



Oxford Street West and Gideon Drive Intersection Improvements Class Environmental Assessment Study

Project File Report
Final

June 23, 2022

Prepared for:





R.V. Anderson Associates Limited
557 Southdale Road Suite 200
London Ontario N6E 1A2 Canada
Tel 519 681 9916 Fax 855 833 4022
www.rvanderson.com

June 23, 2022

RVA 205505

City of London
300 Dufferin Avenue
London, ON N6A 4L9

Attention: Kathleen Johnson, EIT

Dear Kathleen:

Re: Oxford Street West and Gideon Drive Intersection Improvements Class
Environmental Assessment, City of London Project Number TS1332
Project File Report – Final

Please find enclosed the final Project File Report (PFR) for the Oxford Street West and Gideon Drive Intersection Improvements Municipal Class Environmental Assessment (Schedule B), completed by R.V. Anderson Associates Limited.

This Class Environmental Assessment was conducted in accordance with the requirements of the Municipal Class Environmental Assessment (Class EA) – Schedule 'B'. As such, we have prepared a Notice of Completion, for distribution to stakeholders and general advertisement inviting the public to review this Project File Report. The public will be invited to provide comments or concerns with this study. If no requests have been received by the Minister of Environment, Conservation and Parks within 60 calendar days of filing of the Notice of Study Completion, the City may implement the study recommendations, complete the design and proceed to construction.

We appreciate the input received from the City and collaboration throughout the study. If you have any questions, please do not hesitate to contact the undersigned by email or at 905-681-9916 ext. 5026.

Yours very truly,

R.V. ANDERSON ASSOCIATES LIMITED

Henry Huotari, P. Eng.
Senior Project Manager



Oxford Street West and Gideon Drive Intersection Improvements Class Environmental Assessment Study

Project File Report
Final

City of London

This document is protected by copyright and was prepared by R.V. Anderson Associates Limited for the account of the City of London. It shall not be copied without permission. The material in it reflects our best judgment in light of the information available to R.V. Anderson Associates Limited at the time of preparation. Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. R.V. Anderson Associates Limited accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.



In Association With:



City of London TS1332

RVA 205505

June 23, 2022

**Oxford Street West and Gideon Drive Intersection Improvements Class
Environmental Assessment Project File Report**

TABLE OF CONTENTS

Executive Summary.....	1
1.0 Introduction and Background.....	1
1.1 Introduction.....	1
1.2 Study Area.....	1
1.3 Background	2
1.4 Study Objectives	2
1.5 Municipal Class Environmental Assessment	2
1.6 Study Organization.....	6
1.7 Study Schedule	6
1.8 Consultation Requirements	6
2.0 Existing Conditions	8
2.1 Traffic and Operations.....	8
2.2 Municipal Services	10
2.3 Socio-Economic Environment	12
2.4 Natural Environment.....	12
2.5 Cultural Heritage	16
2.6 Archaeological Potential.....	16
2.7 Geotechnical Assessment.....	17
3.0 Problem and Opportunity Statement	18
4.0 Alternative Solutions.....	19
4.1 Assessment Criteria	19
4.2 Evaluation Methodology and Ranking System.....	20
4.3 Description of Alternative Solutions.....	20
4.4 Evaluation of Alternative Solutions.....	24
5.0 Description of the Recommended Solution.....	26
5.1 Design Criteria.....	26
5.2 Roadway and Active Transportation	27
5.3 Geotechnical Recommendations	29
5.4 Landscape Plan.....	29
5.5 Municipal Services	29
5.6 Illumination Recommendations	31
5.7 Preliminary Cost Estimate and Estimated Timing	32

6.0	Potential Environmental Impacts, Mitigation and Monitoring	33
6.1	Transportation Environment	33
6.2	Socio-Economic Environment	33
6.3	Natural Environmental.....	35
6.4	Climate Change.....	38
6.5	Cultural Heritage and Archaeological Resources	39
6.6	Municipal Infrastructure and Utilities	41
6.7	Monitoring During Construction.....	41
7.0	Public Consultation	42
7.1	Key Stakeholders, Interest Groups & Technical Agencies....	42
7.2	Indigenous Communities Communications.....	49
7.3	City of London Staff and Advisory Committees.....	52
7.4	Residents and General Public.....	52
8.0	Additional Work and Approvals	56
8.1	Detailed Design Commitments.....	56
8.2	Permits & Approvals.....	57
8.3	Distribution of Notice of Study Completion and Project File Report.....	57

LIST OF TABLES

Table ES 1 – Preliminary Timing Summary

Table ES 2 – Preliminary Cost Estimate

Table 1.1 – Study Schedule

Table 4.1 – Evaluation Criteria

Table 4.2 – Oxford Street West and Gideon Drive Intersection Alternatives
Evaluation

Table 5.1 – Preliminary Timing Summary

Table 5.2 – Preliminary Cost Estimate

Table 7.1 – Comments Received from Technical Agencies & Key Stakeholders

Table 7.2 – Comments Received from Indigenous Communities

Table 7.3 – Comments Received from Residents and General Public

LIST OF FIGURES

Figure ES 1 – Study Area

Figure 1.1 – Study Area

Figure 1.2 - Municipal Class Environmental Assessment Process (Municipal Engineers Association, 2021)

Figure 2.1 – Oxford Street West at Gideon Drive Intersection

Figure 4.1- Alternative Solution Rating Scale

Figure 5.1– Oxford Street West and Gideon Drive Intersection Preferred Solution

APPENDICES

APPENDIX 1 CONSULTATION MATERIAL

APPENDIX 1-1 Notices

APPENDIX 1-2 Technical Agency and Stakeholder List

APPENDIX 1-3 Public Information Centre Display Materials

APPENDIX 1-4 Technical Agency and Key Stakeholder Consultation

APPENDIX 1-5 Indigenous Communities Communications

APPENDIX 1-6 Residents and General Public Comments Received

APPENDIX 2 TRANSPORTATION OPERATIONS ANALYSIS

APPENDIX 3 ENVIRONMENTAL IMPACT STUDY AND TREE ASSESSMENT REPORT

APPENDIX 3-1 Environmental Impact Study

APPENDIX 3-2 Tree Assessment Report

APPENDIX 4 CULTURAL HERITAGE RESOURCE ASSESSMENT

APPENDIX 5 STAGE 1 AND 2 ARCHEOLOGICAL ASSESSMENT

APPENDIX 6 PRELIMINARY GEOTECHNICAL ASSESSMENT

APPENDIX 7 PRELIMINARY DESIGN DRAWING

APPENDIX 8 DESIGN CRITERIA

APPENDIX 9 TREE PRESERVATION AND PRELIMINARY LANDSCAPE PLANS

APPENDIX 10 STORMWATER MANAGEMENT STRATEGY

APPENDIX 11 ROUNDABOUT LIGHTING RECOMMENDATIONS

APPENDIX 12 SERVICING STRATEGY

Executive Summary

In response to ongoing and future developments on the west side of the City of London, Ontario, the recent extension of Kains Road, and associated increases in traffic volumes along Oxford Street West and Gideon Drive, the City of London are planning for improvements to the Oxford Street West, Gideon Drive and Kains Road intersection. In addressing the need to address operational and safety improvements at the intersection in consideration of future development and associated traffic demands, the study considered upgrades and accommodation of underground services (watermain, storm and sanitary sewer).

Various technical studies were completed to assess the existing conditions and potential impacts of the alternatives being considered. Studies included: Traffic Operations Analysis, Environmental Impact Study, Cultural Heritage Resource Assessment, Stage 1 – 2 Archaeological Assessment, Stormwater Management Strategy, Illumination Analysis and Recommendations, and Preliminary Geotechnical Investigation. The findings of these studies were incorporated into the evaluation of alternative solutions.

This report summarizes the Class EA that was conducted to select the preferred solutions for improvements to the Oxford Street West and Gideon Drive in the City of London. The study area is outlined in Figure ES 1.

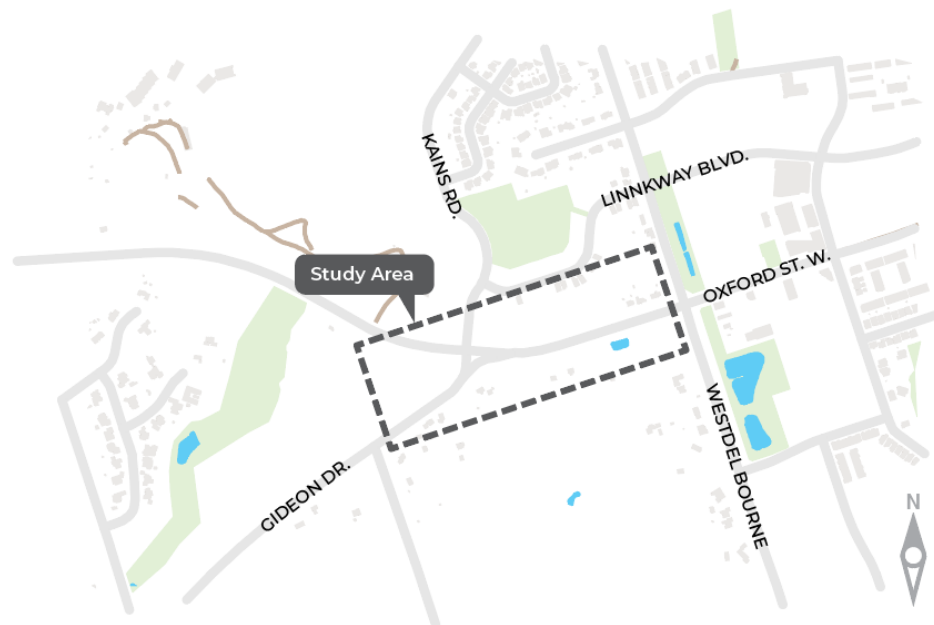


Figure ES 1 – Study Area

EA Phase 1 ~ Problem & Opportunity Statement

Per Phase 1 requirements of the Municipal Class Environmental Assessment process for a Schedule 'B' project, a "Problem and Opportunity Statement" was prepared following the assessment of the existing conditions within the study area to identify the various problems and opportunities to be addressed throughout the study.

The Study Problem & Opportunity Statement developed for the project is comprised of the following key elements:

- The Oxford Street West and Gideon Drive intersection does not balance the full range of potential users within the community, including users of all ages and abilities, pedestrians, cyclists, potential future transit vehicles and motorists.
- The existing Oxford Street West and Gideon Drive intersection does not accommodate projected traffic volumes.
- The need to support the City's Climate Emergency Action Plan goals.
- Ensure that existing watermains and sewers in the vicinity of the intersection are positioned to provide opportunities for future connection to designated development lands.

EA Phase 2 ~ Alternative Solutions

The evaluation of alternatives was completed in one step, or Phase in accordance with Schedule 'B' class EA requirements. Alternative solutions were reviewed for the Oxford Street West and Gideon Drive intersection, as follows:

1. **Do Nothing** – Maintain existing condition of Oxford and Gideon
2. **Signalized Intersection** – Improvements consist of installation of traffic signals, crosswalks and cycling facilities
3. **Single-Lane Roundabout Intersection** – Implement a single lane roundabout, crosswalks and cycling facilities
4. **Multi-Lane Roundabout Intersection** – Implement a multi-lane roundabout with additional lanes to accommodate heavier traffic movements. Install crosswalks and cycling facilities.

Based on the comparative evaluation that was undertaken using criteria representing the broad definition of the environment as described in the EA Act and incorporating feedback from the public and agencies, the preferred solution was identified to be Alternative 4: Multi-Lane Roundabout Intersection.

Impacts, Mitigation & Monitoring

The key impacts associated with the implementation of the proposed solution and general mitigation required have been identified. In addition to the mitigation measures identified in the report, additional work will be required to be completed following the Class EA, prior to construction. During detailed design, findings from the Class EA will be confirmed through additional investigations, planning and consultation with the public and technical agencies.

Preliminary Construction Timing and Cost Estimates

Construction is anticipated to commence in 2024, and last one construction season. The anticipated timeline for the proposed works is outlined in the table below.

Table ES 1 – Preliminary Timing Summary

Activity	Timing
Detailed Design	2022 – 2023
Utility Relocations and Property Acquisition	Late 2023
Construction	2024

A preliminary cost estimate has been prepared for the construction of the recommended design. The preliminary cost estimate to complete the reconstruction of the roadway and intersection is \$5,340,000, as shown in the table below.

Table ES 2 – Preliminary Cost Estimate

Item	Cost
Miscellaneous / General (Bonding, Insurance, Traffic Control, Pre-Condition Surveys)	\$388,500
Removals	\$829,725
Storm Sewers and Culverts	\$180,000
Sanitary Servicing	\$210,000
Roadworks	\$1,767,050
Streetlighting	\$302,000
Hydro Relocation and Property Acquisition	\$140,000
Subtotal	\$3,817,275

Item	Cost
Engineering & Construction Administration (20%)	\$763,455
Contingency (20%)	\$763,455
Total	\$5,340,000

1.0 Introduction and Background

1.1 Introduction

The intersection of Oxford Street West and Gideon Drive has seen an increase in traffic volume in recent years, because of development growth, including the recent extension of Kains Road. With further growth anticipated in the area, the intersection no longer has the capacity to accommodate current and future traffic demand. In response, The City of London is planning for improvements to the Oxford Street West and Gideon Drive intersection. In addressing the need to increase capacity of the intersection, options for geometric and operational improvements to the intersection; improved pedestrian and cyclist amenities; and active transportation connectivity were considered, with recommendations for upgrades and accommodation of municipal services (watermain, storm and sanitary sewer) and utilities included as required.

This project followed the Schedule 'B' process of the Municipal Engineers Association Municipal Class Environmental Assessment (October 2000, amended in 2007, 2011 & 2015).

