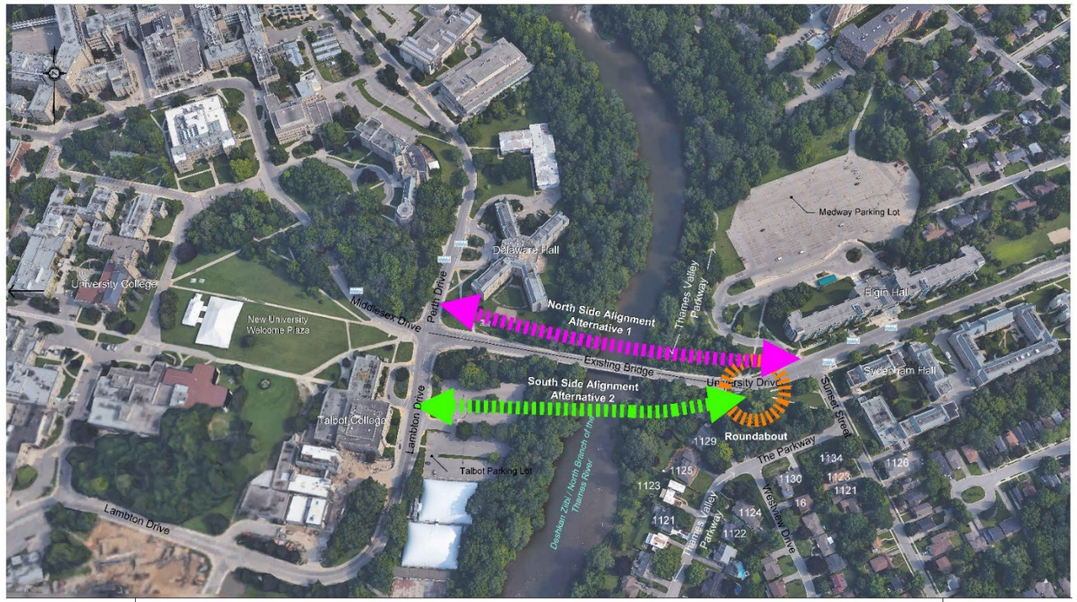


Figure 15: Bridge Alignment Alternatives

Based on the evaluation of preliminary alternative bridge alignments, Alternative 2 South Alignment is recommended to be carried forward in the EA process. This alternative has the best transportation characteristics and minimizes the impacts to the natural, cultural and social environments, land use and property and is anticipated to have a lower cost. This alternative will also avoid impacts to a SAR species; a Kentucky Coffeetree was found in the vicinity of the existing bridge's northwest abutment.

Table 9: Evaluation of New Bridge Alignment

Factors and Sub-Factors Description	North Side Alternative 1		South Side Alternative 2	
1.0 Transportation				
Vehicle Conflicts	○	All equal	○	All equal
Pedestrian Conflicts	🔴	Greater number of conflicts	🟢	Fewer number of conflicts
Delays for Pedestrians	🔴	Higher Average Delay	🟢	Lower Average Delay
Roundabout on sight line axis	◐	Skewed crossing	🟢	Aligned
Loss of existing Talbot parking	🟢	No loss of parking	🔴	Parking impacted
Accommodating a Sunset Dropoff Area - South	🔴	No opportunity	🟢	Good Opportunity
Roadway Geometric Continuity	🔴	Poor	🟢	Good
Flexibility to accommodate expanded transit service	🔴	North alignment is poor	🟢	The south alignment is good
2.0 Natural Environment				
Flora, Fauna and Terrestrial Species at Risk Potential Habitat Impacted	🔴	Greater impact to existing natural riverbank area.	◐	Less impact to existing natural riverbank area.
Species at Risk Potential One SAR species recorded in northeast quadrant of the Study Area	🔴	Impact to northeast quadrant area with SAR habitat.	🟢	No impact to northeast quadrant area with SAR habitat.
River Hydraulics	🟢	No impact to upstream flood levels.	🟢	A new bridge on the south side may have an impact on upstream flood levels. However, a longer bridge and lowering Lambton Drive can eliminate any potential impact.
3.0 Cultural Environment				
Roundabout on sight line axis to Tower.	◐	Roundabout not on axis.	🟢	Roundabout is partially located on the axis.
View from existing structure	◑	Greater impact from view of existing structure. (Closer to existing bridge).	◐	Less impact from view of existing structure. (Further away for the bridge)
4.0 Social Environment				
Visual Intrusion	🔴	Major impact	◑	Minor effects
5.0 Land Use and Property				
Utility Facilities Impacted	🔴	Yes	🟢	No
Impact to Delaware Hall Open Space	🔴	Yes	🟢	No

Factors and Sub-Factors Description	North Side Alternative 1		South Side Alternative 2	
Corridor Width	🔴	Poor: 37 m (centreline to building)	🟢	Best: 125 m (centreline to building)
Space available for drop-off:	🔴	Poor: 28 m There is insufficient room to provide comparable roundabout drop-off area on the north side.	🟢	Best: 50 m
6.0 Cost				
Construction cost (2022 construction dollars)	🔴	Greater cost	🟢	Less cost
Recommendation				
	🔴	Not recommended to be Carried Forward	🟢	Recommended to be Carried Forward

The rating of alternatives follows the scale provided below:

Best	⟷			Worst
🟢	🟢🔴	⚪	🔴🟢	🔴

4.3.2 Coarse Screening of Bridge Structure Alternatives

Three alternative structure types were developed for consideration and are described as follows:

Alternative 1 Concrete Arch

The main span over the river is supported on a single shallow concrete arch rib. The deck is a post-tensioned concrete slab, supported on concrete wall-columns. The arch bears against concrete foundations, supported on a combination of battered piles and inclined micropiles. An open concrete barrier wall exposes the slenderness of the deck. The bridge has an elegant, understated, and classic form, see **Figure 16**.

Figure 16: Concrete Arch Bridge Alternative

Alternative 2 Steel V-Pier

The Steel v-Pier bridge deck is formed by a stiffened steel plate, coated with a high-traction wearing surface. The spans consist of three parallel steel box girders, connected by floor beams. These girders are supported by two V-shaped piers, each leg of which is a welded hollow steel tube. These V-piers are founded on concrete pedestals supported by piles. An open steel barrier exposes the slenderness of the deck. The bridge has a very slender, minimal, and modern appearance, see **Figure 17**.

Figure 17: Steel V-Pier Bridge Alternative

Alternative 3 Steel Box-Girder

This alternative is a conventional structural system commonly used for highway bridges. The spans consist of steel “tubs” onto which a concrete deck is cast. For the main span, the girders vary in depth, becoming deeper at the piers. Piers are cast-in-place concrete, on piled foundations, see **Figure 18**.

