Walnut Lane Extension Kingston Road to Liverpool Road – Municipal Class Environmental Assessment

Environmental Study Report

City of Pickering

60547978

March 2023

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AECOM: 2015-04-13

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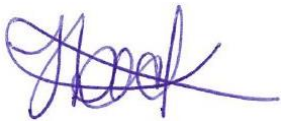

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Revision History

Revision Number	Date	Revised By	Revision Description
1	June 9, 2022	AECOM	Draft ESR revisions based on City and agency review comments
2	August 30, 2022	AECOM	Draft ESR revisions based on City comments
3	October 19, 2022	AECOM	ESR revisions based on agency review comments. Final posted for 30-day public review
4	March 20, 2023	AECOM	Final ESR with Close-out Memorandum after 30-day public review

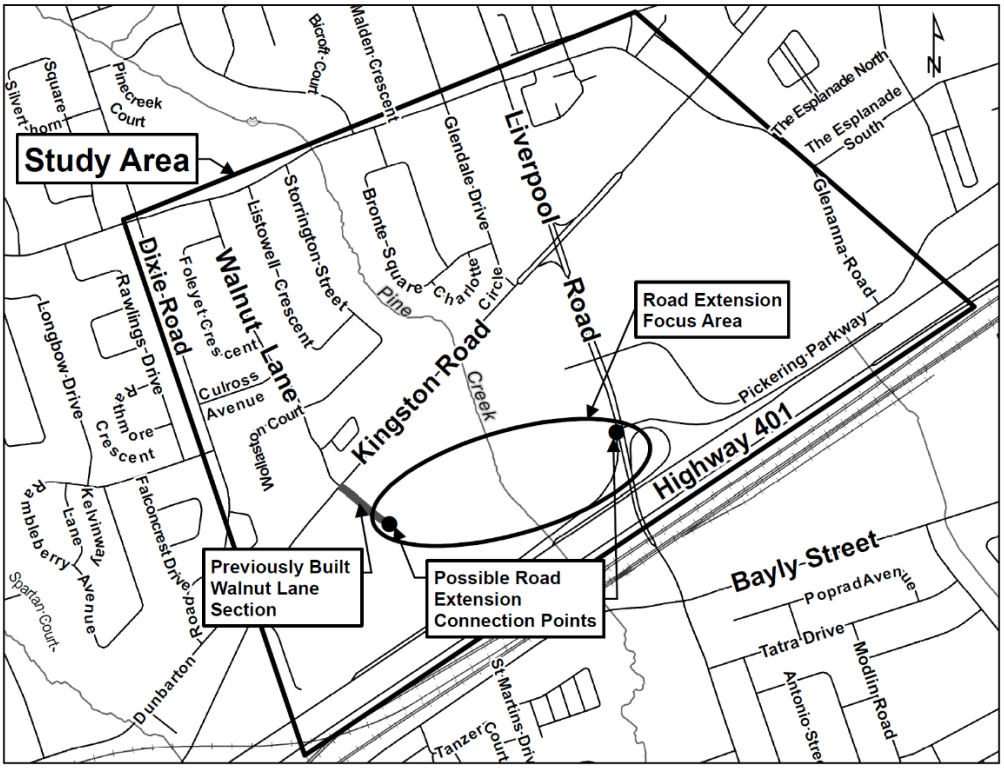
Executive Summary

The City of Pickering (the City) through their consultant AECOM Canada Ltd. (AECOM) has completed a Municipal Class Environmental Assessment (MCEA) study to extend Walnut Lane from the section presently constructed south of Kingston Road, eastward to Liverpool Road. The extension is required to service existing, approved, and proposed development in the City Centre and Liverpool neighbourhoods and will accommodate all modes of transportation. Alternative solutions and design concepts including potential structure alternatives over Pine Creek have also been considered.

Study Area

The Study Area (**Figure ES-1**) encompasses the City Centre and Liverpool Neighbourhoods north of Highway 401 and is centred around the intersection of Kingston Road (Durham Region Highway 2) and Liverpool Road (RR #29). The existing section of Walnut Lane is located approximately 325 metres east of Dixie Road and 680 metres west of Liverpool Road. The approximate limits of the larger Study Area are as follows: Glenanna Road to the north and east, Highway 401 to the south and Dixie Road to the west.

Figure ES-1: Study Area



Project Need and Justification

The findings of the traffic impact assessment for the Walnut Lane extension (**Appendix A**) indicate that in the absence of the Walnut Lane extension, numerous movements at the Study Area intersections would operate over capacity and/or at an unacceptable level of service in the horizon year of 2027. In the absence of any improvements, the long-term vision for the Pickering City Centre (as described in the "Downtown Pickering: A Vision for Intensification and Framework for Investment" Report) and surroundings are expected to further deteriorate traffic conditions in the Study Area road network in the future.

With the studied sections of Liverpool Road and Kingston Road already at six lanes by 2026, further widening of these two roads would not be a realistic transportation improvement option. In addition, the planned improvements to the existing transit services, as well as active transportation, are only anticipated to partially address the future traffic operational issues within the Study Area. Hence, there seems to be an inevitable need for a new road connection to the Study Area road network.

The extension of Walnut Lane from the section presently constructed south of Kingston Road eastward to Liverpool Road is anticipated to contribute to materializing the Intensification Plan for the City Centre and address most of the future traffic operational issues. In addition, the Walnut Lane extension would allow for development of the parcel of land bounded by Liverpool Road to the east, Highway 401 to the south, Kingston Road to the north, and Pine Creek to the west.

Municipal Class Environmental Process

The Walnut Lane Extension from Kingston Road to Liverpool Road MCEA Study (hereafter the "Project" or "Walnut Lane extension") has been conducted in accordance with the Schedule "C" process under the Municipal Engineers Association's, MCEA manual (October 2000, amended 2007, 2011 and 2015).

As a Schedule 'C' project, this MCEA study examines a range of alternatives and identifies a preferred alignment for Walnut Lane south of Kingston Road, including the associated design for extending and connecting Walnut Lane to Liverpool Road. Potential structure alternatives over Pine Creek have also been considered. As such, the Project is subject to the completion of all five phases of the MCEA process including:

- Phase 1 – Problem or Opportunity
- Phase 2 – Alternative Solutions

- Phase 3 – Alternative Design Concepts for the Preferred Solution
- Phase 4 – Environmental Study Report
- Phase 5 – Implementation (design and construction)

This Environmental Study Report (ESR) concludes Phases 1 to 4 and will be made available on the public record for review and comment for 30 calendar days. Refer to **Section 2.3** of this ESR for further details on the public review period.

Problem and Opportunity Statement

Phase 1 of the Municipal Class Environmental Assessment (MCEA) planning process requires the proponent of an undertaking (i.e., the City) to document factors leading to the conclusion that the proposed improvement is needed, and to develop a clear statement of the identified problems or opportunities to be addressed. The Problem and Opportunity Statement is the first phase in undertaking a MCEA study and assists in establishing the study's scope. Based on the Project need and justification, the problem and opportunity statement has been formulated:

Problem: There is significant development potential within the area beyond the existing southerly terminus of Walnut Lane. Extending Walnut Lane easterly from Kingston Road to the west side of Liverpool Road is needed to:

- Address projected travel demands
- Provide a second point of ingress/egress to support future development
- Strengthen the east to west transportation grid network

The proposed road extension must ensure no negative impacts to Ministry of Transportation Highway 401 operations and net benefit to Durham Region road operations, including on Kingston Road and Liverpool Road. In addition, traffic calming measures were developed as part of MCEA and preliminary design in order to prevent the Walnut Lane Extension from leading to any shortcutting / traffic infiltration issue on / through the existing section of Walnut Lane (north of Kingston Road),

Opportunity: There is an opportunity to employ the Complete Streets approach in order to accommodate the existing and future traffic demand (including transit and active transportation) and provide better connectivity to adjacent neighbourhoods for the overall road network.

Alternative Solutions

Phase 2 of the Walnut Lane Extension MCEA Study process included the development of the following alternative planning solutions to address the identified Problem and Opportunity Statement:

- Alternative 1: Do Nothing
- Alternative 2: Operational Improvements
- Alternative 3: Extend Walnut Lane easterly from the current western terminus to Liverpool Road
- Alternative 4: Widen or Extend Alternate Routes
- Alternative 5: Transportation Demand Management (TDM)
- Alternative 6: Limit Development

To determine the preferred planning solution, criteria were developed to assist in the evaluation of the alternative solutions. The alternative solution that best addressed the Problem and Opportunity Statement, that is, the solution that overall provided the most positive effects and/or the least negative effects based on the criteria, was considered the preferred solution.

The preferred planning solution includes a combination of **Alternatives 2, 3 and 5** based on the following rationale:

- The addition of turn lanes can improve overall travel time by reducing queuing
- Improves network capacity and road connectivity by providing alternate route for traffic travelling from Kingston Road to Liverpool Road (avoids Liverpool Road and Kingston Road intersection)
- Accommodates existing and future planned development – road extension will support planned development in the City Centre, as well as supports the vision of the Kingston Road Corridor Intensification Plan
- Addresses projected travel demands
- Provides a second point of ingress/egress to support future development for lands south of Kingston Road and west of Liverpool Road.
- Strengthens the east to west transportation grid network
- Helps avoid further deterioration of traffic conditions in the Study Area
- Opportunities for improved cycling, pedestrian and transit facilities
- Supports the Complete Streets Strategy as per the City's Integrated Transportation Master Plan

Alternative 4 (Widen or Extend Alternate Routes) is also recommended; however, this alternative is being addressed through the City of Pickering Kingston Road Corridor and Specialty Retailing Node Intensification Plan (recommends extending Dixie Road easterly to proposed Walnut Lane extension) as well as other studies, including the future Liverpool Road Widening, Durham-Scarborough Bus Rapid Transit project, and Complete Streets Strategy as per the City's Integrated Transportation Master Plan.

Alternative Design Concepts

The next phase of the MCEA process included the identification of the preferred design concept for the Walnut Lane extension road alignment and Pine Creek crossing span width. Similar to Phase 2 (Alternative Solutions), criteria were identified to evaluate the alternative design concepts. The alternative design concept that overall provided the most positive effects and/or the least negative effects based on the criteria, was considered the preferred design concept.

All road alignments evaluated extend Walnut Lane easterly from the current western terminus at Kingston Road to Liverpool Road. The road alignments evaluated included:

- Alternative 1 – Central Alignment
- Alternative 2 – North Alignment
- Alternative 3 – South Alignment

The preferred design concept is **Alternative 1: Central Alignment (Figure ES-2)** based on the following rationale:

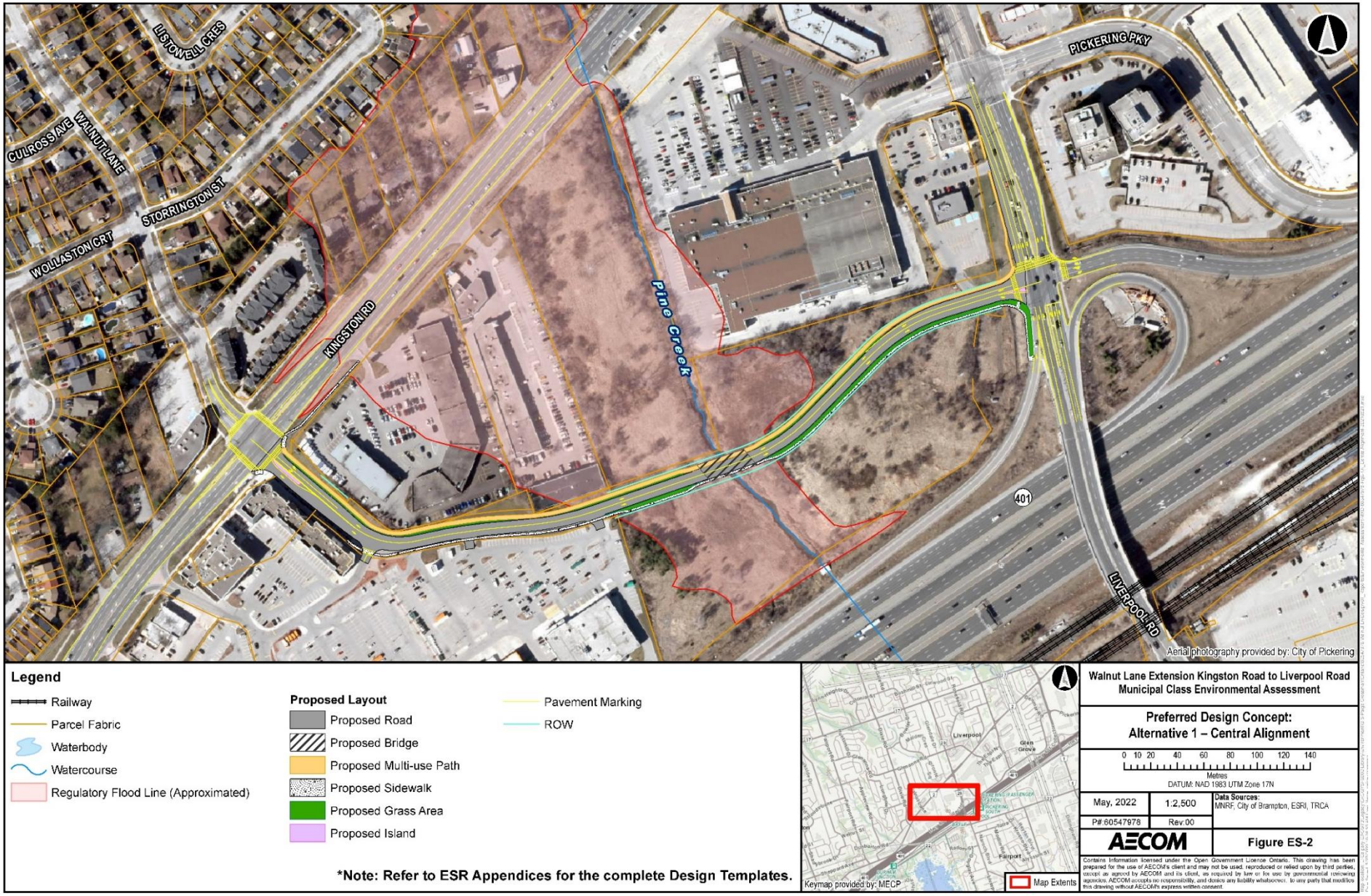
- Least impact on the natural heritage features (e.g., wetland removal and crossing length) present within the Study Area
- Facilitates the largest block of developable land when considering environmental constraints and setbacks
- Slightly lower construction cost related to most direct and shortest route

All alternatives have similar ranking for the other evaluation categories (i.e., Technical, Cultural Environment).

The evaluation of Pine Creek Crossing Span Widths included:

- Option 1 – 25 metre clear span bridge
- Option 2 – 30 metre clear span bridge
- Option 3 – 36 metre clear span bridge

Figure ES-2: Preferred Design Concept



Based on the evaluation, the preferred span width was initially identified as Option 1: 25 metre span width, which was presented at the Public Information Centre #2. However, based on further consultation and comments received from TRCA, **Option 3: 36 metre span width** is the preferred design concept as per the following key rationale:

- Meets TRCA Crossings Guidelines for Valley and Stream Corridors (2015). The bridge span is required, at minimum, to meet the meander belt width for new crossings
- Best addresses the 100 metre meander belt
- Provides opportunity for stream corridor enhancements
- Least impact to aquatic vegetation and species

The three span widths evaluated have similar ranking for the evaluation category of Cultural Environment.

As per the TRCA commitments outlined in **Section 10.3.2,** the 36 metre span will be subject to more detailed hydraulic analysis including routing analysis, fluvial geomorphology review and cut fill balance during the detailed design phase of the Project.

Preferred Design

The design criteria for the Walnut Lane Extension were developed using the City of Pickering - Engineering Design Criteria and Transportation Association of Canada's (TAC) Geometric Design Guide for Canadian Roads. Consultation with government agencies, Indigenous communities, members of the public and other stakeholders was undertaken to obtain feedback on the preferred design.

Road Geometry

The proposed horizontal alignment will follow the geometry of the existing section of Walnut Lane in a southerly direction and move easterly on a curvilinear alignment to fit within the constraints of the existing development and to avoid additional property takings. Moving easterly, new Walnut Lane will cross Pine Creek and tie back to Liverpool Road opposite the Highway 401 E-N/S ramp. The design meets minimum radii standards for a design speed of 70 kilometres per hour, with the exception of the first horizontal curve south of Kingston Road (55 metres) due to property constraints.

The vertical alignment of Walnut Lane exceeds the crest and sag curve minimum requirements for a 70 kilometres per hour design speed, with a crest curve K-60 (min K-17) and a sag curve of K-35 (min K-23). The maximum grade on Walnut Lane is 1.58% (max 6%) and the minimum grade is 0.5% (min. 0.5%).

Cross-sections

The proposed roadway consists of a two-lane urban cross-section (curb and gutter) with 4.875 metre lanes. A 3.0 metre asphalt-paved multi-use path (MUP) will be provided on the north side of Walnut Lane, and a 1.5 metre concrete sidewalk will be provided on the south side. The sidewalk will be 1.5 metres in locations where there is a grass boulevard, and 1.8 metres when it is beside the curb. The posted speed limit will be 40 kilometres per hour.

The cross-section of existing Walnut Lane through the developed area has been defined by the existing property and varies in width. In this area, the 3.0 metres MUP and 1.5 metre sidewalk will be maintained, while the boulevard will be shortened with some curb face locations (sidewalk immediately behind curb).

The full 20 metre right of way will be provided where the new roadway is constructed in greenfield.

A new bridge structure is proposed over Pine Creek. The proposed bridge is a single span precast prestressed concrete girder bridge with integral abutments on H-Piles. The bridge will have a clear opening of 36 metres. The girders are NU1800, with a 225 mm deck slab and 90 mm asphalt and waterproofing system. The bridge crosses Pine Creek at a 20 degree skew, and carries two 3.875 metre lanes of traffic, has two 1.0 metre shoulders, a 3.0 metre multi-use path on the north side, and a 1.5 metre wide sidewalk on the south side. The barrier is a TL-4 Four Tube Steel Barrier.

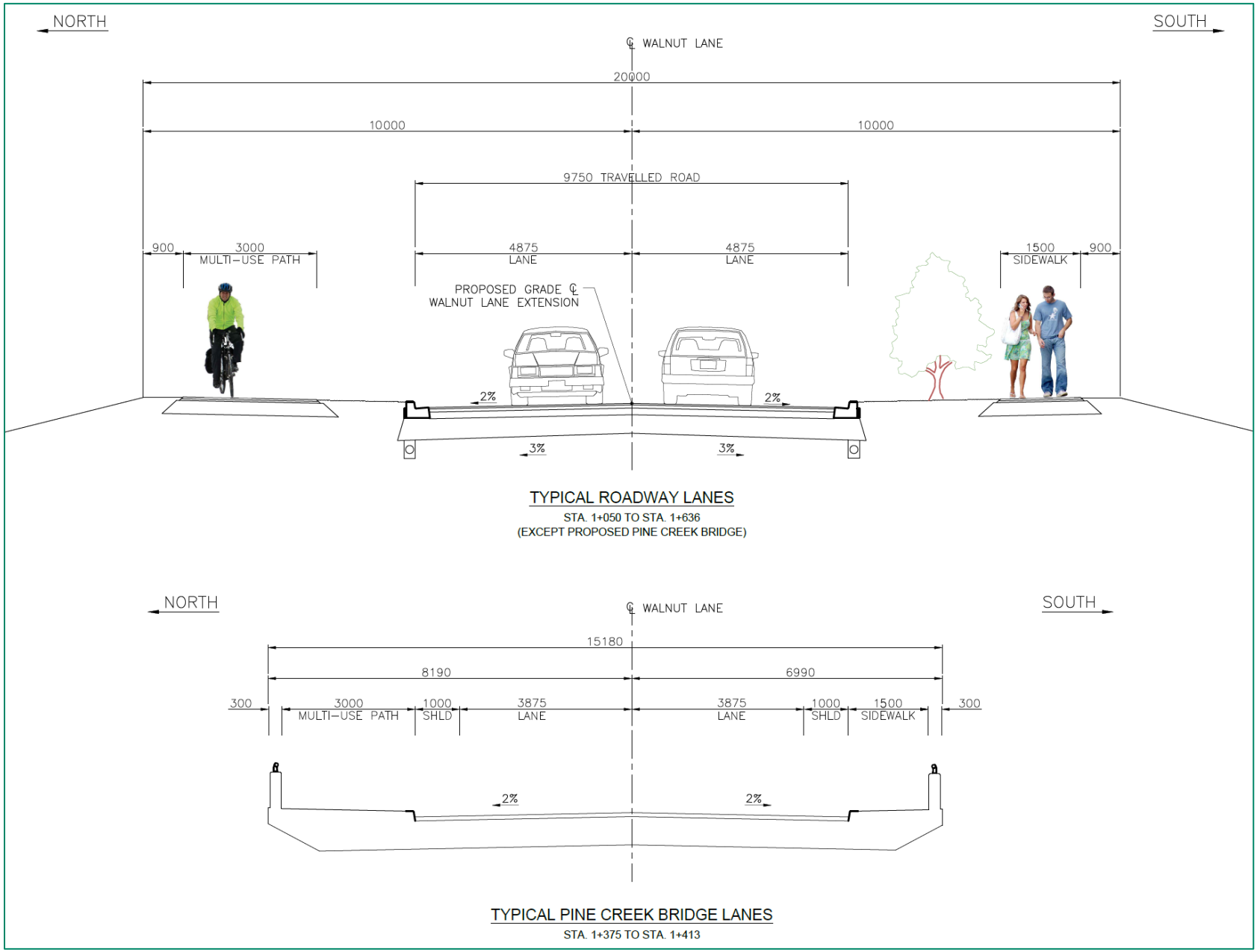
Refer to **Figure ES-3** for the typical cross-sections of the road platform and bridge structure.

Intersections

The following summarizes the intersection improvements for the Project:

- **Walnut Lane and Liverpool Road:** The proposed intersection at Liverpool Road/Walnut Lane/Highway 401 off ramp will function similar to existing conditions, with the exception of the eastbound left-turn movement that would be prohibited. The Walnut Lane eastbound movement will be right out only with no right turn on red. Existing lane configuration and all moves on the E-N/S Ramp will be maintained. All moves will be maintained for northbound and southbound Liverpool Road, and the Highway 401 E-N/S ramp, plus the addition of a southbound through lane and a dedicated southbound right turn lane. These additional southbound lanes are part of Durham Region’s planned Liverpool Road widening..

Figure ES-3: Typical Cross-sections



- **Walnut Lane and Kingston Road:** The existing intersection will largely remain the same, with the exception of the northbound through movement that would be prohibited. Median and channelization islands will be used to physically restrict the prohibited northbound through movement, with the configuration to be determined in detail design. The Region of Durham has plans to widen Kingston Road to include median transit. The design for the intersection will accommodate the future widening.
- **Walnut Lane and Pickering Parkway (Future):** There is potential future connection from Pickering Parkway to Walnut Lane that is not included in the scope of the Project. A potential future connection has been identified in the City's Official Plan that has been identified for conceptual purposes on the Project drawings. This intersection would be part of the long-term redevelopment of the Loblaws site and would be located on north side of Walnut Lane, east of Pine Creek. The exact location will be determined through a separate MCEA process or Planning Act development application to evaluate the location of a future potential connecting road should the Loblaws site be redeveloped in the future.

Drainage and Stormwater Management

Catch basins, manholes and storm sewers will be constructed to facilitate drainage of Walnut Lane, as per the typical section. Walnut Lane and the future Tribute Communities development will share a storm outfall.

Accesses

The road design will control the number of accesses from Walnut Lane. The existing parking lot entrances to commercial and other businesses from Walnut Lane (south of Kingston Road) will be reduced to three access points; one to access the parking lot west of Walnut Lane, one to access the Home Depot parking lot, and one for truck access including a fire route (east side of Food Basics).

The unofficial entrance at Liverpool Road opposite the ramp terminal will be removed as the current access was not approved by MTO who also have concerns with any new entrance off the new Walnut Lane road. Consultation with the property owner (1786 - 1790 Liverpool Rd) is ongoing.

Future entrance locations to the proposed developments east of Pine Creek will be identified and confirmed as part of the site developments plans.

Preliminary Traffic Calming Plan

A key concern voiced by the community were the traffic impacts to Walnut Lane north of Kingston Road, including cut through traffic / traffic infiltration through the existing residential section of Walnut Lane. A Traffic Calming Study **(Appendix A)** was initiated following first Public Information Centre (PIC) which established the need for traffic calming measures within the Study Area. Based on the findings of the two-stage evaluation process, and subject to a future design exercise and right-of-way considerations, a preliminary traffic calming plan is proposed for the City's consideration. The proposed traffic calming measures under consideration at the time of this ESR publication are shown in **Figure ES-4** and include:

- Alternate on-street curb-side parking areas between opposite sides along mid-block sections of Walnut Lane to simulate a chicane effect with parked vehicles.
- Install a "NO STRAIGHT THROUGH" signs (Rb-10) at the intersection of Kingston Road and Walnut Lane. The "NO STRAIGHT THROUGH" signs are to face northbound motorists and intended to prohibit northbound through movement at the intersection of Kingston Road and Walnut Lane at all times. The sign is recommended to be installed nearside of the intersection and visible to motorists travelling northbound on approach to the intersection.
- Install a "NO LEFT TURN" sign with a tab sign specifying time of between 7:00 a.m. and 9:00 a.m. on weekdays (Rb-12A) facing southbound motorists at the intersection of Dixie Road and Culross Avenue. The "NO LEFT TURN" sign is intended to prohibit southbound left-turning movement from Dixie Road onto Culross Avenue during the weekday AM peak period.
- Install "NO RIGHT TURN" signs with a tab sign specifying time of between 7:00 a.m. and 9:00 a.m. on weekdays (Rb-11A) facing eastbound motorists at the intersection of Glenanna Road and Walnut Lane, the intersection of Glenanna Road and Storrington Street, and the intersection of Glenanna Road and Listowell Crescent. The "NO RIGHT TURN" signs are intended to prohibit eastbound right-turning movements from Glenanna Road onto Walnut Lane, Storrington Street, and Listowell Crescent during the weekday AM peak period.

Figure ES-4: Preliminary Proposed Traffic Calming Measures

Municipal Services and Utilities

A 300 mm water main runs along the south side of Kingston Road and along the east side of Liverpool Road to Pickering Parkway. A 300 mm watermain will be placed under the south boulevard of Walnut Lane, as per the typical section.

A 200 mm sanitary sewer runs along the south side of Kingston Road. A 600 mm sanitary sewer runs along the west side of Pine Creek to the 1050 mm sanitary sewer that runs along the north side of Highway 401. Future private developments will connect to existing sanitary sewers. New sanitary sewers are not included in the construction of Walnut Lane.

Hydro, gas, and telecommunications will be located in the south boulevard of Walnut Lane, as per the typical section. Continued co-ordination will be maintained with all utility owners to ensure design compliance during the detailed design Phase

Property Requirements

The new Walnut Lane roadway corridor (20 metres) has been identified along the existing development and will be acquired by the City. No additional property is required to facilitate this project. The City may wish to acquire property at the pinch point near station 1+240, but this would be part of a redevelopment of that specific site.