1.2 Study Area

The study area includes the Oxford Street West, Gideon Drive and Kains Road intersection and up to 200 meters in each direction of the intersecting road approaches, adjacent lands and watercourses that may be affected. The study area is outlined in Figure 1.1.

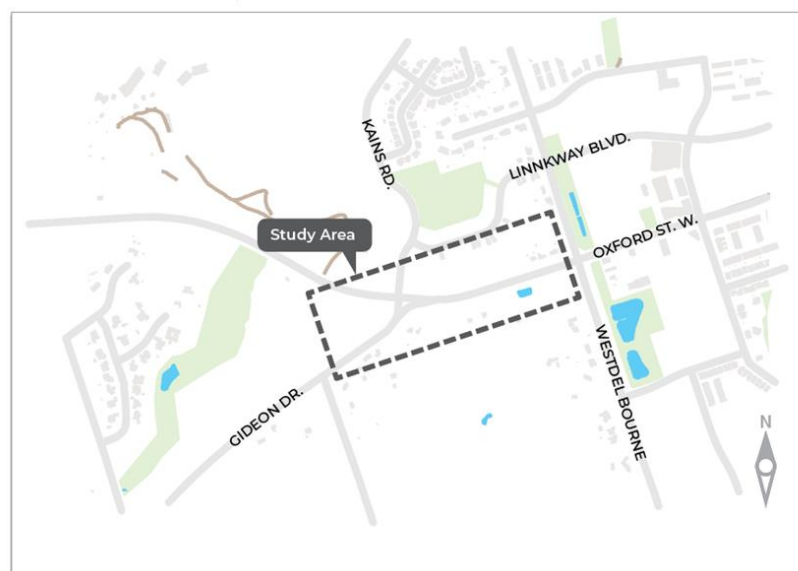


Figure 1.1 – Study Area

1.3 Background

As a major, very important corridor in the city, Oxford Street not only acts as an east/west link within the City, but also connects surrounding areas west of the City limits with the downtown core, Fanshawe College and London International Airport. The ongoing and future developments on the west side of the City and beyond the City limits are anticipated to increase the traffic volumes through the Oxford Street West and Gideon Drive intersection beyond its current capacity.

1.4 Study Objectives

The EA was initiated in response to ongoing and planned development on the west side of the City, the connection of Kains Road, and associated increases in traffic through the intersection as described above.

As such, the study was completed to review opportunities to address:

- Traffic operations and safety
- Active transportation (walking, cycling) needs
- Support the City's Climate Emergency Action Plan goals
- Roadway drainage improvements and stormwater management
- Upgrades and accommodation of underground services (watermain, storm and sanitary sewer) as required

1.5 Municipal Class Environmental Assessment

This study was conducted in accordance with the requirements of the Municipal Class Environmental Assessment (MCEA) – Schedule 'B', which is an approved process under the Environmental Assessment Act. The figure below illustrates the framework for the Class EA process which is a legislated planning process comprising of up to five phases with mandatory points of public contact. The focus of the framework is a comprehensive and transparent decision-making process.

The Class EA is broken down into phases, as follows:

- Phase 1 – Identify problem or opportunity;
- Phase 2 – Identify alternative solutions, evaluate and select the preferred solution;
- Phase 3 – Identify alternative design concepts, evaluate and select the preferred design concepts;

- Phase 4 – Complete the Project File Report (PFR) and place it on the public record; and,
- Phase 5 – Project implementation, which is to undertake the contract drawings and tender documents for the project and proceed to construction and operation of the project.

This Schedule 'B' study requires the completion of phases 1 and 2 of the Municipal Class Environmental Assessment process, with the final deliverable comprising the documentation of the planning process as provided in this Report. The Project will then proceed to Phase 5.

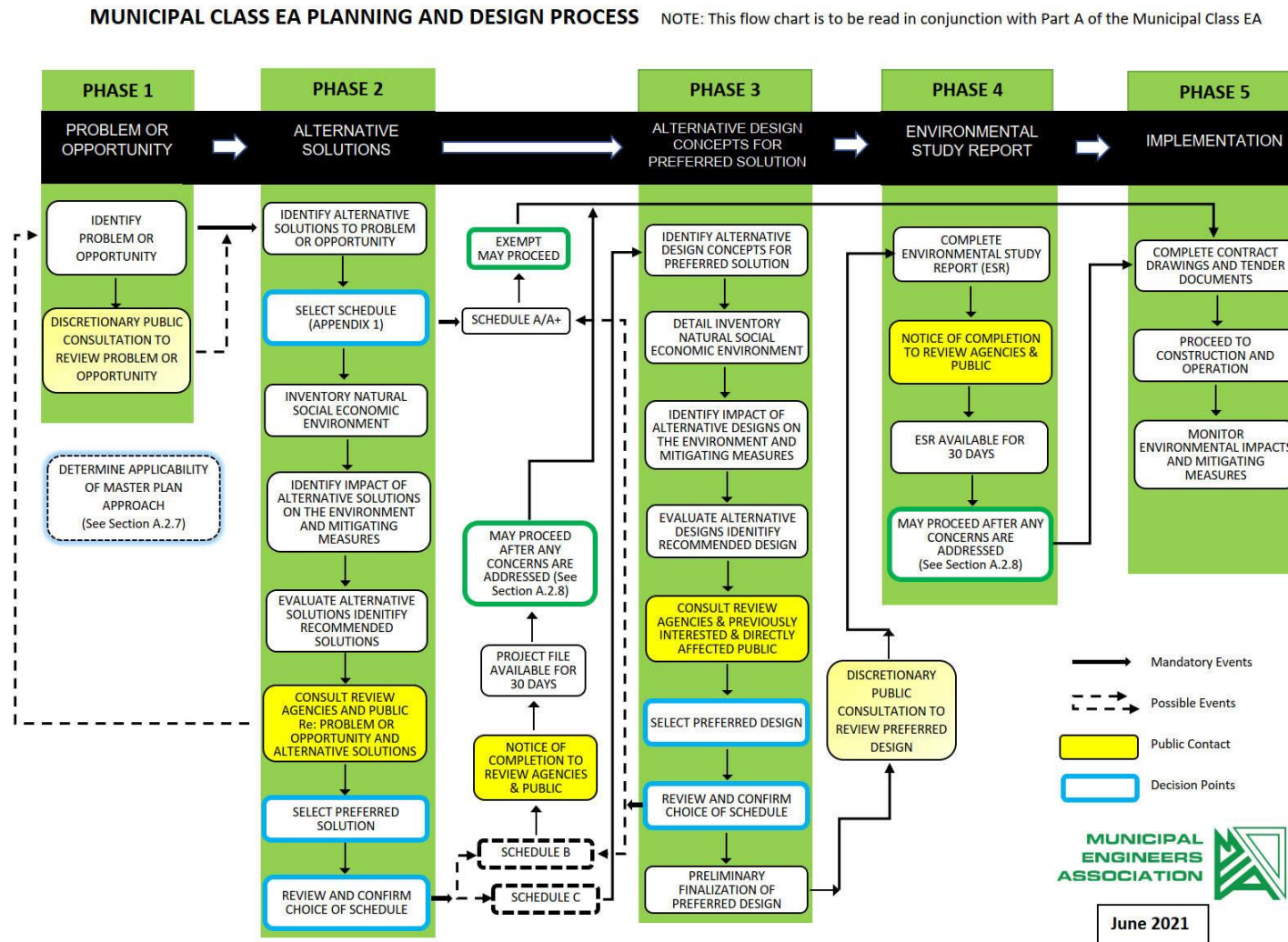


Figure 1.2 - Municipal Class Environmental Assessment Process (Municipal Engineers Association, 2021)

1.5.1 Section 16 Order Requests

Anyone with concerns related to any aspect of the study may express such concerns in writing to the Project Manager at the City of London within the 30-calendar day review period following the Notice of Study Completion. All comments and concerns should be sent directly to Project Manager at the City of London.

In addition, a request may be made to the Ministry of the Environment, Conservation and Parks for an order requiring a higher level of study (i.e. requiring an individual/comprehensive EA approval before being able to proceed), or that conditions be imposed (e.g. require further studies), **only on the grounds that the requested order may prevent, mitigate or remedy adverse impacts on constitutionally protected Aboriginal and treaty rights**. Requests on other grounds will not be considered. Requests should include the requester contact information and full name for the ministry.

Requests should specify what kind of order is being requested (request for additional conditions or a request for an individual/comprehensive environmental assessment), how an order may prevent, mitigate or remedy those potential adverse impacts, and any information in support of the statements in the request. This will ensure that the ministry is able to efficiently begin reviewing the request.

The request should be sent in writing or by email to:

Minister of the Environment, Conservation and Parks
Ministry of Environment, Conservation and Parks
777 Bay Street, 5th Floor
Toronto ON M7A 2J3
minister.mecp@ontario.ca

and

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

Requests should also be sent to the City of London by mail or by e-mail.

1.6 Study Organization

The Class Environmental Assessment Study was carried out by a consulting team lead by R.V. Anderson Associates Limited (RVA) on behalf of the City of London. The study team is outlined below:

City of London:

- Paul Yanchuk – Transportation Planning & Design
- Kathleen Johnson – Transportation Planning & Design

Consulting Team:

- R.V. Anderson Associates Limited – Lead Consultant, Planning, Stormwater Management, Natural Heritage, and Engineering
- Golder Associated Limited – Archaeology & Cultural Heritage Assessment, and Geotechnical Investigation
- Ron Koudys Landscape Architects Incorporated – Tree Assessment, and Landscaping & Urban Design
- PYRAMID Traffic Incorporated – Traffic Data Collection

1.7 Study Schedule

The EA study was initiated in February 2021. Key dates throughout the study were as follows:

Table 1.1 – Study Schedule

EA Stage	Date
Notice of Study Commencement	February 23, 2021
Notice of Public Information Centre (PIC)	November 4, 2021
Public Information Centre (PIC)	November 17, 2021
Notice of Study Completion	June 23, 2022

1.8 Consultation Requirements

Public Consultation is a key feature of environmental assessment planning projects. Input received from the public and various stakeholder groups, potentially affected Indigenous communities, as well as from provincial ministries, agencies, and authorities can generate meaningful dialogue between the project planners and the public. This consultation allows for the exchange of ideas and the

broadening of the information base, leading to better decision-making during the study.

Various Indigenous communities, government agencies, authorities and interest groups were informed of the Class EA Study commencement, as well as the public information centres and notice of study completion, through local newspaper notices, direct mailings (paper & electronic) to stakeholders and agencies and notices distributed to property owners in the study area.

A complete list of technical agencies, special interest groups and Indigenous communities that were contacted as part of the study is provided in **Appendix 1** of this report.

1.8.1 Contact with Stakeholders and Indigenous Communities

As per the MCEA, notification to the public and stakeholders of study commencement is required, as well as notification of Public Information Centres. Notification of Study Commencement and the Public Information Centres and Notice of Study Completion was provided through several different methods and media, as outlined below.

- **General Public:**
 - Project updates including study timelines, PIC dates, and PIC materials were posted on the City of London municipal website
 - All notices were advertised in *The Londoner* (local newspaper)
- **Residents & businesses within Study Area:**
 - All Notices were mailed to all property residents within the study area
- **Technical Agencies, Local Interest Groups and Indigenous Communities:**
 - Notices sent by email 2 weeks in advance of PIC or by mail if no email was on file for the contact
 - Notice of Completion sent by email or mail
- **Project Mailing List (stakeholders who submitted comments during the study or indicated interest in the project):**
 - Notices sent by email two weeks in advance of PIC
 - Notice of Completion sent by email

Refer to **Appendix 1** for copies of the published notifications and the stakeholder list. A summary of the consultation completed throughout the study is provided in Section 7.0

2.0 Existing Conditions

2.1 Traffic and Operations

In support of the Class EA, a Transportation Operations Analysis was undertaken to analyze the existing and future needs of the intersection, from a multi-modal operational and safety perspective. The full technical memo is provided in **Appendix 2**.

2.1.1 Intersection Configuration

Under existing conditions, the Oxford Street West and Gideon Drive intersection is unsignalized, with two-way stop control for vehicles travelling in the north-south directions, and free flow in the east-west directions. A temporary raised island on Kains Road restricts outbound left-turn and through movements from Kains Road.

The intersection is placed between two horizontal curves along Oxford Street, located to the east and west of Gideon Drive, with a slight downgrade in the westbound direction.

The existing intersection configuration is shown in Figure 2.1.



Figure 2.1 – Oxford Street West at Gideon Drive Intersection

2.1.2 Oxford Street West

Within the study area, Oxford Street West is classified as an arterial or Urban Thoroughfare, has a two-lane rural cross-section (gravel shoulders), with a posted speed limit of 80 km/h west of Gideon Drive, and 60 km/h east of the Gideon Drive

intersection. An average of approximately 15,500 to 18,500 total vehicles travel Oxford Street West within the study area daily.

Oxford Street is a major corridor in the city that not only acts as an east/west link within the City, but also connects surrounding areas west of the City limits with the downtown core, Fanshawe College and London International Airport. Furthermore, Oxford Street West is planned for widening to a 4-lane cross-section east of Westdel Bourne. A transition from 4-lanes to 2-lanes west of the intersection is assumed to be required.

There are significant existing and anticipated traffic capacity issues on the roadway and its intersection with Gideon Drive, and therefore capacity improvement is required.

2.1.3 Gideon Drive

Within the study area, Gideon Drive is classified as an arterial or Rural Thoroughfare, has a two-lane local road with a rural cross section, with a posted speed limit of 80 km/h.

An average of approximately 2,500 total vehicles travel Gideon Drive within the study area daily. There are no significant existing or future traffic capacity issues on the roadway, however, capacity improvement is required at its intersection with Oxford Street West.