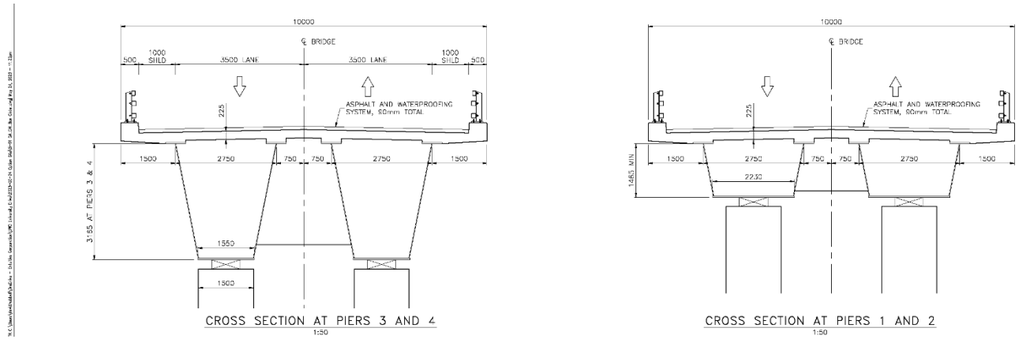


Figure 18: Steel Beam Box Girder Bridge Alternative

The Steel Box Girder bridge (Alternative 3) would be a much thicker structure. To keep the thicker structure above the regulatory 250-year flood, the profile of University Drive would need to be raised approximately 2 m. This would also impact Lambton Drive and would require the profile of Lambton Drive to be raised approximately 2 m adjacent to Talbot College. **This alternative was not carried forward for further evaluation because of the depth of the superstructure** interfering with the trail on the east side. The Coarse Screening of Bridge Alternatives is shown on **Table 10** and found in **Appendix L.**

Table 10: Coarse Screening of Bridge Alternatives

Factor	Alternative 1	Alternative 2	Alternative 3
Transportation			
Safety for pedestrians and cyclists – sightlines at crosswalk would be restricted for Alternative 3.	Good ✓	Good ✓	Poor ✗
Vehicle Safety – The soffit elevation for Alternative 3 results in an undesirably steep downgrade for southbound Lambton Drive approaching the horizontal curve.	Good ✓	Good ✓	Poor ✗
Vehicle Safety – The roadway profile on Lambton Drive, resulting from the soffit elevation for Alternative 3, restricts sightlines through the intersection.	Good ✓	Good ✓	Poor ✗
Talbot College drop-off area grade raise.	Good ✓	Good ✓	Poor ✗
Loss of parking spaces (Talbot Parking Lot) or retaining walls restricting pedestrian access.	Good ✓	Good ✓	Poor ✗
Drainage			
Drainage from Lambton Drive will be directed to Talbot College.	Good ✓	Good ✓	Poor ✗
Structure Considerations			
Bridge Aesthetics.	Good ✓	Good ✓	Poor ✗ • Deep structure depth • Elevated structure above cycling/pedestrian deck reduces views to south
Ease of bridge inspections.	Good ✓	Poor ✗ Low internal clearance height	Good ✓

Factor	Alternative 1	Alternative 2	Alternative 3
Ease of Utility Accommodation.	Fair — Heating and Cooling to use existing bridge	Fair — Heating and Cooling to use existing bridge	Good ✓
Durability All alternatives would be built to meet a 100-year life cycle.	All equal	All equal	All equal
Maintenance All alternatives require comparable maintenance requirements.	Fair —	Fair —	Fair —
Hydraulics			
Loss of Floodplain Storage (Lambton Drive Hydraulics) Alternatives 1 and 2 have similar effects on the flood water levels and floodplain storage. In both cases, the potential effects are considered insignificant. Alternative 3 will result in a substantial volume of fill placed in the floodplain and will have much larger effect on floodplain storage.	Good ✓	Good ✓	Poor ✗
Accommodates the 250-year flood. The raised profile of Lambton Drive required for Alternative 3 will block the existing flood path on Lambton Drive under the regulatory flood, which will have a much larger effect on flood water levels.	Good ✓	Good ✓	Poor ✗
Cultural Environment			
Aesthetics of Talbot College, hidden by elevated Lambton Drive, steep grades on u-drive entrance.	Good ✓	Good ✓	Poor ✗ Potential grading at Talbot College (above basement windows)
			The height of the bridge at Lambton Drive requires approximately a 1–2 m grade raise at Talbot College.
Social Environment			
Campus visual intrusion due to grade raise on Lambton Drive.	Good ✓	Good ✓	Poor ✗
Visual intrusion to residential properties from headlight glare.	Good ✓	Good ✓	Poor ✗
Cost			
Cost to Construct	Fair —	Fair —	Fair —
Civil Cost	Good ✓	Good ✓	Poor ✗
Ease of Construction	All equal	All equal	All equal
Recommendation	**Carried Forward**	**Carried Forward**	Not Carried Forward

Legend: Good ✓ Fair — Poor ✗

4.3.3 Evaluation of Bridge Alternatives

The preliminary conclusions and recommendations of the coarse screening of the Bridge Alternatives, recommended that Alternative 1 (Concrete Arch) and Alternative 2 (Steel V Pier) both be carried forward for further evaluation. The following **Table 11** describes the evaluation of the bridge alternatives carried forward and identifies Alternative 1 Concrete Arch as the preferred alternative, refer in **Appendix M**.

Table 11:Evaluation of Bridge Alternatives

Factor	Alternative 1 Concrete Arch	Alternative 2 Steel V Pier
Transportation		
Roadway improvements at Lambton Drive will improve safety and promote active transportation, with moderate impacts on the existing Talbot parking lot adjacent to the University Tennis Centre.	Equal ✓	Equal ✓
Structure Considerations		
Durability. Both alternatives would be built to meet a 100-year life cycle.	Equal ✓	Equal ✓
Ice Impacts. The steel v-pier structure will have less desirable ice impacts.	Good ✓	Fair —
Maintenance: All alternatives require comparable maintenance requirements.	Equal ✓	Equal ✓
Hydraulics: Loss of Floodplain Storage (Lambton Drive Hydraulics). Alternatives 1 and 2 have similar effects on the flood water levels and floodplain storage. In both cases, the potential effects are considered insignificant.	Good ✓	Poor ✗
Cultural Environment		
Aesthetics of concrete generally match the existing architecture. A concrete bridge is more elegant, cleaner and has a more direct expression of the structure than the existing bridge and is preferred. The steel v-pier is slenderer distinctly modern or youthful compared to the existing bridge.	Good ✓	Fair —
Socio-economic Environment		
Noise (Deck Surface): Both alternatives have a concrete deck. Both alternatives will be equal for noise.	Good ✓	Good ✓
Trail interference: The Thames Valley Parkway on the east side of the river is recognized to be a major active transportation link for the City. The concrete bridge will have greater vertical clearance at the existing trail along the Thames River.	Good ✓	Poor ✗
Cost		
Cost to Construct	Comparable —	Comparable —
Constructability: The ease of construction for the steel bridge is slightly better than the concrete version.	Fair —	Good ✓
Recommendation	**Technically Preferred Alternative**	Do not carry forward.