Pine Creek Corridor Public Ownership Transfer:

- As development applications proceed, valley lands (from east top of bank to west top of bank) are to be transferred from the proponent to public ownership

Schedule and Cost

This project could proceed to Detail Design and construction in 2022-2023, subject to council and budgetary approvals. Construction could start in 2023 and is anticipated to take approximately one year to complete.

The preliminary construction cost estimate is approximately $7.9M, which includes the bridge ($3.8M) and road extension/improvements ($4.1M).

Preliminary Land Use and Phasing Plan

The parcels of land currently bounded by Pine Creek to the west, Loblaws site to the north Highway 401 to the south, and immediately west of Liverpool Road will be developed first. This includes the Tribute Communities condominium development on

the west side of Liverpool Road and north side of Highway 401 that will front the future Walnut Lane roadway. The Tribute Communities development is currently going through the site plan process.

The Loblaws property redevelopment is expected to occur in the long term.

Potential Environmental Effects, Mitigation Measures and Monitoring

The implementation of the Project has the potential to create positive and negative effects. Minimizing negative effects has been a key consideration throughout Phases 1 through 3 of the Project and has been discussed with agencies, stakeholders, Indigenous Communities, and the public.

The existing conditions presented in **Section 4** of this report were used as baseline conditions against which changes due to the Project (effects) were assessed. Effects can be generally divided into two main categories: construction related effects (which are temporary in nature) and effects related to the operation and maintenance of the Project (effects that are permanent). Negative effects caused by the Project are avoided to the extent possible; however, in cases where negative effects cannot be fully avoided, mitigation measures will be required during construction, operation and maintenance of the Project.

Effects of the Project on the following key features were assessed along with proposed mitigation measures (**Section 9**) to reduce the effects:

1. Traffic and Transportation
2. Technical and Engineering
3. Natural Environment
4. Socio-Economic Environment
5. Cultural Environment

The proposed Walnut Lane extension road alignment passes through a natural area that includes Pine Creek. No Species at Risk (SAR) were encountered during field investigations and it is unlikely that most of the SAR identified through the background review are present. Loss of and/or damage to vegetation and ecological communities through clearing, grubbing, and grading will be limited within the construction footprint.

Removal of an estimated 0.114 hectares of wetland will be required for the preferred alternative. A planting restoration plan will be developed in consultation with the City and Toronto and Region Conservation Authority. Following construction, a mitigation plan will be developed to enhance the adjacent remaining wetland.

In addition to mitigating potential effects, this Environmental Assessment Report also identifies and commits to specific items which are to be reviewed, assessed, and confirmed during the detailed design and construction phases of the project. These future commitments are identified in **Section 10.**

Consultation

Several steps have been undertaken to inform and facilitate dialogue with interested and affected stakeholders, review agencies, Indigenous communities, and members of the public in the MCEA decision-making process, thereby contributing to the study outcome. The following summarizes the public, agency/stakeholder, and Indigenous community consultation activities during the MCEA planning process:

- A mailing list for the Project was developed and updated, as required, throughout the MCEA process
- The City's website provided relevant project information, including advance notification of Public Information Centres (PIC)
- Advertising in the local newspaper was used to provide notifications (i.e., Notice of Commencement, Notice of PICs, and Notice of Completion)
- Notices were distributed to the review agencies, stakeholders, and Indigenous communities on the Project's mailing list
- Notices were hand delivered by the City to property owners and businesses within the Study Area
- Two virtual Public Information Centres (PICs) were held to introduce and share the results of the Project, as well as receive feedback from participants that was considered by the Project Team
- Meetings were held with agencies and stakeholders, as appropriate. All comments received were considered and addressed to the extent possible by the Project Team
- Information sharing with Indigenous Communities, as requested, and follow-ups by telephone prior to issuing the Notice of Completion

Conclusions and Recommendations

This MCEA covers the processes required to ensure that the proposed Walnut Lane Extension meets the requirements of the *Environmental Assessment Act*. The preferred planning solution and design concept as described in **Section 8** resolves the problem and opportunity statement.

Considering the above, it is recommended that:

1. Following MCEA documentation filing and clearance, the preferred solution and design concept proceed to the detailed design phase
2. Mitigation measures identified in **Section 9** be expanded upon, where required, during detailed design and implemented as part of construction
3. Future Commitments, including remaining permits and approvals identified in **Section 10** be addressed during the detailed design phase and construction and be monitored for fulfillment

No Section 16 Order requests were received during the 30-day public review period, thereby allowing the Project, as documented in this ESR to proceed to the detailed design phase. Refer to **Appendix M** for a copy of the Municipal Class Environmental Assessment Close-out Memorandum.

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Appendices

1. Introduction

1.1 Overview and Purpose of the Project

The City of Pickering (the City) through their consultant AECOM Canada Ltd. (AECOM) has completed a Municipal Class Environmental Assessment (MCEA) study to extend Walnut Lane from the section presently constructed south of Kingston Road, eastward to Liverpool Road. The extension is required to service existing, approved, and proposed development in the City Centre and Liverpool neighbourhoods and will accommodate all modes of transportation. Potential structure alternatives over Pine Creek have also been considered.

The Walnut Lane Extension from Kingston Road to Liverpool Road MCEA Study (hereafter the “Project” or “Walnut Lane Extension”) has been conducted in accordance with the Schedule "C" process under the Municipal Engineers Association’s, MCEA manual (October 2000, amended 2007, 2011 and 2015). The MCEA study examines a range of alternatives and identifies a preferred alignment and associated design for connecting Walnut Lane to Liverpool Road.

The City of Pickering continues to grow and develop. The Growth Plan for the Greater Golden Horseshoe (2020) has designated Pickering’s City Centre as an Urban Growth Centre. An Urban Growth Centre is defined as mixed-use, high density and public oriented developments which are meant to become focal points. To accommodate growth in the City Centre Southwest Quadrant, changes are required to the existing transportation network.

The purpose of this MCEA Study is to assess and identify a solution to service existing, approved, and proposed development in the City Centre and Liverpool neighbourhoods as part of a multimodal transportation system. The objectives for this MCEA Study include:

- Completing a traffic study to better understand the baseline conditions and to assess and establish the need for the project
- Completing a traffic calming memorandum to identify potential traffic calming measures to alleviate concerns of an increased level of traffic infiltration into Walnut Lane north of Kingston Road (i.e., short cutting)
- Conducting desktop and field investigations to establish the existing conditions of the Study Area
- Identifying and evaluating feasible alternative solutions for the Project to address the problem and opportunity statement
- Identifying and evaluation alternative design concepts for the Project and selecting the preferred design concept

- Describing all known and potential impacts of the Project and proposing the appropriate mitigation measures
- Consultation with the public, stakeholders, agencies, and Indigenous Communities to allow the sharing of ideas, exchanging of information, and developing the alternative solutions and design concepts
- Following MCEA documentation filing and clearance, proceeding to the detailed design phase of the Project

1.2 Study Area

The Study Area encompasses the City Centre and Liverpool Neighbourhoods north of Highway 401 and is centred around the intersection of Kingston Road (Durham Region Highway 2) and Liverpool Road (RR #29). The existing section of Walnut Lane runs north-south between Glenanna Road and Kingston Road. The current Walnut Lane roadway is parallel to and located approximately 325 metres east of Dixie Road and 680 metres west of Liverpool Road. The approximate limits of the Study Area are as follows: Glenanna Road to the north and east, Highway 401 to the south and Dixie Road to the west. Refer to **Figure 1-1** for an overview of the MCEA Study Area.

1.3 Project Team Organization

This MCEA study has been undertaken as a collaborative effort between the City, Durham Region and AECOM Canada Ltd. (herein referred to as “AECOM”), General direction was provided by City representatives. Project Team meetings were held throughout the planning process. The City and AECOM Project Managers are identified below.

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Legend

- Roads
- Freeway
- Watercourse
- Waterbody
- Study Area

0 50 100 200 300 400 500
Metres

Walnut Lane Extension Kingston Road to Liverpool Road Municipal Class Environmental

Discipline Study Area

Jun 24, 2021	1:8,000 * when printed 11"x17"	Datum: NAD 1983 UTM Zone 17N Source: MNRF, Kingsett, Bing Key Map: ESRI Base Map: City of Pickering (2020)
P#: 60547978	V#: 00	**Figure 1-1**

AECOM

2. Municipal Class Environmental Assessment Planning Process

2.1 Overview

All municipalities in Ontario are subject to the provisions of the Ontario Environmental Assessment Act (EAA) and its requirements to prepare a Municipal Class Environmental Assessment (MCEA) for applicable public works projects. The Ontario Municipal Engineers Association (MEA) "Municipal Class Environmental Assessment" manual (October 2000, as amended in 2007, 2011 and 2015) provides municipalities with a phased planning procedure, to plan and undertake all municipal sewage, water, stormwater management and transportation projects that occur frequently, are usually limited in scale and have a predictable range of environmental impacts and applicable mitigation measures.

In Ontario, infrastructure projects, including the Walnut Lane Extension, are subject to the MCEA process and must follow a series of mandatory steps as outlined in the MCEA MEA manual. The MCEA manual consists of five phases and the application of the phases depends on the MCEA Schedule that applies to a project. The phases are summarized below:

- **Phase 1 – Problem or Opportunity:** Identify the problems or opportunities to be addressed and the needs and justification.
- **Phase 2 – Alternative Solutions:** Identify alternative solutions to the problems or opportunities by taking into consideration the existing environment, and establish the preferred solution taking into account public and agency review and input.
- **Phase 3 – Alternative Design Concepts for the Preferred Solution:** Examine alternative methods of implementing the preferred solution based upon the existing environment, public and agency input, anticipated environmental effects and methods of minimizing negative effects and maximizing positive effects.
- **Phase 4 – Environmental Study Report:** Document in an Environmental Study Report (ESR), a summary of the rationale, planning, design and consultation process for the project as established through Phases 1 to 3 above and make such documentation available for scrutiny by review agencies and the public.
- **Phase 5 – Implementation:** Complete contract drawings and documents, proceed to construction and operation, and monitor construction for adherence to environmental provisions and commitments. Also, where special conditions dictate, monitor the operation of the completed facilities.

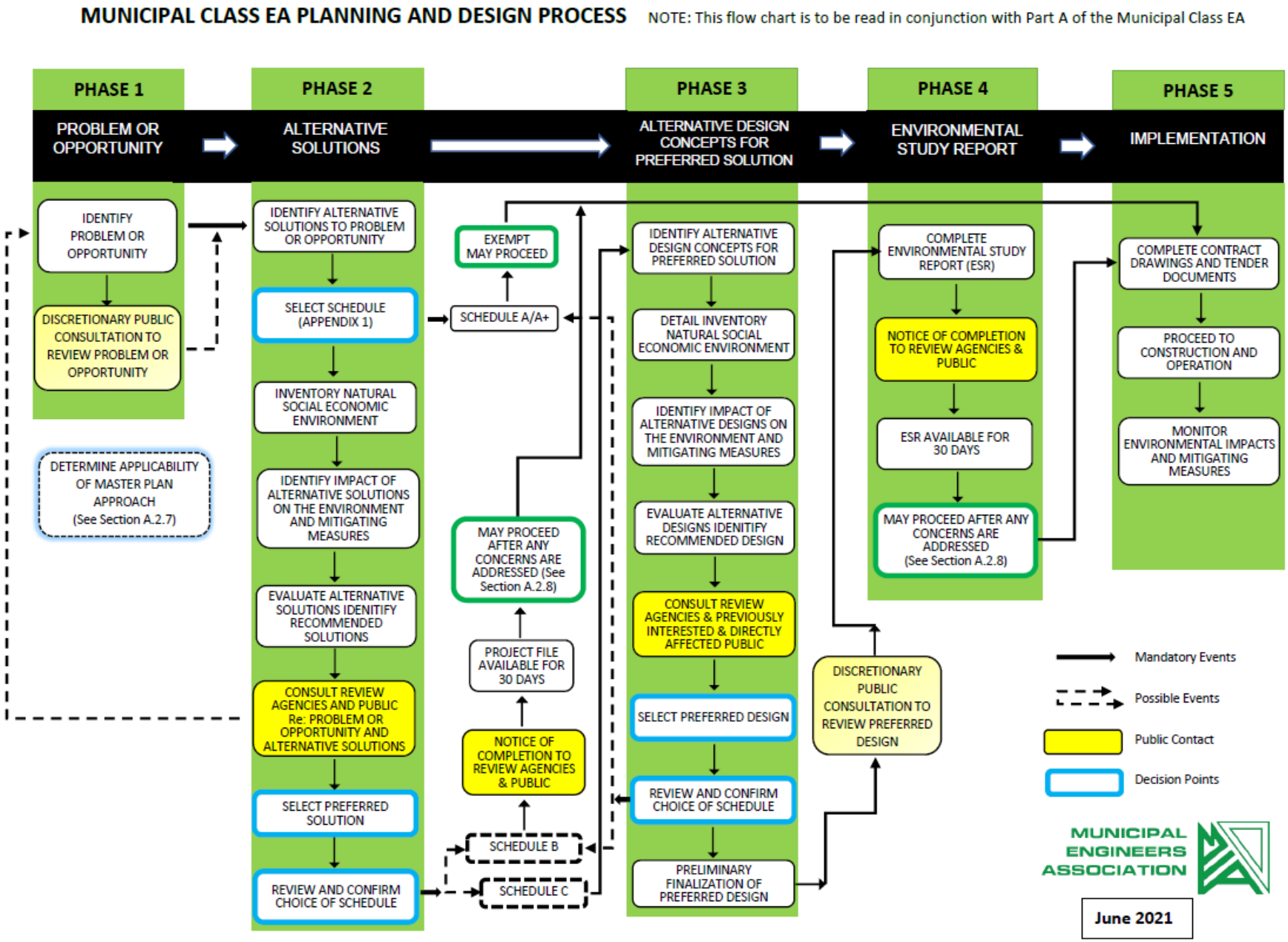
All five phases of the MCEA process apply to this project as it falls under the Schedule C project category. The MCEA process ensures that all projects are carried out with effectiveness, efficiency, and fairness. The process serves as a mechanism for understanding economic, social, and environmental concerns while implementing improvements to municipal infrastructure. **Figure 2-1** illustrates the planning and design process followed.

2.2 Project Planning Schedules

The MCEA defines four types of projects and the processes required for each (referred to as Schedule A, A+, B, or C). The selection of the appropriate schedule is dependent on the anticipated level of environmental impact, and for some projects, the anticipated construction costs. Projects are categorized according to their environmental significance and their effects on the surrounding environment. The following describes the MCEA planning schedules:

- **Schedule A:** Projects are limited in scale, have minimal adverse environmental effects and include a number of municipal maintenance and operational activities. These projects are pre-approved and may proceed to implementation without following the full MCEA planning process.
- **Schedule A+:** The purpose of Schedule A+ is to ensure appropriate public notification for certain projects that are pre-approved under the MCEA. It is appropriate to inform the public of municipal infrastructure project(s) being constructed or implemented in their area.
- **Schedule B:** Projects have the potential for some adverse environmental effects. The proponent is required to undertake a screening process (Phases 1 and 2), involving mandatory contact with directly affected public and with relevant review agencies to ensure that they are aware of the project and that their concerns are addressed. If there are no outstanding concerns, then the proponent may proceed to implementation. At the end of Phase 2, a Project File documenting the planning process followed through Phases 1 and 2 shall be finalized and made available for public and agency review. However, if a concern is raised related to aboriginal and treaty rights which cannot be resolved, a Section 16 Order (previously known as Part II Order requests) (**Section 2.2.1**) may be requested and considered by the Minister of the Environment, Parks and Conservation (MECP). Alternatively, the proponent may elect voluntarily to plan the project as a Schedule C undertaking.

Figure 2-1: Municipal Class Environmental Assessment Planning and Design Process



- **Schedule C:** Projects have the potential for significant adverse environmental effects and must proceed under the full planning and documentation (Phases 1 to 4) procedures specified in the MCEA manual. Schedule C projects require that an Environmental Study Report (ESR) be prepared and filed for review by the public and review agencies. If concerns related to aboriginal and treaty rights are raised that cannot be resolved, then a Section 16 Order may be requested.

The MCEA process ensures that all projects are carried out with effectiveness, efficiency, and fairness. This process serves as a mechanism for understanding economic, social, and environmental concerns while implementing improvements to municipal infrastructure.

2.2.1 Section 16 Order

The Minister of the Environment, Conservation and Parks has the authority and discretion to make an Order under section 16 of the Environmental Assessment Act. A Section 16 Order may require that the proponent of a project going through a Class Environmental Assessment (Class EA) process:

1. Submit an application for approval of the project before they proceed. This is generally referred to as an Individual Environmental Assessment (individual EA)
2. Meet further conditions in addition to the conditions in the Class EA. This could include conditions for:
    - further study
    - monitoring
    - consultation

The minister can also refer a matter in relation to a section 16(6) Order request to mediation.

If a Section 16 Order request is made, the project proponent cannot proceed with the project until the minister makes a decision on the request.

If the minister makes a Section 16 Order, the proponent may only proceed with the project if they follow the conditions in the Order.

You may ask the minister to make a Section 16(6) Order if:

- you have an outstanding concerns that a project going through a Class EA process may have a potential adverse impact on constitutionally protected Aboriginal and treaty rights
- you believe that an Order may prevent, mitigate or remedy this impact

The procedure for making the Section 16 Order request is outlined in **Section 2.3**. Prior to making a Section 16(6) Order request, you should first try to resolve any concerns directly with the project proponent through the Class EA process.

Please visit the ministry's website for more information on requests for orders under Section 16 of the *Environmental Assessment Act* at: Click here for the Environmental Assessment Act - Section 16 Order Request.

2.2.2 Walnut Lane Extension MCEA Schedule

This MCEA study was initially being conducted in accordance with the Schedule "B" planning process. Construction of a new road with a cost limit of less than $2.7M is considered a Schedule B undertaking while a Schedule C planning process is triggered if the cost exceeds $2.7M.

The Project was upgraded to the Schedule "C" planning process prior to the initial Public Information Centre as a result of the higher cost (greater than $2.7M) associated with the Walnut Lane Extension, including Pine Creek crossing.

2.3 Public Review of Environmental Study Report and Next Steps

Placement of the Environmental Study Report (ESR) for public review completes the planning stage of the study. The ESR was available for public review and comment for a period of 30 calendar days starting on **October 27, 2022** and ending on **November 25, 2022**. To facilitate public review of this document, an electronic version of the ESR was made available on the City's website: click here for the City of Pickering Walnut Lane Extension website. Hard copies were also available at the following locations during regular business hours:

- **Pickering City Hall**
  Clerks Department
  One The Esplanade
  Pickering, Ontario L1V 6K7
  Monday to Friday: 8:30 am to 4:30 pm
- **Pickering Library**
  Central Library
  One The Esplanade
  Pickering, Ontario L1V 6K7
  Monday to Friday: 9:30 am to 9:00 pm; Saturday: 9:00 am to 4:30 pm

All comments and concerns were directed to be sent directly to the City's Project Manager:

- Nadeem Zahoor, P.Eng., M. Eng.
  Transportation Engineer
  City of Pickering
  One The Esplanade, Pickering, Ontario L1V 6K7
  Telephone: 905.420.4660 extension 2213
  Click here to email Nadeem Zahoor

In addition, the Notice of Completion indicated that a Section 16 Order 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 were not considered. Requests were to include the requester contact information and full name. Please visit the ministry's website for more information on requests for orders under Section 16 of the Environmental Assessment Act at: Click here for the Environmental Assessment Act - Section 16 Order Request.

The request was to be sent in writing or by email by November 25, 2022 to both contacts below. A copy was also to be sent to the City of Pickering contact.

- Minister of the Environment, Conservation and Parks
  Ministry of Environment, Conservation and Parks
  777 Bay Street, 5th Floor, Toronto, Ontario M7A 2J3
  Click here to email the Minister of the Environment, Conservation and Parks
- Director, Environmental Assessment Branch
  Ministry of Environment, Conservation and Parks
  135 St. Clair Avenue West, 1st Floor, Toronto, Ontario M4V 1P5
  Click here to email the Director of the Ministry of Environment, Conservation and Parks

All personal information included in the request – such as name, address, telephone number and property location – is collected, under the authority of section 30 of the *Environmental Assessment Act* and is collected and maintained for the purpose of creating a record that is available to the general public. As this information is collected for the purpose of a public record, the protection of personal information provided in the *Freedom of Information and Protection of Privacy Act* (FIPPA) does not apply (s.37). Personal information is part of a public record that is available to the general public unless requested that your personal information remain confidential.

All comments received during the 30-day review are documented in the **Municipal Class Environmental Assessment Close-out Memorandum** (**Appendix M**). No Section 16 Order requests were received.

3. Planning Context

3.1 Provincial Planning Context

3.1.1 Provincial Policy Statement

The Provincial Policy Statement (PPS; 2020) sets the policy foundation for regulating the development and use of land and provides for appropriate development while protecting resources of provincial interest, public health and safety, and the quality of the natural and built environment. The PPS includes a number of policies governing transportation systems, and transportation and infrastructure corridors.

Relevance to Study: The key sections of policies relevant to the Project include:

- 1.1 Managing and Directing Land Use to Achieve Efficient and Resilient Development and Land Use Patterns
- 1.2 Co-ordination
- 1.6 Infrastructure and Public Service Facilities
- 2.1 Natural Heritage
- 2.2 Water
- 2.6 Cultural Heritage and Archaeology
- 3.0 Protecting Public Health and Safety

Pursuant to Policy 1.6.7.1, transportation systems should facilitate the movement of people and goods in a safe and energy efficient manner to address projected needs. As the City continues to grow and develop, new transportation infrastructure is needed to address the existing, planned, and future development within the Study Area.

As per Policy 1.6.7.2 and Policy 1.6.7.3, the Project aims to efficiently use this planned infrastructure while maintaining connectivity as part of a multi-modal transportation (vehicular, transit, pedestrian, cycling) system where possible.

3.1.2 A Place to Grow: Growth Plan for the Greater Golden Horseshoe

A Place to Grow: Growth Plan for the Greater Gold Horseshoe (2020) provides a long-term framework which aims to manage growth, build complete communities, curb urban sprawl and protect the natural environment. A Place to Grow designates Pickering's City Centre as an Urban Growth Centre. Section 2.2.3 describes how urban growth centres will be planned as focal points for accommodating population and employment growth.

Pursuant to Section 2.2.3 of the Growth Plan, Pickering's City Centre will be planned to achieve, by 2031 or earlier, a minimum density target of 200 residents and jobs combined per hectare. The Plan recognizes the continued revitalization of urban growth centres, such as Pickering's City Centre, as meeting places, locations for cultural facilities, public institutions, and major services and transit hubs with the potential to become more vibrant, mixed-use, transit-supportive communities.

Relevance to Study: The Study Area is partially located within Pickering's City Centre/ designated Urban Growth Centre. The proposed Walnut Lane extension supports the forecasted growth set out in the Growth Plan by opening up development of the parcel of land currently bound by Kingston Road (Highway 2), Highway 401, and Liverpool Road.

3.2 Regional Planning Context

3.2.1 Durham Region Official Plan

The Regional Municipality of Durham's Official Plan (ROP; Consolidation May 26, 2020) provides policy directions that establish the future development pattern of the Region to 2031. In 2019, the Region of Durham initiated "Envision Durham" – the Municipal Comprehensive Review of their ROP to establish a planning vision and framework for the Region to 2051.

In accordance with the transportation system goals of the ROP, the transportation system in Durham Region is to be integrated, safe, efficient and reliable for all users and modes and offer a variety of mobility choices for all Durham residents.

Relevance to Study: As per Schedule A – Map A4 (Regional Structure) of the ROP, the Study Area transects Living Areas, the Regional Centre and Urban Growth Centre of the Region's Urban System. The majority of the Study Area is designated Regional Centre. The boundary of the Pickering Urban Growth Centre and the Regional Centre designations (referred to as the Pickering City Centre in the Pickering Official Plan) coincide with each other (i.e., are the same boundary) and are delineated in the Pickering Official Plan (refer to **Section 3.3.1**).

Regional Centres are to be planned and developed as the main concentrations of urban activities, but generally at a smaller scale than Urban Growth Centres. They function as places of symbolic and physical interest for the residents and provide identity to the area municipalities within which they are located. Pickering City Centre is designated as an Urban Growth Centre. An Urban Growth Centre shall be planned as a focal area for institutional, region-wide public services, major office, commercial, recreational, cultural, entertainment, and residential uses, serving as major employment centres supporting higher-order transit services. The built form for the Urban Growth Centres should be a mix

of predominantly high-rise development, with some mid-rise, as determined by area municipalities.

Within the Study Area, Kingston Road north of the proposed road extension is designated as a Type B Arterial Road and Rapid Transit Spine in accordance with the ROP. Liverpool Road is a Type B Arterial and part of the High Frequency Bus Network in the ROP.

Section 8 of the ROP outlines the goals for the Urban System, which includes the protection of key natural heritage or hydrologic features and functions from the impacts of urbanization. Schedule B – Map B1d (Greenbelt Natural Heritage System and Key Natural Heritage and Hydrologic Features) shows the area of Pine Creek is designated as Key Natural Heritage and Hydrologic Features. This study has completed a scoped Environmental Impact Study which assesses the significance of natural heritage features within the Study Area.

ROP Schedule B – Map B2 (High Aquifer Vulnerability and Wellhead Protection Areas) delineates areas of high aquifer vulnerability and wellhead protection areas. The Study Area is located within a designated high aquifer vulnerability area, which has been considered as part of this study.

3.2.2 Durham Region Transportation Master Plan

The Durham Region's Transportation Master Plan (TMP; 2017) dictates the policies, programs and infrastructure improvements required to manage the Region's multi-modal transportation needs to 2031 and beyond, as well as supports the land uses identified in the ROP. All modes of transportation, including walking, cycling, public transit, auto and goods movement, are considered in the TMP.

Relevance to Study: The recommendations of the TMP (2017) with potential implications on the needs and justification assessment (**Appendix A**) for the Walnut Lane extension were considered as follows:

- Widening of the section of Liverpool Road (Regional Road 29) between Kingston Road and Highway 401 from 5 to 6 lanes between 2022 and 2026. Note that as per the latest version of the Region's Capital Budget and Nine-Year Forecast for Regional Roads (dated 2022) that was available at the time of the preparation of the ESR, the anticipated timelines for the start of construction work for widening of Liverpool Road is 2025.
- Extension of the existing on-road cycling facilities along the section of Kingston Road between Glenanna Road and east of Walnut Lane both easterly and westerly along Kingston Road beyond 2028. Note that in the latest version of the Regional Cycling Plan (dated 2021) that was available at the time of the

preparation of the ESR, the recommended on-road cycling facilities on the studied section of Kingston Road are defined as a Short-term Infill Project (2022 – 2029) and recommended to be in the form of “cycle tracks”.