2.1.4 Kains Road

Within the study area, Kains Road is an urban two-lane Neighbourhood Connector (one-lane per direction), with a maximum speed limit of 50 km/h. Kains Road provides access to the ongoing and planned residential developments occurring on the north side of Oxford Street.

2.1.5 Active Transportation (Pedestrian and Cyclist Facilities)

Active transportation facilities are limited to sidewalk on east side of Kains Road and multi-use path on the west side of Kains Road, with no formal active transportation facilities along Oxford Street or Gideon Drive.

The Thames Valley Parkway (TVP) was recently extended to the intersection along Kains Road. The TVP is the backbone of the City-wide active transportation network and generally follows the Thames River as a paved multi-use pathway.

The Thames Valley Trail (TVT) is a marked pathway extending from St. Marys north of the City to Delaware south of the City. Within the City it generally follows the Thames Valley Parkway. Through the Study Area, the TVT utilizes the Oxford Street gravel shoulder to connect Komoka Provincial Park to the Riverbend area.

The City of London Cycling Master Plan recommends buffered paved shoulders on Oxford Street, paved shoulders on Gideon Drive and a multi-use path on Kains Road to accommodate pedestrians and cyclists within the study area.

2.1.6 Public Transit

There are currently no public transit routes servicing the study area.

2.2 Municipal Services

2.2.1 Stormwater

Existing stormwater site conditions were assessed as part of the Stormwater Management Strategy developed during the Class EA. The full technical memo is provided in **Appendix 9**.

Stormwater runoff generally flows east to west on Oxford Street West while stormwater runoff from Gideon Drive flows north towards Oxford Street West, ultimately draining towards the Tributary 'C'. Stormwater runoff along Kains Road generally flows north to a stormwater management facility located within an ongoing residential development.

There are roadside ditches on both sides of Oxford Street West. East of the Oxford Street West and Gideon Drive intersection, the north side of Oxford Street West drains towards a ditch that is captured through a Ditch Inlet Catchbasin (DICB). The DICB is connected to the existing storm sewer, which was constructed as part of the Eagle Ridge Phase 2 subdivision, conveys flow along Kains Road to the existing SWM pond located within the newly constructed subdivision. Upon

reviewing the “Storm Area Plan” drawing dated November 2020, it was understood further that an area of 0.67 ha with a runoff coefficient of 0.45 was planned to be captured for a 2-year flow within the existing SWM pond. The south portion of Oxford Street West (east of the Oxford Street West and Gideon Drive intersection) drains towards roadside ditches located on the south side and gets captured through multiple catchbasins and conveyed west through CSP culverts of size 300 mm, 400 mm, and 450 mm diameter. West of the intersection of Oxford Street West and Gideon Drive intersection stormwater runoff flows towards north and south road ditches and ultimately drains towards the Tributary ‘C’ of Thames River.

Stormwater runoff on Gideon Drive flows towards the Oxford Street West through roadside ditches and a 450 mm culvert that crosses the Gideon Drive and connects to Oxford Street West’s south roadside ditches. It is important to note that there is a high point on Gideon Drive that splits flow north and south.

The surrounding land use is a mixture of on-going and future residential developments, and open lands.

2.2.2 Watermain

Existing water infrastructure includes a 300mm PVC watermain from the north side of the intersection extending easterly to Westdel Bourne that was constructed in 2014. There is also a 100mm PVC watermain extending south along Gideon Drive that was constructed in 2014. This 100mm watermain is the sole source of water supply for the Woodhull Subdivision and any interruption will require provision of a temporary water supply.

A 300mm watermain was placed in 2019 along Kains Road in conjunction with the Eagle Ridge Phase 2 development.

A private landowner was provided with a 25mm water service connecting to the intersection.

2.2.3 Wastewater

Existing wastewater infrastructure consists of a 200mm diameter local sanitary sewer on Kains Road at a depth of approximately 5.5m and a 675mm diameter trunk sanitary sewer on Kains Road at a depth of approximately 10.0m. These sewers were placed in conjunction with the Eagle Ridge Phase 2 development in 2019.

Design drawings for the Woodhull Road Subdivision External Works dated 2014 identify a future connection to the 675mm diameter trunk sanitary sewer on Kains Road. The sewer would provide a potential connection for any future developments on Gideon Drive or other adjacent streets including lands that might be outside of the City's Urban Growth Boundary. There is also a provision for a potential connection to lands on Oxford Street West between Gideon Drive and Westdel Bourne.

As part of this EA, the proposed roundabout design will accommodate these future potential connections. A preliminary design is provided to protect a corridor for the connection to the south on Gideon Drive and to the east along Oxford Street West.

Grades on Oxford Street generally flow from the east to the west which would accommodate connection of lands on either the north or south side of Oxford Street. Adjacent landowners have expressed interest in a potential future service.

Proposed maintenance holes are positioned in accordance with City of London design and maintenance requirements at roundabouts.

2.3 Socio-Economic Environment

Oxford Street is a major east / west corridor that connects surrounding areas west of the City limits with the downtown core, Fanshawe College and London International Airport. Located adjacent to the western limit of the City's Urban Growth Boundary, the Study Area is located in a landscape which is transitioning from rural residential and agricultural land use to a commercial and urban residential one. This is demonstrated by the ongoing and planned future developments adjacent to the intersection including the recent Kains Road extension and Riverbend developments.

The London Plan indicates that the study area includes primarily Neighbourhoods Place Type. The Study Area is unique with designations including a "Neighborhood" Place Type in addition to "Farmland" and "Environmental Review" in the London Plan. Land use in the area known as the Woodhull Planning District is a mix of low density residential, multi-family medium density residential, commercial and open space.

2.4 Natural Environment

An Environmental Impact Study (EIS) documenting existing environmental conditions within the study area and potential effects of the proposed project on natural heritage features was prepared by RVA's Ecological Services Team.

Findings of their report are summarized in the sections below. The full report is provided in **Appendix 3**.

2.4.1 Aquatic Habitats and Communities

The study area is located within the downstream Thames River Subwatershed of the Upper Thames River watershed, under the jurisdiction of the Upper Thames River Conservation Authority (UTRCA) and the Ministry of Northern Development, Mines, Natural Resources and Forestry (NDMNRF) Aylmer District.

A single watercourse, known as Tributary C, crosses the northwestern extent of the study area. Tributary C, is a coldwater 1st order stream (Strahler Stream Order) that drains a wetland east of Oxford Street West, recently identified as a PSW that falls within the Kains Woods ESA. West of Kains Road, Tributary C and the surrounding lands are managed as Significant Valleylands. Immediately downstream of the Study Area, Tributary C transitions into a 2nd order system as it continues towards the Thames River less than 1 km downstream of the Study Area.

2.4.2 Vegetation

A single-season floral inventory and Ecological Land Classification (ELC) confirmation/update was completed for the for the Study Area in reference to the ELC previously completed. Field visits were timed to correspond with a summer inventory window to attempt to identify as many plant species as possible.

The Study Area is located in a landscape which is transitioning from a formerly agricultural land use to an urban and residential one, interspersed with preserved natural areas associated with wetlands and watercourses. All vegetation communities identified within the study area are common and secure in the province.

2.4.2.1 Tree Inventory

A tree inventory was conducted on August 12, 2021, with a follow-up on November 20, 2021, to identify trees within the City ROW of Oxford Street West and Gideon Drive and approximately 3m beyond the ROW and adjacent to the roadway. The full Tree Assessment Report is provided in **Appendix 3**.

Trees with a diameter at breast height (DBH) of $\geq 10\text{cm}$ and $\leq 10\text{cm}$ were identified and assessed as individuals. The inventory captured 64 individual trees, including

19 within the City right-of-way, and 45 on privately owned land adjacent to the right-of-way.

The following information was recorded for each individual tree:

- Genus + specific epithet (tree species)
- Diameter at breast height (DBH) (centimetres)
- Crown radius (metres)
- Crown Condition (overall general vigour of crown)
- Structural Form (excellent, good, fair, poor)
- Structural Condition (good, fair, poor, hazard)
- General Comments

No tree species listed as endangered or threatened under O. Reg. 230/08: Species at Risk in Ontario List under Endangered Species Act, 2007, S.O. 2007, c. 6 were observed during the tree inventory. The construction limits do not conflict with a City of London Tree Protection Area. All trees observed are common and typical of the current land uses.

2.4.3 Wildlife and Wildlife Habitat

The Study Area contains terrestrial habitats that have the potential to support a variety of bird life. Several bird species identified within the study area are protected under the Migratory Birds Convention Act (MBCA) and/or the Fish and Wildlife Conservation Act (FWCA). A single observation of a foraging Barn Swallow (*Hirundo rustica*) was the only rare/at-risk species noted during investigations

Mammals expected to be observed within the Study Area are species commonly encountered in association with local anthropogenic and natural habitats. Mammals and sign observed during site investigations included a road-killed Red Squirrel (*Tamiasciurus hudsonicus*) in the eastern existing residential section of the Study Area and the skeletal remains of two white-tailed deer (*Odocoileus virginianus*) just west of the existing intersection, one on either side of Oxford Street West. A game trail and deer scat were also noted in association with the skeletons. No rare mammal species were noted as occurring in the Study Area during background review, however, MECP noted the potential presence of Endangered mammals, including American Badger (*Taxidea taxus*) and SAR bats (Endangered) which is assumed to include Little Brown Little brown bat (*Myotis lucifugus*), Northern long-eared bat (*Myotis septentrionalis*) and Tri-colored bat (*Perimyotis subflavus*).

The habitat types within the Study Area are suitable to support many insect species, including rare butterfly and Odonate (dragonfly and damselfly) species (Table 5.1). As insects are not commonly surveyed for and can have short periods of detection (adult stage), it is possible that other species of provincial interest may utilize habitat within or adjacent to the Study Area. A single Monarch (*Danaus plexippus*) was identified south of Oxford Street West within the Study Area, associated with the Mineral Cultural Meadow/roadside habitat, which was noted to contain Common Milkweed (*Asclepias syriaca*), a host plant for Monarch.

A full list of wildlife, including SAR species, discussion on their habitat preferences, and probability of occurrence as determined following field investigations in the Study Area, and the assessment is presented in **Appendix 3**.

2.4.4 Designated Natural Areas

Designated natural areas include areas identified for protection by the Ontario Ministry of Northern Development, Mines, Natural Resources and Forestry, Upper Thames Valley River Conservation Authority, and the City of London.

No provincially or locally designated parks, conservation areas, reserves, or Areas of Natural or Scientific Interest (ANSI) were identified in the Study Area, however, following designated natural areas and features are found in the Study Area:

- Provincially Significant Wetland (PSW) wetland associated with Tributary C;
- Kains Woods Environmentally Significant Area (ESA) is present in the northwestern-most extent of the Study Area;
- Significant Valleylands associated with Tributary C in the northwest corner of the study area; and
- UTRCA regulated lands surrounding Tributary C.

2.4.4.1 Provincial Policy Statement

The Provincial Policy Statement (PPS, Ministry of Municipal Affairs and Housing (MMAH), 2020) sets the policy direction for regulating development and land use planning in the province. Both provincial and local land-use planning decisions build on the PPS and its relevant policies. This report deals specifically with the policies contained in Part V, Section 2.1 (Natural Heritage) of the PPS which is directed at protection and management of natural heritage systems and features. A natural heritage system is defined by the Province of Ontario as:

“A system made up of natural heritage features and areas, and linkages intended to provide connectivity (at the regional or site level) and support natural processes which are necessary to maintain biological and geological diversity, natural functions, viable populations of indigenous species and ecosystems. These systems can include natural heritage features and areas, federal and provincial parks and conservation reserves, other natural heritage features, lands that have been restored or have the potential to be restored to a natural state, areas that support hydrologic functions and working landscapes that enable ecological functions to continue.” (MMAH, 2020).

The Natural Heritage Resource Manual (MNR, 2010) describes natural heritage features of significance, and areas where development and site alteration is not permitted. The study area does not bisect the Oak Ridges Moraine Conservation Plan (2017), Niagara Escarpment Plan (2017), Greenbelt Plan (2017) or Lake Simcoe Protection Plan (2014).

2.5 Cultural Heritage

A Cultural Heritage Resource Assessment of the study area was undertaken to evaluate the cultural heritage significance of the Study Area and assess impacts of the proposed undertaking in consideration of its determined cultural heritage value. Findings of their report are summarized below. The complete Cultural Heritage Report is provided in **Appendix 4**.

Three properties listed on the City of London's Register of Cultural Heritage Resources were identified within and/or adjacent to the study area, while an additional three properties were identified as potential built heritage resources. Additionally, one Cultural Heritage River (Thames River), designated as a Canadian Heritage River was identified adjacent to the study area.

No properties within the study area are listed on the Ontario Heritage Register or are designated under the Ontario Heritage Act.

2.6 Archaeological Potential

A Stage 1 and 2 Archaeological Assessment of the study area was completed by Golder Associates to determine the potential for archaeological potential in the study area. The complete Stage 1 and 2 Archaeological Assessment report is provided in **Appendix 5**.

The Stage 1 and 2 Archaeological Assessment did not identify any archaeological sites within the study area, and as such, no further archaeological assessments are recommended.

2.7 Geotechnical Assessment

A preliminary geotechnical investigation was undertaken by Golder Associates to evaluate the subsurface soil and groundwater conditions within the study area based on borehole data from previous geotechnical work along the alignments of the project. The complete Preliminary Geotechnical Assessment Report prepared is provided in **Appendix 6**.