Legend: Good ✓ Fair — Poor ✗

4.4 Bridge Hydraulics

Hydraulic investigations were carried out for the design of the proposed bridges. The Bridge Hydraulics Report is found in **Appendix N**.

The Upper Thames River Conservation Authority (UTRCA) provided the peak flows with return period of 250 years, the Regulatory Flood in the Thames River within the UTRCA jurisdiction. The design of the bridge used floods corresponding to 50 and 100 years. The calculations assumed that the total bridge span would be 127 m with a main span of 65 m which spans the entire river.

The resultant floodline in the vicinity of the bridge follows the existing floodline and primarily affects University-owned lands including 1129 The Parkway (owned by the university). While a localized transition in water surface elevation occurs downstream of the bridge, no measurable increase in flood elevation is anticipated on adjacent privately owned lands and no impacts to private property are expected, refer to **Figure 19** (illustrating the existing conditions floodplain limits and the Concrete Arch bridge floodplain limits are the same).

4.4.1 Conclusions

The following is a brief summary of the conclusions:

- The flow downstream of the University Drive bridge is constrained by the bridge waterway approximately 25 m downstream;
- Minimum bridge span of 127 m is recommended;
- A longer span cannot be justified due to availability of other methods to improve storage volume; and
- The concrete arch bridge does not change the water levels to adjacent private property.

4.4.2 Recommendations

The following are the hydraulic recommendations:

- Total bridge span be 127 m;
- The Conservation Authority has reviewed and commented on the hydraulic analysis and their comments have been addressed; and
- As part of the Class EA process the public was contacted and provided the opportunity to comment on the proposed work.

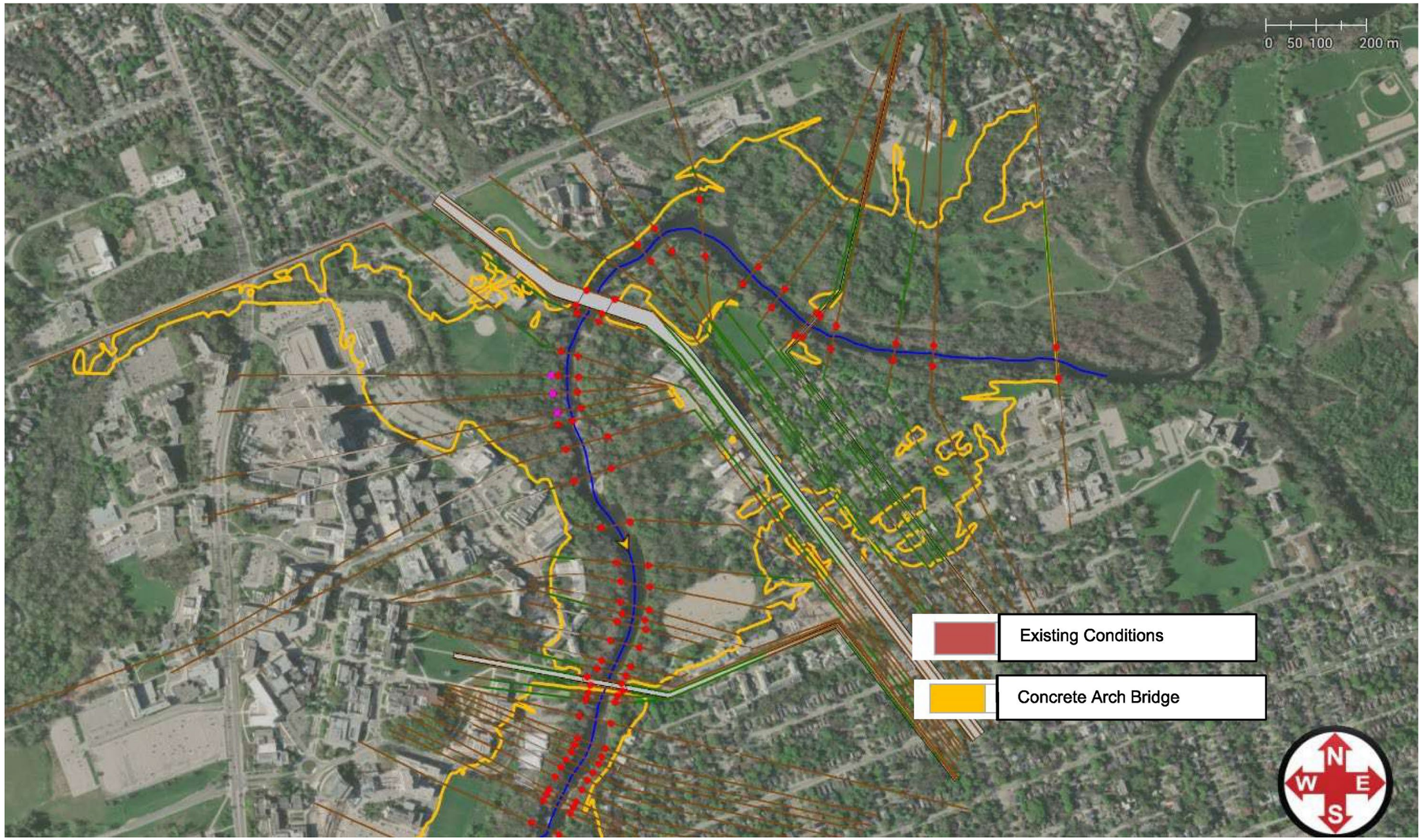


Figure 19: Flood Plain Limits for 250-year Flood with and without the New Concrete Arch Bridge

5.0 RECOMMENDED PLAN EFFECTS, MITIGATION MEASURES AND FUTURE RECOMMENDATIONS

5.1 Recommended Plan

Following PIC No.2, the Technically Preferred Plan (TPP) was subject to refinements based on community input as described in **Section 2.4.2**. The University Bridge Management Recommended Plan is described below:

Bridge Alignment

The Southern bridge alignment is recommended to be carried forward.

- Exhibits the best transportation characteristics and minimizes the impacts to the natural, cultural and social environments, land use and property and is anticipated to have a lower cost.
- Will reduce impacts to the existing infrastructure as well as a SAR species (Kentucky Coffeetree) found at the existing bridge's northwest abutment.

See **Figure 20**.