- Provision of cycling facilities along the section of Pickering Parkway between Liverpool Road and Brock Road as well as the section of Liverpool Road between Highway 401 and Finch Avenue beyond 2028. Note that in the latest version of the Regional Cycling Plan (dated 2021) that was available at the time of the preparation of the ESR, the recommended cycling facilities on Pickering Parkway, east of Liverpool Road are “buffered cycle lanes” and categorized as a Long-term Project (2031 and beyond) whereas the recommended cycling facility on the studied section of Liverpool Road (between Highway 401 and Kington Road) is an “in-boulevard multi-use pathway” and categorized as a Short-term Capital Project (2022 – 2029).
- In the near term, the studied section of Kingston Road (i.e., between east of Liverpool Road and west of Walnut Lane) would continue to carry Bus Rapid Transit (BRT) on dedicated curb lanes. Over time, the studied section of Kingston Road would see the existing centre median replaced with dedicated BRT lanes and transit platforms. As per the most recent information available from the Metrolinx website at the time of the preparation of the ESR, the anticipated timelines for provision of the dedicated median BRT lanes on the studied section of Kingston Road is 2022 – 2025.

3.2.3 Toronto and Region Conservation Authority Policies

The Study Area is located within an area regulated by the TRCA under Section 28 of the Conservation Authorities Act (1998). These “Regulated Areas” are established where development could be subject to flooding, erosion or dynamic beaches, or where interference with wetlands and alterations to shorelines and watercourses might have an adverse effect on those environmental features.

Relevance to Study: the Study Area falls within the TRCA regulation limits. As such, any proposed development application will require review and input from the TRCA.

The Study Area contains small features, such as wetlands and a watercourse, regulated by the Ontario Conservation Authorities Act, with its implementation falling under the TRCA’s local O. Reg. 166/06.

The completion of the EIS for the Project is required to demonstrate that there will be no significant negative impacts to the Natural Heritage Features present within the TRCA regulated lands that fall within the Study Area.

Wetlands identified within the Study Area were small in area (1.0 hectares) but were identified as qualifying to be included as part of the Frenchman's Bay Coastal PSW. As such, they meet the criteria for Provincial or Local Significance.

The EIS is required in order to obtain a permit from the TRCA.

3.2.4 Approved Source Protection Plan: Credit Valley-Toronto and Region-Central Lake Ontario Source Protection Region

Section A.2.10.6 of the MEA MCEA manual directs proponents, including the City, to consider Source Water Protection (SWP) in the context of the Clean Water Act, 2006 (CWA). Projects proposed within a vulnerable area are required to consider policies in the applicable source protection plan (SPP), including their impact with respect to the project. A Watershed-based SPP contains policies to reduce existing and future threats to drinking water in order to safeguard human health through addressing activities that have the potential to impact municipal drinking water systems.

The CTC Source Protection Region encompasses three areas: Credit Valley, Toronto and Region, and Central Lake Ontario. The Study Area is located in the Toronto and Region Source Protection Area (TRSPA). The applicable SPP for the Study Area is the Approved Source Protection Plan: Credit Valley-Toronto and Region-Central Lake Ontario Source Protection Region. The approved updated assessment report for the TRSPA identifies the location and nature of threats to sources of municipal drinking water. The TRSPA identifies the following vulnerable areas:

- Wellhead protection area (WHPA)
- Intake protection zone (IPZ)
- Event Based Area
- Significant groundwater recharge area (SGRA)
- Highly vulnerable aquifers (HVA)

Relevance to Study: The Study Area transects a Highly Vulnerable Aquifer (HVA) with a vulnerability score of 6. An HVA can be easily affected by contamination from human activities and natural processes as a result of its intrinsic susceptibility (as a function of the thickness and permeability of overlaying layers), or by preferential pathways to the aquifer.

The TRSPA assessment report defines a HVA as an aquifer that can be easily changed or affected by contamination from both human activities and natural processes as a result of its intrinsic susceptibility as a function of the thickness and permeability of overlaying layers or by preferential pathways to the aquifer. The Study Area is not located within an IPZ, SGRA, or WHPA.

3.3 Local Planning Context

3.3.1 City of Pickering Official Plan

The City of Pickering Official Plan (OP; Edition 9) was originally adopted by council in 1997. The OP details the City's long-term growth and development vision through a framework of land use policies and schedules. The City's OP sets out a vision for its urban areas of land use pattern that supports a compact urban form, active transportation, placemaking, public transit, and energy conservation. The City is currently conducting a review of the OP, and it is being updated through a series of individual amendments.

Relevance to Study: Conformity with the City's OP was a criterion in the evaluation of the MCEA phase 2 alternatives. The following key chapters of the OP are applicable to this study:

- Chapter 1 – The Guiding Principles
- Chapter 2 – The Planning Framework
- Chapter 3 – Land Use
- Chapter 4 – Transportation
- Chapter 8 – Cultural Heritage
- Chapter 10 – Resource Management
- Chapter 12 – Urban Neighbourhoods

Part 2 of the OP provides the strategic framework of policies. Chapter 3 contains the land use strategy that is applicable to the Study Area. The portion of the Study Area to the west of Pine Creek is designated Mixed Corridors under the primary land use category of Mixed-Use Areas. East of Pine Creek is designated City Centre under the primary land use category of Mixed-Use Areas. The area immediately surrounding Pine Creek is designated Natural Areas under the primary land use category of Open Space System. North of Kingston Road, the Study Area is designated primarily as Low-Density Area under the primary land use category of Urban Residential Areas.

Chapter 4 dictates the City's transportation policies. The City's transportation policies encourage a well-connected network of corridors (roads, rails, sidewalks, trails, and bikeways) for people and goods movements that offers a range of travel choices, designed as desirable places to be, with Kingston Road as the City's main street. The transportation policies also promote a gradual shift in focus from a predominantly east-west orientation, to both east-west and north-south orientations.

Both Kingston Road and Liverpool Road are classified as Type B Arterial Roads, while Pickering Parkway is classified as a Type C Arterial Road. The existing Walnut Lane is

currently classified as a Collector Road. The OP identifies a Type C Arterial Road that connects from the existing Walnut Lane to Pickering Parkway.

As per Chapter 4, Policy 4.10 of the City's OP, Type B and Type C Arterial Roads are described as follows:

- 4.10 (b) (ii): Type B Arterial Roads are designed to carry moderate volumes of traffic, at moderate speeds; within a municipality, have some access restrictions, and generally have a right-of-way width ranging from 30 to 36 meters; and,
- 4.10 (b) (iii): Type C Arterial Roads are designed to carry lower volumes of traffic, at slower speeds; provide access to properties; and generally, have a right-of-way width ranging from 26 to 30 meters.

Part 3 of the OP provides general information for the Neighbourhoods and Settlements. The Study Area falls within the limits of Neighbourhood 8 (City Centre) and Neighbourhood 12 (Liverpool). The City Centre is located east of Pine Creek. The City Centre has the highest diversity and intensity of uses of all City neighbourhoods. Map 18: Neighbourhood 8: City Centre identifies a proposed new road connection from Kingston Road within the area of the Pine Creek crossing to Pickering Parkway.

In regard to Pine Creek, Policy 12.10C states City Council:

(e) in consultation with the Toronto and Region Conservation Authority, shall require the proponents of new development to assess the regulatory floodplain risks associated with lands proposed for redevelopment within the Krosno Creek and Pine Creek floodplains; and implement, where appropriate, a revised floodplain boundary for Krosno Creek and Pine Creek; and

(f) in consultation with the Toronto and Region Conservation Authority, shall require the preparation of a plan to rehabilitate Pine Creek, to enhance the natural heritage features and to design, align and construct a multi-modal bridge across Pine Creek.

Policy 12.10F concerning the City Centre Street Network and Design, indicates, among others, that City Council shall:

(a) in accordance with the policies of Section 4.11, require the design of new streets and the design and extension of streets identified on Map 18: Neighbourhood 8: City Centre to have regard for the following:

(i) be connected to existing streets, and have block lengths generally no longer than 150 metres and block depths generally not less than 60 metres to provide for full urban development potential over time; and

(ii) be public or publicly accessible and constructed to public street design standards; and

(b) require all new or re-designed streets to include a pedestrian zone generally no less than 2.0 metres on both sides.

Policy 12.10H concerning the City Centre Pedestrian and Cycling Network indicates, among others, that City Council shall:

(a) require the design of a pedestrian network to be a safe and visually interesting environment for pedestrians.

Liverpool, also referred to in the OP as Neighbourhood 12, is located to the west of Pine Creek and captures the existing Walnut Lane community north of Kingston Road. As per the OP, the area south of Kingston Road consists of a mix of large format retailers, specialty retailers, automotive uses, offices and services including restaurants. North of Kingston Road consists of primarily low-density residential dwellings. Policy 12.14 states that City Council, among others shall:

(a) recognize the proximity of low intensity development in the Liverpool Neighbourhood to the high intensity development in the Town Centre Neighbourhood and accordingly, shall consider the concerns of the nearby residents in Liverpool when preparing plans or development guidelines, and when considering development proposals, for lands in the Town Centre.

The City has reviewed the concern of traffic infiltration for residents of Walnut Lane north of Kingston Road as a result of the proposed Walnut Lane extension. Refer to **Section 8.6** and **Appendix A** for the traffic calming findings.

3.3.1.1 Pickering Official Plan Amendment 26, City Centre Plan

On March 4, 2015 the Ontario Municipal Board approved the terms of settlement for the City Centre Official Plan Amendment 26 and approved the amendment with minor policy modifications. The amendment updated the land use map (Schedule A) to show lands immediately west of Pine Creek, east of Liverpool Road and north of Highway 401 as “City Centre” while lands west of Pine Creek, north of Highway 401 and over to Dixie Road as “Mixed Corridors”. The transportation system map (Schedule B as shown in **Figure 3-1**) was also updated to identify the Walnut Lane extension (from Liverpool Road to the current Walnut Lane terminus) as “Future Type C Arterial Road”.

3.3.2 City of Pickering Integrated Transportation Master Plan Study

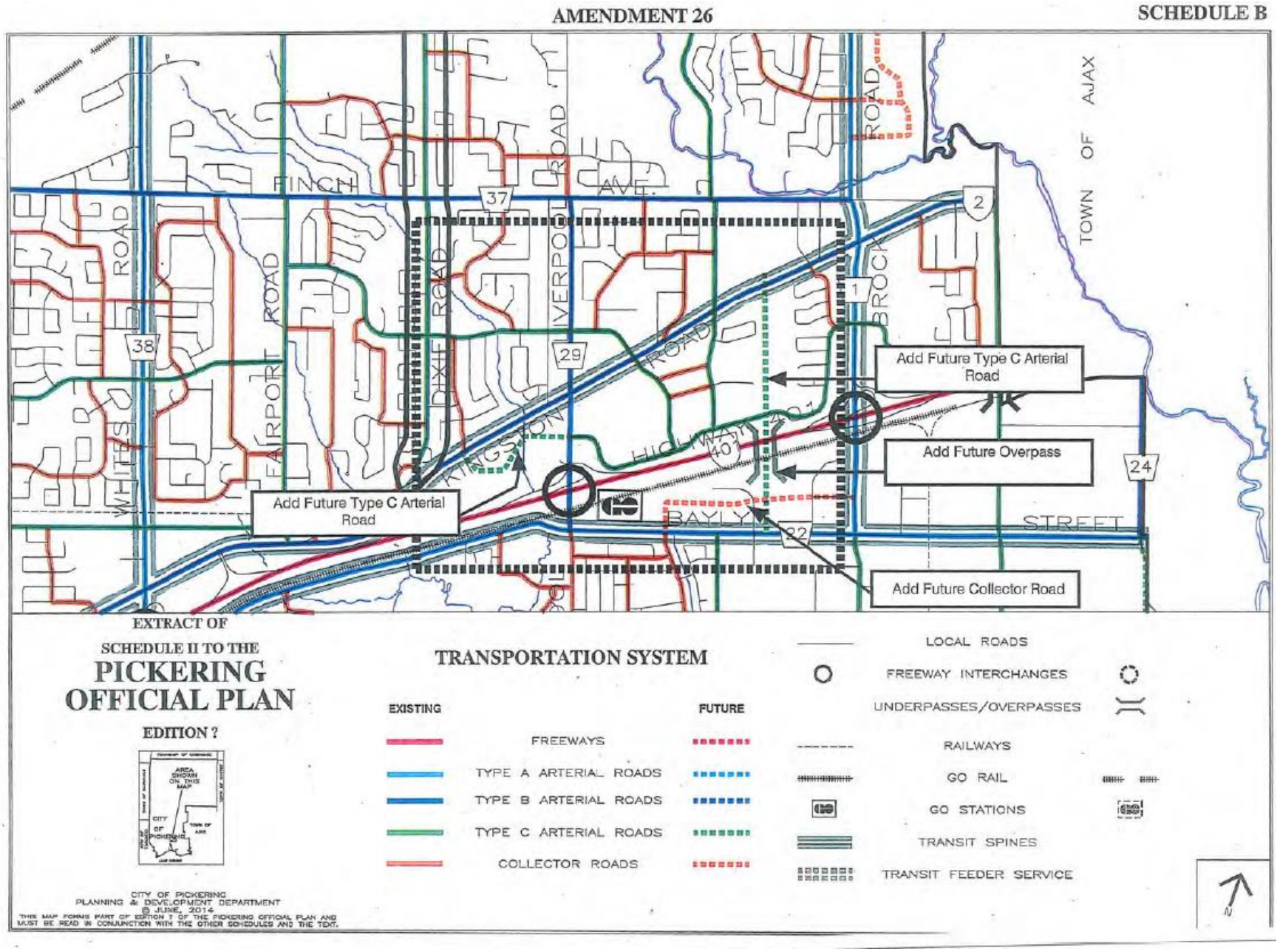
The City completed an Integrated Transportation Master Plan (ITMP) study in 2021. The ITMP is a strategic planning document which provides a framework and direction for the City's transportation infrastructure needs. The ITMP has been informed by existing policies, such as the City's OP. The results of the public engagement efforts led to development of the vision for the City's ITMP: "a safe and well-connected transportation system that offers inclusive mobility, supports complete and sustainable communities, and facilities continued economic growth." The City's ITMP recommends providing "cycle tracks" on the Walnut Lane extension. This will be considered at detailed design that will consider plans for cycle tracks and/or multi use paths.

3.3.3 Kingston Road Corridor and Specialty Retailing Node Intensification Plan

Kingston Road Corridor and Specialty Retailing Node Intensification Plan concluded in December 2019 with Council endorsement of the Intensification Plan for the area and draft Urban Design Guidelines. The City is in the process of drafting the Official Plan Amendment and Zoning By-law Amendment to implement the Plan.

Relevance to Study: The noted plan identifies the Dixie Road extension to Liverpool Road via the proposed Walnut Lane extension that terminates at Liverpool Road. There is no estimated timeline for the Dixie Road extension segment established through the study. The Plan also shows the extension terminating at the current Kingston Road/Walnut Lane intersection which can be developed as a gateway feature.

Figure 3-1: OP Amendment 26



4. Existing Conditions

4.1 Transportation and Traffic

4.1.1 Existing Road Network

The following summarizes the existing road network within the Study Area:

- **Walnut Lane** is a north-south collector roadway under the jurisdiction of the City with a posted speed of 40 kilometres per hour. It has a two-lane cross-section and connects Glenanna Road to Kingston Road, on the north side of Kingston Road, and provides driveway access to a private commercial development complex, on the south side of Kingston Road.
- **Kingston Road** is an east-west roadway under the jurisdiction of the Region with a posted speed of 60 kilometres per hour. It is designated as a Regional Corridor in the Durham ROP and an Arterial Type B. Within the Study Area, Kingston Road has a five-lane cross-section between Walnut Lane and the Loblaws driveway (including a centre two-way left-turn lane) and a six-lane cross-section between the noted driveway and Liverpool Road. The six-lane section for the most part includes a reserved bus lane (i.e., “bus only” lane) adjacent to a buffered bike lane on the curb side in both the eastbound and westbound directions of travel.
- **Liverpool Road** is a north-south roadway under the jurisdiction of the Region with a posted speed of 50 kilometres per hour. It has a four-lane cross-section in the existing conditions. As per the Durham ROP, it is designated as an Arterial Type B.
- **Pickering Parkway** is an east-west roadway under the jurisdiction of the City with a posted speed of 50 kilometres per hour. It has a four-lane cross-section connecting Liverpool Road to Brock Road and further east to Notion Road. As per the Durham ROP, it is designated as an Arterial Type C.
- **Highway 401 Westbound Ramp (E-N/S Ramp)** is a two-lane directional off-ramp. In the vicinity of Liverpool Road, it has a three-lane cross-section. It has a posted advisory speed of 70 kilometres per hour. There is a private driveway located directly across Liverpool Road from the Highway 401 westbound off-ramp.

4.1.2 Existing Transit Services

The Study Area is connected to Scarborough, Ajax, Whitby, Oshawa, Port Perry, and the rest of the City via bus routes operated by Durham Region Transit (DRT). A brief description of the DRT bus routes within the Study Area as per the information obtained

from the DRT website in January 2020 (which represents the latest pre-Covid pandemic information) is provided in **Table 4-1**. As per the information obtained from the GO website in January 2020, GO Transit Route #51 (Highway 407 Bus Terminal), #90 / #91 (Lake Shore East), and #92 (Oshawa / Yorkdale) buses also travel through but they have no stops within the Study Area.

Table 4-1: Existing Transit Routes

Route Number / Name	Route Description, and Bus Stops within the Study Area	Service Headway during Peak Periods	Transit Agency
#103 - Glenanna	Operates between Pickering Parkway Terminal and Rouge Hill GO Station, generally in an East-West direction. Within the Study Area, Route #103 westbound buses have two stops; nearside on the east leg of the Intersection of Pickering Parkway and Liverpool Road and on the south leg of the intersection of Liverpool Road and Kingston Road. Route #103 eastbound buses have no stop within the Study Area.	25- to 30-minute	DRT
#110 - Finch West (Counter-Clockwise)	Operates between Pickering Parkway Terminal and Pickering GO Station in a counter-clockwise loop route. It only operates during the AM and PM peak periods. Within the Study Area, Route #110 westbound buses have two stops; nearside on the east leg of the Intersection of Pickering Parkway and Liverpool Road and on the south leg of the intersection of Liverpool Road and Kingston Road. Route #110A / Finch West (Clockwise) buses have no stop within the Study Area.	30-minute	DRT
#111 - East Pickering (Counter-Clockwise)	Operates in a counter-clockwise loop route which starts and ends at Pickering Parkway Terminal. Within the Study Area, Route #111 buses have numerous stops; nearside on the east leg of the intersection of Liverpool Road and Pickering Parkway, nearside on the south leg of the intersection of Kingston Road and Liverpool Road, far side on the east leg of the same intersection, nearside on the west leg of the intersection of Kingston Road and Walnut Lane, nearside on the west leg of the intersection of Kingston Road and Glendale Drive, and far side on the east leg of the intersection of Kingston Road and Liverpool Road.	25- to 30-minute	DRT
#111A - East Pickering (Clockwise)	Operates in a clockwise loop route which starts and ends at Pickering Parkway Terminal. Within the Study Area, Route #111A buses have three stops; nearside on the east leg of the intersection of Liverpool Road and Pickering Parkway, far side on the west leg of the intersection of Kingston Road and Liverpool Road, far side on the west leg of the intersection of Kingston Road and Walnut Lane.	15- to 30-minute	DRT

Route Number / Name	Route Description, and Bus Stops within the Study Area	Service Headway during Peak Periods	Transit Agency
#223 - Bayly	Connects Pickering Parkway Terminal, Pickering GO Station, Ajax GO Station, and residential neighbourhoods located to the east of Ajax GO Station in Town of Ajax. Within the Study Area, Route #223 westbound buses have three stops; nearside on the south leg of the intersection of Liverpool Road and Pickering Parkway, nearside on the south leg of the intersection of Liverpool Road and Kingston Road, and far side on the east leg of the same intersection. Route #223 eastbound buses have no stop within the Study Area.	30-minute	DRT
#603 - Pickering – Port Perry	Operates between Pickering Parkway Terminal, Township of Uxbridge, and Township of Scugog. Within the Study Area, Route #603 northbound buses have three stops; nearside on the east leg of the intersection of Liverpool Road and Pickering Parkway, nearside on the south leg of the intersection of Kingston Road and Liverpool Road, far side on the east leg of the same intersection. Route #603 southbound buses have no stop within the Study Area.	60-minute	DRT
#900 - PULSE	Operates on Kingston Road between the University of Toronto Scarborough Campus and Downtown Oshawa. Within the Study Area, Route #900 eastbound buses have two stops: nearside on the west leg of the intersection of Kingston Road and Walnut Lane and far side on the east leg of the intersection of Kingston Road and Liverpool Road. Route #900 westbound buses also have two stops; far side on the west leg of the intersection of Kingston Road and Liverpool Road and far side on the west leg of the intersection of Kingston Road and Walnut Lane.	10-minute	DRT
#916 - Rossland	Operates between Pickering Parkway Terminal and Harmony Terminal in Oshawa. With the Study Area, Route #916 eastbound buses have three stops; nearside on the east leg of the intersection of Liverpool Road and Pickering Parkway, nearside on the south leg of the intersection of Liverpool Road and Kingston Road and far side on the east leg of the same intersection. Route #916 westbound buses have no stop within the Study Area.	15- to 20-minute	DRT

4.1.3 Existing Cycling and Pedestrian Facilities

Pedestrian and cycling facilities along the mid-block sections of the Study Area roadways are summarized in **Table 4-2.** The Study Area intersections have marked crosswalks allowing pedestrians to walk across all legs of the intersections with the exception of the south leg of the Highway 401 westbound off-ramp terminal on Liverpool Road.

Table 4-2: Pedestrian and Cyclist Facilities within the Study Area in the Existing Conditions

Road	Mid-block Section	Pedestrian Facility	Cycling Facility
Kingston Road	Liverpool Road to Glendale Drive	Pedestrian sidewalks on both sides.	On-street buffered bike lanes in both directions of travel.
Kingston Road	Glendale Drive to the Loblaws Driveway	Pedestrian sidewalk on the south side of Kingston Road.	On-street buffered bike lanes in the eastbound direction of travel
Kingston Road	Loblaws Driveway to Walnut Lane	Pedestrian sidewalk on the south side of Kingston Road.	No cycling facility.
Liverpool Road	Kingston Road to Highway 401 E-N/S Ramp	Pedestrian sidewalks on both sides.	No cycling facility.
Pickering Parkway	Liverpool Road to the access driveway of Pickering Office Complex (i.e., 1305 – 1315 Pickering Parkway)	Pedestrian sidewalks on both sides.	No cycling facility.
Walnut Lane	North of Kingston Road	Pedestrian sidewalks on both sides.	No cycling facility.
Walnut Lane	South of Kingston Road	Pedestrian sidewalk on the west side of Walnut Lane.	No cycling facility.

4.1.4 Traffic Operations

Table 4-3 presents a summary of the traffic operations at the Study Area intersections and their respective measures of effectiveness; V/C ratio, average vehicle delay, and LOS from Synchro and 95th percentile queue lengths from SimTraffic. The “critical” movements are highlighted in orange in **Table 4-3**.

Overall and at the intersection level, all the Study Area intersections operate at acceptable LOS C or better. The southbound left-turn movement at the intersection of Liverpool Road and Pickering Parkway as well as the westbound right-turn movement at the Highway 401 westbound off-ramp on Liverpool Road are operating at capacity with V/C ratio of 0.99. In addition, the following movements are approaching capacity:

- Eastbound through, westbound left-turn, and northbound left-turn movements at the intersection of Kingston Road and Liverpool Road
- Northbound through movement at the intersection of Liverpool Road and Pickering Parkway

Table 4-3: Summary of Traffic Operations and Queuing Analysis at the Study Area Intersections in the Existing Conditions during the PM Peak Hour

Intersection	Movement	V/C Ratio	Delay	LOS	95th Percentile Queue SimTraffic	Available Storage
Walnut Lane and Kingston Road (Signalized)	EBL	0.14	6.6	A	18.4 metres	145.0 metres
Walnut Lane and Kingston Road (Signalized)	EBT	0.58	8.4	A	78.6 metres	290.0 metres
Walnut Lane and Kingston Road (Signalized)	EBR	0.02	1.1	A	15.1 metres	55.0 metres
Walnut Lane and Kingston Road (Signalized)	WBL	0.76	40.0	D	80.7 metres	100.0 metres
Walnut Lane and Kingston Road (Signalized)	WBTR	0.33	6.0	A	54.5 metres	645.0 metres
Walnut Lane and Kingston Road (Signalized)	NBL	0.38	38.7	D	29.0 metres	90.0 metres
Walnut Lane and Kingston Road (Signalized)	NBTR	0.61	65.6	D	32.5 metres	115.0 metres
Walnut Lane and Kingston Road (Signalized)	SBL	0.17	34.1	C	16.8 metres	25.0 metres
Walnut Lane and Kingston Road (Signalized)	SBTR	0.10	20.4	C	12.4 metres	160.0 metres
Walnut Lane and Kingston Road (Signalized)	**Overall Intersection**	-	**12.1**	**B**	-	-
Kingston Road and Liverpool Road (Signalized)	EBL	0.54	21.5	C	69.0 metres	195.0 metres
Kingston Road and Liverpool Road (Signalized)	EBT	0.89	42.7	D	147.9 metres	645.0 metres
Kingston Road and Liverpool Road (Signalized)	EBR	0.56	14.2	B	37.9 metres	225.0 metres
Kingston Road and Liverpool Road (Signalized)	WBL	0.93	63.5	E	106.1 metres	180.0 metres
Kingston Road and Liverpool Road (Signalized)	WBT	0.42	26.0	C	66.6 metres	370.0 metres
Kingston Road and Liverpool Road (Signalized)	WBR	0.14	3.3	A	7.1 metres	100.0 metres
Kingston Road and Liverpool Road (Signalized)	NBL	0.89	49.9	D	232.8 metres	185.0 metres
Kingston Road and Liverpool Road (Signalized)	NBT	0.79	36.9	D	265.8 metres	225.0 metres
Kingston Road and Liverpool Road (Signalized)	NBR	0.51	12.1	B	69.3 metres	70.0 metres
Kingston Road and Liverpool Road (Signalized)	SBL	0.64	33.3	C	45.0 metres	75.0 metres
Kingston Road and Liverpool Road (Signalized)	SBT	0.50	30.7	C	68.5 metres	325.0 metres
Kingston Road and Liverpool Road (Signalized)	SBR	0.19	5.2	A	14.2 metres	75.0 metres
Kingston Road and Liverpool Road (Signalized)	**Overall Intersection**	-	**33.1**	**C**	-	-
Liverpool Road and Pickering Parkway (Signalized)	EBL	0.51	48.0	D	36.4 metres	55.0 metres
Liverpool Road and Pickering Parkway (Signalized)	EBTR	0.46	19.8	B	32.3 metres	55.0 metres
Liverpool Road and Pickering Parkway (Signalized)	WBL	0.66	39.2	D	91.7 metres	60.0 metres
Liverpool Road and Pickering Parkway (Signalized)	WBT	0.21	32.7	C	28.2 metres	140.0 metres
Liverpool Road and Pickering Parkway (Signalized)	WBR	0.59	14.1	B	57.6 metres	70.0 metres
Liverpool Road and Pickering Parkway (Signalized)	NBL	0.50	21.2	C	92.9 metres	65.0 metres
Liverpool Road and Pickering Parkway (Signalized)	NBT	0.86	36.0	D	145.9 metres	120.0 metres
Liverpool Road and Pickering Parkway (Signalized)	NBR	0.58	4.9	A	119.9 metres	85.0 metres
Liverpool Road and Pickering Parkway (Signalized)	SBL	0.99	80.8	F	218.2 metres	185.0 metres
Liverpool Road and Pickering Parkway (Signalized)	SBT	0.57	25.4	C	204.1 metres	225.0 metres
Liverpool Road and Pickering Parkway (Signalized)	SBR	0.09	0.3	A	37.8 metres	45.0 metres
Liverpool Road and Pickering Parkway (Signalized)	**Overall Intersection**	-	**29.2**	**C**	-	-
Liverpool Road and Highway 401 Westbound Off-Ramp (Signalized)	EBL	0.30	47.2	D	46.6 metres	60.0 metres
Liverpool Road and Highway 401 Westbound Off-Ramp (Signalized)	EBR	0.17	1.5	A	15.8 metres	30.0 metres
Liverpool Road and Highway 401 Westbound Off-Ramp (Signalized)	WBL	0.28	35.8	D	250.9 metres	380.0 metres
Liverpool Road and Highway 401 Westbound Off-Ramp (Signalized)	WBLT	0.28	35.8	D	329.6 metres	380.0 metres
Liverpool Road and Highway 401 Westbound Off-Ramp (Signalized)	WBR	0.99	71.0	E	178.9 metres	165.0 metres
Liverpool Road and Highway 401 Westbound Off-Ramp (Signalized)	NBL	0.32	25.1	C	24.2 metres	50.0 metres
Liverpool Road and Highway 401 Westbound Off-Ramp (Signalized)	NBT	0.72	20.0	B	51.7 metres	355.0 metres
Liverpool Road and Highway 401 Westbound Off-Ramp (Signalized)	SBTR	0.72	19.9	C	116.3 metres	120.0 metres
Liverpool Road and Highway 401 Westbound Off-Ramp (Signalized)	**Overall Intersection**	-	**28.1**	**C**	-	-

In addition, for the following movements, the available storage is shorter than the estimated 95th percentile queue lengths from SimTraffic; thus, a potential for spillover of queues for the noted movements onto the adjacent lanes or upstream intersection:

- Northbound left-turn and northbound through movements at the intersection of Kingston Road and Liverpool Road
- Westbound left-turn, northbound left-turn, northbound through, northbound right-turn, and southbound left-turn movements at the intersection of Liverpool Road and Pickering Parkway
- Westbound right-turn movement at the Highway 401 westbound off-ramp terminal on Liverpool Road

4.2 Engineering and Technical Environment

4.2.1 Road Geometry

The existing Walnut Lane roadway (north of Kingston Road) is a north/south local road that terminates at the signalized intersection of Kingston Road (Highway 2). South of Kingston Road, Walnut Lane is an access road/entrance into the commercial development parking lot. This existing section south of Kingston Road is part of the development and the land is owned by the City with an arrangement for the developer (Tribute Communities) to use/maintain as a driveway.