3.0 Problem and Opportunity Statement

Per Phase 1 requirements of the Municipal Class Environmental Assessment process for a Schedule 'B' project, a "Problem and Opportunity Statement" was prepared to identify in detail the various problems and opportunities to be addressed throughout the study. In essence, the Problem Statement outlines the need and justification for the overall project and establishes the general parameters, or scope, of the study.

The Problem Statement was developed following the assessment of the existing conditions within the study area, as described above, along with having discussions with City staff regarding municipal servicing and transportation infrastructure needs; and through consultation with the public and technical agencies undertaken throughout the study.

The Study Problem & Opportunity Statement developed for the project is comprised of the following key elements:

- The Oxford Street West and Gideon Drive intersection does not balance the full range of potential users within the community, including users of all ages and abilities, pedestrians, cyclists, transit vehicles and motorists.
- The existing Oxford Street West and Gideon Drive intersection does not accommodate projected traffic volumes.
- The need to support the City's Climate Emergency Action Plan goals
- Ensure that existing watermains and sewers in the vicinity of the intersection are positioned to provide opportunities for future connection to designated development lands

4.0 Alternative Solutions

Under Phase 2 of the Class EA process, all reasonable solutions to the problem are identified and described, including the “Do Nothing” alternative. After general inventories of the technical, natural, social, cultural and economic environments are prepared and potential environmental impacts are determined for each alternative, the net positive and negative effects are identified, and the alternatives are evaluated resulting in a recommended solution. The recommended solution is then presented to the public, stakeholders and agencies to solicit input into the selection of the “preferred solution”.

4.1 Assessment Criteria

The Project Team considered criteria that represent the broad definition of the environment as described in the EA Act to comparatively evaluate the alternative solutions. The general evaluation criteria used in evaluating the alternative solutions and design concepts are outlined in the table below.

Table 4.1 – Evaluation Criteria

Criteria	Description
Transportation Operations and Safety	How will the alternative serve the existing and future vehicular, pedestrian and cycling traffic needs? (e.g. <i>Intersection improvements, Active Transportation, Sightlines</i>)
Socio-Economic Environment	What impacts will the alternative have on the local community (e.g. <i>compatibility with area land use, impacts on local businesses, property requirements, access restrictions, etc.</i>)?
Natural Environment and Climate Change	How does the alternative affect existing vegetation, water quality, fisheries/wildlife and habitat? Does the alternative address climate change and align with City’s Climate Action Plan?
Cultural Heritage / Archaeological	Will the alternative affect archaeological, cultural heritage resources or Indigenous communities?
Costs	What is the capital cost of the alternative? What is the cost for utility relocations and property acquisitions? What are the operation and maintenance costs?

4.2 Evaluation Methodology and Ranking System

The project team comparatively ranked each alternative solution from least desirable to most desirable, for each of the criteria described in Section 4.1, to determine the preferred solution(s).

Figure 4.1 demonstrates the rating scale used in the evaluation of alternative solutions described below.

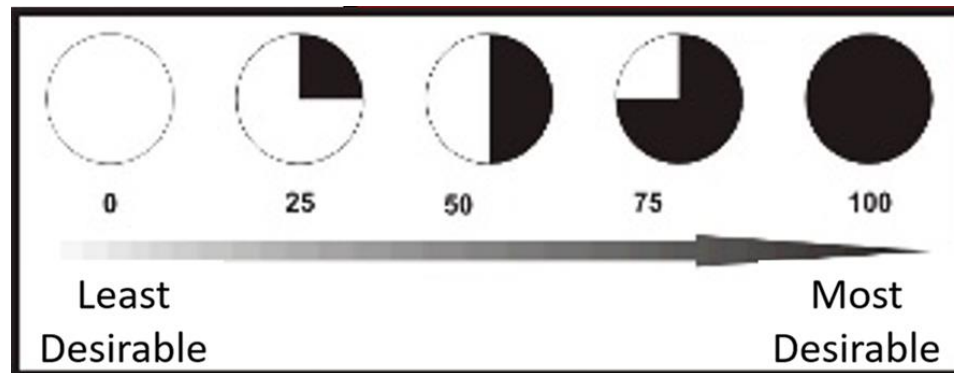


Figure 4.1- Alternative Solution Rating Scale

4.3 Description of Alternative Solutions

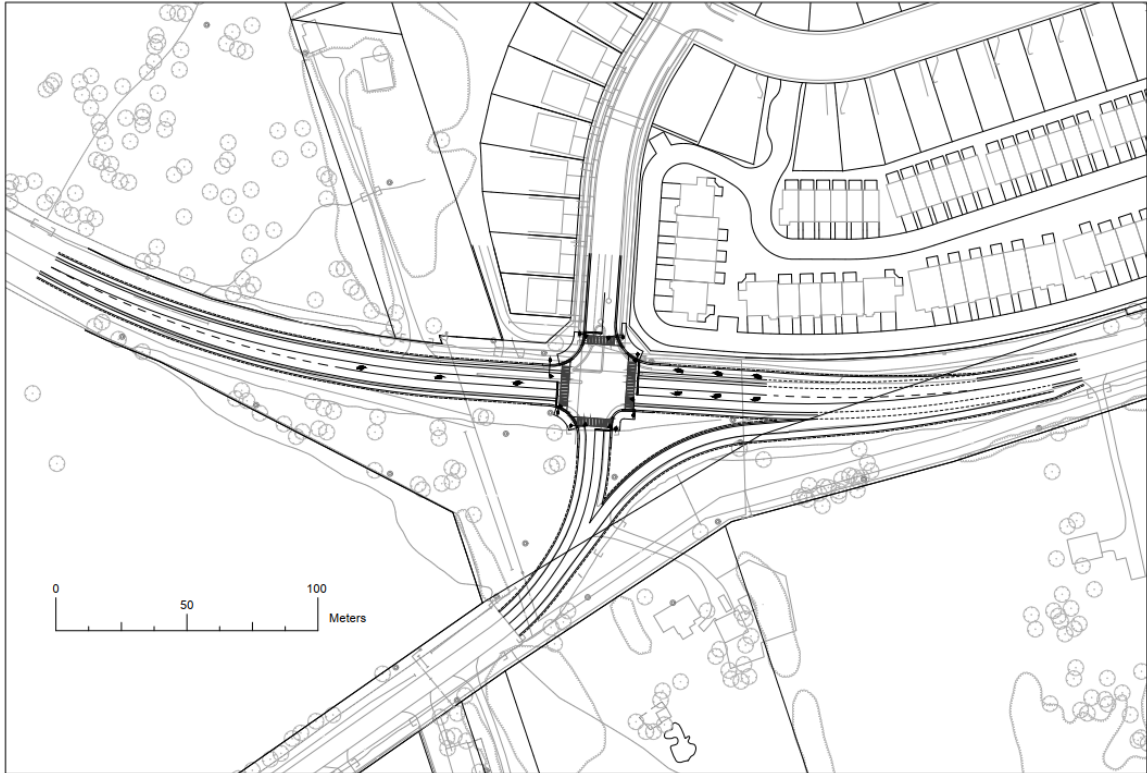
This section documents the options considered to address the identified capacity, roadway, safety and traffic operational requirements for the Oxford Street West and Gideon Drive Intersection.

The alternative solutions considered to address the identified deficiencies of the Oxford Street West and Gideon Drive intersection. Typical intersection configurations of each alternative solution, presented to the public at the Public Information Centre (PIC), are also provided below.

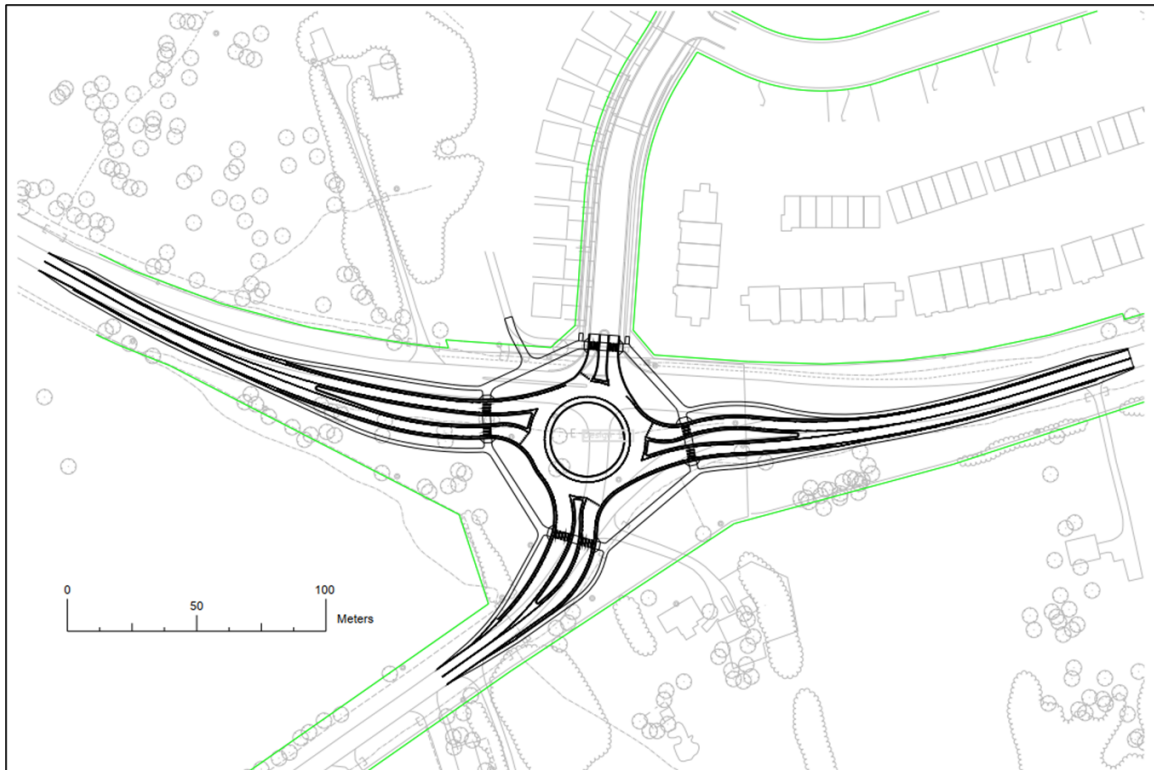
- 1. Do Nothing:** The Oxford Street West and Gideon Drive intersection would remain as is, with no improvements undertaken. This alternative does not address the problem statement. This alternative is required to be considered under the Municipal Class EA planning process as a baseline for the comparison of alternative solutions.



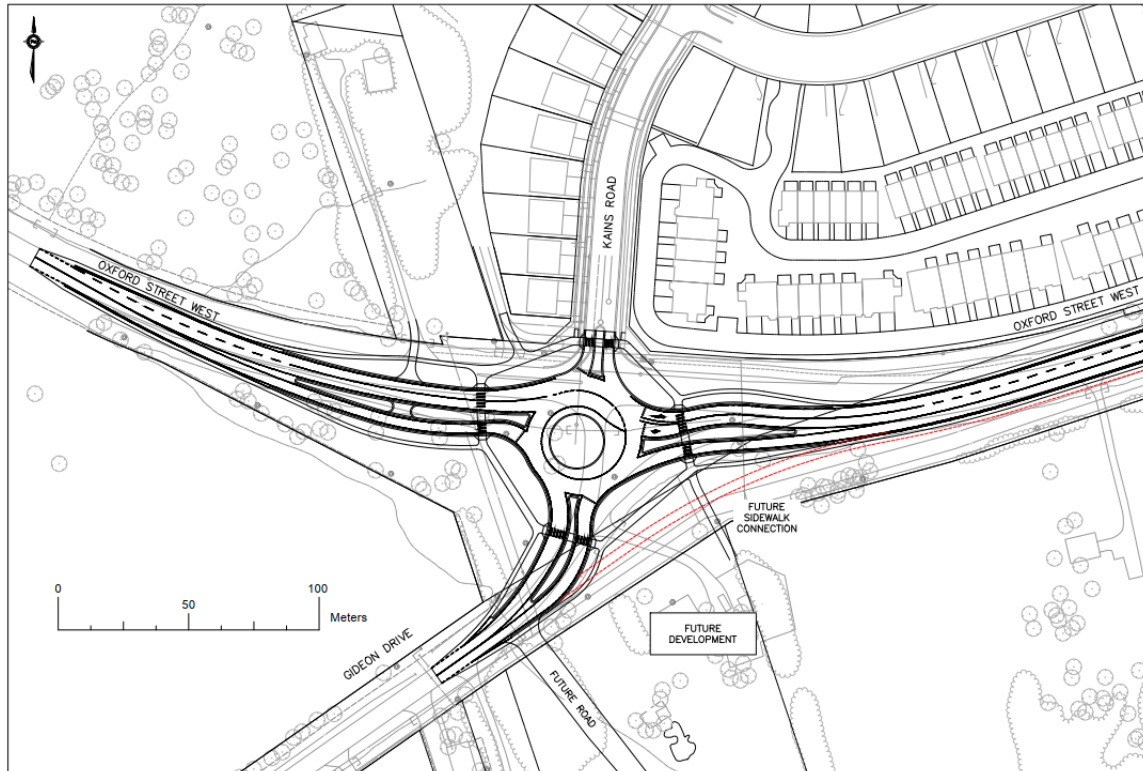
2. **Signalized Intersection:** Oxford Street West and Gideon Drive would be reconstructed to create a traditional signalized intersection with one lane of through traffic in each direction, and dedicated turn lanes along Oxford Street West. This solution does not accommodate projected traffic volumes, with notable queueing for east and west bound vehicles travelling along Oxford Street West as a result. This intersection configuration provides designated pedestrian and cyclist crossing along the multi-use trail on the south leg, and would not impact property adjacent to the roadway, however, the intersection would not act as a traffic calming feature for the corridor.