Structure Type

The Concrete Arch bridge is recommended as the Recommended bridge design. This alternative has visual characteristics consistent with existing bridge architectural features, minimizes the risk of ice impacts, and has less riverbank trail impacts. See **Figure 21** and **Figure 22.**

The Concrete Arch bridge is recommended as the Recommended bridge design. This alternative has visual characteristics consistent with existing bridge architectural features, minimizes the risk of ice impacts, and has less riverbank trail impacts. See **Figure E-5** and **Figure E-6.** Aspects of Recommended Plan include:

- The bridge design criteria is to provide a minimum 100-year service life
- The Concrete Arch was selected as the preferred hydraulic alternative
- Span: 127 m, with a main span of 65 m and no pier in the channel.
- The proposed concrete arch bridge results in no change to water levels, except for localized effects immediately upstream and downstream of the structure. These localized effects are generally confined to University-owned lands, and no impacts to adjacent private property are anticipated.
- The results of the hydraulic analysis were reviewed and accepted by the Upper Thames River Conservation Authority (UTRCA).
- Private property owners immediately upstream and downstream of the proposed bridge have been contacted, meeting a condition of the UTRCA review.
- The public were given the opportunity to offer feedback during the consultation process which will be documented as part of this EA.

West side features of the Recommended Plan:

- Realigning University Drive, to the south, eliminates the major vehicle–pedestrian conflicts.
- The proposed intersection would provide improved safety and allow priority to be given to pedestrians (raised crosswalk and protected signal phasing).
- The existing intersection operates at Level of Service (LOS[9]) B/C for motorists during peak hours.
- During the pm peak hour, the LOS for motorists would improve from C to B with the proposed intersection.
- More significantly, the LOS for pedestrian movements crossing Lambton/Perth Drive would improve from D to A.
- The Talbot parking lot that provides parking for the Faculty of Music and all of their events will be maintained and the parking layout has been reviewed to minimize the loss of spaces. The entrance will be adjusted to provide AODA accessibility cross Lambton Drive with a PXO and a raised crosswalk, see **Figure 23**.
- An extended drop-off zone in front of the Talbot College will also be provided.

East side features of the Recommended Plan:

- University Drive and Sunset Drive intersection will have a raised crosswalk.
- Thames Valley Parkway will be extended under the new bridge and connect to Sunset Drive and the Parkway.

Existing bridge:

- Active transportation-focused uses;
- Separated space for each mode of travel, leading to Western's future Welcome Plaza.
- Opportunity for gathering and engaging with the river; and
- Maintains a gateway into campus and compliment the view to the University Middlesex Memorial Tower.

Thames Valley Parkway

- Existing multi use path, known as the Thames Valley Parkway (TVP) will be maintained under the bridges with connections to University Drive, Sunset Drive and The Parkway. The City of London will be consulted during the Detail Design phase.

The improvements to the existing bridge are shown on **Figure 24**. The final Recommended Plan and profile is found in **Appendix O**.

[9] Level of Service are measures of the quality of traffic operations at the intersection ranging from LOS A depicting free flow conditions to LOS F depicting congested conditions with significant delays and queuing.

5.2 Statement of Flexibility

The Recommended Plan contains key features with flexibility for refinements during Detailed Design including:

- Engage Indigenous Communities participation in commemorating indigenous past and present stewardship of the lands and the waterway, and vital contributors of our society through co-development of naming, cultural elements, and interpretive features.
- Investigate additional delineation to further separate the movement of pedestrians and cyclist and measures to deter j-walking across the realigned University Drive from the TVP to the south.
- Review additional opportunities to delineate between the movement of pedestrians and cyclists.
- Identify TVP detour routes.
- Potential to extend the Lambton Drive cycle tracks to Huron Drive as part of this or a future project.
- Potential variations to the drop off area for the Talbot College which has arrivals and departures that include the drop off or pick up of large musical instruments.

5.3 Effects and Mitigation

The residual effects on the environment were considered in accordance with the MCEA process and are described below. This ESR highlights several factors that will need to be considered during Detail Design and project implementation. This will include impacts to the archaeological artifacts, excessive noise during construction, management of excess soils, species at risk, utilities, vegetation, lighting, and drainage. All these factors will be considered, and mitigated as required, throughout the course of Detail Design and project implementation.

The following sections provide a description of the effects and mitigation proposed with the Recommended Plan.

5.3.1 Natural Environment

5.3.1.1 Groundwater

Protection of decommissioned and abandoned wells from property acquisition, as per Ontario Water Regulations.

Review the requirement for a Permit to Take Water during Detail Design.

5.3.1.2 Source Water Protection

It is not anticipated that the proposed works will create or modify a transport pathway for source water, notification of the Source Protection Authorities and Committees is not required.

5.3.1.3 Surface Water Protection

The bridge will be a new crossing of the North Thames River. To protect the river from possible construction contamination the following should be carried out:

- Conduct equipment refueling, maintenance and repair a sufficient distance from the watercourses to prevent the entry of contaminants to the watercourses.
- Contain and clean up spills quickly and effectively.
- Identify the location of the local MECP office for reporting spills in accordance with SP 199F34 (Identification of Local MECP Office).
- Report all spills that could potentially cause damage to the environment to the Spills Action Centre of the MECP.
- Standard stormwater management considerations are made to protect aquatic systems and the ground water recharge areas encountered. Stormwater will not use direct discharge into the river. There should be no degradation of even locally significant ecological features or functions.

5.3.1.4 Erosion and Sedimentation Control

Erosion and sedimentation controls (ESC) and standard Best Management Practices (BMP) should be used around the watercourses to prevent encroachment and the transfer of deleterious substances into the direct or indirect aquatic habitat prior to construction works. The project is not anticipated to result in significant impacts on erosion and sedimentation. The effective management of erosion and sedimentation will protect aquatic systems and the riparian vegetation adjacent to the site.

5.3.2 Fish and Fish Habitat

No in-water work is planned and impacts to fish and fish habitat are not anticipated. ESC measures shall be implemented, refer to **Section 5.3.1.3**.

The extent of permits and approvals related to the natural environment will depend on the design alternatives associated with the bridge. Any in-water works will require review by DFO under the Request for Review process. Depending on the extent of in-water works, their potential impacts and associated mitigation measures, DFO will determine the potential for the death of fish or Harmful Alteration, Disruption or Destruction (HADD) of fish habitat. Should the potential for HADD be identified, an Authorization application will need to be submitted under the federal *Fisheries Act*. This will require the preparation of an Offsetting Plan including pre-construction, construction and post-construction monitoring, Indigenous Consultation to be completed by both the consultant and DFO, and a Letter of Credit by Western University to be held by DFO until the project is complete. This includes post-construction monitoring, which may be in the range of 2-3 years. As the Study Area is identified as Critical SAR Habitat for multiple aquatic SAR, any in-water work will also require that one or more SARA permits be applied for. As one or more of these SAR are also listed under the provincial ESA, one or more ESA permits or species registrations will also need to be obtained prior to construction proceeding.