The existing intersection of Highway 401 E-N/S Ramp/ Liverpool Road and an unofficial driveway to commercial properties, are at the east project limits.

4.2.2 Existing Structures

There are no existing structures within the project limits with exception of the Kingston Road and Highway 401 Pine Creek culverts.

4.2.3 Cross-Section

The existing Walnut Lane is a roadway with a two-lane urban cross-section (curb and gutter). South of Kingston Road, Walnut Lane is divided by a raised median island with interlock and vegetation. A wide sidewalk with planters and street parking, are located along the west side of Walnut Lane. There is no posted speed limit.

4.2.4 Intersections

4.2.4.1 Highway 401 E-N/S Ramp/ Liverpool Road /Commercial Entrance

The existing intersection at Highway 401 E-N/S Ramp/Liverpool Road and Liverpool Road/Highway 401 off ramp is a signalized intersection with split phased signal timings for the off ramp and the unofficial commercial access road to 1786 - 1790 Liverpool Road. Liverpool Road has two northbound and two southbound through lanes. A Highway 401 westbound on-ramp develops immediately south of the intersection for southbound traffic. The Highway 401 E-N/S Ramp is a three lane off ramp with left, through and right turn lanes at the intersection of Liverpool Road.

4.2.4.2 Walnut Lane and Kingston Road

The existing intersection at Walnut Lane and Kingston Road is an all moves signalized intersection. Kingston Road is a four-lane road with left lanes in the east and westbound directions, and a right turn lane in the westbound direction. Walnut Lane has left turn lanes in the northbound and southbound directions.

4.2.5 Private Entrances

There are several parking lot entrances to the commercial and medical businesses from the Walnut Lane access road, south of Kingston Road. The unofficial entrance at Liverpool Road opposite the ramp terminal provides access to a parking lot for a restaurant and a bank. This current access from Liverpool Road opposite the Highway 401 westbound off-ramp is located within the Highway 401 Controlled Access Highway designation and is not sanctioned by the Ministry of Transportation.

4.2.6 Municipal Services and Utilities

A 300 mm water main runs along the south side of Kingston Road and along the east side of Liverpool Road to Pickering Parkway. Connections to private property exist at Walnut Lane and Kingston Road, and Liverpool Road and Pickering Parkway.

Storm sewers on Kingston Road run westerly from the intersection of Walnut Lane, and on Liverpool run southerly to Pickering Parkway. The current commercial development south of Walnut Lane, including Home Depot, Shopper’s Drug Mart, restaurants, medical buildings, etc., connect to storm sewers at the Kingston Road and Walnut Lane intersection.

A 200 mm sanitary sewer runs along the south side of Kingston Road. A 600 mm sanitary sewer runs along the west side of Pine Creek to the 1050 mm sanitary sewer that runs along the north side of Highway 401. The current commercial development connects to sanitary at Kingston Road, west of Walnut Lane.

4.2.7 Roadway Drainage

Roadway drainage on the existing section of Walnut Lane is conveyed via curb and gutter, with catch basins.

4.2.8 Geotechnical

The existing pavement structure on Walnut Lane south of Kingston Road is as follows:

- 30 mm HL3 Asphalt
- 70 mm HL8 Asphalt
- 150 mm Granular A
- 450 mm Granular B

4.3 Natural Environment

4.3.1 Aquatic Ecosystems

4.3.1.1 Methods

Aquatic systems and the species which are known in the area were identified through:

- Background review of secondary sources
- Field investigations

Refer to the **Scoped Environmental Impact Study Report (Appendix B)** for further information with regard to the background review, field investigation and methods.

4.3.1.2 Results

4.3.1.2.1 Upstream Habitat Assessment

The upstream reach of Pine Creek was a permanent natural channel flowing from a concrete box culvert under Kingston Road to the downstream reach. Surrounding land use consisted of Kingston Road to the north, grasslands and the 1211 Kingston Road shopping centre to the west, grasslands to the south, and the 1192 Liverpool Road Loblaws shopping centre to the east. Channel morphology consisted of flats (98%), and a riffle (2%) located mid-reach. The mean wetted width of the flats was 3.82 metres and for the riffle was 1.34 metres. The mean wetted depth was 0.37 metres in the flats and 0.08 metres in the riffle. At bankfull, the mean flat width was 4.25 metres and 1.34 metres for the riffle. The mean bankfull depth in the flat was 0.42 metres and 0.08 metres in the riffle. Substrates within the flats consisted of silt (70%), clay (20%) and cobble (10%). Within the riffles, substrates consisted of gravel (80%), silt (10%),

clay (5%) and cobble (5%). Banks were moderately unstable on both the left and right upstream banks throughout the upstream reach.

Instream cover (35%) was provided by undercut banks (20%), instream woody debris (5%), overhanging woody debris (5%) and instream vascular macrophytes (5%). Canopy cover was moderate (50%) and consisted primarily of overhanging deciduous trees. Potential seasonal low-flow impediments to upstream fish movement were presented by a cobble bar within the mid-reach riffle and at the upstream box culvert under Kingston Road. Juvenile Leuciscid species were observed during AECOM's site investigations. Garbage was also present throughout the upstream reach. The reach has the potential to provide general use fish habitat for feeding and rearing, which was generally non-limiting (i.e., common and present) throughout, except for potential fish spawning habitat that was limited only to the gravel substrates of the mid-reach riffle.

4.3.1.2.2 Downstream Habitat Assessment

The downstream reach of Pine Creek was a permanent natural channel flowing from the upstream reach to a concrete box culvert under Highway 401. Surrounding land use consisted of Highway 401 to the south, grasslands to the east and west, and the 1192 Liverpool Road Loblaws shopping centre to the north. Channel morphology consisted of flats (70%) and several pools (30%). The mean wetted width was 4.5 metres for the flats and 5.2 metres for the pools. Wetted depths were 0.24 metres in the flats and 0.78 metres in the pools. The mean bankfull width of the flats was 4.5 metres and 5.6 metres for the pools. The mean bankfull depth was 0.24 metres for the flats and 0.82 metres for the pools. Substrates within the flats were comprised of cobble (60%), clay (30%) and gravel (10%), and within the pools, substrates were comprised of clay (70%), silt (25%) and cobble (5%). Banks were slightly unstable throughout the reach on both the left and right upstream banks with undercut banks throughout the reach.

Instream cover (22%) was provided by undercut banks (15%), overhanging vascular macrophytes (5%) and overhanding woody debris (2%). Canopy cover was low (30%) and consisted primarily of overhanging deciduous trees, shrubs and herbaceous plants. At the time of assessment, the wetted depth within the downstream box culvert under Highway 401 was 0.06 metres, which presented the potential to pose a low-flow impediment to upstream fish movement during periods of seasonal low-flow. Abundant Phragmites sp., an invasive wetland plant species, was present in the downstream reach. Fish, Leuciscid species, were observed within the downstream reach during the aquatic habitat assessments. The downstream reach has the potential to provide general use fish habitat for feeding and rearing, which was generally non-limiting (i.e., common and present) throughout, except for potential fish spawning habitat that was limited only to the gravel substrates of the flats.

4.3.2 Terrestrial Ecosystems and Wildlife

4.3.2.1 Methods

The existing terrestrial and wildlife conditions were identified through:

- Background review of secondary sources
- Field investigations that consisted of: i) vegetation community delineation using Ecological Land Classification (ELC) guidelines, ii) a floral species inventory, iii) breeding bird surveys, and iv) preliminary tree inventory

Refer to the **Scoped Environmental Impact Study Report (Appendix B)** for further information with regard to the background review, field investigation and methods.

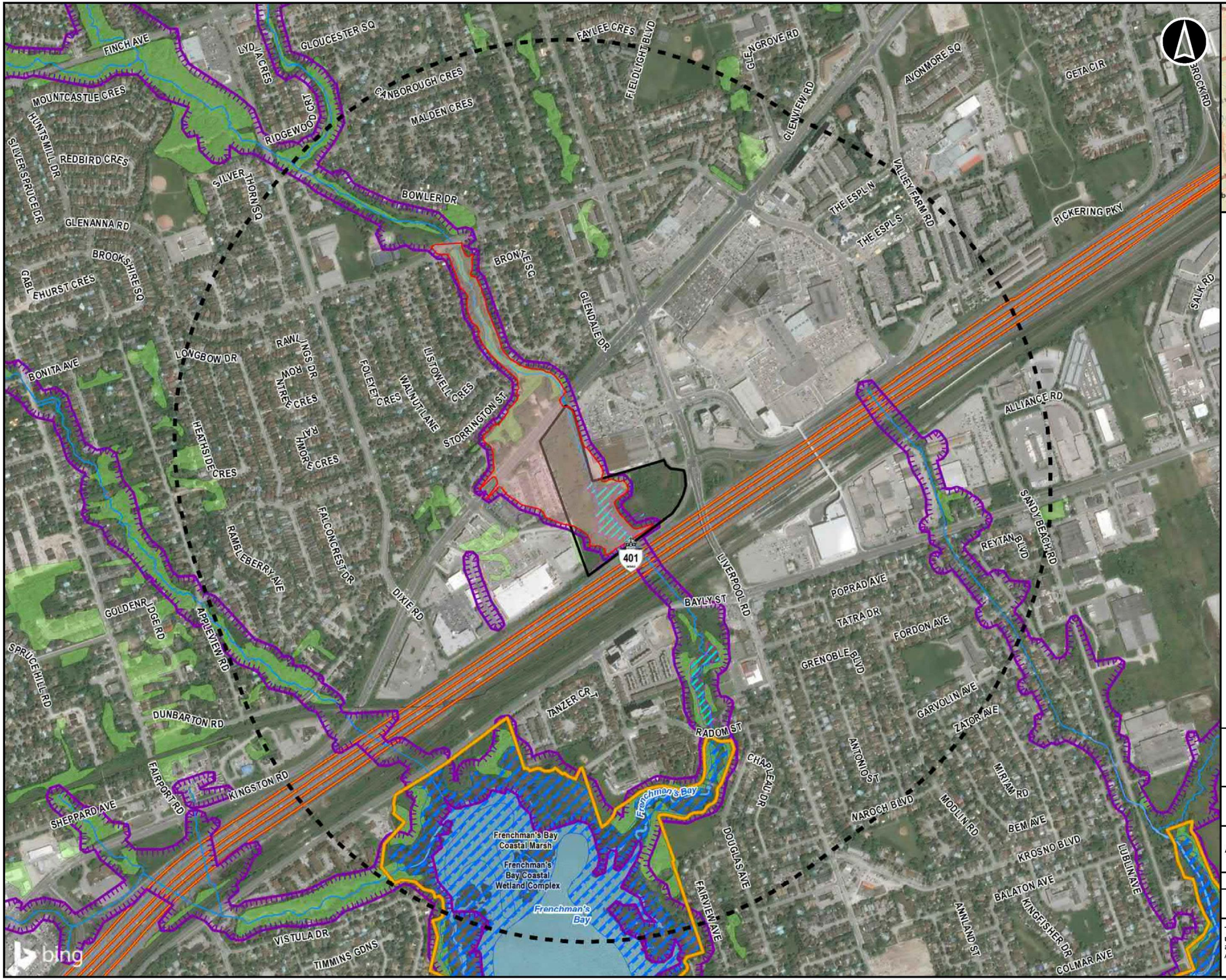
4.3.2.2 Results

4.3.2.2.1 Vegetation Communities and Flora

The Study Area has been significantly disturbed by past land uses and the influence of surrounding lands. It was likely previously cultivated for crops and/or used for livestock grazing and would have been mostly cleared of vegetation. It has since been allowed to succeed for the past few decades as adjacent lands were developed. The cultural communities note vegetation that has been substantially influenced by human land uses. Vegetation communities are mapped on **Figure 4-1**. Descriptions for each vegetation community are included in the **Scoped Environmental Impact Study Report (Appendix B).**

Through the course of field investigations, 158 species of vascular plant species were encountered in the Study Area. Of these, 73 (46%) were non-native and the remaining 85 species (54%) were native, representing a high percentage of non-native species which attests to the disturbed condition and early successional stage of the vegetation communities. In addition, most of the dominant plant species on the Study Area were non-native including Manitoba Maple, Russian Olive, Scotch Pine, Siberian Elm and Common Reed.

No provincially rare flora (S1, S2, S3) were encountered nor any Species at Risk (SAR). One plant species considered to be regionally rare in the Regional Municipality of Durham was encountered: Baltic Rush (*Juncus balticus*). A dense patch approximately 12 metres in diameter occurred within the meadow marsh on the west side of Pine Creek where shown on **Figure 4-1**.



Legend

- Freeway
- Watercourse
- Waterbody
- Provincially Significant Wetland
- Unevaluated Wetland
- Candidate ANSI, Life Science
- Wooded Area
- TRCA Regulated Area
- Regulatory Flood Line (Approximated)
- Study Area
- Background Information Review Buffer (1km)

0 100 200 400 600
Metres

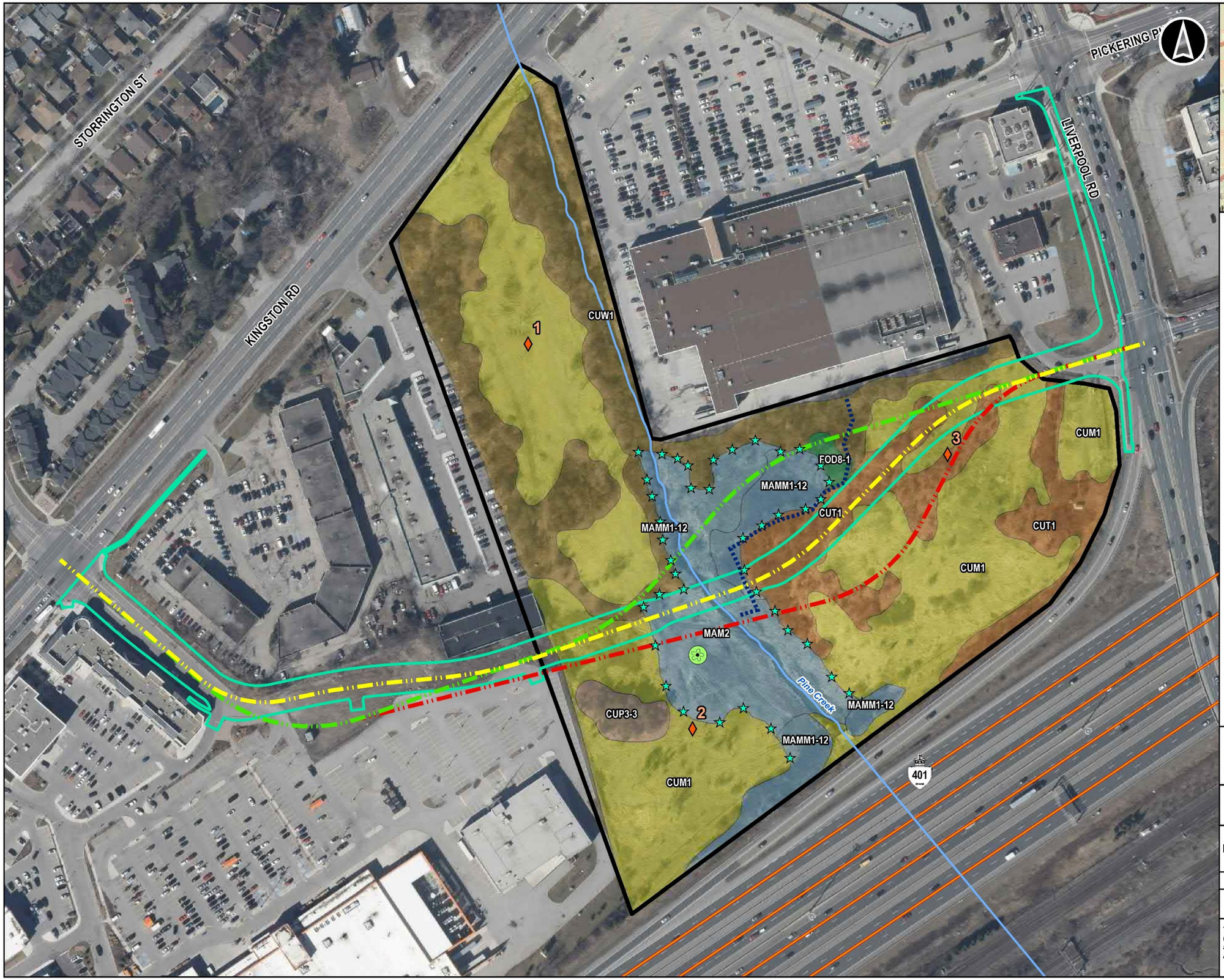
Scoped Environmental Impact Study - Walnut Lane Road Extension

Field Investigation Results

Aug 13, 2020	1:10,000 * when printed 11"x17"	Datum: NAD 1983 UTM Zone 17N Source: MNRF, Bing, TRCA Key Map: ESRI Base Map: City of Pickering (2016)
P#: 60547978	V#: 00	

AECOM

Figure 4-1 a



Legend

- Wetland Survey (2019.10.11)
- Breeding Bird Point Count Location
- Regionally Rare Plant Location : Baltic Rush (Juncus balticus)
- Wetland Boundary (TRCA 2015)
- Watercourse
- Study Area
- Preferred Alternative Layout

Road Extension

- Alternative 1
- Alternative 2
- Alternative 3

Vegetation Community

- CUM
- CUP
- CUT
- CUW
- FOD
- MAM

ELC Code	Vegetation Community
FOD8-1	Fresh-moist Poplar Deciduous Forest
MAM2	Mixed Mineral Meadow Marsh
MAMM1-12	Common Reed Mineral Meadow Marsh
CUW1	Cultural Woodland
CUM1	Cultural Meadow
CUP3-3	Scotch Pine Cultural Plantation
CUT1	Cultural Thicket

0 10 20 40 60 80 100
Metres

Scoped Environmental Impact Study - Walnut Lane Road Extension

Field Investigation Results

May 31, 2022	1:2,000 * when printed 11"x17"	Datum: NAD 1983 UTM Zone 17N Source: MNRF, Kingsett, Bing Key Map: ESRI Base Map: City of Pickering (2016)
P#: 60547978	V#: 00	**Figure 4-1 b**

AECOM

4.3.2.2.2 Wetlands

Wetland communities were known to be present within the Study Area but had not been previously evaluated. A portion of the Frenchman's Bay Provincially Significant Wetland (PSW) is located within 600 metres (downstream) of the Study Area and is also designated as a candidate rea of Natural and Scientific Interest (ANSI). In support of this study, the wetland within the Study Area was delineated and evaluated in the context of the PSW within 750 metres to determine if it should be included as part of that wetland complex. In addition, an additional unevaluated wetland unit, situated on public lands between the Study Area and the main PSW, required the same assessment.

The extent of the wetland within the Study Area is shown on **Figure 4-1**. It consists of two vegetation communities (MAM2 and MAMM1-12)**.** The wetland units were adjacent to one another and together comprise a wetland area of approximately 1.0 hectares. There was no standing water in any of the wetlands except in part of the MAMM1-12 unit beside Highway 401 which was a ditch. There was also no evidence of areas that show seasonal flooding, although brief periods of flooding may occur during spring melt or heavy precipitation events when Pine Creek overflows its banks.

Overall, the wetland within the Study Area was found to contain 78 species of vascular plants of which one, Baltic rush is regionally rare in the site district.

The unevaluated wetland unit south of Highway 401 (between Bayly and Radom Streets) was 0.5 hectares in area situated 350 metres south of the onsite wetland. A total of 50 species of vascular plants were recorded in the wetland unit, none of which are provincially, regionally, or locally significant.

Following the guidelines of the Ontario Wetland Evaluation System (OWES), it was concluded that the 1.0 hectare wetland unit within the Study Area qualifies to be included as part of the Frenchman's Bay Coastal PSW for the following reasons:

a) It is situated 600 metres (<750 metres) from the main contiguous part of the PSW

b) It is situated 350 metres from the nearest wetland unit

c) It is situated on a tributary of Lake Ontario <2 kilometres from Lake Ontario (750 metres from a bay connected to Lake Ontario) and therefore qualifies as a Great Lakes coastal wetland

d) It supports one regionally rare plant species

4.3.2.2.3 Tree Inventory

A total of 390 trees were inventoried within the Study Area (**Table 4-4**). Of the surveyed trees:

- 98 were <10 cm Diameter at Breast Height (DBH)
- 248 were between 10 cm and 20 cm DBH
- 42 were between 20 cm and 30 cm DBH
- 2 were between 30 cm to 40 cm DBH

When assessed for the current condition, the trees were predominantly categorized as being in Fair to Good condition with 262 and 89 individuals, respectively. Few tree individuals were assessed as being in Very Poor or Poor condition with one and 15 individuals, respectively. No individuals were assessed in Excellent condition.

The full results of the preliminary tree inventory can be found in the field data sheets in Appendix H of the **Scoped Environmental Impact Study Report (Appendix B)**. The Preliminary tree inventory species composition and abundance is presented in **Table 3-5.**

Table 4-4: Preliminary Tree inventory Species Composition and Abundance

Common Name	Scientific Name	Quantity
Russian olive	*Elaeagnus angustifolia*	131
Scots pine	*Pinus sylvestris*	85
Manitoba maple	*Acer negundo*	71
Siberian elm	*Ulmus pumila*	43
Trembling aspen	*Populus tremuloides*	31
Green ash	*Fraxinus pennsylvanica*	14
Norway maple	*Acer platanoides*	3
Eastern red cedar	*Juniperus virginiana*	3
Silver maple	*Acer saccharinum*	1
White birch	*Betula papyrifera*	1
Common apple	*Malus pumila*	1
Balsam poplar	*Populus balsamifera*	1
Pin cherry	*Prunus pensylvanica*	1
Crack willow	*Salix fragilis*	1
Black willow	*Salix nigra*	1
Willow species	*Salix spp.*	1
American basswood	*Tilia americana*	1
TOTAL	-	**390**

Most plants within the Study Area were invasive species, including the four most abundant species (i.e., Russian olive, Scots pine, Manitoba maple and Siberian Elm), which accounted for more than 85% of individuals.

4.3.2.2.4 Breeding Birds

When combining point count and area search survey results, 21 species of bird were observed within the Study Area, and another four observed as flyovers. Nine of the species were recorded on both the June 25 and July 4, 2018 visits to the Study Area, which are considered to be probable breeders. The second date was near the end of the breeding season when birds generally sing less than early in the season; as such, the remaining seven species documented on June 25 but not on July 4, 2018 were likely nesting within the Study Area on June 25, 2018, but were less vocal and not observable.

A single adult Black-crowned Night-Heron (*Nycticorax nycticorax*) was flushed early on the July 4 visit from Pine Creek, near the culvert under Highway 401. This species is a provincially rare, colonial nesting species and is largely nocturnal. The nearest known colony is at Tommy Thompson Park approximately 30 kilometres to the southwest, which is where this individual bird may have been breeding; as such, it is unlikely this individual would have been nesting within the Study Area.

A Belted Kingfisher (*Megaceryle alcyon*) was observed flying along Pine Creek in the south part of the Study Area on the July 4 visit. This species nests in steep earthen banks, often along creeks. No such suitable banks were present in the Study Area; therefore, it was likely foraging for fish along the creek.

All the territorial bird species encountered are common, widespread species adapted to disturbed successional habitats of southern Ontario. None of the observed species were SAR, area sensitive or regionally significant, although the majority of species are protected under the MBCA, with the exception of Belted Kingfisher, Blue Jay (*Cyanocitta cristata*), European Starling (Sturnus vulgaris), Red-winged Blackbird (*Agelaius phoeniceus*), Common Grackle (*Quiscalus quiscula*) and House Sparrow (*Passer domesticus*). These results align with what would be expected based on the vegetation communities available within the Study Area, which are disturbed, with non-native plant species dominating in most communities; consequently, the habitat quality for wildlife is poor. Furthermore, the Study Area is small, positioned between high traffic roadways, parking lots, and commercial areas, and thus fragmented from other suitable supporting habitats. As a result, the breeding bird diversity is low, and lacking in sensitive species.

4.3.2.2.5 Other Wildlife

Other wildlife observed during field investigations are presented in **Table 4-5**.