- 3. Single-Lane Roundabout Intersection:** Oxford Street West and Gideon Drive would be reconstructed to create a traditional roundabout intersection with one lane of traffic in each direction. This solution accommodates most of the projected traffic volumes, with the exception of the eastbound approach of Gideon Drive West, with notable queueing as a result. The reconstructed intersection would provide designated pedestrian and cyclist crossing along the multi-use trail on all legs, effectively calms traffic speed with no enforcement required, and serves as a gateway into the urban community to the east and would not impact property adjacent to the roadway.



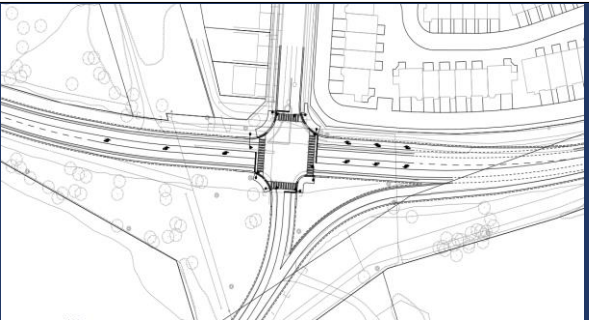
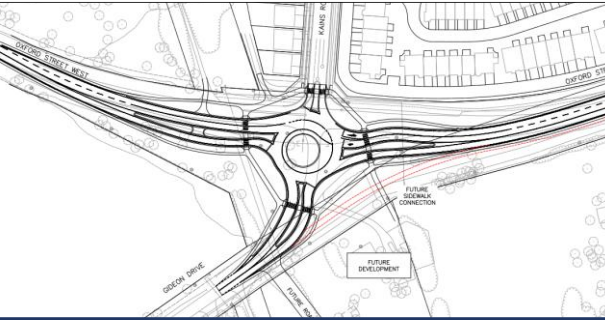
- 4. Multi-Lane Roundabout Intersection:** Oxford Street West and Gideon Drive would be reconstructed to create a multi-lane roundabout intersection, with one lane of traffic in each direction, and an additional lane for westbound traffic carried through the intersection. This solution accommodates the projected traffic volumes, including the heavy demands projected from the east approach, as well as any potential future widening of Oxford Street West, adjacent to the intersection. The reconstructed intersection would provide designated pedestrian and cyclist crossing along the multi-use trail on all legs, effectively calms traffic speed with no enforcement required, and serves as a gateway into the urban community to the east and would not impact property adjacent to the roadway.



4.4 Evaluation of Alternative Solutions

The table below summarizes the evaluation of alternative solutions for the Oxford Street West and Gideon Drive Intersection.

Table 4.2 – Oxford Street West and Gideon Drive Intersection Alternatives Evaluation

EVALUATION CRITERIA	1. Do Nothing							
			2. Signalized Intersection		3. Single-Lane Roundabout		4. Multi-Lane Roundabout	
TRAFFIC OPERATIONS & SAFETY		Does not accommodate projected traffic volumes, with no traffic calming benefits, no safety improvements, and no accommodation of crossing pedestrians and cyclists.		Partially addresses traffic safety and projected volumes, with improved pedestrian & cyclist accommodation, and no traffic calming benefits.		Accommodates most of projected traffic volumes, with notable traffic calming benefits, overall safety improvements for all road-users, pedestrian crossing facilities, and routing cyclists around the intersection.		Accommodates projected traffic volumes, including future widening of Oxford Street West, with notable traffic calming benefits, overall safety improvements for all road-users, pedestrian crossing facilities, and routing cyclists around the intersection.
SOCIO-ECONOMIC ENVIRONMENT		Does not require property to implement. No introduction to urban community to the east.		Does not require property to implement. No introduction to City of London urban community to the east.		Does not require property to implement. Roundabout acts as introduction to City of London urban community to the east.		Does not require property to implement. Roundabout acts as introduction to City of London urban community to the east.
NATURAL ENVIRONMENT		No impacts to natural environment features and no opportunity for improvements.		Minimal potential water quality/quantity impacts from additional impervious surface mitigated by SWM controls, there are opportunities to provide landscaping, potential reducing in wildlife mortality.		Minimal potential water quality/quantity impacts from additional impervious surface mitigated by SWM controls, there are opportunities to provide landscaping, potential reducing in wildlife mortality.		Minimal potential water quality/quantity impacts from additional impervious surface mitigated by SWM controls, Climate Change Resilience and mitigation, with reduction in vehicle idling and associated noise and air quality impacts. .
CULTURAL HERITAGE		No impact to archaeological or built heritage resources.		No impact to archaeological or built heritage resources expected as works to remain within existing ROW (to be confirmed).		No impact to archaeological or built heritage resources expected as works to remain within existing ROW (to be confirmed).		No impact to archaeological or built heritage resources expected as works to remain within existing ROW (to be confirmed).
COST		No capital cost to implement and no utility relocation costs.		Cost for new signal equipment and intersection lighting. Civil costs for asphalt, curb, sidewalk, and other grading/drainage alterations		No cost for signals; increased lighting requirements. Additional platform required to accommodate roundabout. Increased traffic staging requirements during construction.		No cost for signals; increased lighting requirements. Additional platform required to accommodate roundabout. Increased traffic staging requirements during construction.
OVERALL SCORE	14.0		13.0		17.0		18.0	
EVALUATION SUMMARY	Not Recommended		Not Recommended		Not Recommended		Recommended to be Carried Forward	

4.4.1 Preferred Alternative

The recommended solution to be carried forward for the Oxford Street West and Gideon Drive Intersection is to reconstruct the intersection into a multi-lane roundabout (Alternative 4). This solution addresses the identified traffic operational and capacity requirements, including potential future widening of Oxford Street West, will act as an effective traffic calming feature with no enforcement required, and serves as a gateway into the urban community east of the intersection and provides improved pedestrian and cyclist facilities.

It is noted that the signalized intersection, single-lane roundabout and multi-lane roundabout were assigned similar scores for capital cost. The calculated costs were not considered significantly different (within approximately 5%) to be distinguishable. A signalized intersection requires traffic signals and a similar pavement area to a roundabout. A roundabout does not require traffic signals but requires more roadway lighting. The multilane roundabout requires slightly more pavement area however a portion of that is taken by the central island. The multilane roundabout also accommodates future widening which provides for future savings. All alternatives require the same stormwater management measures, active transportation treatments and landscaping.

For Traffic Operations and Safety, the multi-lane roundabout scored better than the single-lane roundabout due to improved overall traffic operations and reduced traffic queues. The multi-lane roundabout provides the same separated AT facilities as the single-lane roundabout however users will be required to cross an extra lane on two of the four approaches. A multi-lane facility on Oxford Street is considered to be an ultimate future condition as noted in the City's Transportation Master Plan.

5.0 Description of the Recommended Solution

Preliminary design drawings of the recommended solution are provided in **Appendix 7**.

5.1 Design Criteria

In developing the recommended solution for the study area, various design criteria were developed to ensure consistent design standards were incorporated into the recommended design. The design criteria were developed based on the City of London's current policies, plans and design standards; Transportation Association of Canada (TAC), Ontario Traffic Manual (OTM) and MTO's Geometric Design

Standards for Ontario Highways and Roadside Safety Manual; and developed further through consultation with the City and project team.

In developing the design criteria, items that were considered included, but were not limited to; design and posted speeds, horizontal and vertical alignments, cross section and ROW widths, pedestrian and cyclist accommodation and roadway drainage.

A complete list of the design criteria developed to accommodate the study recommendations is provided in **Appendix 8**.

5.2 Roadway and Active Transportation

The preferred solution for the Oxford Street West and Gideon Drive intersection is to introduce a new multi-lane roundabout intersection as shown in Figure 5.1.

The proposed roundabout intersection configuration would operate acceptably from a traffic operations perspective, with minimal disruption to traffic flow on Oxford Street West, Gideon Drive or Kains Road with little increase in delays. Furthermore, the roundabout would act as a form of traffic calming for the corridor, requiring approaching traffic to reduce speeds.

The roundabout intersection would also provide designated pedestrian and cycling crossing facilities for the Thames Valley Trail heading west of the intersection and for the Thames Valley Parkway off-road multi-use path to proposed new developments at the southeast quadrant of the intersection.



Figure 5.1– Oxford Street West and Gideon Drive Intersection Preferred Solution

5.3 Geotechnical Recommendations

Preliminary geotechnical engineering recommendations for the design and construction of the intersection improvements were developed based on the subsurface soil and groundwater conditions encountered during the preliminary geotechnical assessment. The complete Preliminary Geotechnical Assessment Report prepared is provided in **Appendix 6**.

Based on the condition of the asphalt in the area of the intersection, full reconstruction of the roadway pavement is recommended. Additional investigation will be required during the detailed design stage to supplement the subsurface information and confirm the preliminary recommendations including Geotechnical boreholes in the area of the roundabout to assess the subsurface soil and groundwater conditions.

5.4 Landscape Plan

A preliminary landscape plan was developed by Ron Koudys Landscape Architects Inc. and is included in **Appendix 9**. The plan provides for plantings within the central circle of the roundabout and the outer boulevard areas consistent with other recent roundabout projects.

5.5 Municipal Services

5.5.1 Stormwater

A Stormwater Management Strategy, included in **Appendix 10**, was developed to ensure identify and address water quantity, water quality, water balance related stormwater runoff impacts that are associated with the proposed roadway alignment and roundabout design.

Under proposed conditions, the intersection at Oxford Street West and Gideon Drive will be improved and urbanized and converted to a roundabout. Beyond the roundabout a rural cross section will be maintained at this time. Kains Road will remain urbanized. Intermittent curb cuts, semi-mountable concrete curbs, narrow gutters and trench drains are proposed to provide runoff outlets into the enhanced swales. The existing drainage patterns will generally be maintained in the proposed design. Stormwater runoff on Oxford Street West will flow west towards the Tributary 'C' through enhanced swales equipped with check dams. The north portion of Oxford Street West has a DICB that captures the road runoff and conveys it to the existing SWM Pond through storm sewers on Kains Road. This connection will be maintained. Minor drainage from the future development

area to the south of Oxford Street will be conveyed via a proposed storm sewer under the roundabout to the existing sewer on Kains Road. This drainage will be controlled by the existing SWM pond. Major flow from the development will be combined with drainage from the south portion of the roundabout and Oxford Street. This drainage will be conveyed across Gideon Drive south of the roundabout and then flow north and outlet to Tributary 'C' of the Thames River. Enhanced swales with check dams are proposed to provide quality control and quantity control of the minor storms. The proposed enhanced swales will provide adequate SWM control for the drainage from the roundabout and no increase in peak flows is anticipated from the proposed roundabout works. Locations of the catch basins needed to capture the minor flows that are to be directed the SWMF A will be identified during detailed design.

Based on the preliminary geotechnical investigation the soils within the project study area are expected to have a high infiltration rate due to the deep sand layers of the underlying soils. This infiltration rate will need to be confirmed as part of the detailed design to ensure that the proposed enhanced swales will function as expected.

Conceptual design information related to the stormwater management recommendations including the proposed locations and general sizing required based on anticipated flows is provided on the servicing preliminary drawings found in **Appendix 12**.

5.5.2 Watermain

There are no new watermain or water services proposed in conjunction with this study, however there is potential for new developments in the area. Any development related watermain work including watermain connections, water service connections and watermain upsizing will be addressed during the development subdivision and/or site plan review process. The design allows for the protection of the existing watermains and private water services. There may be a need for adjustments to existing valves for any changes in grades.

It is noted that the existing 100mm watermain along Gideon Drive is the sole water supply to the Woodhull Subdivision south and west of the intersection. Any interruption of this service during construction will require the provision of a temporary water supply.

The Wood Eden Camp located at 2265 Oxford Street West are serviced by wells. Further consultation may be required to confirm requirements for a new municipal

water supply. Monitoring of existing private wells is recommended during construction.

5.5.3 Wastewater

The preliminary design provides protection for a potential future sanitary sewer connection to the south on Gideon Drive and to the east along Oxford Street West, to the existing maintenance hole located on the north side of the intersection on Kains Road. Should the sanitary sewer connection not be completed prior to roundabout construction, it is recommended that these works be completed at the same time as the proposed roundabout improvements. During detailed design, further coordination with planned developments will be required to confirm the municipal servicing strategy (water, wastewater, and stormwater) and staging.

Grades on Oxford Street generally flow from the east to the west which would accommodate connection of lands on either the north or south side of Oxford Street, east of the intersection. Adjacent landowners have expressed interest in a potential future service and there is flexibility to connect at Kains Road or to other existing systems near Westdel Bourne Road.

Proposed maintenance holes are positioned in accordance with City of London design and maintenance requirements at roundabouts.

The proposed improvements to the municipal services are shown in greater detail on the servicing preliminary drawings found in **Appendix 12**.

5.6 Illumination Recommendations

Preliminary pedestrian and roadway illumination recommendations were developed based on the analysis of the existing illumination levels present within the study area, and the proposed intersection and active transportation improvements.

Based on the analysis completed, illumination is recommended to be provided for the new roundabout along the roadway approaches, at the pedestrian crosswalks, and along the adjacent sidewalks.

The Roundabout Lighting Recommendations Technical Memorandum and lighting layout are provided in **Appendix 11**.

5.7 Preliminary Cost Estimate and Estimated Timing

5.7.1 Preliminary Construction Timeline

Construction is anticipated to commence in 2024, and last one construction season. The anticipated timeline for the proposed works is outlined in the table below.

Table 5.1 – Preliminary Timing Summary

Activity	Timing
Detailed Design	2022 – 2023
Utility Relocations and Property Acquisition	Late 2023
Construction	2024

5.7.2 Preliminary Cost Estimate

A preliminary cost estimate has been prepared for the construction of the recommended design. The preliminary cost estimate to complete the reconstruction of the roadway and intersection is \$5,340,000, as shown in the table below.