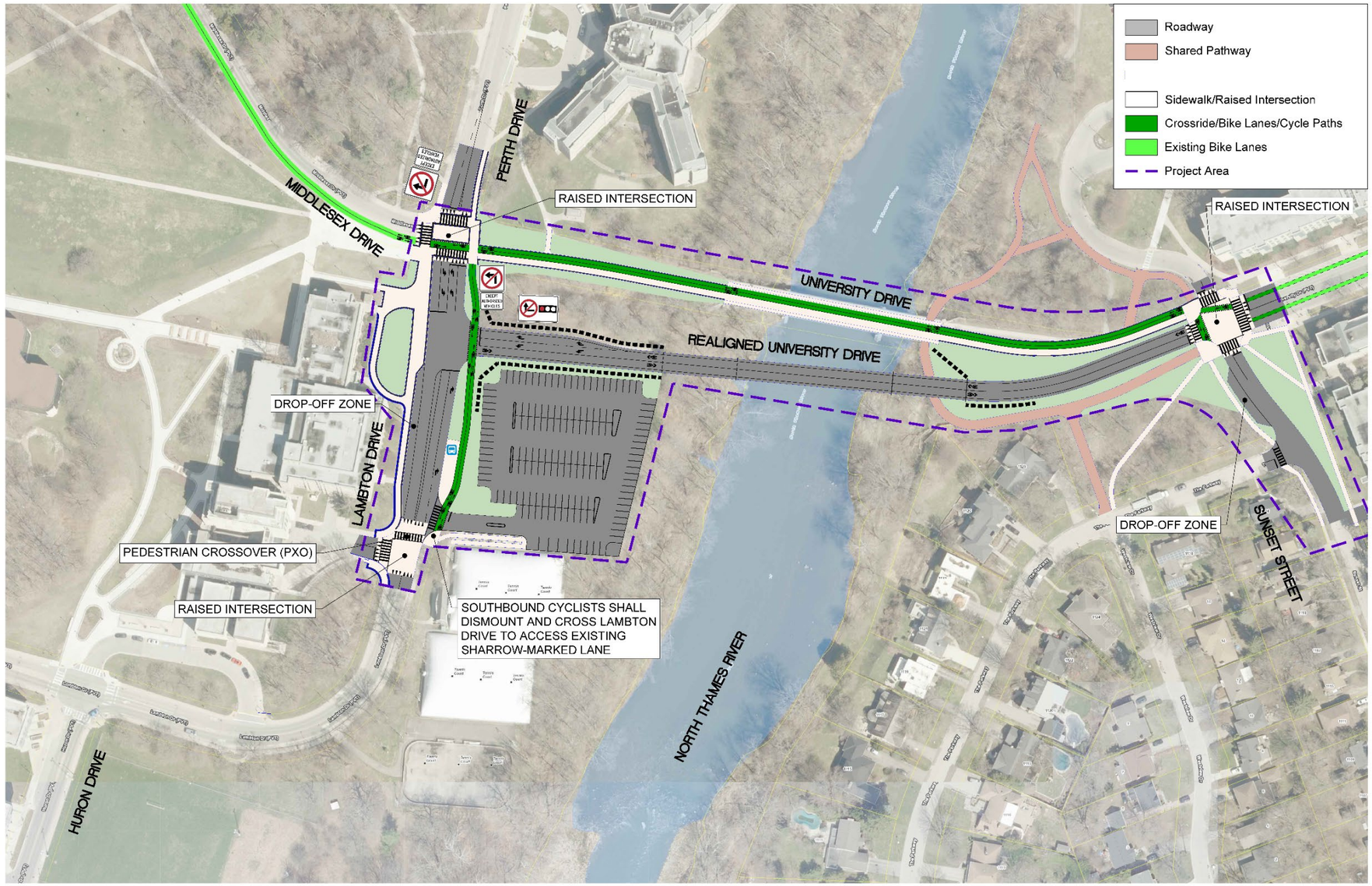
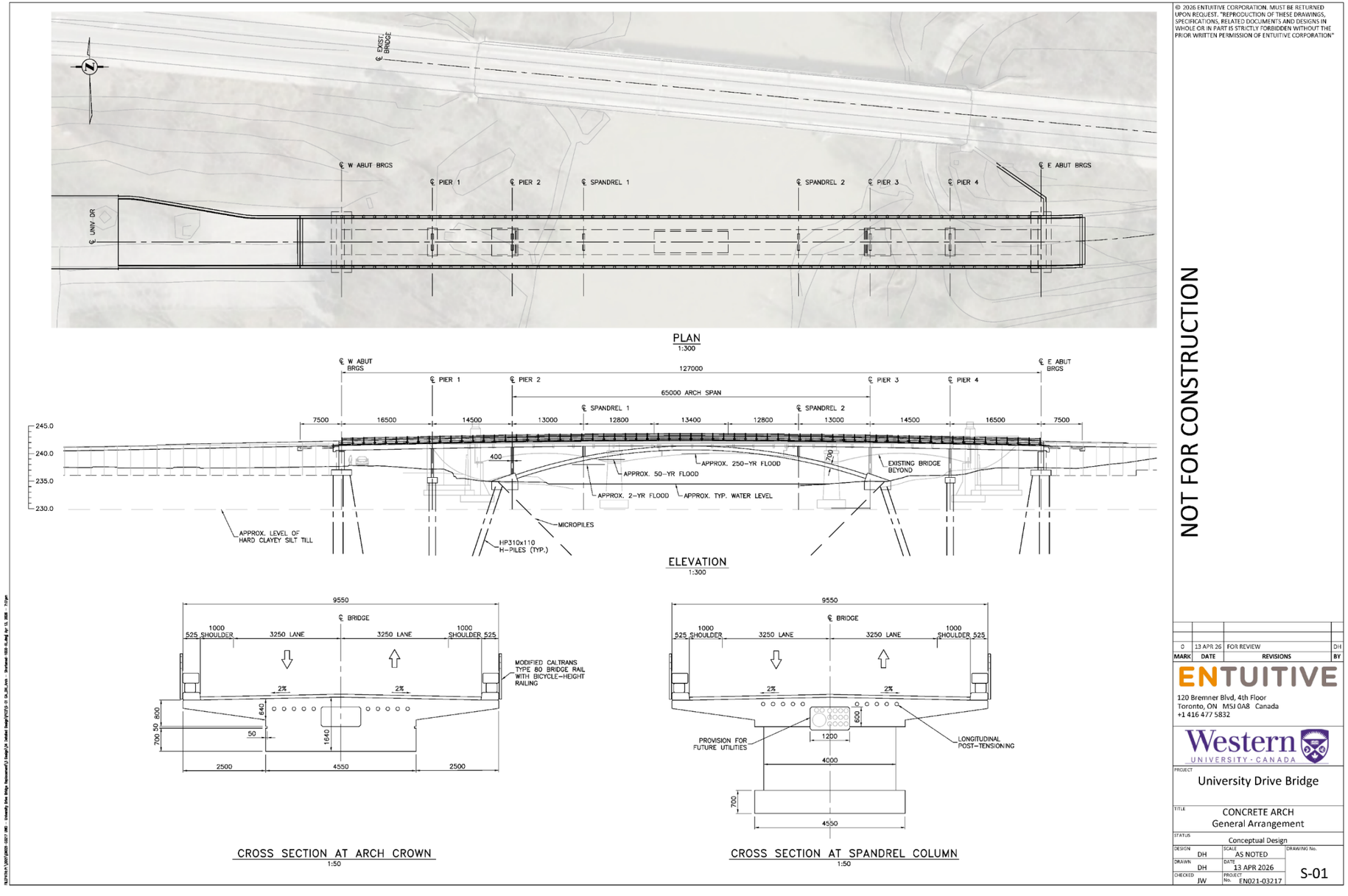