Table 4-5: Incidental Wildlife Observations

Group	Date Observed	Common Name	Scientific Name	Notes
Mammals	N/A	Eastern Gray Squirrel	*Sciurus carolinensis*	Within CUW1
Mammals	June 25, 2018	Raccoon	*Procyon lotor*	Roadkill along north boundary of Study Area at Highway 2
Mammals	June 25, 2018	White-tailed Deer	*Odocoileus virginianus*	Bedding evidence near Highway 2
Mammals	January 9, 2019	American Beaver	*Castor canadensis*	Small dam on Pine Creek at south end of Study Area; evidence of tree felling, beaver trails
Insects	June 25, 2018 July 4, 2018	European Skipper	*Thymelicus lineola*	in CUM1
Insects	June 25, 2018	Least Skipper	*Ancyloxypha numitor*	in MAM2
Insects	June 25, 2018	Long Dash	*Polites mystic*	in MAM2
Insects	June 25, 2018	Peck's Skipper	*Polites peckius*	in MAM2
Insects	June 25, 2018	Tawny-edged Skipper	*Polites themistocles*	in CUM1
Insects	June 25, 2018	Little Wood Satyr	*Megisto cymela*	in CUW1
Insects	June 25, 2018	Common Ringlet	*Coenonympha tullia*	in CUM1
Insects	October 12, 2017 June 25, 2018	Monarch	*Danaus plexippus*	in CUM1
Insects	June 25, 2018 July 4, 2018	Cabbage White	*Pieris rapae*	in CUM1
Insects	June 25, 2018	Silvery Blue	*Glaucopsyche lygdamus*	in CUM1
Insects	July 4, 2018	Common Wood-nymph	*Cercyonis pegala*	in CUM1
Insects	July 4, 2018	Northern Pearly-eye	*Enodia anthedon*	in CUW1

Trees within the Study Area recorded during the preliminary tree inventory were generally assessed for suitability as bat maternity roost habitat following the Ministry of Northern Development, Mines, Natural Resources and Forestry (formerly MNRF) guidelines outlined in the Survey Protocol for Species at Risk Bats within Treed Habitats (MNRF 2017b) with respect to presence of suitable sized cavity trees. There were no

cavity trees noted as part of the preliminary tree inventory. No reptile or amphibian species, or any evidence of their presence were encountered.

A single Monarch (Danaus plexippus) was observed on October 12, 2017, and another on June 25, 2018 which is recognized as a species of Special Concern both federally and provincially. None of the other butterfly species were significant.

4.3.3 Species at Risk

4.3.3.1 Methods

The Species at Risk (SAR) were identified through:

- Background review of available sources
- Aerial photo interpretation
- Field investigations

Refer to the Scoped Environmental Impact Study Report **(Appendix B)** for further information with regard to the background review, field investigation and methods.

4.3.3.2 Results

According to current records from the available sources, as well as correspondence with the Ministry of Northern Development, Mines, Natural Resources and Forestry and MECP, 27 SAR and SOCC were identified as having occurred within the vicinity of the Study Area. These species, their associated S-ranks, status under the ESA (2007), source of the record and year last observed, are shown in **Table 4-6**.

MNRF Aurora District was contacted by letter on October 18, 2017 to obtain specific information on any SAR in relation to the Study Area. While no additional information was received, MNRF requested that four species of Endangered bats be considered as possibly occurring in the Study Area, which are listed in **Table 4-6**. The Butternut (Juglans cinerea), an Endangered tree species, was also considered since it is known to be widespread in Durham Region.

Field investigations did not find evidence for the presence of any Endangered or Threatened species in the Study Area. Most of the SAR identified in **Table 4-6** are birds, though none were encountered in-field during the 2018 breeding bird surveys. The Study Area contains only 3.7 hectares of cultural meadow. It is not anticipated that these cultural meadows provide breeding habitat for Bobolink and Eastern Meadowlark. No nests of Barn Swallows were present in the culverts along Pine Creek.

Table 4-6: SAR and SOCC Records in the Vicinity of the Study Area

Common Name	Scientific Name	S-Rank	ESA Status	Breeding Evidence	Source	Last Obs.
Acadian Flycatcher	*Empidonax virescens*	S2S3B	END	Possible	OBBA	N/A
Bank Swallow	*Riparia*	S4B	THR	Confirmed	OBBA	N/A
Barn Swallow	*Hirundo rustica*	S4B	THR	Confirmed	OBBA	N/A
Black Tern	*Chlidonias niger*	S3B	SC	N/A	NHIC	1997
Bobolink	*Dolichonyx oryzivorus*	S4B	THR	Confirmed	OBBA	N/A
Canada Warbler	*Cardellina canadensis*	S3B	THR	Possible	OBBA	N/A
Chimney Swift	*Chaetura pelagica*	S4B,S4N	THR	Confirmed	OBBA	N/A
Common Nighthawk	*Chordeiles minor*	S4B	SC	Probable	OBBA	N/A
Eastern Meadowlark	*Sturnella magna*	S4B	THR	Confirmed	OBBA	N/A
Eastern Wood-Pewee	*Contopus virens*	S4B	SC	Confirmed	OBBA	N/A
Golden-winged Warbler	*Vermivora chrysoptera*	S4B	SC	Confirmed	OBBA	N/A
Grasshopper Sparrow	*Ammodramus savannarum*	S4B	SC	Probable	OBBA	N/A
Least Bittern	*Ixobrychus exilis*	S4B	THR	Possible	NHIC, OBBA	N/A
Wood Thrush	*Hylocichla mustelina*	S4B	SC	Confirmed	OBBA	N/A
Yellow-breasted Chat	*Icteria virens*	S2B	END	Probable	OBBA	2005
Blanding's Turtle	*Emydoidea blandingii*	S3	THR	N/A	ORAA	2015
Snapping Turtle	*Chelydra serpentina*	S3	SC	N/A	NHIC, ORAA	2017
Northern Map Turtle	*Graptemys geographica*	S3	SC	N/A	ORAA	2016
Eastern Ribbonsnake	*Thamnophis sauritus*	S4	SC	N/A	ORAA	1968
Monarch	*Danaus plexippus*	S4	SC	N/A	OBA	2015
Clamp-tipped Emerald	*Somatochlora tenebrosa*	S2S3	N/A	N/A	NHIC	1941
Little Brown Myotis	*Myotis lucifugus*	S4	END	N/A	MNRF	N/A
Eastern Small-footed Myotis	*Myotis leibii*	S2S3	END	N/A	MNRF	N/A
Northern Myotis	*Myotis septentrionalis*	S3	END	N/A	MNRF	N/A
Tri-colored Bat	*Perimyotis subflavus*	S3?	END	N/A	MNRF	N/A
Butternut	*Juglans cinerea*	S2?	END	N/A	MNRF	N/A

Background review indicated records of various reptile SAR, including Blanding's Turtle (Emydoidea blandingii) and Northern Map Turtle (Graptemys geographica). Suitable supporting habitat within the Study Area for these two species is limited to association with Pine Creek; however, Blanding's Turtle is not found in creeks, and Pine Creek is too small for Northern Map Turtle. Although Snapping Turtle was not incidentally observed during the field investigations, the creek may afford habitat for Snapping Turtle (Chelydra serpentina). Fish are present in the creek for foraging and the adjacent cultural meadow is suitable for Snapping Turtle nesting. However, if present, Snapping Turtles would likely need to move considerable distances up and down the creek. While moving north of the site to less suitable habitat is possible, it is unlikely that they would move through the very long culvert under Highway 401 from the more suitable adjacent habitats to the south. Suitable meadow marsh habitat is present which Eastern Ribbonsnake (Thamnophis sauritus) might use, however, it was determined it highly unlikely that Eastern Ribbonsnake is present.

Although the naturalized areas are generally disturbed, as evidenced by the high proportion of non-native plants, and fragmented from other natural heritage features by major roadways and intensive commercial development, the Study Area may provide marginal habitat for bat SAR and Monarch butterfly as identified in **Table 4-6**. Single individuals of Monarch butterfly were observed in CUM1-1 on October 12, 2017 and June 25, 2018 field investigations. For the four species of bats, a precautionary approach is recommended which would assume that the Mineral Cultural Woodlands (CUW1), Fresh-moist Poplar Deciduous Forest (FOD8-1) and Scotch Pine Cultural Plantation (CUP3-3) may provide suitable roosting habitat for bat SAR without further assessment.

The remaining SAR evaluated (refer to **Appendix B**) were determined to have a low probability of occurring given the general lack of their preferred and respective habitats within the Study Area.

The LIO Aquatic Resource Area (ARA) fish species data documented Blacknose Dace (*Rhinichthys atratulus*), Central Mudminnow (*Umbra limi*), Common Shiner (*Luxilus cornutus*), Creek Chub (*Semotilus atromaculatus*), Logperch (*Percina caprodes*), and White Sucker (*Catostomus commersonii*) as present within Pine Creek. According to the ARA and DFO aquatic SAR mapping, there are no records of aquatic SAR within Pine Creek.

4.3.4 Significant Wildlife Habitat

4.3.4.1 Methods

Candidate Significant Wildlife Habitat (SWH) was identified in accordance with the SWH guidelines for Ecoregion 6E (OMNR 2015) through a combination of desktop review of

aerial photography coupled with the results of Ecological Land Classification (ELC) field investigations undertaken in 2017, 2018 and 2019 to determine existing habitats that may provide Candidate SWH. The SWH Screening is available in Appendix K of the **Scoped Environmental Impact Study Report (Appendix B).**

4.3.4.2 Results

Based on the conditions documented through field investigations, the potential for the types of SWH identified above are discussed below in **Table 4-7**. None of the identified candidate SWH were confirmed to be present within the Study Area.

4.3.5 Assessment of Significance

4.3.5.1 Fish Habitat

Pine Creek provides fish habitat. The fish community is representative of an assemblage of primarily warm water species that are tolerant of environmental perturbation. Based on a review of DFO Aquatic SAR mapping (2020), there were no aquatic SAR records or habitat classified as critical by the SARA within the Study Area. A review of NHIC records (MNRF, 2020) also did not identify any aquatic SAR records within the Study Area. As such, aquatic SAR need not be carried forward to the impact assessment.

4.3.5.2 Habitat of Endangered and Threatened Species

No Endangered or Threatened species of plants or animals were encountered during field investigations. Background review identified several species that had been identified as being recorded within several kilometres of the Study Area. Marginally suitable habitat was identified for the following SAR:

- Bat SAR
- Monarch

The remaining SAR have a low potential of occurring within the Study Area due to lack of suitable habitat present within the Study Area.

4.3.5.3 Significant Wetlands and Significant Coastal Wetlands

The wetland unit in the Study Area was assessed and qualifies to be complexed with the nearby Frenchman’s Bay Coastal Wetland Complex. The boundary was surveyed to determine the limits and extent. An additional wetland unit located to the south of Highway 401 midway between the Study Area and the main Frenchman’s Bay Coastal Wetland Complex was also determined to be part of the wetland complex.

Table 4-7: SWH Assessment Results

SWH Category	SWH Type	Candidate SWH Confirmed Present (Yes/No)	Rationale
Seasonal Concentration Areas	Bat Maternity Colonies	No	Oct 2017 tree inventory identified most trees as between 10 and 20 cm DBH and therefore within a suitable size range for bat habitat according to MNRF (2017b); however, no suitable cavities were observed. As a result, it is unlikely that the Study Area provides suitable cavity trees for bat maternity colonies
Seasonal Concentration Areas	Turtle Wintering Areas	No	Study Area lacks ponds that would support this habitat; Pine Creek may provide marginal overwintering habitat for Snapping Turtle and Midland Painted Turtle although no turtles were observed during field investigations; habitat is not likely to qualify as SWH
Seasonal Concentration Areas	Reptile Hibernacula	No	Meadow, thicket, and meadow marsh habitat suitable for Eastern Gartersnake and possibly other snake species was present within the Study Area; habitat was isolated due to surrounding roads and development impeding movement; no snakes were observed and habitat not likely to qualify as SWH
Rare Vegetation Communities or Specialized Habitats for Wildlife	Turtle Nesting Areas	No	The meadow habitat within the Study Area may provide suitable nesting habitat; however, no turtles were observed; habitat not likely to qualify as SWH
Rare Vegetation Communities or Specialized Habitats for Wildlife	Seeps and Springs	No	Low lying areas of meadow marsh with a high-water table were present on either side of Pine Creek. Water cress (Nasturtium officinale) was present in the meadow marsh on the east side which is an indicator of groundwater seepage. However, on a visit on January 2019 any water that was pooled in small depressions within the meadow marsh was frozen, yet Pine Creek was completely ice free. Consequently, although some seepage was present, it was not significant and therefore does not qualify as SWH
Rare Vegetation Communities or Specialized Habitats for Wildlife	Amphibian Breeding Habitat (Woodland)	No	No suitable vernal pools were identified within the Study Area and no amphibians were observed; habitat does not qualify as SWH
Rare Vegetation Communities or Specialized Habitats for Wildlife	Amphibian Breeding Habitat (Wetlands)	No	No suitable vernal pools were identified within the Study Area and no amphibians were observed; habitat does not qualify as SWH
Habitats of Species of Conservation Concern	Terrestrial Crayfish	No	Suitable meadow marsh habitat was present within the Study Area, although none of the distinctive ‘chimneys’ were observed; habitat does not qualify as SWH
Habitats of Species of Conservation Concern	Special Concern and Rare Wildlife Species	No	Monarch butterfly was observed within the Study Area and although its larval food plant, common milkweed, was present it was not abundant; some habitat present but not as highly productive as other sites, therefore does not qualify as SWH
Animal Movement Corridors	Amphibian Movement Corridor	No	No amphibian breeding habitat within or adjacent to the Study Area; therefore, this SWH is not present

4.3.5.4 Significant Woodlands

Natural Heritage Reference Manual (NHRM; MNR 2010) identifies a minimum woodland size for significance of 4 hectares in municipalities where the forest cover is between 5% and 15%. The woodland in the Study Area does not meet the minimum size requirement, even when combined with cultural woodland, totalling an approximate 1.8 hectares. Furthermore, the woodland dominated by non-native trees species, particularly Manitoba Maple and Siberian Elm, affording it low quality and further ruling it out as Significant.

4.3.5.5 Significant Valleylands

Although Pine Creek is a well-defined permanent creek flowing through the Study Area, it does constitute a defined valley with floodplain and sloping side walls. Identifying Significant Valley is the responsibility of the planning authority. Schedule IIIC – Resource Management: Key Natural Heritage Features, Key Hydrologic Features of the City's OP identifies Pine Creek under "Shorelines, Significant Valley Lands and Stream Corridors" consequently it qualifies as a Significant Valley land.

4.3.5.6 Significant Wildlife Habitat

Based on the Ecological Land Classification (ELC) communities present within the Study Area, 10 categories of candidate Significant Wildlife Habitat (SWH) were identified and evaluated. Following field investigations, no SWH types were confirmed present within the Study Area and all the candidate SWH were eliminated.

4.3.5.7 Significant Areas of Natural and Scientific Areas

There were no Areas of Natural and Scientific Areas (ANSIs) identified within the Study Area. The nearest ANSI is Frenchman's Bay Coastal Marsh Candidate Life Science ANSI located 600 metres south of the Study Area.

4.3.5.8 Municipally Recognized Features and Species

No significant woodlands or locally significant wetlands were identified within the Study Area.

4.3.6 Fluvial Geomorphology

4.3.6.1 Methods

A Fluvial Geomorphological Assessment (**Appendix C**) was completed in the area along Pine Creek between Kingston Road and Highway 401 to assess

geomorphological conditions at the existing watercourse (i.e., Pine Creek) with respect to channel form and function, existing geomorphological issues and opportunities for enhancement. Methods included:

- Background review of existing reports and data to provide context in terms of watershed characteristics and prior studies that can be used to gain insight into fluvial geomorphology within the Study Area
- A desk-based assessment that included the following components:
  - Delineation of geomorphological reaches
  - Historical assessment of land use and channel changes within the Study Area
  - Meander belt width assessment for reaches in vicinity of the crossing area
- Field reconnaissance that included the following components:
  - Geomorphological Reach Characterization to identify and record reach data along the watercourse
  - Rapid Geomorphological Assessment (RGA) to assess the overall stability along well developed reaches in urban channels
  - Photographic Record

The results of the desk-based assessment and field investigations are described hereafter. Refer to **Appendix C** for the complete results of the assessment, including the background review.

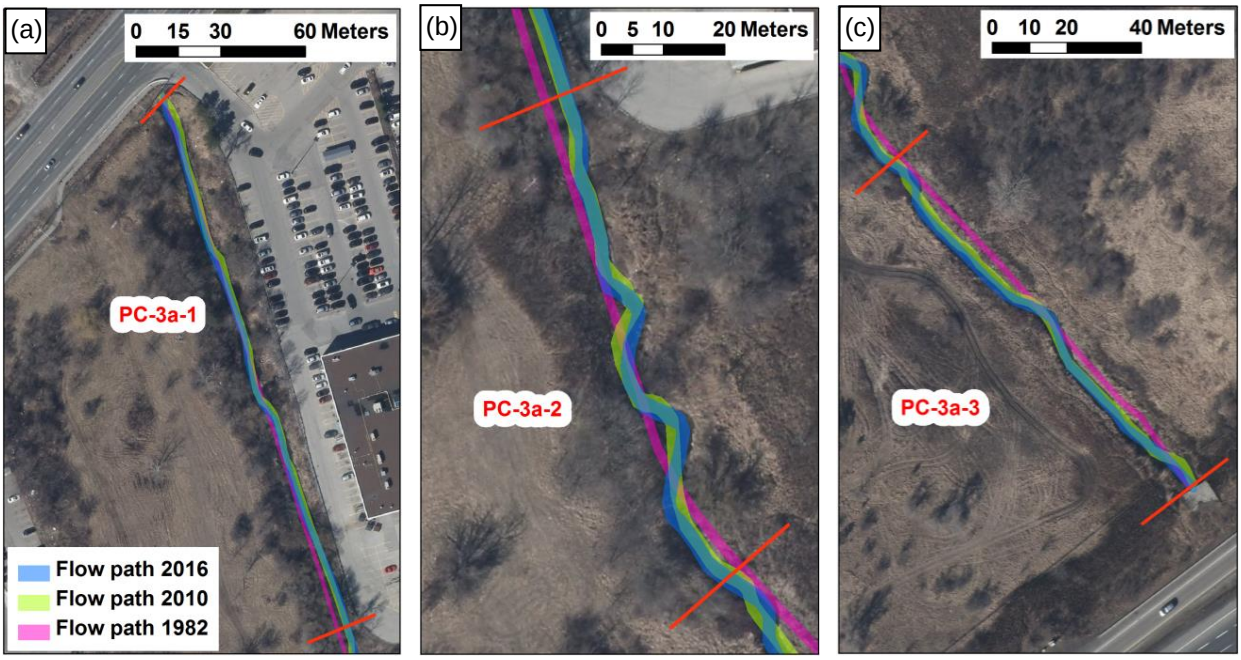
4.3.6.2 Results

Three historical aerial photographs were compared (1982, 2010 and 2016) in order to gain insight into historic land use and channel adjustments identified for sub-reaches upstream and downstream of the proposed crossing location within the study area. Historic aerial photographs have shown that land use and channel changes have occurred along the watercourse (i.e., Pine Creek), which includes an increase in urbanization within the study area, as well as a gain in channel sinuosity. Field work identified bank failure (failed gabion) and channel confinement upstream, increased meandering with less channel confinement within in the middle reach, and a less sinuous channel with floodplain connectivity at the downstream reach. The backwater effect from the Highway 401 culvert was identified in the middle reach. The RGA classified the upstream reach (PC-3a-1) as stable, and the downstream reaches (PC-3a-2 and PC-3a-3) as In Transition, indicating that evidence of channel instability is widespread in these reaches.

Due to historical straightening along Pine Creek, the meander belt assessment was conducted using empirical equations, with a 5% to 10% erosion rate included in the final Meander Belt Width (MBW). The final meander belt width was calculated at 36 metres. To span the Meander Belt Width, a 36 metre crossing span would be required. This approach would allow natural processes to occur over the next 100 years, through which the creek is recovering its sinuous planform. If the crossing does not span the MBW, additional erosion protection will be required to protect the crossing.

Figure 4-2 shows the Pine Creek historical water course alignments for (a) sub-reach PC-3a-1, (b) subreach PC-3a-2 and (c) sub-reach PC-3a-3.

Figure 4-2: Pine Creek Historical Water Course Alignments for (a) Sub-reach PC-3a-1, (b) Subreach PC-3a-2 and (c) Sub-reach PC-3a-3



4.3.7 Hydraulic Assessment

A hydraulic analysis (**Appendix D**) using HEC-RAS model was completed for the Pine Creek crossing. The existing hydraulic model was obtained from TRCA. The flood elevation between Highway 401 and Kingston Road (Highway 2) was noted to be primarily controlled by assumed water surface at Highway 401. The proposed crossing was sized to convey the Regional storm event. The design criteria for the Regional Flood is based on both City of Pickering and Toronto and Region Conservation Authority (TRCA) requirement. The City of Pickering would consider a 0.1 metre increase between Highway 401 and Kingston Road (Highway 2) and both the City and TRCA would not tolerate any increase in Regional flood level upstream of Highway 2, due to the presence

of existing properties within the floodplain. Design flows for the 25-year, 50-year and Regional storm events are 33.46 m^3/s, 40.56 m^3/s and 75.39 m^3/s, respectively.

The cross-sections upstream and downstream of the proposed structure were added to the HEC-RAS model**.** Eight alternatives were analyzed and comparison of the existing and proposed Regional water surface elevation (WSE) is summarized in the **Hydraulic Assessment Memorandum (Appendix D).** The memorandum concluded:

- The 25 metre, 30 metre and 35 metre bridge spans all meet TRCA and City of Pickering criteria
- A 25 metre span bridge over Pine Creek will meet design criteria that includes no increase in Regulatory Flood levels upstream of Kingston Road (Highway 2)
- Increasing the capacity of the Radom Street culvert, downstream of Highway 401, has the potential to reduce the Regulatory Floodline upstream of Highway 401 which could lead to a reduction in the size of the Walnut Lane watercourse crossing
- It is recommended that, from a hydrotechnical perspective, and subject to no further study regarding a Radom Street watercourse upgrade, a 25 metre bridge be considered for the Walnut Lane crossing of Pine Creek
- It is also recommended that the City of Pickering pursue additional studies for upgrading the Radom Street culverts and determine the impact this might have on the sizing of the Walnut Lane crossing of Pine Creek

Since the proposed crossing will result in the loss of storage, an updated routing analysis is required to establish the new fixed water surface elevation upstream of Highway 401 and a cut-fill balance exercise. These tasks will be carried out during detailed design. This work will review the 36 metre Pine Creek bridge span width recommended for the Project, as described in **Section 7.4.2.**

4.3.8 Drainage and Stormwater Management

There are no Stormwater Management Facilities within the focus area bounded by Kingston Road to the north, Liverpool Road to the east, Highway 401 to the south and Dixie Road to the west.

Roadway drainage on the existing section of Walnut Lane (south of Kingston Road) is conveyed via curb and gutter, with catch basins and water quantity/quality control is provided as part of the 1105 Kingston Road site development (Stormwater Management Report Proposed Commercial Development for Brookdale Centres Inc. 1105 Kingston Road, Pickering, ON, prepared by A.A. Candaras Associates Inc. September 2007)

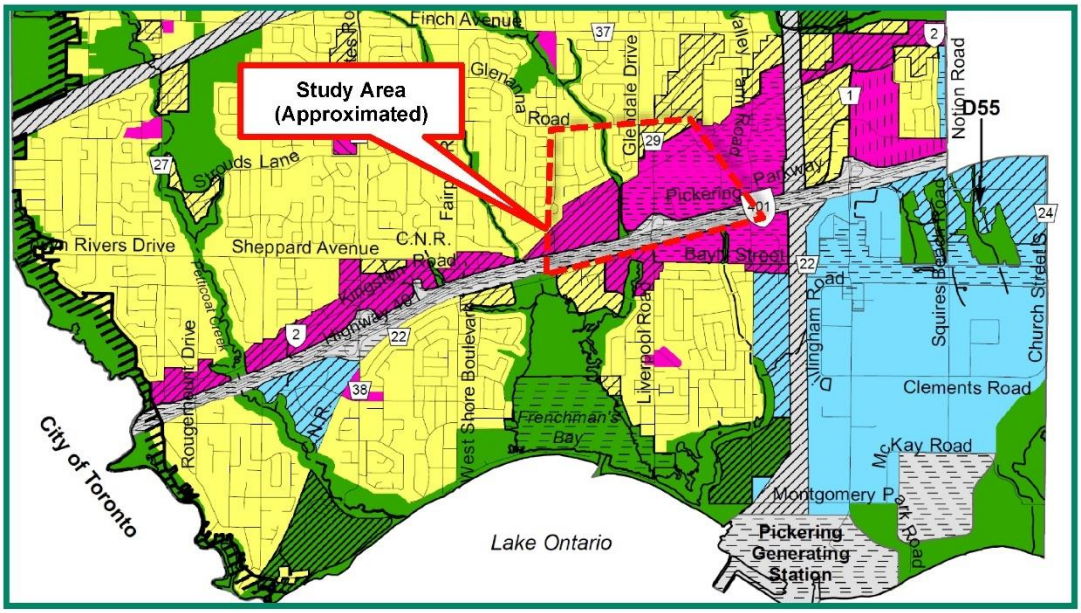
4.4 Socio-Economic Environment

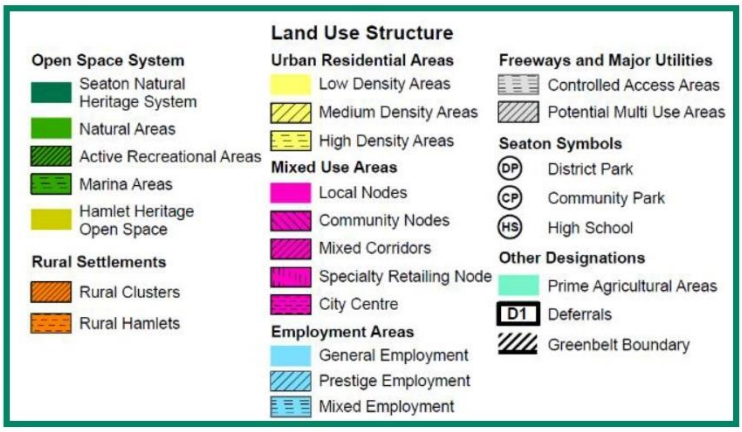
4.4.1 Existing Land Use

The Study Area north of Kingston Road, which includes the existing section of Walnut Lane, is comprised of a mix of detached, semi-detached, and townhouse dwellings. This area also includes one secondary school, five elementary schools, seven neighbourhood parks, two places of worship and a fire hall. The Study Area south of Kingston Road consists of a mix of large format retailers, specialty retailers, automotive uses, offices and services, including restaurants. The focus area of the proposed Walnut Lane extension is not developed.

Figure 4-3 shows the land uses as per the City's Official Plan (Edition 8).