Table 5.2 – Preliminary Cost Estimate

Item	Cost
Miscellaneous / General (Bonding, Insurance, Traffic Control, Pre-Condition Surveys)	\$388,500
Removals	\$829,725
Storm Sewers and Culverts	\$180,000
Sanitary Servicing	\$210,000
Roadworks	\$1,767,050
Streetlighting	\$302,000
Hydro Relocation and Property Acquisition	\$140,000
Subtotal	\$3,817,275
Engineering & Construction Administration (20%)	\$763,455
Contingency (20%)	\$763,455
Total	\$5,340,000

6.0 Potential Environmental Impacts, Mitigation and Monitoring

The text below summarizes the key impacts associated with the implementation of the recommended solution(s) and general mitigation required. In addition to the mitigation measures identified in the report, additional work will be required to be completed following the Class EA, prior to construction. During detailed design, findings from the Class EA will be confirmed through additional investigations, planning and consultation with the public and technical agencies.

6.1 Transportation Environment

With the implementation of the recommended alternatives, minor disruption to the transportation environment will be caused. Construction will be staged in a way that at least one lane of traffic will be open at all times on Oxford Street. It is anticipated that there may be short durations of full closure required on Oxford Street for specific construction operations such as paving or sewer work.

In order to accelerate the construction and reduce the overall schedule, it is recommended that Kains Road and Gideon Drive be closed, and alternate routes provided.

Public comments included concerns with potential cut-through traffic on Woodhull Road. During construction it is recommended that temporary traffic calming measures, similar to measures included on other City infrastructure projects, be installed to discourage cut-through traffic.

Pedestrians and cyclists will need to be accommodated through the intersection during construction as there are no convenient alternate routes.

6.2 Socio-Economic Environment

The recommended works and necessary road closures or lane restrictions have the potential to impact local homeowners, area businesses and area commuters negatively, particularly those along Oxford Street West.

A communications plan and public notices in advance of the start of construction to minimize impacts to adjacent businesses along the corridor is recommended. To this end, every effort will be made to keep access and private entrances open during construction. The City and contractor will work with the owners to ensure construction activities and schedules are identified well in advance of any

disruption so that this information can be passed on. During the detail design phase of the study, the project team will meet with specific property owners to further discuss their concerns.

6.2.1 Property Requirements

The avoidance of property requirements was a key criterion in the identification and evaluation of the alternative solutions by the project team.

There is one property at the north-west corner of the intersection that is impacted by all the alternatives. The existing property boundary protrudes into the road allowance relative to adjacent properties and the drainage culvert under the driveway is privately owned.

As part of this study, it is recommended that the City acquire sufficient frontage from the property to take ownership and maintenance of the privately owned culvert as it conveys drainage from within the public road allowance.

Preliminary discussions have been held with the property owner, and they are aware of the proposed improvements and impacts to the property, however further discussions should be continued through detailed design.

6.2.2 Noise and Air Quality Impacts During Construction

Although no long-term air quality impacts from the proposed works are anticipated, dust and/or emissions during construction have the potential to degrade air quality in the short term. Measures to minimize these impacts should include dust/debris control measures such as the application of water or non-chloride based compounds; covering of soil and other material storage piles to prevent wind erosion; and, covering of fine particulate materials during transportation to and from site. The contractor should use new or well-maintained equipment and machinery, preferably ones fitted with fully functional emission control systems, mufflers, exhaust system baffles and/or engine covers.

Construction may also result in temporary noise impacts. Measures to minimize noise-related impacts during construction include:

- Limit construction to the time periods allowed by local noise control by-laws. If construction activities are required outside of these hours, the applicable permits/exemptions must be obtained through the municipality in advance.

- Maintain construction equipment in an operating condition that prevents unnecessary noise (muffling systems, secured components, lubrication of moving parts).
- Restrict idling equipment to the minimum necessary to perform the specified work.
- Investigate all noise complaints from the public to verify that the required noise control measures are in effect. Persistent complaints will require a contractor to comply with MECP NPC-115 (Guidelines for noise effects from construction equipment). Subject to the results of a field investigation, alternative noise control measures may be required.

6.3 Natural Environmental

The following sections describe the impacts and mitigation measures developed to avoid or minimize the potential impacts to the natural environment associated with the proposed improvements. These measures should be considered and elaborated on, as required, during detailed design.

The complete Environmental Impact Study Report which discusses the preliminary impacted and proposed mitigation measures are provided in **Appendix 3**.

6.3.1 Soil Disturbance and Potential for Erosion

Soil disturbance within the study area will be limited mainly due to the highly urban nature of the area. Impacts resulting from any excavating or cut and fill operations will be temporary in nature. Erosion and sedimentation mitigation measures will be implemented prior to and during the construction phase.

A Sediment and Erosion Control Plan will be prepared during detail design. These control measures will include:

- limiting the geographical extent and duration that soils are exposed to the elements;
- implementing standard erosion and sedimentation control measures in accordance with Ontario Provincial Standard Specification (OPSS) 805 Construction Specification for Temporary Erosion and Sediment Control Measures. These standard measures include: silt fence placed along the margins of areas of soil disturbance; applying conventional seed and mulch and/or erosion control blanket in areas of soil disturbance to provide adequate slope protection and long term slope stabilization; and

- managing surface water outside of work areas to prevent water from coming in contact with exposed soils.

The UTRCA has noted that they will require detailed Erosion and Sediment Control (ESC) drawings with consideration of the sensitivity of the site due to the proximity to Tributary C. The ESC drawings must be supported with standard notes, inspection, monitoring and reporting and sealed and dated by P.Eng. when submitted with the final design.

Monitoring of these erosion and sedimentation control measures during and after construction will be implemented to ensure their effectiveness. These environmental measures will greatly reduce/minimize adverse environmental impacts.

6.3.2 Aquatic Habitats and Communities

As there are no increase in peak flows to Tributary C is anticipated from the proposed roundabout works, significant impacts to the Tributary C watercourse are not expected as part of the proposed improvements. However, there is the potential for effects associated with riparian vegetation removal as vegetation clearing exposes soils and increases the likelihood of erosion and release of sediments into nearby water feature.

As such, an erosion and sediment control plan should be developed during detailed design to limit the impacts of vegetation clearing during construction as described above.

6.3.3 Groundwater and Surface Water Resources

The movement of water between groundwater and surface-water systems can lead to the mixing of their water qualities. High quantities of nutrients or other dissolved chemicals in surface water could be transferred to the connected groundwater system.

The drainage study conducted for this assignment recommends enhanced swales and flow check dams within the swales to promote filtering of pollutants before they reach downstream watercourses and for infiltration to support groundwater recharge.

6.3.4 Vegetation and Tree Impacts

Impacts to existing street trees in the study area were taken into consideration during the selection of the preferred solutions. However, the removal and/or

relocation of some street trees on City property will still be required. A Tree Assessment Report was completed to identify the expected impacts of the proposed work on trees within or in proximity to the limits of disturbance and make recommendations for tree removal and preservation based both tree health and construction impacts. The complete Tree Assessment report is provided in **Appendix 3**.

Based on this review of impacts to street trees within the study area associated with implementing the preferred solution, it is anticipated that 19 trees within the City right-of-way will require removal. No tree species listed as endangered or threatened under O. Reg. 230/08: Species at Risk in Ontario List under Endangered Species Act, 2007, S.O. 2007, c. 6 are recommended to be removed. The construction limits do not conflict with a City of London Tree Protection Area.

45 trees, including all 25 trees located on privately owned land within the study area will be preserved. Trees recommended for preservation may experience construction impacts. Strategies and methods to avoid these impacts include:

- Tree preservation fencing is to be installed as noted on the tree preservation drawings and as per the tree preservation barrier detail.
- Follow the pre-construction, construction process, and post construction recommendations listed in **Appendix 3**.
- Follow all City of London tree protection guidelines and by-law

6.3.5 Source Water Protection

Under the MECP 2006 Clean Water Act, municipalities are required to conform to Source Protection Plans (SPPs) to protect surface and groundwater sources to municipal drinking water systems. The study area for this project is under the jurisdiction of the Thames-Sydenham and Region Source Protection Plan (SPR). The SPR identifies where there is potential for significant threat to the quality and quantity of groundwater through delineation of Wellhead Protection Areas (WHPAs), Highly Vulnerable Aquifers (HVAs), Significant Groundwater Recharge Areas (SGRAs), and Intake Protection Zones (IPZs).

The study area transects a highly vulnerable aquifer and significant groundwater recharge area; however, no wellhead protection areas or intake protection zones were identified. Road construction is not considered a prescribed drinking water threat under O. Reg. 287/07 under the Clean Water Act, 2006, however construction activities should be assessed for potential adverse impacts/drinking water threats and policy applicability.

There are no municipal water wells adjacent to the study area, however there are private wells. As such, it is recommended that a water well survey to obtain background information to any private wells within a 500 meter area is completed prior to construction to assist the City in case of any well complaint during construction, and that a monitoring and contingency plan is implemented for any well complaint during construction.

Should proactive dewatering be required during construction, a permit to take water (PTTW) will be obtained, and all required monitoring of groundwater impacts will be undertaken at that time.

6.3.6 Wildlife and Wildlife Habitat

Potential impacts to wildlife and their habitats during construction can occur through direct injury and habitat loss as well as indirect impacts such as avoidance of areas of active construction and resulting modification to established daily movement patterns.

The following measures are recommended to reduce these impacts.

- To prevent incidental impacts to nesting birds and bat maternity colonies, woody vegetation clearing should be restricted to outside of the bat maternity and migratory bird nesting seasons, generally April 1 through October 31. If vegetation clearing must occur within this window, a qualified ecological professional should be retained to ensure no birds or bats are incidentally harmed by vegetation removals.
- Grading activities should be limited to the active season for wildlife, typically May 1 through September 30 to prevent entombment within burrows, tunnels or other subterranean features.
- Limiting construction activities to daylight hours will reduce the impacts to behaviour changes (avoidance) of local wildlife in response to the project.

6.4 Climate Change

Project impacts and resiliency to climate change were taken into consideration during the study. Considering how a project contributes to climate change, through its greenhouse gas emissions or its effects on the natural environment, is important to the planning process as it allows proponents to consider climate mitigation measures to avoid, minimize, or offset such effects. As well, considering how climate change may affect a project, such as through increased flooding or drought, is also critical to the planning process through enabling proponents to

make informed decisions around how to design a project to withstand such environmental conditions.

Approaches for considering and addressing climate change in project planning are through 1) Reducing a project's effect on climate change; and 2) Increasing the project's resilience to climate change.

For this Class EA study, key elements that were factored into the reconstruction of the Oxford Street West and Gideon Drive intersection improvements that could serve to reduce the overall effect on climate change include the provision of active transportation features in the recommendation.

Recommendations developed for the roadway include extensive provision for pedestrians and cyclists, including connection to a multi-use path thereby providing access to the Thames Valley Trail and Thames Valley Parkway. Encouraging active transportation through increased pedestrian and cyclist facilities supports the reduced use of vehicular traffic and GHG emissions.

In addition to the active transportation measures, it is recognized that traffic utilizing a roundabout generally produces fewer air emissions than traffic at a signalized intersection. This is a result of the continuous movement of traffic through roundabouts, reducing vehicle delay times, idling, and associated air emissions in comparison to a signalized intersection.

With regards to the project's resilience to climate change, the impact of climate change on drainage and stormwater management quality and quantity was a key consideration in the study recommendations. The improvements to stormwater management infrastructure are anticipated to mitigate the impacts of increased severity and frequency of storms

6.5 Cultural Heritage and Archaeological Resources

6.5.1 Impacts to Cultural Heritage Resources

Following the confirmation of the study recommendations, the Cultural Heritage Resource Assessment Existing Conditions Report was updated to identify potential impacts to the cultural heritage resources and propose appropriate mitigation measures. The complete Existing Conditions and Preliminary Impact Assessment Report is provided in **Appendix 4**.

The Cultural Heritage Resource Assessment preliminary impact assessment report concluded that no direct impacts to the cultural heritage resources identified

within the study area are anticipated as the limits of the proposed improvements will be confined to the existing municipal ROW in the areas adjacent to the identified resources.

However, the construction activities associated with the proposed road improvements have the potential to create vibrations that may have an indirect impact on the properties adjacent to the roadway including 2012 Oxford Street West, 14 Gideon Drive and 80 Gideon Drive. As such, recommendations developed to eliminate and / or mitigate any potential impacts to these built cultural heritage resources of the study area include:

- Construction activities and staging should be suitably planned and undertaken to avoid impacts to potential cultural heritage resources.
- To ensure these properties are not adversely impacted during construction, baseline vibration monitoring should be undertaken during detailed design. Should this advance monitoring assessment conclude that the structures will be subject to vibrations, a vibration monitoring plan should be prepared and implemented as part of the detailed design phase of the project to lessen vibration impacts related to construction.

6.5.2 Impacts to Archaeological Resources

The Study Area does not retain archaeological potential based on the findings of the archaeological study, and therefore no impacts to archaeological resources are expected. Should the proposed work extend beyond the current Study Area, further Stage 1 archaeological assessment should be conducted to determine the archaeological potential of the surrounding lands.

During construction, in the event that archaeological resources or remains are found, alteration of the site must cease immediately, and the Archaeology Programs Unit of the Ministry of Heritage, Sport, Tourism, and Culture Industries (MHTCI) and the consultant archaeologist must be notified. The contract for this work should include a provisional item for Archaeological findings and the Contractor must be aware of the protocol to be followed should resources be encountered.