Figure 20: Recommended Plan

Figure 21: Recommended Bridge



NOT FOR CONSTRUCTION

MARK	DATE	REVISIONS	BY
0	13 APR 26	FOR REVIEW	DH

ENTUITIVE
120 Bremner Blvd, 4th Floor
Toronto, ON M5J 0A8 Canada
+1 416 477 5832

PROJECT: University Drive Bridge
TITLE: CONCRETE ARCH General Arrangement
STATUS: Conceptual Design

DESIGN	SCALE	DRAWING No.
DH	AS NOTED	S-01
DRAWN: DH	DATE: 13 APR 2026	
CHECKED: JW	PROJECT No.: EN021-03217	

Figure 22: Recommended Structure General Arrangement Drawing

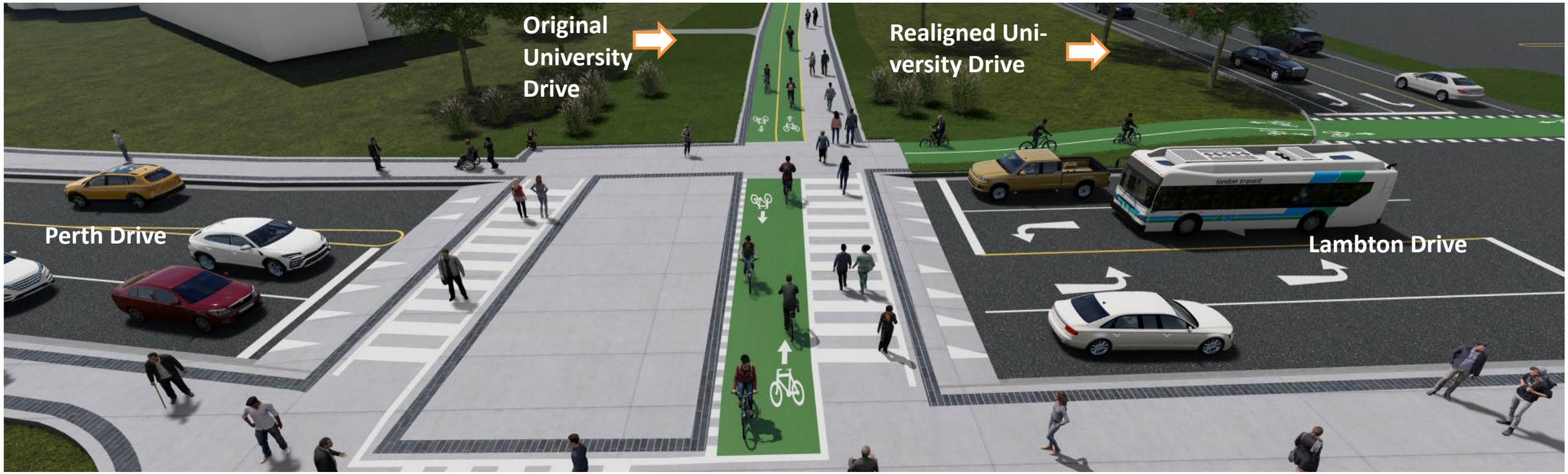


Figure 23: Rendering of Recommended Perth Drive and Lambton Drive Intersection with the New University Drive