Figure 4-3: Schedule I, City of Pickering OP (Edition 8)





4.4.2 Proposed or Planned Development

The future land use for the parcels of land currently bound by Kingston Road, Highway 401, and Liverpool Road include a multiple tower – multi-phase high density residential development (Tribute Communities) with commercial space proposed at grade with parking located on the west side of Liverpool Road and south side of Highway 401 (development will be accessed from the new Walnut Lane Roadway).

There is also potential in the long term for the redevelopment of the current Loblaws site (currently subject to a zoning hold) as well as the TD Bank and Makimono Japanese Restaurant within the Study Area. The lands immediately east of Pine creek (Loblaws and Tribute Communities) are subject to a hold on the zoning. The current zoning hold for Tribute Communities is in the process of being lifted. The zoning hold will be lifted as per the by-law provisions already in place (i.e., City Centre By Law #7553/17).

4.4.3 Planned Infrastructure Improvements

The Durham Region's TMP (2017) recommends the following infrastructure improvements within the Study Area:

- Widening of the section of Liverpool Road (Regional Road 29) between Kingston Road and Highway 401 from 5 to 6 lanes between 2022 and 2026. Note that as per the latest version of the Region's Capital Budget and Nine-Year Forecast for Regional Roads (dated 2022) that was available at the time of the preparation of the ESR, the anticipated timelines for the start of construction work for widening of Liverpool Road is 2025.
- Extension of the existing on-road cycling facilities along the section of Kingston Road between Glenanna Road and east of Walnut Lane both easterly and westerly along Kingston Road beyond 2028. Note that in the latest version of the Regional Cycling Plan (dated 2021) that was available at the time of the preparation of the ESR, the recommended on-road cycling facilities on the studied section of Kingston Road are defined as a Short-term Infill Project (2022 – 2029) and recommended to be in the form of "cycle tracks".
- Provision of cycling facilities along the section of Pickering Parkway between Liverpool Road and Brock Road as well as the section of Liverpool Road between Highway 401 and Finch Avenue beyond 2028. Note that in the latest version of the Regional Cycling Plan (dated 2021) that was available at the time of the preparation of the ESR, the recommended cycling facilities on Pickering Parkway, east of Liverpool Road are "buffered cycle lanes" and categorized as a Long-term Project (2031 and beyond) whereas the recommended cycling facility on the studied section of Liverpool Road (between Highway 401 and Kington Road) is an "in-boulevard multi-use pathway" and categorized as a Short-term Capital Project (2022 – 2029).

- In the near term, the studied section of Kingston Road (i.e., between east of Liverpool Road and west of Walnut Lane) would continue to carry Bus Rapid Transit (BRT) on dedicated curb lanes. Over time, the studied section of Kingston Road would see the existing centre median replaced with dedicated BRT lanes and transit platforms. As per the most recent information available from the Metrolinx website at the time of the preparation of the ESR, the anticipated timelines for provision of the dedicated median BRT lanes on the studied section of Kingston Road is 2022 – 2025.

4.4.4 Noise

A qualitative overview of anticipated changes in noise levels as a result of the Project and potential impacts on existing receptors during construction and operation of the proposed undertaken has been completed.

With respect to noise it is important to note that existing nearby sensitive noise receptors are only located on the north side of Kingston Road within the Liverpool Neighbourhood and traffic on Walnut Lane north of Kingston Road within this residential area is meant for local traffic only. The proposed Walnut Lane extension south of Kingston Road will serve future development, including the proposed Tribute Communities high rise residential development (see **Section 4.4.2)**, while also providing a link between Kingston Road and Liverpool Road. The developer (i.e., Tribute Communities) will need to take noise from the Walnut Lane extension into account as their development is dependant on the Walnut Lane extension.

Traffic volumes on the Walnut Lane (2 lanes) extension will be significantly lower (less than half) than Kingston Road (6 lanes). Further, the traffic for the future Walnut Lane extension is both less exposed to and at a further distance from the identified Noise Sensitive Areas when compared with Kingston Road. As a result the noise levels at the noise sensitive areas on the north side of Kingston Road are dominated by traffic on Kingston Road, not the Walnut Lane extension since Kingston Road is in between the Walnut Lane extension and those residences. Therefore any change in the future noise level as a result of the Walnut Lane extension is expected to be negligible and not exceed the MTO/MOE objective noise level. Similarly, for the residences on the south side of Highway 401, noise levels due to traffic will be by traffic from Highway 401 and Bayly Street. The Walnut Lane extension is over 350 metres from the nearest Noise Sensitive Area to the south; whereas, Highway 401 and Bayly Street are approximately 150 metres and 25 metres, respectively. As a result, the change in noise level due to the Walnut Lane extension is also expected to be negligible and not exceed the MOT/MOE objective limits.

Noise has been considered in the evaluation of alternatives (**Section 6**) and potential environmental effects, mitigation measures and monitoring (**Section 9.4.1**).

4.4.5 Air Quality

The Project's impacts to air quality have been assessed through a qualitative evaluation of the preferred solution. Refer to the **Qualitative Air Quality Assessment Memorandum** (**Appendix E**). The below section summarizes existing air quality conditions within the Air Quality Study Area, which extends 500 metres from each side of Walnut Lane south of Kingston Road and along the proposed MCEA focus area towards Liverpool Road.

Baseline ambient air quality levels were collected from publicly available historical data from ambient air quality monitoring stations within Ontario. Data utilized is the most recent publicly available data (November 2021). The following National Air Pollution Surveillance (NAPS) air quality monitoring stations were selected as representative of the ambient air quality within the Air Quality Study Area:

- Toronto East (NAPS ID 60410)
- Toronto North (NAPS ID 60440)
- Roadside Wallberg (UofT) Station (NAPS ID 60439)
- Gage Institute (NAPS ID 60427)

Details of the air quality monitoring stations and their distance in kilometres to the Air Quality Study Area are provided in **Table 4-8**.

Ambient monitoring data was collected for all contaminants from the most recent data available (2011-2019). The background concentrations for each contaminant were compared to the applicable Provincial Ambient Air Quality Criteria (AAQC) and Federal Canadian Ambient Air Quality Standards (CAAQS) for the time averaging periods.

The results of the Air Quality Assessment memorandum identifies three contaminants were found to exceed the Provincial AAQC in the ambient air levels. The exceedances for the contaminants Benzene and Benzo(a)pyrene are based on the existing levels within the downtown Toronto area, and the exceedance for fine particulate matter (PM2.5) is based on the existing levels in the North Toronto area. Lowered levels of vehicular idling in the suburban Pickering area may result in lowered benzene and benzo(a)pyrene levels when compared to downtown Toronto, however the presence of the Highway 401 to the south of the project would be a significant contributor to background air quality levels.

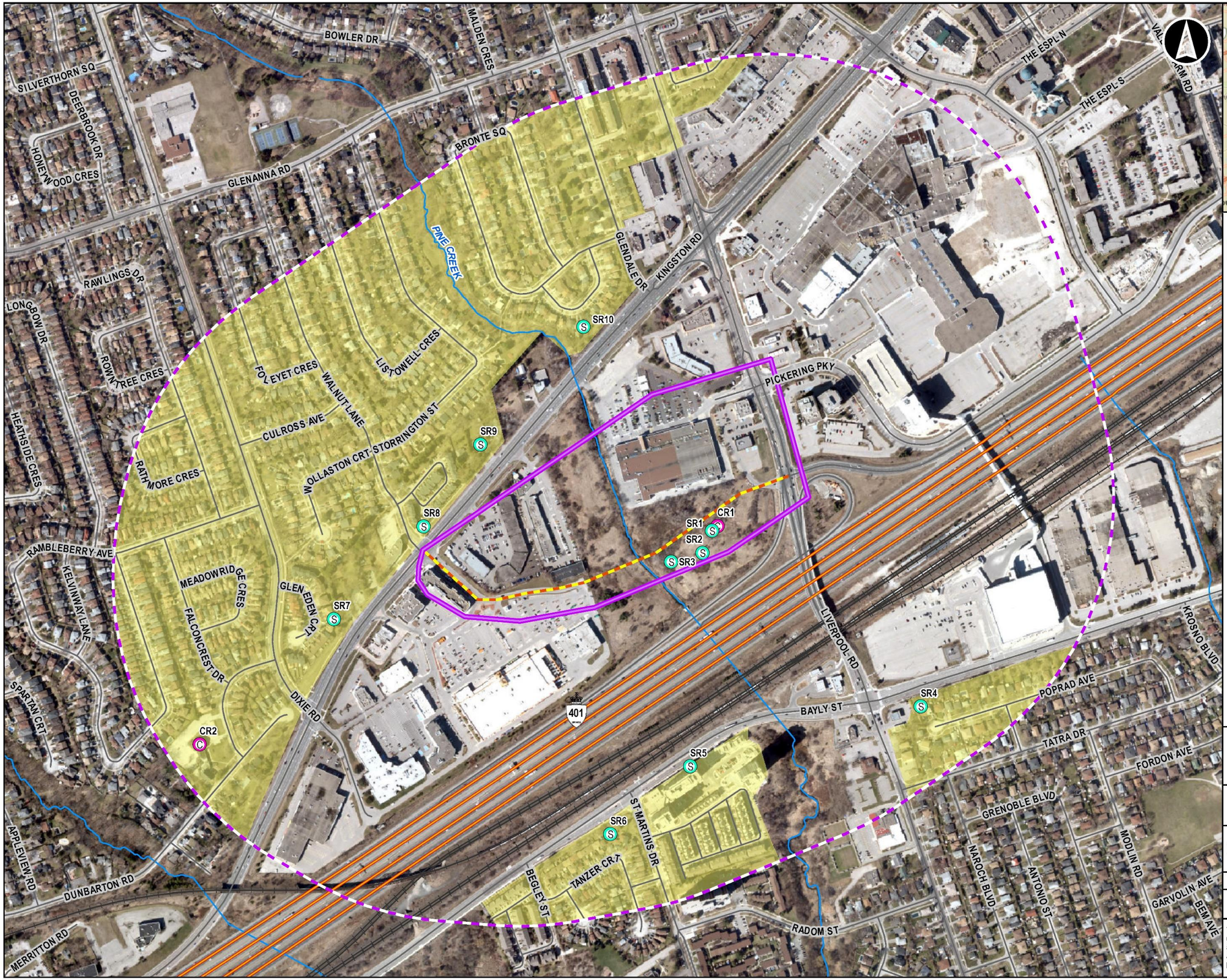
4.4.5.1 Land Use and Sensitive Receptors

The Air Quality Study Area contains land use zoned by the City under zoning by-law 7553 and zoning by-law 3036. The land use is primarily zoned as either commercial space, park/open space or residentially zoned.

Several sensitive and critical receptors were identified within the Air Quality Study Area. The residentially zoned lands (sensitive receptors) are outlined in yellow in **Figure 4-4**, along with the location of identified critical and sensitive receptors. **Table 4-8** lists the identified critical receptors and representative sensitive receptors from the residentially zoned areas within the Air Quality Study Area.

Table 4-8: Identified Critical Receptors within Air Quality Study Area

Receptor ID	Receptor Name	Receptor Type	Address
CR1	Tribute Development Daycare Centre	Future Critical	"Building C" (Refer to **Appendix E**)
CR2	Bridges Kinder Connection Daycare	Critical	1066 Dunbarton Road Pickering, Ontario
SR1	Tribute Development	Future Sensitive	"Building C" (Refer to **Appendix E**)
SR2	Tribute Development	Future Sensitive	"Building B" (Refer to **Appendix E**)
SR3	Tribute Development	Future Sensitive	"Building A" (Refer to **Appendix E**)
SR4	Representative Residential	Sensitive	1322 Poprad Avenue Pickering, Ontario
SR5	SF3 Condominiums	Sensitive	53 1250 Saint Martins Drive Pickering, Ontario
SR6	Representative Residential	Sensitive	1134 Tanzer Court Pickering, Ontario
SR7	Representative Residential	Sensitive	1134 Glen Eden Court Pickering, Ontario
SR8	Representative Residential	Sensitive	1735 Walnut Lane Pickering, Ontario
SR9	Representative Residential	Sensitive	1217 Kingston Road Pickering, Ontario
SR10	Representative Residential	Sensitive	1226 Charlotte Circle Pickering, Ontario



Walnut Lane Extension Kingston Road to Liverpool Road Municipal Class Environmental Assessment

Location of Sensitive and Critical Receptors within the Air Quality Study Area

Nov 29, 2021	1:6,000 * when printed 11"x17"	Datum: NAD 1983 UTM Zone 17N Source: MNRF, Kingsett, Bing Key Map: ESRI Base Map: City of Pickering (2020)
P#: 60547978	V#: 00	**Figure 4-4**

AECOM

4.4.5.2 Vehicular Air Emissions

There are also several sources of air emissions from vehicular travel within the Air Quality Study Area along Kingston Road, Liverpool Road, and Highway 401. See **Appendix E** for more detail on traffic information associated with all significant sources of existing road traffic.

4.5 Cultural Environment

4.5.1 Archaeological Resources

A Stage 1 archaeological assessment (AA) was conducted for the road extension focus area. A Stage 1 AA consists of a review of geographic, land use and historical information for the property and the relevant surrounding area, a property visit to inspect its current condition and contacting MCM (formerly MHSTCI) to find out whether, or not, there are any known archaeological sites on or near the property. Its purpose is to identify areas of archaeological potential and further archaeological assessment (e.g., Stage 2-4) as necessary. The **Stage 1 Archaeological Assessment Report** is included in **Appendix F**.

The results of the Stage 1 archaeological assessment indicate while most of the focus area does not contain archaeological potential as it has been extensively and deeply disturbed by past construction activity or is permanently low and wet or sloped, there are sections that are not obviously disturbed and will therefore require a Stage 2 archaeological assessment.

Given the results of the Stage 1 AA, the following recommendations have been made:

1. The areas marked in green in Figure 6 of **Appendix F** require a Stage 2 archaeological assessment. The Stage 2 assessment should be completed in accordance with Section 2.1.2 Test Pit Survey of the Standards and Guidelines for Consultant Archaeologists (2011). This section requires a test pit survey to be conducted over the study area to identify any archaeological sites and to determine the extent and degree of ground disturbance
2. Areas marked in red in Figure 6 of **Appendix F** have been deeply disturbed and should be considered cleared of further archaeological concern

The Stage 2 AA will be completed during the detailed design phase of the Project.

4.5.2 Built Heritage Resources and Cultural Heritage Landscapes

The area of the proposed Walnut Lane extension does not include properties listed or designated under municipal, provincial, or federal legislation or included on a heritage register or inventory. In addition, based on a review of accessible documentation, the properties do not appear to be a landmark or important in defining the character of the area, nor is it subject to a municipal, provincial, or federal commemorative or interpretive plaque, adjacent to a known burial site and/or cemetery, nor is it in a Canadian Heritage River watershed.

Based on the above, the Project is not anticipated to impact Built Heritage Resources and Cultural Heritage Landscapes. Refer to the **Cultural Heritage Memorandum** in **Appendix G** for the review of the Study Area in relation to cultural heritage resources.

5. Phase 1: Problem / Opportunity Statement

5.1 Project Need and Justification

The findings of the traffic impact assessment of the Walnut Lane extension (**Appendix A**) indicate that in the absence of the Walnut Lane extension, numerous movements at the Study Area intersections would operate over capacity and/or at an unacceptable level of service in the horizon year of 2027. In the absence of any improvements, the long-term vision for the Pickering City Centre (as described in the "Downtown Pickering: A Vision for Intensification and Framework for Investment" Report) and surroundings are expected to further deteriorate traffic conditions in the Study Area road network in the future, thus, an indication of the needs and justification for transportation improvements.

With the studied sections of Liverpool Road and Kingston Road already at six lanes by 2026, further widening of these two roads would not be a realistic transportation improvement option. In addition, the planned improvements to the existing transit services as well as active transportation and transit facilities and services per se are only anticipated to partially address the future traffic operational issues within the Study Area. Hence, there seems to be an inevitable need for a new road connection to the Study Area road network.

The extension of Walnut Lane from the section presently constructed south of Kingston Road eastward to Liverpool Road is anticipated to contribute to materializing the Intensification Plan for the City Centre and address most of the future traffic operational issues. In addition, the Walnut Lane extension would allow for development of the parcel of land bounded by Liverpool Road to the east, Highway 401 to the south, Kingston Road to the north, and Pine Creek to the west; i.e., it would provide more than one option to access / egress the future development in the southwest quadrant of the intersection of Kingston Road and Liverpool Road.

5.2 Problem and Opportunity Statement

Phase 1 of the Municipal Class Environmental Assessment (MCEA) planning process requires the proponent of an undertaking (i.e., the City) to document factors leading to the conclusion that the proposed improvement is needed, and to develop a clear statement of the identified problems or opportunities to be addressed. The Problem/Opportunity Statement is the first phase in undertaking a MCEA study and

assists in establishing the study's scope. Based on the Project need and justification (**Section 5.1**), the following problem/opportunity statement has been formulated:

Problem: There is significant development potential within the area beyond the existing southerly terminus of Walnut Lane. Extending Walnut Lane easterly from Kingston Road to the west side of Liverpool Road is needed to:

- Address projected travel demands
- Provide a second point of ingress/egress to support future development
- Strengthen the east to west transportation grid network

The proposed road extension must ensure no negative impacts to Ministry of Transportation Highway 401 operations and net benefit to Durham Region road operations, including on Kingston Road and Liverpool Road. In addition, traffic calming measures were developed as part of MCEA and preliminary design in order to prevent the Walnut Lane Extension from leading to any shortcutting / traffic infiltration issue on / through the existing section of Walnut Lane (north of Kingston Road),

Opportunity: There is an opportunity to employ the Complete Streets approach in order to accommodate the existing and future traffic demand (including transit and active transportation) and provide better connectivity to adjacent neighbourhoods for the overall road network.

6. Phase 2: Alternative Solutions

6.1 Identification of Alternatives

The following planning solutions have been identified as part of phase 2 of the MCEA process:

- Alternative 1: Do Nothing
- Alternative 2: Operational Improvements
- Alternative 3: Extend Walnut Lane easterly from the current western terminus to Liverpool Road
- Alternative 4: Widen or Extend Alternate Routes
- Alternative 5: Transportation Demand Management (TDM)
- Alternative 6: Limit Development

6.1.1 Do Nothing

Do nothing means there are no improvements undertaken. This does not resolve the identified problem/opportunity statement; however this option was evaluated as a base case comparison to other alternative solutions.

6.1.2 Operational Improvements

This alternative entails non-structural improvements, such as traffic signal improvements, possible lane configuration improvements to accommodate left and right turn lanes.

6.1.3 Extend Walnut Lane Easterly to Liverpool Road

This option involves extending a 2-lane cross-section from Walnut Lane south of Kingston Road easterly from the existing western terminus to Liverpool Road.

6.1.4 Widen or Extend Alternative Routes

Widening alternative routes entails providing additional lanes to other nearby north-south and east-west roads:

- Widening of Liverpool Road (Durham Region Jurisdiction) to the south of Kingston Road and to the north of the Highway 401 on and off-ramp interchange terminal
- Widening Highway 2 to six lanes, including median bus-only lanes from east of Notion Road (Pickering Village) to west of Altona Road

It is noted that this alternative is being addressed through other studies, including the future Liverpool Road Widening, Durham-Scarborough BRT project (subject to the Transit Project Assessment Process), and Complete Streets Strategy as per the City's Integrated Transportation Master Plan.

The extension of Dixie Road south of Kingston Road, eastward to Liverpool Road was not evaluated. The Kingston Road Corridor and Specialty Retailing Node Intensification Plan concluded in December 2019 with Council endorsement of the Intensification Plan for the area and draft Urban Design Guidelines. The Intensification Plan presents a vision for intensification and identifies the Dixie Road Extension to Liverpool Road via the proposed Walnut Lane extension that terminates at Liverpool Road. The Intensification Plan also shows the extension terminating at the current Kingston Road/Walnut Lane intersection which can be developed as a gateway feature.

There is no estimated timeline for the Dixie Road extension segment established through the Study. The City is in the process of drafting the Official Plan Amendment and Zoning By-law Amendment to implement the Plan.

6.1.5 Transportation Demand Management

Transportation Demand Management (TDM) is a general term used to describe the policies, programs and strategies used to promote alternative modes of transportation (transit, carpooling, walking, and cycling) in order to reduce driving by individuals.

6.1.6 Limit Growth

This alternative assumes no improvements will be made beyond those already both planned and approved and includes measures to limit development within the Study Area.

6.2 Evaluation Framework and Criteria

As a key aspect of the MCEA process, a set of evaluation criteria have been developed to ensure a logical and replicable evaluation and decision-making process. **Table 6-1** provides the list of criteria and corresponding indicators by category that were used to evaluate the alternative solutions and identify the preferred recommended solution to carry forward to phase 3 (alternative design concepts).

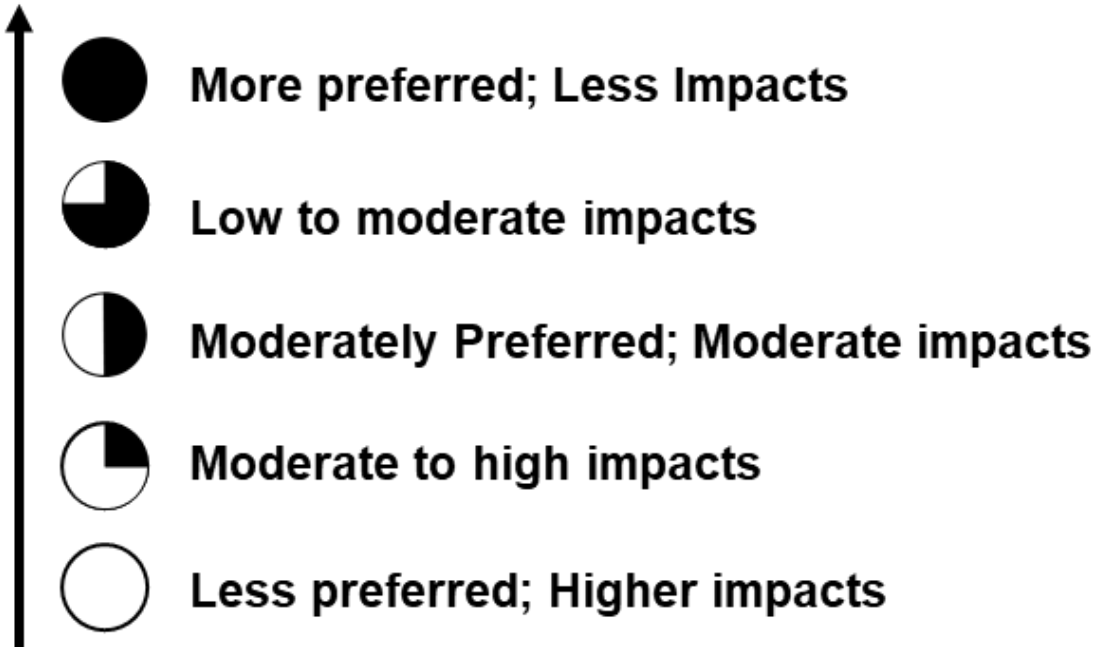
Table 6-1: Phase 2 Evaluation Criteria

Category	Criteria
Transportation / Technical Considerations	■ Conformity with the City of Pickering Official Plan (OP) ■ Ability to improve road, transit, pedestrian and cycling network connectivity ■ Ability to improve network capacity ■ Ability to improve safety for all roadway users ■ Ability to minimize adverse effects on utilities ■ Ability to improve stormwater runoff from existing conditions
Natural Environment	■ Potential impacts to terrestrial species and habitat ■ Potential impacts to aquatic species and habitat
Socio-Economic Environment	■ Ability to accommodate existing/planned development and support future growth in population and employment ■ Potential impacts to residences and local business (access, disruption, and nuisance impacts, such as noise and dust) ■ Air Quality – Ability to minimize the air particulate matter and emissions ■ Amount of property required ■ Access for emergency vehicles
Cultural Heritage Environment	■ Effects on archaeological resources ■ Effects on Built Heritage Resources and Cultural Heritage Landscapes
Cost	■ Capital costs, including property

The individual alternative solutions identified in **Section 6.1** were evaluated against the established criteria (**Table 6-1**) in order to determine the preferred recommended solution. An empty pie chart indicates the alternative solution does not meet the Project's intended outcome for the specified criteria, resulting in higher impacts and is therefore less preferred. Alternatively, a full pie indicates the alternative solution meets the Project's intended outcome for the specified criteria, resulting in lower impacts and is therefore more preferred. The objective of this approach is to show which alternatives are overall effective in achieving the intended outcome with less negative impacts. All categories were considered to have equal weight.

The evaluation has been completed using professional judgement using information available at that time. Feedback obtained from the public, review agencies, stakeholders and Indigenous Communities was also considered. This evaluation forms the rational for the identification of the recommended preferred alternative solution.

Figure 6-1: Phase 2 Evaluation Rating System



6.3 Evaluation of Alternative Planning Solutions

Table 6-2 presents the evaluation of the alternative planning solutions.

Table 6-2: Phase 2 Evaluation of Alternatives

Category	Evaluation Criteria	Alternative 1 Do Nothing	Alternative 2 Operational Improvements	Alternative 3 Extend Walnut Lane Easterly to Liverpool Road	Alternative 4 Widen or Extend Alternate Routes	Alternative 5 Transportation Demand Management	Alternative 6 Limit Growth
Transportation/ Technical Considerations	■ Conformity with the City of Pickering's Official Plan (OP)	■ Does not conform with OP – does not open up development of the parcel of land currently bound by Highway 2, Highway 401, and Liverpool Road.	■ Conforms with OP; however does not open up development of the parcel of land currently bound by Highway 2, Highway 401, and Liverpool Road.	■ Conforms with City of Pickering OP – OP identifies a future extension of Pickering Parkway for a Type C Arterial Road that would connect to Walnut Lane. A secondary east-west connector road would support projected growth for Pickering's City Centre by opening up development of the parcel of land currently bound by Highway 2, Highway 401, and Liverpool Road.	■ Confirms with OP; however does not open up development of the parcel of land currently bound by Highway 2, Highway 401, and Liverpool Road.	■ Conforms with OP; however does not open up development of the parcel of land currently bound by Highway 2, Highway 401, and Liverpool Road.	■ Does not conform with OP – does not open up development of the parcel of land currently bound by Highway 2, Highway 401, and Liverpool Road.
Transportation/ Technical Considerations	■ Ability to improve road, transit, pedestrian and cycling network connectivity	■ No changes to network connectivity – does not open access to the parcel of land currently bounded by Highway 2, Highway 401, and Liverpool Road.	■ No changes to network connectivity – does not open access to the parcel of land currently bounded by Highway 2, Highway 401, and Liverpool Road.	■ Improves road connectivity by providing alternate route for traffic travelling on the studied sections of Kingston Road and Liverpool Road (i.e., to avoid the Liverpool Road and Kingston Road intersection). ■ Improves cycling network connectivity. As per the Region of Durham's Transportation Master Plan and Regional Cycling Plan, Liverpool Road and Kingston Road have both been identified as key corridors to build cycling infrastructure. ■ Improves pedestrian connectivity with the existing network – travelling pedestrians at commercial and future residential lands will have alternative access the wider network including GO Station.	■ Potential to improve network connectivity based on planned road improvements within the study area; however does not open access to the parcel of land currently bounded by Highway 2, Highway 401, and Liverpool Road.	■ Potential to improve network connectivity; however does not open access to the parcel of land currently bounded by Highway 2, Highway 401, and Liverpool Road.	■ No changes to network connectivity – does not open access to the parcel of land currently bounded by Highway 2, Highway 401, and Liverpool Road.