More information is provided in the complete Stage 1 and 2 Archaeological Assessment report in **Appendix 5**.

6.6 Municipal Infrastructure and Utilities

Based on the EA, street lighting / utility pole conflicts are expected and will require relocations to implement the preferred solution. No impacts to utility poles along Kains Road along the study area are anticipated.

All utility impacts, including location, depths, and relocation requirements are to be confirmed early in the subsequent detailed design phase of the study in direct consultation with the affected utility companies.

6.7 Monitoring During Construction

The mitigation measures identified in this report shall be written into the contract specifications. During construction, the contract administrator will ensure that full-time monitoring/inspection of the project works is undertaken to ensure that all environmental commitments identified in the Project File Report are adhered to by the contract team. Following completion of construction (i.e. post construction), an inspection should be undertaken to ensure the effectiveness of the identified mitigation measures.

7.0 Public Consultation

Schedule 'B' EA projects are subject to Phases 1 and 2 of the Municipal Class Environmental Assessment (October 2000, amended in 2007, 2011 & 2015). As such, extensive public and technical agency consultation play a key role in developing the study recommendations.

Per the MCEA, notification to the public, stakeholders, and Indigenous Communities was provided in advance of key consultation opportunities.

7.1 Key Stakeholders, Interest Groups & Technical Agencies

Various government agencies, authorities, utility companies, local developers and stakeholder / interest groups were informed of the Class EA Study commencement, as well as the public information centre, through local newspaper notices, and direct mailings (paper & electronic). A complete list of stakeholders who were contacted is provided in **Appendix 1**.

During the course of the EA study, correspondence was received from various technical agencies, as outlined in Table 7.1 and included in **Appendix 1**.

Table 7.1 – Comments Received from Technical Agencies & Key Stakeholders

Agency / Group	Comment Summary	Date Received	Response and Consideration of Comments in Class EA
County of Middlesex	County of Middlesex staff notified the project team that they wish to be involved in the study, as Gideon Drive is a County road west of the City of London.	February 23, 2021	County of Middlesex staff included in the project technical agency and stakeholder list to engage the County as the study moves forward.
Start Communication	Provided location of Start’s empty ducts located within the hydro joint trench on Kains Road. Start Communication does not have any infrastructure on Oxford Road or Gideon Drive and have no plans for future development in this area.	February 23, 2021	The project team considered the locations of Start’s infrastructure during design.
Rogers Communications Canada Inc.	Rogers Communications Canada Inc. provided contact information for assigned to the study.	February 23, 2021	Stakeholder list updated accordingly.
	Telecon provided markup drawings of existing Rogers Communications’ infrastructure for consideration in the study.	March 13, 2021	The project team considered the locations of Rogers Communications’ infrastructure during design.
Enbridge Gas Inc.: Operating as Union Gas	Enbridge provided markup drawings of existing infrastructure for consideration in the study.	February 23, 2021	The project team considered the locations of Enbridge infrastructure during design.
Execulink Telecom	Execulink Telecom provided confirmation that there is no existing Execulink Telecom infrastructure in the subject area.	February 23, 2021	No further consultation required. Removed from stakeholder list.
London Hydro	London Hydro provided contact information for assigned to the study.	February 23, 2021	Stakeholder list updated accordingly.
	London Hydro provided markup drawings of potential feeder extension and infrastructure replacement plans for consideration in the study.	March 1, 2021	The project team considered the locations of existing and planned London Hydro infrastructure during design.
Bell Canada	Bell Canada provided contact information for assigned to the study.	February 23, 2021	Stakeholder list updated accordingly.
	Telecon provided markup drawings of existing Bell Canada infrastructure for consideration in the study.	March 30, 2021	The project team considered the locations of Bell Canada’s infrastructure during design.
Telus Utility Markups	Telecon provided confirmation that there is no existing Telus infrastructure in the subject area.	February 24, 2021	No further consultation required. Removed from stakeholder list.
MTS Allstream	MTS Allstream provided confirmation that Zayo has no existing plant, no markup and no objection for the study area.	March 2, 2021	No further consultation required. Removed from stakeholder list.
Ministry of Heritage, Sport, Tourism and Culture Industries (MHSTCI)	MHSTCI provided information to support the project team in identifying and documenting the project’s potential impact on cultural heritage resources including: • Cultural Heritage Resources; • Archaeological Resources; and • Built Heritage Resources and Cultural Heritage Landscapes. MHSTCI requested the project team advise whether any technical cultural heritage studies are being completed as part of the study (e.g. Cultural Heritage Assessment Report, Cultural Heritage Evaluation Report, Heritage Impact	March 18, 2021	The project team reviewed the need for assessments in consideration of MHSTCI’s comments. RVA notified the MHSTCI that a Stage 1 and 2 Archaeological Assessment and a Cultural Heritage Evaluation will be completed as part of the study. The PIC displays were provided to the MHSTCI for their review and comment.

Agency / Group	Comment Summary	Date Received	Response and Consideration of Comments in Class EA
	Assessment), and that any technical cultural heritage studies completed be sent to the Ministry for review before issuing the Notice of Completion, and to make it available to local organizations or individuals who have expressed interest in review.		
	MHSTCI provided questions in review of the PIC displays - Slide 9 of the PIC, <i>Existing Conditions – Cultural Heritage & Archaeological Resources</i>, indicates that the entire study area has been previously disturbed (ditches, road, and buried utilities) clearing the area of archaeological potential. We also note the attached email (dated, March 19th, 2021) indicates a Stage 1 Archaeological Assessment will be completed for this undertaking. Please provide us with the Project Information Form (PIF) number(s) of any archaeological assessment reports undertaken in support of this project. - Slide 9 of the PIC, <i>Existing Conditions – Cultural Heritage & Archaeological Resources</i>, indicates that the study area includes: 3 properties listed on the City’s heritage register 3 properties identified as potential built heritage resources - The attached email (dated, March 19th, 2021) indicates that a Cultural Heritage Resource Assessment (CHRA) will be completed for this undertaking. Please provide us with a copy of the completed CHRA for our review and comment.	November 25, 2021	RVA provided response to MSHTCI questions, stating that RVA has retained Golder Associates to conduct a Stage 1-2 Archaeological Assessment and a Cultural Heritage Assessment, summarizing the preliminary findings and engagement with Indigenous Communities regarding the archaeology report. The Stage 1 and 2 Archaeological Assessment Report was submitted to the MHSTCI on January 10, 2022, and was entered into the Ontario Public Register of Archaeological Reports on January 25, 2022. The Cultural Heritage Evaluation Report and Preliminary Impact Assessment was submitted to the MHSTCI for their review and comment on February 15, 2022.
	MHSTCI noted that they have received the Cultural Heritage Report and will provide comments by mid-March.	February 15, 2022	MHSTCI comments on Cultural Heritage Report to be incorporated into Cultural Heritage Report prior to finalization.
	MHSTCI provided a single comment on the Cultural Heritage Report, noting an outdated policy reference. MHSTCI also recommended the Cultural Heritage Report be included in the PFR and be made available to local heritage organizations or any individuals who expressed an interest throughout the EA process.	March 18, 2022	Cultural Heritage Report to be updated to include updated reference. The Cultural Heritage Report completed as part of the Study is included as Appendix 4 of this PFR and will be made available to all individuals and organizations who expressed interest throughout the EA process.
	Ministry of the Environment Conservation and Parks (MECP) General information provided on the Class EA process, MECP technical review issues and Aboriginal consultation. Identified the following Indigenous communities as potentially affected by the projected project to be consulted: - Aamjiwnaang First Nation - Bkejwanong (Walpole Island) - Caldwell First Nation - Chippewas of Kettle and Stony Point - Chippewas of the Thames First Nation - Oneida Nation of the Thames	March 19, 2021	The project team incorporated the input into the study as required. The project team initiated consultation with all the Aboriginal communities identified by MECP. The project team inquired whether the MECP review of the draft Project File Report is a requirement under the <i>EA Act</i>. Notice of Completion and final PFR to be forwarded to MECP as requested.

Agency / Group	Comment Summary	Date Received	Response and Consideration of Comments in Class EA
	Munsee-Delaware Nation The MECP requested to receive a draft copy the Project File Report prior to filing of the Notice of Completion, as well as to send the Notice of Completion to the ministry’s Southwest Region EA notification email account (eanotification.swregion@ontario.ca) after the draft report is reviewed and finalized.		
	The MECP noted that while it is the ministry’s preference to review the draft project file, it is not a requirement. The MECP noted that they review drafts to confirm that the Class EA was followed adequately and advise of any potential concerns or discrepancies that should be addressed before the final is posted for public comment.	February 10, 2022	MECP staff were provided the draft PFR and recommended design plans for review and comment prior to issuing the Notice of Study Completion.
	In review of the draft PFR, MECP provided the following comments General - General – Section 10.0 of Appendix 3 of the Report distinguishes between potential permit and approvals requirements for “MECP” and “MOECC”. Please note that both Species at Risk (SAR) and groundwater permits/approvals fall within the mandate of this ministry. Furthermore, the acronym MOECC is outdated. Both permit considerations should be grouped under MECP. - Indigenous Consultation – The proponent should continue to engage with all communities that have been engaged with to date as the Class EA process proceeds. - Species at Risk – Further to discussions of impacts and mitigation measures for SAR in Appendix 3 of the Report, please note that it is the responsibility of the proponent to ensure that SAR are not killed, harmed, or harassed, and that their habitat is not damaged or destroyed through the proposed activities to be carried out on the site. If the proposed activities cannot avoid impacting protected species and their habitats, then the proponent will need to apply for an authorization under the Endangered Species Act (ESA). If the proponent believes that their proposed activities are going to have an impact or are uncertain about the impacts, they should contact SAROntario@ontario.ca to undergo a formal review under the ESA. MECP requested that the provision of the draft Report as well as the MECP comments on the draft are documented in the final PFR. MECP please provide an accompanying response letter to support our review of the final report. A copy of the final Notice should be sent to the ministry’s Southwest Region EA notification email account (eanotification.swregion@ontario.ca).	May 31, 2022	Project team updated Appendix 3 – Environmental Impact Study and Tree Assessment Report to address MECP comments. Provision of the draft Report as well as the MECP comments on the draft are documented in the final PFR in this table as well as in Appendix 1. Notice of Completion and final PFR to be forwarded to MECP as requested.

Agency / Group	Comment Summary	Date Received	Response and Consideration of Comments in Class EA
Ministry of Northern Development, Natural Resources and Forestry (NDMNRF)	NDMNRF staff provided information to guide and assist the project team in identifying and assessing natural features and resources as required by applicable policies and legislation and engaging with MNRF Aylmer District for advice as needed.	March 23, 2021	The project team incorporated the information provided by MNRF into the natural environment studies and reports for this study.
Upper Thames River Conservation Authority (UTRCA)	UTRCA staff attended the Environmental Impact Study (EIS) scoping meeting to ensure that the EIS met all UTRCA requirements.	March 26, 2021	Details of the outcomes of this meeting are provided in Appendix 3 . RVA provided the draft EIS and Stormwater Management (SWM) Report to the UTRCA for their review and comment on January 20, 2022. RVA staff followed-up on February 10, 2022.
	UTRCA staff stated that comments on the SWM report will be provided by Mid-March, and that the UTRCA will not be providing comments on the EIS, deferring to the City of London's ecologist review.	February 10, 2022	RVA requested that comments on the SWM Report be received by March 11, 2022.
	UTRCA staff stated that they have completed a review of the SWM Report and have no comments. They requested the project team ensure proper sediment and erosion control and stormwater management are in place to prevent any impacts to natural features outside of the study area. UTRCA also requested being kept updated on further information on the study and subsequent documents that will be prepared in support of the work.	March 15, 2022	Appropriate sediment and erosion control measures will be included in the Sediment and Erosion Control Plan, which will be prepared during detailed design. Further consultation with the UTRCA will be required during detailed design to demonstrate that there will be no increase in flows to the Regulated Tributary C as a result of the proposed works, and to determine any permitting requirements under O. Reg. 157/06.
	UTRCA notified the project team that they will be completing an additional review of the SWM Report.	April 13, 2022	Project team provided the updated SWM Report to the UTRCA for their review and comment. The final SWM strategy is subject to any comments provided by UTRCA, and any such revisions deemed necessary
	UTRCA staff provided the following additional comments in review of the SWM Report: • Please confirm if there is any surface runoff contributed from the site to Tributary C. Tributary C is a cold water stream and any polluted runoff including thermal loading may have effect on Tributary C. • Please ensure/confirm that the proposed SWM LID feature has been designed with consideration of the local soil properties including infiltration capacity. • The UTRCA strongly recommends submitting a cross section of the proposed enhanced swale showing the 100 and the 250-year storm water surface elevation.	May 31, 2022	The following responses / clarifications were provided to each of the comments provided by the UTRCA: • Based on our modelling and analysis, there are no increases in peak flows to Tributary C anticipated from the proposed roundabout works. • As noted in the SWM Report, based on preliminary geotechnical assessment the soils within the project area are anticipated to have high infiltration, and the proposed LID features will function as intended. It is important to note that prior to detailed design of the LID features, a detailed geotechnical assessment in the areas where LID features are proposed must be carried out to verify the expected infiltration rates. The total imperviousness

Agency / Group	Comment Summary	Date Received	Response and Consideration of Comments in Class EA
	- Table 5.2 shows higher flows under the post-development conditions within the south ditch. Please ensure/confirm control of the post-development flows to the pre-development levels. - The UTRCA will require detailed Erosion and Sediment Control (ESC) drawings with consideration of the sensitivity of the site due to the proximity to Tributary C. The ESC drawings must be supported with standard notes, inspection, monitoring and reporting and sealed and dated by P.Eng. when submitted with the final design.		calculations of pre-development conditions and post-development conditions are presented in Appendix B of the SWM Report. - The enhanced swales have a cross-section of 2 m width, 0.75 m height and side slopes of 3:1. It is important to note that during the detailed design all culvert sizing must comply with City standards and UTRCA requirements which may include the potential need to convey the regulatory 250-year storm events. Further details can be provided to UTRCA at the detailed design stage. - As noted in Table 5-2, peak flows during 100-year storm event have increased in the post-development condition for the south side existing ditch due to higher major flows contributing from the proposed development on 14 Gideon Drive and 2012 Oxford Street West. The intersection improvements slightly increase the overall imperviousness (<1%) under the proposed conditions, and LID measures have been proposed to mitigate this increase in impervious area. As noted in Table 5-2, without the proposed development area increase, the proposed roundabout LID measures will reduce the peak to below existing levels. - A Sediment and Erosion Control Plan will be prepared during detail design implementing standard erosion and sedimentation control measures in accordance with Ontario Provincial Standard Specification (OPSS) 805 Construction Specification for Temporary Erosion and Sediment Control Measures. UTRCA requirements will be noted in the Final PFR.
	UTRCA staff confirmed that, in review of the responses / clarifications provided, the UTRCA agrees that they are adequate for the Class EA stage.	June 1, 2022	No further consultation required at the EA Stage. As noted above further consultation with the UTRCA will be required during detailed design to demonstrate that there will be no increase in flows to the Regulated Tributary C as a result of the proposed works, and to determine any permitting requirements under O. Reg. 157/06.
Sutton Group Select Realty	Owner of 1949 and 1941 Oxford Street West inquired how these lands would be serviced, should they be developed in the future.	April 30, 2021	The project team notified the property owner that any redevelopments on the properties will need to go through the City's Site Plan process at which time the City will also review servicing requirements.