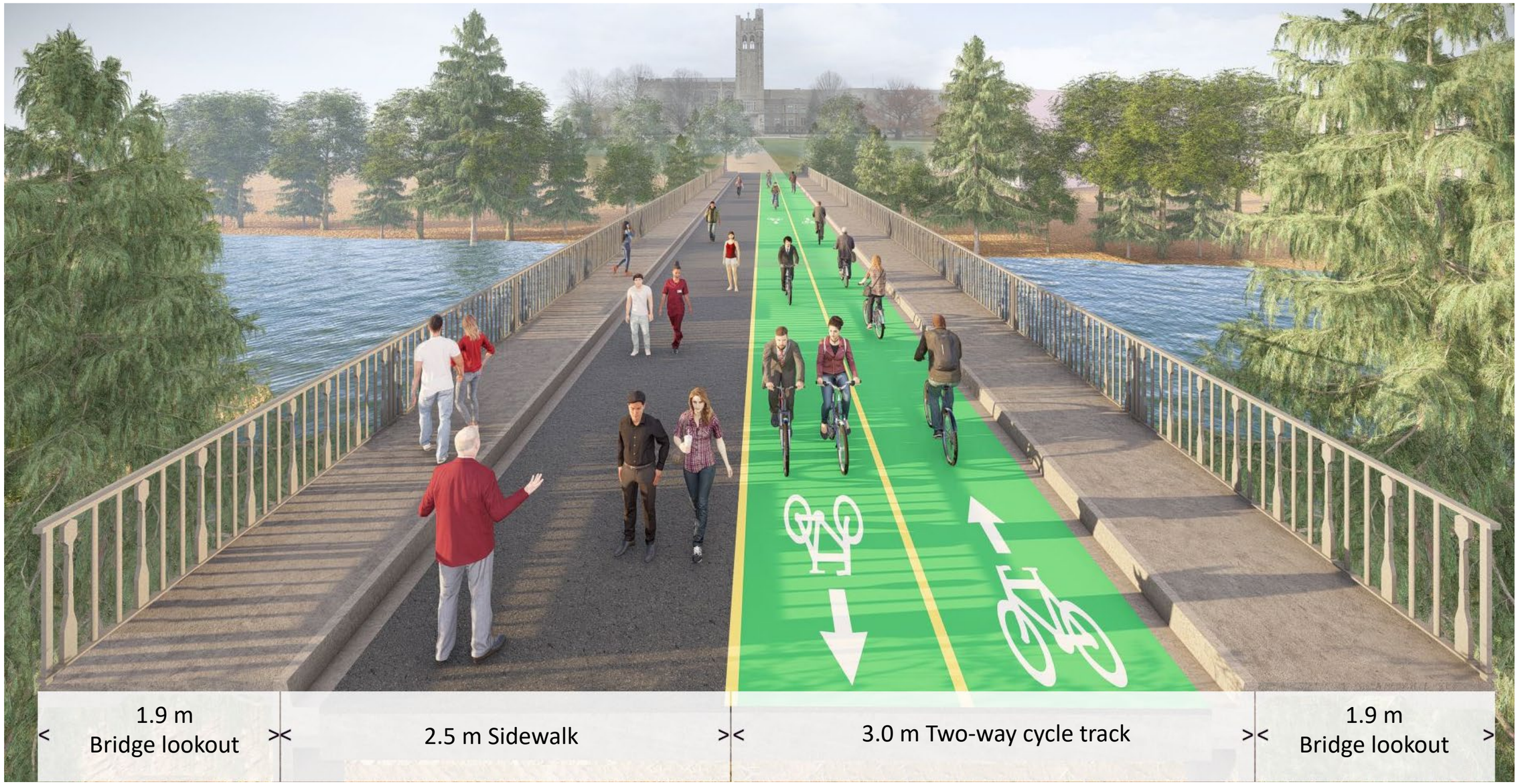


Figure 24: Existing Bridge Improvements

5.3.3 Terrestrial Environment

Recommendations to minimize impacts to wildlife (i.e. timing of works, exclusion fencing, etc.) will form part of mitigation measures for the project.

Permanent habitat loss associated with the new infrastructure footprint, as well as temporary losses within the construction area require vegetation removal from the significant woodland may involve the removal of portions of the Lowland Deciduous Forest Ecosite (FODM7) on both sides of the valley. Both native and non-natives species, including Red Maple, Sycamore, Black Locust, Black Cherry, Manitoba Maple, Basswood, and occasional Black Walnut. Woodland removals could be mitigated through planting of appropriate native species, as close to the site of disturbance as possible.

Any clearing and grubbing should be completed outside of the active breeding bird season of April 1 to August 31.

To protect turtles, install silt fencing before turtle nesting season (May 15 to Sept. 30) and protect and buffer active nests. Avoid groundwater alteration in between October 1 and April 1 during turtle hibernation.

Provide protection for both migratory and resident SAR bats, an active season of March 15 to November 30 is generally recommended. As a best management practice, applicants are encouraged to consider scheduling project activities outside of this active season, where feasible.

5.3.3.1 Climate Change

The twinning of the University Drive bridge is not anticipated to produce an increase or significant decrease in greenhouse gas emissions.

5.3.3.2 Air Quality

There is potential for temporary lower air quality during construction. The contractor will be required to maintain the construction equipment in good working order.

MECP recommends that non-chloride dust suppressants be applied, if necessary. For a comprehensive list of fugitive dust prevention and control measures, refer to *Cheminfo Services Inc. Best Practices for the Reduction of Air Emissions from Construction and Demolition Activities* report prepared for Environment Canada, March 2005. As no existing roads have a granular surface the requirement of dust control is expected to be minor.

5.3.4 Cultural Environment

5.3.4.1 Built Existing Resources and Cultural Landscapes

The University Drive Bridge EA recommendations do not diminish the existing value of this Canadian Heritage River.

It is anticipated that the proposed improvements to the existing bridge will ensure that the existing attributes are retained and the new structure will be subordinate to, compatible with and distinguishable from the existing structure.

5.3.4.2 Stage 2 Archaeological Assessment

No further archaeological assessment is recommended.

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*.

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.

5.3.5 Socio-Economic Environment

5.3.5.1 Land Use and Property

The new University Drive Bridge is anticipated to conform with the future land use planning by the University of Western, the City of London and the policies of the Province of Ontario.

5.3.5.2 Utilities

Existing services on the existing bridge will not be impacted by the proposed works.

5.3.5.3 Noise

It is not considered technically feasible to implement noise barriers for a single property. The receiver site at 1129 The Parkway has been purchased by Western. No further mitigation is required.

5.3.5.4 Stormwater Management

Stormwater management will need to be considered during Detail Design to address potential impacts associated with the increased imperviousness, changes in runoff characteristics, and modifications to roadway grading and drainage patterns. Stormwater management measures will be required to control post-development runoff to acceptable levels relative to pre-development conditions focussing on water quality.

5.3.5.5 Permits and Approvals

Ministry of the Environment, Conservation and Parks

- In the event that any terrestrial SAR (i.e. bats, birds, vegetation) are found, permitting or species registrations may also be required. Provincial SAR permitting is applied for through the Ministry of the Environment, Conservation and Parks (MECP). Undertake targeted, specialized SAR surveys during Detail Design as required depending on species conservation status designations as they exist at that time. Ensure the design and construction complies with the *Species Conservation Act* (2025).

Upper Thames River Conservation Authority

- All works will require a permit from the Upper Thames River Conservation Authority under Ontario Regulation 157/06 for Development, Interference with Wetlands and Alterations to Shorelines and Watercourses.

Ministry of Natural Resources

- Should the Recommended Design alternative require the permanent use of new lands, a *Public Lands Act* permit may need to be obtained from the Ministry of Natural Resources (MNR). The requirement for a permit for the new crossing of Crown land to be defined during the Detail Design.

Transport Canada

- ***Canadian Navigable Waters Act (CNWA)*** – the Act applies primarily to works constructed or placed in, on, over, under, through, or across navigable waters set out under the Act. The Navigation Protection Program administers the CNWA through the review and authorization of works affecting navigable waters. Information about the Program, CNWA and approval process is available at: http://www.tc.gc.ca/eng/programs-621.html. Inquiries can be directed to NPPONT-PPNONT@tc.gc.ca or by calling (519) 383-1863.
- Restrictions will be in place for use of the river under the new bridge during construction. Canoeists will be required to portage around the construction zone.

City of London:

- If any damage or repairs are required to the TVP the design team will contact the City of London team to coordinate construction impacts.
- City of London should be consulted once a construction decision has been made regarding the rehabilitation or replacement of the bridge, so that appropriate TVP detours can be coordinated during the construction period.

5.3.6 Summary of Effects and Mitigation

Key issues and Preliminary Design features and associated mitigation measures have been identified and summarized in **Table 12.**

Identified Preliminary Design mitigation measures reflect commitments by Western to mitigate environmental effects. Effects on the environment were considered in accordance with the MCEA process.

5.4 Monitoring

As the proponent, Western will commit to a Monitoring Program for this project as part of the Detail Design and Construction phases. Site inspection will include a monitoring program as part of the Construction Administration to ensure the continuity of the environmental measures outlined in **Table 12**.

The Monitoring Program will address the Class Document requirements as set out in Section A.4.2.1 including:

- Key impacts to be monitored;
- Monitoring requirements during Detail Design, construction and during the operation of University Drive Bridge;
- The period during which monitoring will be necessary;
- Frequency and timing of surveys, the location of monitoring sites and the methods of data collection, analysis and evaluation;
- The content, manner and form in which records of monitoring data are to be prepared and retained; and
- Where and for how long monitoring records and documentation will be on file, specific requirements for monitoring appropriate to the particular circumstances and conditions under which the project will be implemented.