Category	Evaluation Criteria	Alternative 1 Do Nothing	Alternative 2 Operational Improvements	Alternative 3 Extend Walnut Lane Easterly to Liverpool Road	Alternative 4 Widen or Extend Alternate Routes	Alternative 5 Transportation Demand Management	Alternative 6 Limit Growth
Transportation/ Technical Considerations	■ Ability to improve network capacity	■ Does not improve network capacity.	■ Potential for minor capacity improvement at intersections.	■ Improves network capacity – additional capacity provided to overall network.	■ Improves network capacity – additional capacity provided to overall network via planned road improvements: ■ Widening of Liverpool Road to the south of Kingston Road and to the north of the Highway 401 on- and off-ramp interchange terminal ■ Widening Highway 2 to 6 lanes, including 'Bus Only' lanes, between Brock Road and west of Altona Road.	■ Potential to improve network capacity due to shift from auto to other modes of travel.	■ Does not improve network capacity.
Transportation/ Technical Considerations	■ Ability to improve safety for all roadway users	■ Does not improve road safety.	■ Potential for minor safety improvements at intersections.	■ Potential to incorporate safety improvements with road extension	■ Potential to incorporate safety improvements with road widenings and extensions	■ Potential for minor safety improvements to overall network.	■ Does not improve road safety.
Transportation/ Technical Considerations	■ Ability to minimize adverse effects on utilities	■ No impacts to utilities.	■ Low potential for impacts to utilities at intersections	■ Potential for impacts to utilities.	■ Potential for impacts to utilities.	■ No impacts to utilities.	■ No impacts to utilities.
Transportation/ Technical Considerations	■ Ability to improve stormwater runoff from existing conditions	■ No increase to runoff.	■ Minor increase to runoff due to an increase in impervious area at the intersections.	■ Increase in runoff due to an increase in impervious area with new road extension.	■ Increase in runoff due to an increase in impervious area with widened lanes.	■ No increase to runoff.	■ No increase to runoff.
Transportation/ Technical Considerations	**Transportation/ Technical Evaluation Summary**	○	◑	◕	◕	◕	○
Natural Environment	■ Potential impacts to terrestrial species and habitat	■ No impacts to terrestrial species and habitat.	■ Low potential for impacts to terrestrial species and habitat.	■ Potential impacts to trees (e.g., removal), vegetation communities, unevaluated wetland communities, and candidate significant wildlife habitat (SWH) types identified in road extension focus area – requires confirmation through further ecological investigations.	■ Potential impacts to terrestrial species and habitat, including street trees.	■ No impacts to terrestrial species and habitat.	■ Low potential for impacts to terrestrial species and habitat.

Category	Evaluation Criteria	Alternative 1 Do Nothing	Alternative 2 Operational Improvements	Alternative 3 Extend Walnut Lane Easterly to Liverpool Road	Alternative 4 Widen or Extend Alternate Routes	Alternative 5 Transportation Demand Management	Alternative 6 Limit Growth
Natural Environment	■ Potential impacts to aquatic species and habitat	■ No impacts to aquatic species and habitat.	■ Low potential for impacts to aquatic species and habitat.	■ Potential for impacts to aquatic species and habitat – Pine Creek traverses the road extension focus area. ■ Road extension provides opportunities to improve Pine Creek form/function and fish.	■ Potential for impacts to aquatic species and habitat.	■ No impacts to aquatic species and habitat.	■ Low potential for impacts to aquatic species and habitat.
Natural Environment	**Natural Environment Evaluation Summary**	●	◕	◑	◑	●	◕
Socio-Economic Environment	■ Ability to accommodate existing/planned development, including future growth in population and employment	■ Does not accommodate existing and future planned development – does not open access to the parcel of land currently bound by Highway 2, Highway 401, and Liverpool Road, including the SW Quadrant Development proposed for the SW Quadrant at the intersection of Kingston Road and Liverpool Road.	■ Accommodates existing development, but not future planned development – does not open access to the parcel of land currently bound by Highway 2, Highway 401, and Liverpool Road, including the SW Quadrant Development proposed for the SW Quadrant at the intersection of Kingston Road and Liverpool Road.	■ Accommodates existing and future planned development – road extension will open up development of the parcel of land currently bound by Highway 2, Highway 401, and Liverpool Road, including the SW Quadrant Development proposed for the SW Quadrant at the intersection of Kingston Road and Liverpool Road.	■ Accommodates existing development, but not future planned development – does not however do not open up development of the parcel of land currently bound by Highway 2, Highway 401, and Liverpool Road, including the SW Quadrant Development proposed for the SW Quadrant at the intersection of Kingston Road and Liverpool Road.	■ Does not support existing and future planned development – does not open access to the parcel of land currently bound by Highway 2, Highway 401, and Liverpool Road, including the SW Quadrant Development proposed for the SW Quadrant at the intersection of Kingston Road and Liverpool Road.	■ Does not support existing and future planned development – does not open access to the parcel of land currently bound by Highway 2, Highway 401, and Liverpool Road, including the SW Quadrant Development proposed for the SW Quadrant at the intersection of Kingston Road and Liverpool Road.
Socio-Economic Environment	■ Potential impacts to residences and local business (access, disruption, and nuisance impacts, such as noise and dust)	■ No potential impacts to residences and local businesses. ■ Does not provide access to parcel of land currently bound by Highway 2, Highway 401, and Liverpool Road.	■ Low potential for disruption and nuisance impacts. ■ Does not provide access to parcel of land currently bound by Highway 2, Highway 401, and Liverpool Road.	■ Higher potential for disruption and nuisance impacts compared to other alternatives. ■ Provides access to parcel of land currently bound by Highway 2, Highway 401, and Liverpool Road. ■ Improves access – vehicles coming off the Highway 401 Off-Ramp will be able to travel WB-T and access future and existing land uses of commercial and residential complexes directly adjacent to the Highway 401 Westbound Off-Ramp.	■ Moderate potential for disruption and nuisance impacts. ■ Does not provide access to parcel of land currently bound by Highway 2, Highway 401, and Liverpool Road.	■ Low potential for disruption and nuisance impacts. ■ Does not provide access to parcel of land currently bound by Highway 2, Highway 401, and Liverpool Road.	■ Low potential for disruption and nuisance impacts. ■ Does not provide access to parcel of land currently bound by Highway 2, Highway 401, and Liverpool Road.

Category	Evaluation Criteria	Alternative 1 Do Nothing	Alternative 2 Operational Improvements	Alternative 3 Extend Walnut Lane Easterly to Liverpool Road	Alternative 4 Widen or Extend Alternate Routes	Alternative 5 Transportation Demand Management	Alternative 6 Limit Growth
Socio-Economic Environment	Air Quality – Ability to minimize the air particulate matter and emissions.	■ No changes to air quality.	■ Potential minor improvement to air quality with the reduction in congestion at intersections.	■ Potential to increase air particulate matter and emissions by adding capacity to network; however, may also reduce vehicular idling.	■ Potential to increase air particulate matter and emissions by adding capacity to network; however, may also reduce vehicular idling.	■ Potential to reduce air particulate matter and emissions due to more active transportation and transit usage.	■ No changes to air quality.
Socio-Economic Environment	Amount of property required	■ No property required.	■ Potential for property requirements at intersections.	■ Property required. ■ Walnut Lane south of Kingston Road currently not owned by the City.	■ Potential for property requirements.	■ No property required.	■ No property required.
Socio-Economic Environment	Access for emergency vehicles	■ No improvements - access for emergency vehicles for parcel of land currently bound by Highway 2, Highway 401, and Liverpool Road.	■ Potential for minor improvements at intersections; however, no access for emergency vehicles for parcel of land currently bound by Highway 2, Highway 401, and Liverpool Road.	■ Improvements – provides access for emergency vehicles for parcel of land currently bound by Highway 2, Highway 401, and Liverpool Road.	■ Potential for minor improvements; however, no access for emergency vehicles for parcel of land currently bound by Highway 2, Highway 401, and Liverpool Road.	■ No improvements - access for emergency vehicles for parcel of land currently bound by Highway 2, Highway 401, and Liverpool Road.	■ No improvements - access for emergency vehicles for parcel of land currently bound by Highway 2, Highway 401, and Liverpool Road.
Socio-Economic Environment	**Socio-Economic Environment Evaluation Summary**						
Cultural Heritage Environment	■ Effects on archaeological resources	■ No potential impacts to archaeological resources.	■ Low potential for impacts to archaeological resources (intersections only)	■ Potential impacts to archaeological resources.	■ Potential impacts to archaeological resources.	■ No potential impacts to archaeological resources.	■ No potential impacts to archaeological resources.
Cultural Heritage Environment	■ Effects on Built Heritage Resources and Cultural Heritage Landscapes	■ No known potential impacts to Built Heritage Resources and Cultural Heritage Landscapes.	■ No known potential impacts to Built Heritage Resources and Cultural Heritage Landscapes.	■ No known potential impacts to Built Heritage Resources and Cultural Heritage Landscapes.	■ Potential impacts to Built Heritage Resources and Cultural Heritage Landscapes.	■ No known potential impacts to Built Heritage Resources and Cultural Heritage Landscapes.	■ No known potential impacts to Built Heritage Resources and Cultural Heritage Landscapes
Cultural Heritage Environment	**Cultural Heritage Environment Evaluation Summary**						
Cost	■ Capital costs, including property	■ No initial capital cost.	■ Moderate capital cost.	■ High initial capital cost.	■ High initial capital cost.	■ No initial capital cost.	■ No initial capital cost.
Cost	**Cost Evaluation Summary**						
Overall	**Overall Evaluation Results**						
Recommended	**Recommended as Preferred Solution?**	**No**	**Yes**	**Yes**	**Yes**	**Yes**	**No**

Note: While the Do Nothing and Limit Growth Alternatives have lower potential impacts to the environment, they will not address the Phase 1 Problem and Opportunity Statement and therefore, are not carried forward as part of the preferred solution.

6.4 Summary of Evaluation of Alternative Solutions and Selection of a Preferred Solution

As detailed in **Table 6-2**, the preferred planning solution includes a combination of:

- Alternative 2: Operational improvements
- Alternative 3: Extend Walnut Lane easterly from the current western terminus to Liverpool Road
- Alternative 5: Transportation Demand Management

Alternative 4: Widen or Extend Alternate Routes is also recommended; however, this alternative is being addressed through other MCEA studies, including the future Liverpool Road Widening, Durham-Scarborough Bus Rapid Transit project, and Complete Streets Strategy as per the City's Integrated Transportation Master Plan. As noted previously, the City of Pickering Kingston Road Corridor and Specialty Retailing Node Intensification Plan recommends extending Dixie Road easterly to connect with the proposed Walnut Lane extension.

The key rationale for the preferred planning solution (Alternatives 2, 3, and 5) is as follows:

- The addition of turn lanes can improve overall travel time by reducing queuing
- Improves network capacity and road connectivity by providing alternate route for traffic travelling from Kingston Road to Liverpool Road (avoids Liverpool Road and Kingston Road intersection)
- Accommodates existing and future planned development – road extension will support planned development in the City Centre, as well as supports the vision of the Kingston Road Corridor Intensification Plan
- Addresses projected travel demands
- Provides a second point of ingress/egress to support future development including the Tribute Communities condominium development as described in **Section 4.2.2**
- Strengthens the east to west transportation grid network
- Helps avoid further deterioration of traffic conditions in the Study Area
- Opportunities for improved cycling, pedestrian and transit facilities
- Supports the Complete Streets Strategy as per the City's Integrated Transportation Master Plan

7. Phase 3: Alternative Design Concepts

7.1 Generation of Alternative Design Concepts

Phase 2 of the Municipal Class Environmental Assessment (MCEA) process, concluded that the recommended preferred solution for the Project was to extend Walnut Lane easterly from the current western terminus to Liverpool Road and where feasible, recommend operational improvements and Transportation Demand Management.

The purpose of Phase 3 was to identify the preferred design concept for the Walnut Lane Extension road alignment and Pine Creek crossing span width.

7.1.1 Road Alignments

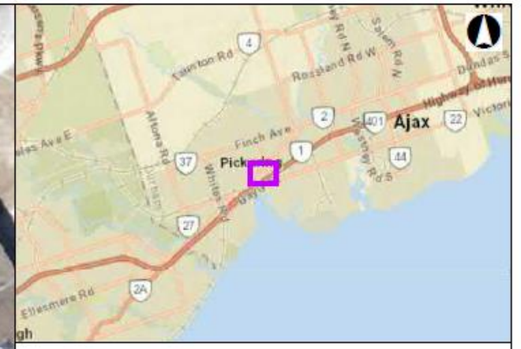
The road alignments evaluated are conceptually shown in **Figure 7-1** and included:

- Alternative 1 – Central Alignment
- Alternative 2 – North Alignment
- Alternative 3 – South Alignment

7.1.2 Pine Creek Crossing Span Widths

The evaluation of Pine Creek Crossing Span widths included:

- Option 1 – 25 metre clear span bridge
- Option 2 – 30 metre clear span bridge
- Option 3 – 36 metre clear span bridge



Legend

- Roads
- Freeway
- Watercourse

Road Extension Alternative Alignments

- Alternative 1 Central Alignment
- Alternative 2 North Alignment
- Alternative 3 South Alignment

0 10 20 40 60 80 100
Metres

Walnut Lane Extension Kingston Road to Liverpool Road Municipal Class Environmental

Road Extension Alternative Alignments

Jun 24, 2021	1:3,500 * when printed 11"x17"	Datum: NAD 1983 UTM Zone 17N Source: MNRF, Kingsett, Bing Key Map: ESRI Base Map: City of Pickering (2020)
P#: 60547978	V#: 00	
AECOM		Figure 7-1

7.2 Evaluation Framework and Criteria

Similar to Phase 2 (Alternative Solutions), criteria were identified to evaluate the alternative design concepts.

Table 7-1 and **Table 7-2** provide the list of criteria that were used to evaluate the alternative road alignments and Pine Creek crossing span widths to identify the combined preferred alternative design concept.

Table 7-1: Phase 3 Evaluation Criteria – Road Alignments

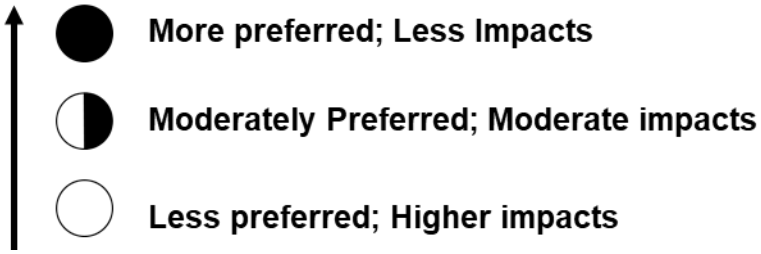
Category	Criteria
Technical	■ Construction complexity, including opportunities to co-ordinate with other projects ■ Potential impacts to all modes of transportation and traffic flow ■ Access/Egress, including potential development access locations ■ Impacts to sightlines ■ Impacts to utilities ■ Impacts to public safety
Natural Environment	■ Impacts to terrestrial species and habitat, including SAR ■ Impacts to aquatic species and habitat, including SAR ■ Impacts to wildlife habitat ■ Impacts to groundwater ■ Impacts on stormwater quality and quantity ■ Impacts to Meander Belt ■ Effects of the project on the climate/effects of climate on the project
Socio-Economic Environment	■ Effects on planned and future development potential ■ Construction impacts to residences and local business (disruption and nuisance) ■ Property requirements
Cultural Heritage Environment	■ Effects on archaeological resources ■ Effects on Built Heritage Resources and Cultural Heritage Landscapes
Cost	■ Capital costs ■ Operation / maintenance costs

Table 7-2: Phase 3 Evaluation Criteria – Pine Creek Crossing Span Widths

Category	Criteria
Technical Environment	■ Hydraulic Opening – Impacts to Water Levels ■ Ease of Construction – Complexity/Duration
Natural Environment	■ Impacts to Pine Creek Fluvial Geomorphology (Meander Belt) ■ Impacts/enhancements to aquatic vegetation and species ■ Impacts/enhancements to terrestrial vegetation and species ■ Impacts to Species at Risk ■ Disturbance of known area contaminants ■ Effects of the project on the climate/effects of climate on the project
Cultural Heritage Environment	■ Effects on archaeological resources ■ Effects on Built Heritage Resources and Cultural Heritage Landscapes
Cost	■ Capital costs ■ Operation / maintenance costs

The alternative design concepts identified in **Section 7.1** were evaluated against the established criteria (**Table 7-1** and **Table 7-2**) in order to determine the overall preferred recommended design concept. A pie chart rating system similar to Phase 2 (Alternative Solutions) was implemented as shown below.

Figure 7-2: Phase 3 Evaluation Rating System



The evaluation has been completed using professional judgement and was informed through the results of studies conducted during the planning process (e.g., Needs Assessment/Traffic Analysis, EIS, etc.) and information available at that time. Feedback obtained from the public, review agencies, stakeholders and Indigenous Communities was also considered. This evaluation forms the rational for the identification of the recommended preferred design concept.

7.3 Evaluation of Alternative Design Concepts

Table 7-3 and **Table 7-4** present the detailed evaluation of alignments for the proposed Walnut Lane Extension and crossing span widths for a clear span bridge over Pine Creek.

Table 7-3: Evaluation of Road Alignments

Category	Evaluation Criteria	Alternative 1: Central Alignment	Alternative 2: North Alignment	Alternative 3: South Alignment
Technical	▪ Construction complexity, including opportunities to co-ordinate with other projects	▪ All alignments are similar given the proximity of all alignments; however Alternative 1 is slightly more favoured as the Central Alignment is the most direct and shorter route. ▪ Straightforward construction (primarily greenfield construction). ▪ Opportunity to co-ordinate with Liverpool Road Widening (2022).	▪ All alignments are similar given the proximity of all alignments. ▪ Straightforward construction (primarily greenfield construction). ▪ Opportunity to co-ordinate with Liverpool Road Widening (2022).	▪ All alignments are similar given the proximity of all alignments. ▪ Straightforward construction (primarily greenfield construction). ▪ Opportunity to co-ordinate with Liverpool Road Widening (2022).
Technical	▪ Potential impacts to all modes of transportation and traffic flow	▪ Similar integration with other modes of transportation and traffic flow for all alternatives. ▪ Additional capacity added to road network All alignment alternatives are expected to perform similarly with respect to traffic flow. ▪ Improved cycling network connectivity. As per the Region of Durham's Transportation Master Plan and Regional Cycling Plan, Liverpool Road and Kingston Road have both been identified as key corridors to build cycling infrastructure.	▪ Similar integration with other modes of transportation and traffic flow for all alternatives. ▪ Additional capacity added to road network All alignment alternatives are expected to perform similarly with respect to traffic flow. ▪ Improved cycling network connectivity. As per the Region of Durham's Transportation Master Plan and Regional Cycling Plan, Liverpool Road and Kingston Road have both been identified as key corridors to build cycling infrastructure.	▪ Similar integration with other modes of transportation and traffic flow for all alternatives. ▪ Additional capacity added to road network All alignment alternatives are expected to perform similarly with respect to traffic flow. ▪ Improved cycling network connectivity. As per the Region of Durham's Transportation Master Plan and Regional Cycling Plan, Liverpool Road and Kingston Road have both been identified as key corridors to build cycling infrastructure.
Technical	▪ Access/Egress, including development access locations	▪ All alignments provide similar access to potential development south of the Walnut Lane Alignment. ▪ The current access to 1786 - 1790 Liverpool Rd across from the Liverpool Road off-ramp will be removed as it was not sanctioned by MTO. ▪ Provides access to parcel of land currently bound by Kingston Road (Highway 2), Highway 401, and Liverpool Road. ▪ Improves access – vehicles exiting Highway 401 at Liverpool Road will be able to travel through the ramp terminal intersection to directly access future and existing land uses of commercial and residential complexes directly adjacent to the Highway 401 Westbound Off-Ramp.	▪ All alignments provide similar access to potential development south of the Walnut Lane Alignment. ▪ The current access to 1786 - 1790 Liverpool Rd across from the Liverpool Road off-ramp will be removed as it was not sanctioned by MTO. ▪ Provides access to parcel of land currently bound by Kingston Road (Highway 2), Highway 401, and Liverpool Road. ▪ Improves access – vehicles exiting Highway 401 at Liverpool Road will be able to travel through the ramp terminal intersection to directly access future and existing land uses of commercial and residential complexes directly adjacent to the Highway 401 Westbound Off-Ramp.	▪ All alignments provide similar access to potential development south of the Walnut Lane Alignment. ▪ The current access to 1786 - 1790 Liverpool Rd across from the Liverpool Road off-ramp will be removed as it was not sanctioned by MTO. ▪ Provides access to parcel of land currently bound by Kingston Road (Highway 2), Highway 401, and Liverpool Road. ▪ Improves access – vehicles exiting Highway 401 at Liverpool Road will be able to travel through the ramp terminal intersection to directly access future and existing land uses of commercial and residential complexes directly adjacent to the Highway 401 Westbound Off-Ramp.
Technical	▪ Potential development access locations	▪ Provides access to two moderately sized development blocks. ▪ Facilitates largest block of developable land when considering environmental constraints and setbacks.	▪ Provides access to one large development block	▪ Provides access to two moderately sized development blocks
Technical	▪ Sightlines	▪ Sightlines are not anticipated to be impacted.	▪ Sightlines are not anticipated to be impacted	▪ Sightlines are not anticipated to be impacted
Technical	▪ Impacts to utilities	▪ Similar potential impacts to utilities compared to other alternatives. Potential utility conflicts and relocations to be confirmed during the detailed design phase.	▪ Similar potential impacts to utilities compared to other alternatives. Potential utility conflicts and relocations to be confirmed during the detailed design phase.	▪ Similar potential impacts to utilities compared to other alternatives. Potential utility conflicts and relocations to be confirmed during the detailed design phase.
Technical	**Technical Evaluation Summary**	◑	◑	◑
Natural Environment	▪ Impacts to terrestrial species and habitat, including Species at Risk (SAR)	▪ None present, except Monarch (SC) present in small numbers or moving through in migration.	▪ None present, except Monarch (SC) present in small numbers or moving through in migration.	▪ None present, except Monarch (SC) present in small numbers or moving through in migration.

Category	Evaluation Criteria	Alternative 1: Central Alignment	Alternative 2: North Alignment	Alternative 3: South Alignment
Natural Environment	■ Impacts to aquatic species and habitat, including Species at Risk (SAR)	■ General use fish habitat only located at watercourse crossing, no spawning or other critical life stage habitat. ■ No aquatic SAR or SAR habitat present. ■ Moderate in-stream cover (25%) and overhanging shore cover (1-30%) provided by undercut banks and vascular macrophytes; moderately diverse fish habitat.	■ General use fish habitat only located at watercourse crossing, no spawning or other critical life stage habitat. ■ No aquatic SAR or SAR habitat present. ■ High in-stream cover (35%) and over-hanging shore cover (30-60%) provided by undercut banks, woody debris, and vascular macrophytes; more diverse fish habitat.	■ General use fish habitat only located at watercourse crossing, no spawning or other critical life stage habitat. ■ No aquatic SAR or SAR habitat present. ■ Low in-stream cover (20%) and overhanging shore cover (1-30%) provided by undercut banks and vascular macrophytes; less diverse fish habitat. ■ Greater presence of invasive Phragmites australis (opportunity to remove).
Natural Environment	■ Impacts to Wetland	■ Removes 0.114 hectares of wetland (0.095 hectares MAM2 and 0.02 hectares MAMM1-12). ■ 60 metres linear crossing of wetland.	■ Removes 0.194 hectares of wetland (0.123 hectares MAM2 and 0.072 hectares MAMM1-12). ■ 100 metres linear crossing of wetland.	■ Removes 0.136 hectares of wetland (MAM2 only). ■ 70 metres linear crossing of wetland.
Natural Environment	■ Impacts to Terrestrial Vegetation	■ Removes 0.510 hectares of terrestrial vegetation (0.486 hectares CUM1, 0.022 hectares CUW1 and 0.001 hectares FOD8-1). ■ Total 0.625 hectares of vegetation removed. ■ Removes 0.010 hectares of mid-sized trees. ■ No impacts to regionally rare plants.	■ Removes 0.434 hectares of terrestrial vegetation (0.248 hectares CUM1, 0.050 hectares CUT1, 0.116 hectares CUW1 and 0.020 hectares FOD8-1). ■ Total 0.629 hectares of vegetation removed. ■ Removes 0.160 hectares of mid-sized trees. ■ No impacts to regionally rare plants.	■ Removes 0.516 hectares of terrestrial vegetation (0.312 hectares CUM1, and 0.204 hectares CUT1). ■ Total 0.652 hectares of vegetation removed. ■ Does not remove any mid-sized trees. ■ Impacts regionally rare Baltic Rush.
Natural Environment	■ Impacts to wildlife habitat	■ Loss of 0.625 hectares of habitat used by common wildlife. ■ Road will bisect area of habitat for common wildlife.	■ Loss of 0.629 hectares of habitat used by common wildlife. ■ Road will bisect area of habitat for common wildlife.	■ Loss of 0.652 hectares of habitat used by common wildlife. ■ Road will bisect area of habitat for common wildlife.
Natural Environment	■ Impacts to groundwater	■ Potential impacts from dewatering related to Pine Creek crossing. ■ Need for groundwater management to be confirmed at detailed design	■ Potential impacts from dewatering related to Pine Creek crossing. ■ Need for groundwater management to be confirmed at detailed design	■ Potential impacts from dewatering related to Pine Creek crossing. ■ Need for groundwater management to be confirmed at detailed design
Natural Environment	■ Impacts on stormwater quality and quantity	■ Increase in impervious surface area (less infiltration, more runoff).	■ Increase in impervious surface area (less infiltration, more runoff).	■ Increase in impervious surface area (less infiltration, more runoff).
Natural Environment	■ Impacts to Pine Creek Fluvial Geomorphology (Meander Belt)	■ Located within sub-reach PC-3a-3, classified by the Rapid Geomorphic Assessment as In Transition (stability index of 0.22) ■ Alignment is not perpendicular to the flow in Pine Creek, Perpendicular crossings are preferred to minimize the length of channel impacted by the crossing ■ Located within a relatively straight section of planform within the creek, where channel erosion is generally less active than at a meander bend. ■ To span the meander belt width in this reach the crossing would need to be a span of 36 metres.	■ Located within sub-reach PC-3a-2, classified by the Rapid Geomorphic Assessment as In Transition (stability index of 0.34) ■ Within this reach, the channel has recovered sinuosity and is undergoing more active adjustment than in Reach PC-3a-3. ■ Located on a meander bend, this increases the risk to the crossing and the stream due to active erosion ■ To span the meander belt width in this reach the crossing would need to be a span of 36 metres.	■ Located within sub-reach PC-3a-3, classified by the Rapid Geomorphic Assessment as In Transition (stability index of 0.22) ■ Alignment is not perpendicular to the flow in Pine Creek. Perpendicular crossings are preferred to minimize the length of channel impacted by the crossing. ■ Located within a relatively straight section of planform within the creek, where channel erosion is generally less active than at a meander bend. ■ To span the meander belt width in this reach the crossing would need to be a span of 36 metres.
Natural Environment	■ Effects of the project on the climate/effects of climate on the project	■ Potential to increase GHG emissions compared to current emissions. ■ Potential for stormwater capacity and drainage system issues as the amount of impervious surface areas will increase as a result of the road extension. ■ Potential for increased sediment transport in Pine Creek.	■ Potential to increase GHG emissions compared to current emissions. ■ Potential for stormwater capacity and drainage system issues as the amount of impervious surface areas will increase as a result of the road extension. ■ Potential for increased sediment transport in Pine Creek.	■ Potential to increase GHG emissions compared to current emissions. ■ Potential for stormwater capacity and drainage system issues as the amount of impervious surface areas will increase as a result of the road extension. ■ Potential for increased sediment transport in Pine Creek.
Natural Environment	**Natural Environment Evaluation Summary**	●	◑	○