Agency / Group	Comment Summary	Date Received	Response and Consideration of Comments in Class EA
Stantec	Stantec provided comments on the study recommendations, making request that the access into and out of the subdivision development at 14 Gideon Drive and 2012 Oxford Street West remain as a full movement access.	November 26, 2021	The study includes a full movement access to the future development; however, the City reserves the right to modify the access to Gideon Drive from the development to a right-in, right-out in the future. Response was provided by the project team in letter format, included in Appendix 1. Further consultation should be completed with Stantec regarding the servicing of these developments during detailed design.

7.2 Indigenous Communities Communications

Various Indigenous communities were notified of the study, in order to identify any potential issues or concerns regarding possible impacts to Aboriginal and Treaty Rights, or any other interests or questions that the community may have with regard to this study. The following Indigenous Communities were notified of the study:

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

Correspondence was received from Chippewa of the Thames First Nation, and Oneida Nation of the Thames. Correspondence received from these Indigenous communities during the study are outlined in Table 7.2 and included in **Appendix 1**.

Table 7.2 – Comments Received from Indigenous Communities

Indigenous Community	Comment Summary	Date Received	Response and Consideration of Comments in Class EA
Chippewas of the Thames First Nation (COTTFN)	COTTFN Community Knowledge Keeper provided confirmation of the receipt of the Notice of Commencement and Consultation Protocol, which requires submission of project information to the COTTFN consultation portal. COTTFN also provided a response to the Notice of Commencement after a preliminary review of the study area stating that the project does fall within the London Township Treaty area to which Chippewas of the Thames First Nation (COTTFN) is a signatory. The project also falls within the Big Bear Creek Additions to Reserve Land Selection Area as well as COTTFN's traditional territory. COTTFN requested regular updates on the study.	March 12, 2021	The project team completed the COTTFN Consultation portal submission, providing additional information regarding the study. COTTFN were notified by Golder Associates that a Stage 1 and 2 Archaeological Assessment will be completed as part of the study.
	COTTFN noted that due to capacity in their archaeology program at the time, no archaeology field liaison will be able to participate in the archaeological field work. COTTFN requested to receive regular updates on the progress of this assessment and noted that should a Stage 3 archaeology assessment be required, the COTTFN should be notified and provided with the opportunity to actively participate.	May 3, 2021	Following the Stage 2 AA field survey, the COTTFN were provided with an update on the assessment, noting that no archaeological sites were identified, and as such, there is no further work recommended.
	In response to the notice of PIC and preliminary study recommendations, COTTFN provided the following questions: 1. What type of mitigation strategies will be implemented to ensure that impacts to ground water protection areas are minimal? 2. The study area is located within Green Space, Farmland and areas under Environmental Review, can you provide a brief explanation of what areas are under Environmental Review and why? 3. What type of mitigation strategy is in place to protect the Green Space, not just for this project but as the residential area expands?	November 23, 2021	Responses to each of the COTTFN questions were provided by the project team in letter format, included in Appendix 1 .
	COTTFN requested a shapefile of the study area via phone call to the project team.	December 2, 2021	Shapefile of the study area was provided.
	COTTFN requested to receive a final copy of the archaeological assessment report.	December 14, 2021	COTTFN was provided the final Archaeological Assessment report on January 25, 2022.
	COTTFN notified the project team that the COTTFN do not have any comment regarding the Oxford and Gideon Stage 1-2 Archaeological Assessment report.	February 14, 2021	No further consultation required at this time.
Caldwell First Nation (CFN)	While no response was received from CFN for this project, CFN had previously requested that all projects complete a submission to the CFN Consultation portal.	July 13, 2021	The project team completed the CFN Consultation portal submission, providing additional information regarding the study. No response was received. No further consultation required at this time.
Oneida Nation of the Thames	In response to being notified of the Stage 1 and 2 archaeological assessments being completed as part of the study, Oneida Nation of the Thames outlined their expectations to be involved in the project, including in the archaeological monitoring during field work.	May 5, 2021	Golder Associates provided Oneida Nation of the Thames with an agreement for archaeological monitors.

Indigenous Community	Comment Summary	Date Received	Response and Consideration of Comments in Class EA
	Golder Associates and Oneida Nation of the Thames worked to execute an agreement for archaeological monitors to be involved in this project, however, no agreement was executed for this project. As such, Oneida Nation of the Thames noted that they will not be participating in the archeological field work and requested to receive updates on the assessment findings.	May 6 – September 23, 2021	Following the Stage 2 AA field survey, the Oneida Nation of the Thames were provided with an update on the assessment, noting that no archaeological sites were identified, and as such, there is no further work recommended
	Oneida Nation of the Thames requested to receive a final copy of the archaeological assessment report.	December 15, 2021	Oneida Nation of the Thames was provided the final Archaeological Assessment report on January 25, 2022. No further consultation required at this time.

7.3 City of London Staff and Advisory Committees

City of London staff provided technical review of supporting studies and Class EA materials throughout the study. In addition to the technical review provided by relevant City staff, the project team met with, and provided presentations to, several City of London advisory committees during the EA.

Presentations were provided to the following: Environmental and Ecological Planning Advisory Committee (EEPAC), Transportation Advisory Committee (TAC), Cycling Advisory Committee (CAC), and the London Advisory Committee on Heritage (LACH).

7.4 Residents and General Public

Residents within and adjacent to the study area received direct mailings of all notices, while members of the general public were invited to participate in the study through the City of London municipal website and notices advertised in The Londoner (local newspaper).

A detailed summary of comments received regarding from residents and members of the general public during the study are provided in Table 7.3, while a full copy of all comments received is included in **Appendix 1**.

7.4.1 Public Information Centre

One Public Information Centre (PIC) was held during the EA study, during Phase 2 of the MCEA process.

Given the ongoing COVID-19 pandemic, associated restrictions on public gatherings, and in the interest of public health, the PIC was held online. The PIC was held on November 17, 2021, from 5 p.m. to 7 p.m. through a Virtual Public Meeting format hosted on the City of London's Zoom account. Residents were invited to call-in to the meeting or watch the presentation live-stream on the City's website and participate in a live question and answer period held following the presentation.

All attendees were encouraged to provide comments and feedback on the material presented and the study in general. Attendees were also encouraged to submit additional comments by email or mail following presentation. A recording of the PIC presentation and question and answer period were posted to the City's project website following the PIC.

7.4.2 Project Website and Additional Comments

In addition to the formal consultation described above, contact information of the Project Manager, including email, telephone and mailing address were available to the public on the City's Project Web Page, Get Involved portal, and was included all public notices distributed throughout the study.

This provided an ongoing opportunity for members of the public to provide their questions, concerns, and/or comments regarding the study to the project team at any time during the study.

General comments and questions received during the study, and how these comments and questions were incorporated into the study are summarized in Table 7.3.

Table 7.3 – Comments Received from Residents and General Public

Group / Medium	Comment Summary	Date Received	Response and Consideration of Comments in Class EA
Resident (Comments submitted via Email and Phone Call)	Resident inquired whether the PIC has been scheduled, and when they will be notified of the PIC.	August 16, 2021	The resident was advised that the PIC has not yet been scheduled, and that they will receive the Notice of PIC to participate in advance of the meeting.
	Following the PIC, the resident expressed that they are generally supportive of the roundabout but had a number of questions regarding potential impacts to their property. Outcomes of the phone call with resident described in notes included in Appendix 1-6.	November 25, 2021	Further consultation with impacted property owner to be completed during detailed design. Outcomes of the phone call with resident described in notes included in Appendix 1-6.
Resident (Comments submitted via Email)	Resident thanked the project team for the informative notice and requested that the preferred solution allows for traffic to turn left off of Kains Road. The resident noted that the current setup does not allow for this, noting that traffic on Westdel Bourne has increased significantly over the past few years. The resident noted that allowing for traffic to turn left off of Kains Road onto Oxford West will divert current traffic that is going over to Westdel Bourne in order to turn left on Oxford West.	April 15, 2021	The study recommendations include removing the temporary raised island on Kains Road restricts outbound left-turn and through movements from Kains Road and allowing for vehicles to make left-turn movements from Kains Road, through the roundabout.
Resident (Comments submitted via Phone Call)	Resident owns a property in Kilworth near the Thames River bridge and received a copy of the PIC notice. They are fully supportive of the	November 16, 2021	Resident's support of the study recommendations noted.

Group / Medium	Comment Summary	Date Received	Response and Consideration of Comments in Class EA
	study and recommendations and understand the importance to the community.		
Resident (Comments submitted via Email)	Resident provided input on the study recommendations including support for a roundabout, removing the existing channelization for right turns at the intersection, and eliminating the temporary island on Kains Road that restricts outbound left-turn and through movements from Kains Road.	November 19, 2021	Resident's support of the study recommendations noted.

8.0 Additional Work and Approvals

8.1 Detailed Design Commitments

In addition to the mitigation measures described above, additional work is required to be completed following the Class EA. During detailed design the following work is needed to confirm findings from the Class EA phase and to further refine the design:

- Consider separated cycling & pedestrian facilities (i.e., separate sidewalk and bike lane) as a substitute for the recommended multi-use path facility.
- Confirm and obtain required approvals and necessary permits as outlined below.
- Confirm construction staging and traffic management plans for the road reconstruction.
- Confirm municipal servicing (water, wastewater, and stormwater) strategy and staging in consultation with planned developments adjacent to the study area.
- Complete further consultation with the UTRCA to confirm any permitting requirements under O. Reg. 157/06, including a detailed Erosion and Sediment Control (ESC) drawings meeting UTRCA requirements.
- Review the traffic calming requirements on the adjacent road networks to discourage potential cut through traffic during construction.
- Conduct a well inventory and implement a well monitoring program during construction.
- Review the need for condition surveys of vulnerable homes and structures prior to construction.
- Develop a plan to deal with the transportation and disposal/reuse of any excess soils under O.Reg. 406/19.
- Continue consultation with utility companies and coordinate utility relocations.
- Incorporate recommendations of the Cultural Heritage Resource Assessment if any identified cultural heritage resources within the corridor are impacted.
- Finalize mitigation measures and requirements for construction work.

8.2 Permits & Approvals

The following approvals have been identified as potentially being required prior to the implementation of the proposed works.

- Works which bisect the Upper Thames River Conservation Authority (UTRCA) regulated lands, will require an UTRCA Work Permit under O. Reg. 157/06.
- A Permit to Take Water will be required from the MECP if dewatering exceeds 50,000 but less than 400,000 litres per day. Environmental Activity and Sector Registry would be required, should dewatering exceed 400,000 litres per day.
- An Environmental Compliance Approval could be required prior to construction to ensure that the proposed works comply with MECP guidelines for the design of sanitary sewage systems, storm sewer systems and/or water systems.

8.3 Distribution of Notice of Study Completion and Project File Report

In accordance with the requirements of the Municipal Class Environmental Assessment (MCEA) – Schedule 'B', a Notice of Study Completion is anticipated to be issued in late May. Through issuance of the Notice of Study Completion, this Project File Report (PFR), documenting the planning process undertaken, details of the study recommendations as well as potential impacts and mitigation measures identified through EA study, will be placed on the public record for the mandatory 30-day review period.

The Notice of Study Completion will also advise the public that during the 30-day review period, a request may be made to the Ministry of the Environment, Conservation and Parks (MECP) for an order requiring a higher level of study (i.e. requiring an individual/comprehensive EA approval before being able to proceed), or that conditions be imposed (e.g. require further studies), on the grounds that the requested order may prevent, mitigate or remedy adverse impacts on constitutionally protected Aboriginal and treaty rights.

Following the close of the 30-day public review period, the MECP has an additional 30 days to consider the project and review any potential Section 16 Order requests submitted during the 30-day public review period. The City may not proceed with the project for at least these 30 days following the end of the public review period.

Following this 30-day MECP review period, the project may proceed to detailed design and construction, provided the ministry is not reviewing Section 16 Order requests related to the project, and subject to any other permits and approvals that may be required.