5.5 30-Day Review

Following the Notice of Study Completion there is a minimum 30-day period during which documentation may be reviewed and comments and input can be submitted to the proponent.

The public may request a higher level of assessment on a project if they are concerned about potential adverse impacts to constitutionally protected Aboriginal and treaty rights, Section 16(6) of the *Environmental Assessment Act*. In addition, the Minister may issue an order on their own initiative within a specified time period. The Director of the EA Branch will issue a Notice of Proposed Order to the proponent if the Minister is considering an order for the project within 30 days after the conclusion of the comment period on the Notice of Completion. At this time, the Director may request additional information from the proponent. Once the requested information has been received, the Minister will have 30 days within which to make a decision or impose conditions on the project.

The Notice of Study Completion, for this study, contains directions on how an individual or group can communicate their concerns to the Minister of the Environment Conservation and Parks. These directions are outlined below and in the public notice.

Therefore, the proponent cannot proceed with the project until at least 30 days after the end of the comment period provided for in the Notice of Completion. Further, the proponent may not proceed after this time if:

- A Section 16 order request has been submitted to the ministry **regarding potential adverse impacts to constitutionally protected Aboriginal and treaty rights**; or
- The Director has issued a Notice of Proposed Order regarding the project.

Outstanding concerns are to be directed to the proponent for a response, and that in the event there are outstanding concerns regarding potential adverse impacts to constitutionally protected Aboriginal and treaty rights, a Section 16 order request on those matters should be addressed in writing to:

Minister Todd J. McCarthy
777 Bay Street, 5th Floor
Toronto, ON M7A 2J3
minister.mecp@ontario.ca

Director, Environmental Assessment and Permissions Branch
Ministry of Environment, Conservation and Parks
135 St. Clair Avenue West, 1st Floor
Toronto, ON M4V 1P5
EABDirector@ontario.ca

Requests to the Minister of the Environment, Conservation and Parks should also be sent by mail or by email to the consultant EA Project Manager and University Project Manager:

Trent Williams
Project Coordinator
Western University
1151 Richmond Street
London, ON N6A 3K7
westernubridge@uwo.ca

Steve Taylor, P.Eng., M.Eng.
Project Manager
BT Engineering Inc.
509 Talbot Street
London, ON N6A 2S5

5.6 Future Activities

Following EA clearance and a 30-day public review period, if there are no objections, this project, or any individual element of this project, may proceed to Detail Design and Construction after obtaining the necessary environmental permits and approvals, and subject to availability of funding and construction priorities of the University. Mitigation measures listed in **Section 5.0** are to be incorporated during Detail Design and Construction, as appropriate. The timeline for implementation is expected to be 2027 to 2028.

Table 12: Effects and Mitigation		
Issue/Concern **Potential Effects**	**Concerned Agency**	**Proposed Mitigation** **(prevent, lessen or remedy potential detrimental environmental effects)**
Groundwater Surface Water Protection: There is potential for spills due to construction activities.	MECP	Protection of decommissioned and abandoned wells and septic systems from property acquisition, as per Ontario Water Regulations. Review the requirement for a Permit to Take Water during Detail Design. • Conduct equipment refueling, maintenance and repair a sufficient distance from the watercourses to prevent the entry of contaminants to the watercourses. • Contain and clean up spills quickly and effectively. • Identify the location of the local MECP office for reporting spills in accordance with SP 199F34 (Identification of Local MECP Office). • Report all spills that could potentially cause damage to the environment to the Spills Action Centre of the MECP. • standard stormwater management considerations are made to protect aquatic systems and the ground water recharge areas encountered along the corridor; there should be no degradation of even locally significant ecological features or functions.
Fish Habitat	MNR DFO	• Detailed sediment and erosion control, use of rolled blankets following earthworks.
SAR	MECP	• Undertake targeted, specialized SAR surveys during Detail Design as required depending on species conservation status designations as they exist at that time. Ensure the design and construction complies with the *Species Conservation Act* (2025). • Species at risk surveys, particularly bats, birds, and vegetation
Migratory Birds	MNR	• Any clearing and grubbing should be completed outside of the active breeding bird season of April 1 to August 31.
Turtles and Turtle Habitat	MNR	• Install silt fencing before turtle nesting season (May 15 to Sept. 30). • Protect and buffer active nests. • Avoid groundwater alteration in between October 1 and April 1 during turtle hibernation.
SAR Bats	MECP	• Provide protection for both migratory and resident SAR bats, an active season of March 15 to November 30 is generally recommended. As a best management practice, applicants are encouraged to consider scheduling project activities outside of this active season, where feasible.
Water Quality and Stormwater	UTRCA MECP	• Provide a Stormwater Management Plan.
Significant Woodlots	MNR	• Avoid specimen trees and limit tree clearing. Plant appropriate native species, as close to the site of disturbance as possible.
Archaeological	MCM	• Should previously undocumented (i.e., unknown or deeply buried) archaeological resources be discovered, they may be a new archaeological site and therefore subject to Section 48(1) of the *Ontario Heritage Act*. • 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.
Noise	City of London	• Municipal Noise By-laws are to be followed during construction adjacent to residential areas.

Table 12: Effects and Mitigation		
Issue/Concern **Potential Effects**	**Concerned Agency**	**Proposed Mitigation** **(prevent, lessen or remedy potential detrimental environmental effects)**
Management of Surplus Materials	MECP	OPSS 180 apply MECP “Management of Excess Materials in Road Construction and Maintenance Guidelines”.
Changes to Emergency Services		• Liaison during Detail Design.
Permits and approvals	MECP UTRCA TC MNR	• Permit to Take Water • Permit under the *Species Conservation Act* (2025) if the proposed work will harm an endangered species or its habitat Permit for development and interference with wetlands, shorelines and other hazard lands under Ontario Regulation 41/24 • All works will require a permit from the Upper Thames River Conservation Authority under Ontario Regulation 157/06 for Development, Interference with Wetlands and Alterations to Shorelines and Watercourses. • For works constructed or placed in, on, over, under, through, or across navigable waters set out under the Act. The Navigation Protection Program administers the CNWA through the review and authorization of works affecting navigable waters. • Requirements for a permit for the river crossing over Crown land to be confirmed during Detail Design.
Changes to the TVP	City of London	• If any damage or repairs are required to the TVP please contact the City of London team to coordinate construction impacts. • City of London should be consulted once a construction decision has been made regarding the rehabilitation or replacement of the bridge, so that appropriate TVP detours can be coordinated during the construction period.

Legend: MECP: Ministry of Environment, Conservation and Parks
MNR: Ministry of Natural Resources
TC: Transport Canada
UTRCA: Essex Region Conservation Authority
DFO: Department of Fisheries and Oceans
MCM: Ministry of Citizenship and Multiculturalism