Category	Evaluation Criteria	Alternative 1: Central Alignment	Alternative 2: North Alignment	Alternative 3: South Alignment
Socio-Economic Environment	■ Effects on planned and future development potential	■ Facilitates largest block of developable land when considering environmental constraints and setbacks.	■ Facilitates slightly smaller block of developable lands when considering environmental constraints and setbacks.	■ Facilitates slightly smaller block of developable lands when considering environmental constraints and setbacks.
Socio-Economic Environment	■ Construction impacts to residences and local business (disruption and nuisance)	■ Temporary disruption to travelling public and local businesses south of Kingston Road. ■ Temporary noise anticipated for local businesses during the construction phase. ■ Access will be maintained, where possible, for businesses south of Kingston Road in the area of the road alignment.	■ Temporary disruption to travelling public and local businesses south of Kingston Road. ■ Temporary noise anticipated for local businesses during the construction phase. ■ Access will be maintained, where possible, for businesses south of Kingston Road in the area of the road alignment.	■ Temporary disruption to travelling public and local businesses south of Kingston Road. ■ Temporary noise anticipated for local businesses during the construction phase. ■ Access will be maintained, where possible, for businesses south of Kingston Road in the area of the road alignment.
Socio-Economic Environment	■ Property requirements	■ Requires private property (one landowner).	■ Requires private property (two landowners).	■ Requires private property (one landowner).
Socio-Economic Environment	**Socio-Economic Environment Evaluation Summary**	●	◑	◑
Cultural Environment	■ Effects on archaeological resources	■ Retains potential for the presence of archaeological resources. ■ Stage 2 archaeological assessment (and further assessments, as required) will be undertaken for the portions of the recommended preferred alignment that retain archaeological potential.	■ Retains potential for the presence of archaeological resources. ■ Stage 2 archaeological assessment (and further assessments, as required) will be undertaken for the portions of the recommended preferred alignment that retain archaeological potential.	■ Retains potential for the presence of archaeological resources. ■ Stage 2 archaeological assessment (and further assessments, as required) will be undertaken for the portions of the recommended preferred alignment that retain archaeological potential.
Cultural Heritage Environment	■ Effects on Built Heritage Resources and Cultural Heritage Landscapes	■ No potential disturbance to Built Heritage Resources and Cultural Heritage Landscapes.	■ No potential disturbance to Built Heritage Resources and Cultural Heritage Landscapes.	■ No potential disturbance to Built Heritage Resources and Cultural Heritage Landscapes.
Cultural Heritage Environment	**Cultural Heritage Environment Evaluation Summary**	◑	◑	◑
Cost	■ Capital costs	■ High capital costs (greater than $2.7M when combined with crossing structure over Pine Creek). However, Alternative 1 is the most direct and shortest route compared to other alternatives, resulting in slightly lower costs.	■ High capital costs (greater than $2.7M when combined with crossing structure over Pine Creek).	■ High capital costs (greater than $2.7M when combined with crossing structure over Pine Creek).
Cost	■ Operation / maintenance costs	■ Moderate operation/maintenance costs.	■ Moderate operation/maintenance costs.	■ Moderate operation/maintenance costs.
Cost	**Cost Evaluation Summary**	●	◑	◑
Overall	**Overall Evaluation Results**	●	◑	◑
Recommended	**Recommended Design Concept? (Yes/No)**	**Yes**	**No**	**No**

Table 7-4: Evaluation of Pine Creek Crossing Span Widths

Category	Evaluation Criteria	Option 1: 25 metres Span Width	Option 2: 30 metres Span Width	Option 3: 36 metres Span Width
Technical Environment	■ Hydraulic Opening – Impacts to Water Levels	■ The water surface elevation increases upstream of the proposed structure and upstream of Kingston Road (Hwy 2) by 0.08 metres. ■ No increase in Regulatory Flood levels upstream of Kingston Road (Hwy 2) – minor increase between HWY 401 and Kingston Road.	■ The water surface elevation increases upstream of the proposed structure and upstream of Kingston Road (Hwy 2) by 0.05 metres. ■ No increase in Regulatory Flood levels upstream of Kingston Road (Hwy 2) – minor increase between HWY 401 and Kingston Road.	■ The water surface elevation increases upstream of the proposed structure and upstream of Kingston Road (Hwy 2) by 0.04 metres. ■ No increase in Regulatory Flood levels upstream of Kingston Road (Hwy 2) – minor increase between HWY 401 and Kingston Road. ■ At the time of this publication, the above results are based on a 35 metre span width. ■ As per TRCA Commitments, additional hydraulic analysis is required during detailed design to inform the bridge span and conceptual design of the crossing. There must be negligible impacts to the floodplain elevation when compared to the existing condition.
Technical Environment	■ Ease of Construction – Complexity/Duration	■ All options have similar constructability; however, Option 2 would not be accepted as per the TRCA Crossings Guidelines for Valley and Stream Corridors, thereby providing further delays to the project. ■ A precast bridge design alternative could be considered that will accelerate construction (2-3 months vs 6 months for more traditional alternatives). A precast option is only available for the 25 metre span bridge.	■ All options have similar constructability; however, Option 2 would not be accepted as per the TRCA Crossings Guidelines for Valley and Stream Corridors, thereby providing further delays to the project. ■ Longer duration compared to Option 1.	■ All options have similar constructability; however Option 3 is the least complex in obtaining approval to advance the construction from TRCA as the bridge span must, at minimum, meet the meander belt width (36 metres). ■ Longer duration compared to Option 1.
Technical Environment	**Technical Environment Evaluation Summary**	◑	◑	●
Natural Environment	■ Impacts to Pine Creek Fluvial Geomorphology (Meander Belt)	■ Less preferred compared Options 2 and 3. To span the meander belt width the crossing would need to be a span of 36 metres. The closer to this value, the more preferred the option. ■ 25 metre span is sufficient with proper mitigation. ■ Opportunity for enhancement.	■ More preferred than Option 1. To span the meander belt width the crossing would need to be a span of 36 metres. The closer to this value, the more preferred the option. ■ 30 metre span is sufficient with proper mitigation. ■ Opportunity for enhancement.	■ Most preferred compared to both Options 2 and 3. To span the meander belt width the crossing would need to be a span of 36 metres. This span is nearly equivalent to the meander belt width and is therefore the most preferred option ■ The TRCA Crossings Guidelines for Valley and Stream Corridors, requires all new crossings should ensure the bridge abutments are located outside of, the greater of, the meander belt width and 100-year erosion hazard rate. ■ Greatest opportunity for enhancement compared to Options 1 and 2.
Natural Environment	■ Impacts/enhancements to aquatic vegetation and species	■ General use fish habitat only located at watercourse crossing, no spawning or other critical life stage habitat. ■ Moderate in-stream cover (25%) and overhanging shore cover (1-30%) provided by undercut banks and vascular macrophytes; moderately diverse fish habitat. ■ The bankfull width within this section of watercourse ranged from 4.5 to 5.6 metres. The further the crossing from the high-water mark of the watercourse the less the impact to aquatic vegetation and species and the more preferred the alternative.	■ General use fish habitat only located at watercourse crossing, no spawning or other critical life stage habitat. ■ Moderate in-stream cover (25%) and overhanging shore cover (1-30%) provided by undercut banks and vascular macrophytes; moderately diverse fish habitat. ■ The bankfull width within this section of watercourse ranged from 4.5 to 5.6 metres. The further the crossing from the high-water mark of the watercourse the less the impact to aquatic vegetation and species and the more preferred the alternative.	■ Less impact to aquatic vegetation and species compared to Options 1 and 2. ■ General use fish habitat only located at watercourse crossing, no spawning or other critical life stage habitat. ■ Moderate in-stream cover (25%) and overhanging shore cover (1-30%) provided by undercut banks and vascular macrophytes; moderately diverse fish habitat. ■ The bankfull width within this section of watercourse ranged from 4.5 to 5.6 metres. The further the crossing from the high-water mark of the watercourse the less the impact to aquatic vegetation and species and the more preferred the alternative.

Category	Evaluation Criteria	Option 1: 25 metres Span Width	Option 2: 30 metres Span Width	Option 3: 36 metres Span Width
Natural Environment	■ Impacts/enhancements to terrestrial vegetation and species	■ Removal of terrestrial vegetation required as per road alignments evaluation. ■ No impacts to regionally rare plants. ■ Native shrub planting and invasive species control will retain or enhance the remaining habitats.	■ Removal of terrestrial vegetation required as per road alignments evaluation. ■ No impacts to regionally rare plants. ■ Native shrub planting and invasive species control will retain or enhance the remaining habitats.	■ Removal of terrestrial vegetation required as per road alignments evaluation. ■ No impacts to regionally rare plants. ■ Native shrub planting and invasive species control will retain or enhance the remaining habitats.
Natural Environment	■ Impacts to Species at Risk	■ No aquatic SAR or SAR habitat present. ■ No terrestrial SAR present, except Monarch (SC) present in small numbers or moving through in migration.	■ No aquatic SAR or SAR habitat present. ■ No terrestrial SAR present, except Monarch (SC) present in small numbers or moving through in migration.	■ No aquatic SAR or SAR habitat present. ■ No terrestrial SAR present, except Monarch (SC) present in small numbers or moving through in migration.
Natural Environment	■ Effects of the project on the climate/effects of climate on the project	■ Smaller span compared to Options 2 and 3 is less resilient to major storm events.	■ Smaller span compared to Option 3 is less resilient to major storm events.	■ Largest span is most resilient to major storm events.
Natural Environment	**Natural Environment Evaluation Summary**	◑	◑	●
Cultural Heritage Environment	■ Effects on archaeological resources	■ Retains potential for the presence of archaeological resources. ■ Stage 2 archaeological assessment will be required (and further assessments, as required) during detailed design.	■ Retains potential for the presence of archaeological resources. ■ Stage 2 archaeological assessment will be required and further assessments, as required) during detailed design.	■ Retains potential for the presence of archaeological resources. ■ Stage 2 archaeological assessment will be required and further assessments, as required) during detailed design.
Cultural Heritage Environment	■ Effects on Built Heritage Resources and Cultural Heritage Landscapes	■ No potential disturbance to Built Heritage Resources and Cultural Heritage Landscapes.	■ No potential disturbance to Built Heritage Resources and Cultural Heritage Landscapes.	■ No potential disturbance to Built Heritage Resources and Cultural Heritage Landscapes.
Cultural Heritage Environment	**Cultural Heritage Environment Evaluation Summary**	◑	◑	◑
Cost	**Capital Costs**	■ Lowest construction of $2.5M (shortest span) compared to other options. ■ Additional capital costs as the crossing does not span the meander belt width, requiring additional erosion protection to protect the crossing.	■ Moderate construction costs compared to Option 1. ■ Additional capital costs as the crossing does not span the meander belt width, requiring additional erosion protection to protect the crossing.	■ Highest construction cost of $3.8M compared to other options (Largest span). ■ No additional capital costs required for additional erosion protection to protect the crossing.
Cost	**Operation / Maintenance Costs**	■ Similar operation/maintenance costs.	■ Similar operation/maintenance costs.	■ Similar operation/maintenance costs.
Cost	**Cost Evaluation Summary**	●	◑	○
Overall	**Overall Evaluation Results**	◑	◑	●
Recommended	**Recommended Design Concept? (Yes/No)**	**No**	**No**	**Yes**

Note: Option 3 was initially evaluated as a 35 metre span. However, based on further agency consultation, Option 3 has since been updated to a 36 metres span width to be equivalent to the meander belt width. The evaluation has been revised since Public Information Centre #2 as a result of further review by the Study Team.

7.4 Summary of Evaluation and Alternative Design Concepts Selection of a Recommended (Preferred) Alternative Design Concept

7.4.1 Road Alignments

The preferred design concept is Alternative 1: Central Alignment based on the following rationale:

- Least impact on the natural heritage features (e.g., wetland removal and crossing length) present within the Study Area
- Facilitates the largest block of developable land when considering environmental constraints and setbacks
- Slightly lower construction cost related to most direct and shortest route

All alternatives have similar ranking for the other evaluation categories (i.e., Technical, Archaeology and Culture).

7.4.2 Pine Creek Crossing Span Widths

Based on the evaluation, the preferred span width was initially identified as Option 1: 25 metres span width, which was presented at Public Information Centre #2. However, based on further consultation and comments received from TRCA, **Option 3: 36 metre span width** has been identified as the preferred design concept based on the following rationale:

- Meets TRCA Crossings Guidelines for Valley and Stream Corridors (2015). The bridge span is required, at minimum, to meet the meander belt width for new crossings
- Best addresses the 100 metre meander belt
- Provides opportunity for stream corridor enhancements
- Least impact to aquatic vegetation and species

The three span widths evaluated have similar ranking for the evaluation category of Cultural Environment.

As per the TRCA commitments outlined in **Section 10.3.2,** the 36 metre span will be subject to more detailed hydraulic analysis, including routing analysis, fluvial geomorphology review and cut fill balance during the detailed design phase of the Project.

8. Project Description

This section of the ESR describes the conceptual design for the proposed Walnut Lane extension, including Pine Creek crossing span. The preferred design concept has been developed and enhanced based on consultation with review agencies, stakeholders and the public.

A simplified version of the preferred design concept is illustrated in **Figure 8-1**. Refer to **Appendix H** for the complete design templates.

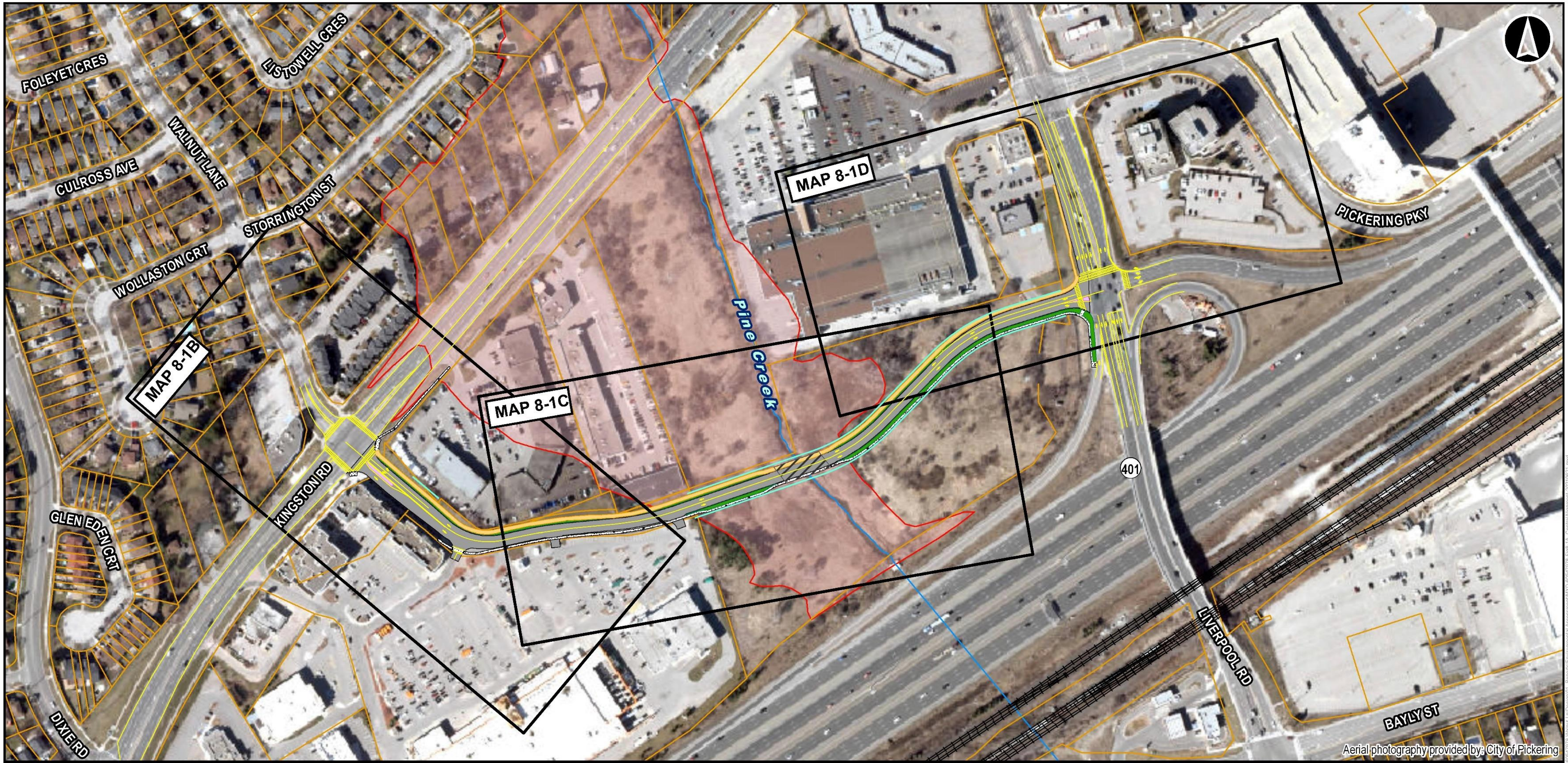
8.1 Design Criteria

The design criteria (**Table 8-1**) for the Walnut Lane extension were developed using the City of Pickering - Engineering Design Criteria (CP) and TAC – Geometric Design Guide for Canadian Roads (TAC).

Table 8-1: Design Criteria

Criteria	Reference [a]	Present Conditions	Design Standards	Proposed Standards
Roadway Classification	TAC - Ch. 2 Section 2.3.6.3	N/A	UCU60	UCU60
Roadway Design Speed (kilometres per hour)	TAC – Ch. 2 Section 2.3.6.3	N/A	60	60
Posted Speed (kilometres per hour)	Field Inspection (July 2017)	N/A	50	50
Minimum Radius of Curvature (metres)	TAC – Ch. 3 Table 3.2.4	N/A	120	55[b]
Minimum Stopping Sight Distance (metres)	TAC – Ch. 2 Table 2.5.2	N/A	85	85
Equivalent Minimum 'K' Factor **Crest** **Sag (Headlight)** **Sag (Comfort)**	TAC – Ch. 3 Table 3.3.2 and Table 3.3.4	N/A	 11 18 8-9	 60 35
Minimum Grade (%)	CP Engineering Design Criteria	N/A	0.5	0.5
Maximum Grade (%)	CP Engineering Design Criteria	N/A	6.0	1.58
Minimum Lane Width (metres)	CP Drawing P-701	N/A	4.875	4.875
Pavement Cross-fall (%)	CP Engineering Design Criteria	N/A	2	2
ROW Width (metres)	CP Drawing P-701	N/A	20	20

Notes:
a) Geometric Design is based on City of Pickering - Engineering Design Criteria (CP) and TAC – Geometric Design Guide for Canadian Roads (TAC).
b) The design meets minimum radii standards for a design speed of 60 kilometres per hour, with the exception of the first horizontal curve south of Kingston Road (55 metres) due to property constraints.



Legend

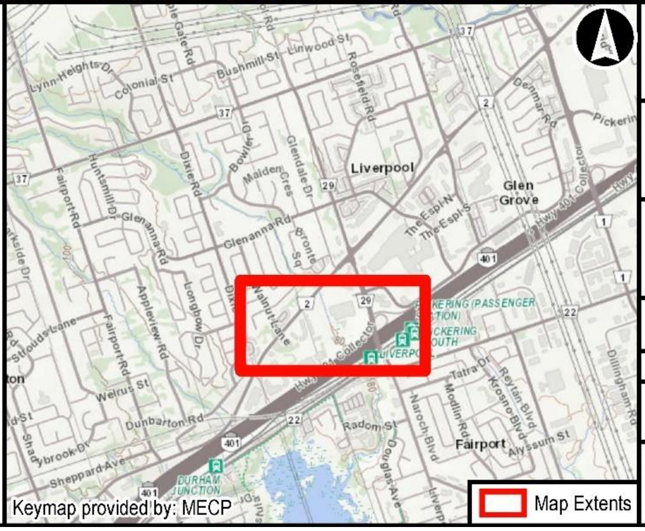
- Railway
- Parcel Fabric
- Waterbody
- Watercourse
- Regulatory Flood Line (Approximated)

Proposed Layout

- Proposed Road
- Proposed Bridge
- Proposed Multi-use Path
- Proposed Sidewalk
- Proposed Grass Area
- Proposed Island

- Pavement Marking
- ROW

***Note: Refer to ESR Appendices for the complete Design Templates.**



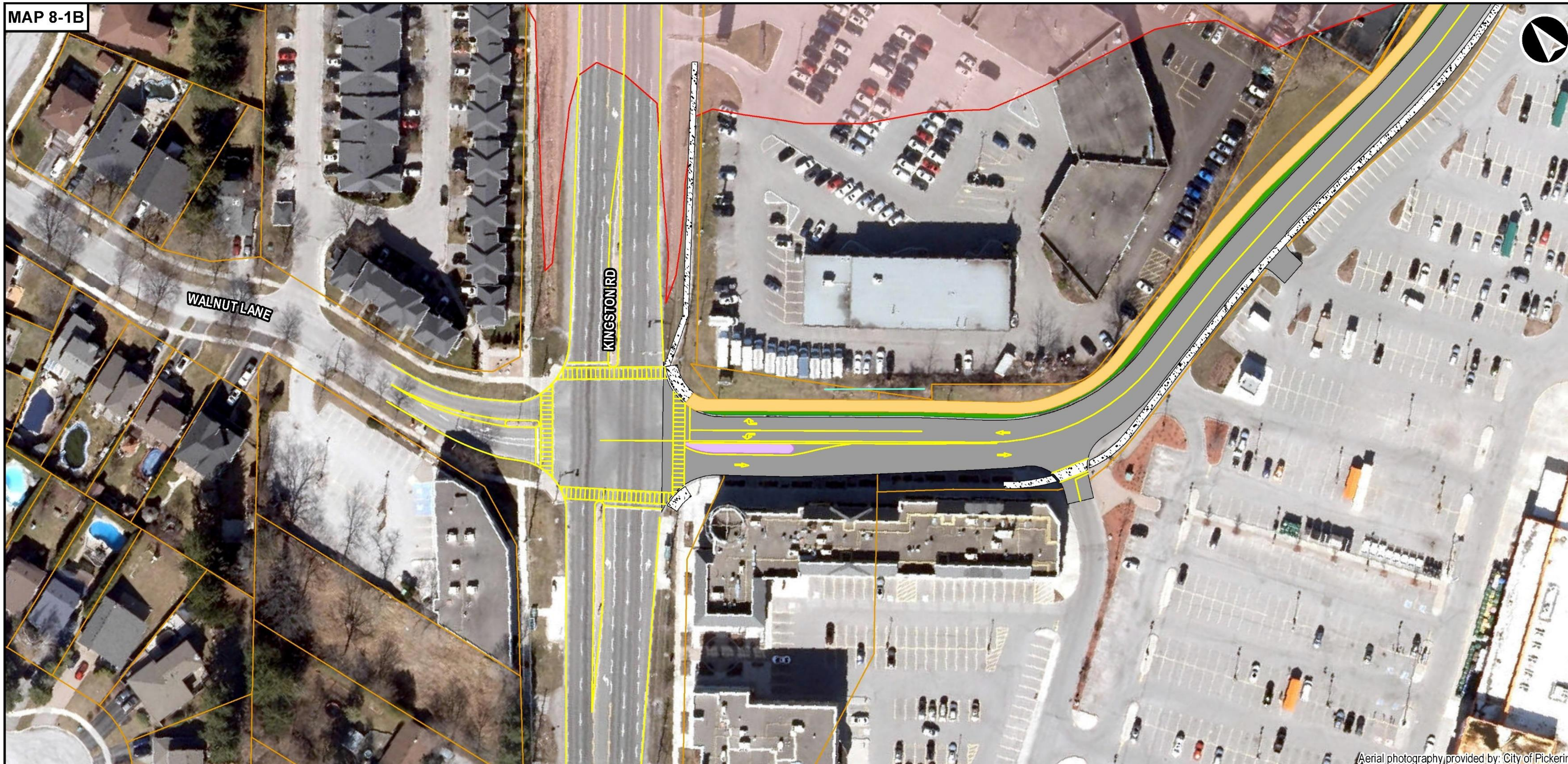
Walnut Lane Extension Kingston Road to Liverpool Road
Municipal Class Environmental Assessment

Preferred Design Concept:
Alternative 1 – Central Alignment

0 10 20 40 60 80 100 120 140
Metres
DATUM: NAD 1983 UTM Zone 17N

May, 2022	1:3,000	Data Sources: MNRF, City of Brampton, ESRI, TRCA
P#:60547978	Rev:00	
AECOM		Figure 8-1A

MAP 8-1B



Legend

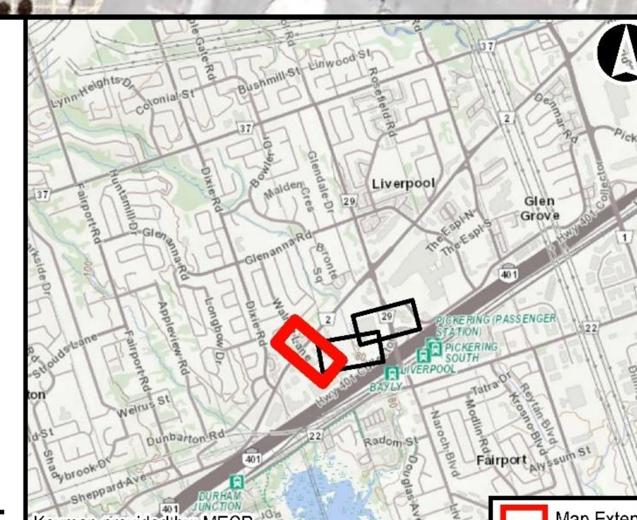
- Railway
- Parcel Fabric
- Waterbody
- Watercourse
- Regulatory Flood Line (Approximated)

Proposed Layout

- Proposed Road
- Proposed Bridge
- Proposed Multi-use Path
- Proposed Sidewalk
- Proposed Grass Area
- Proposed Island

- Pavement Marking
- ROW

***Note: Refer to ESR Appendices for the complete Design Templates.**



Walnut Lane Extension Kingston Road to Liverpool Road Municipal Class Environmental Assessment

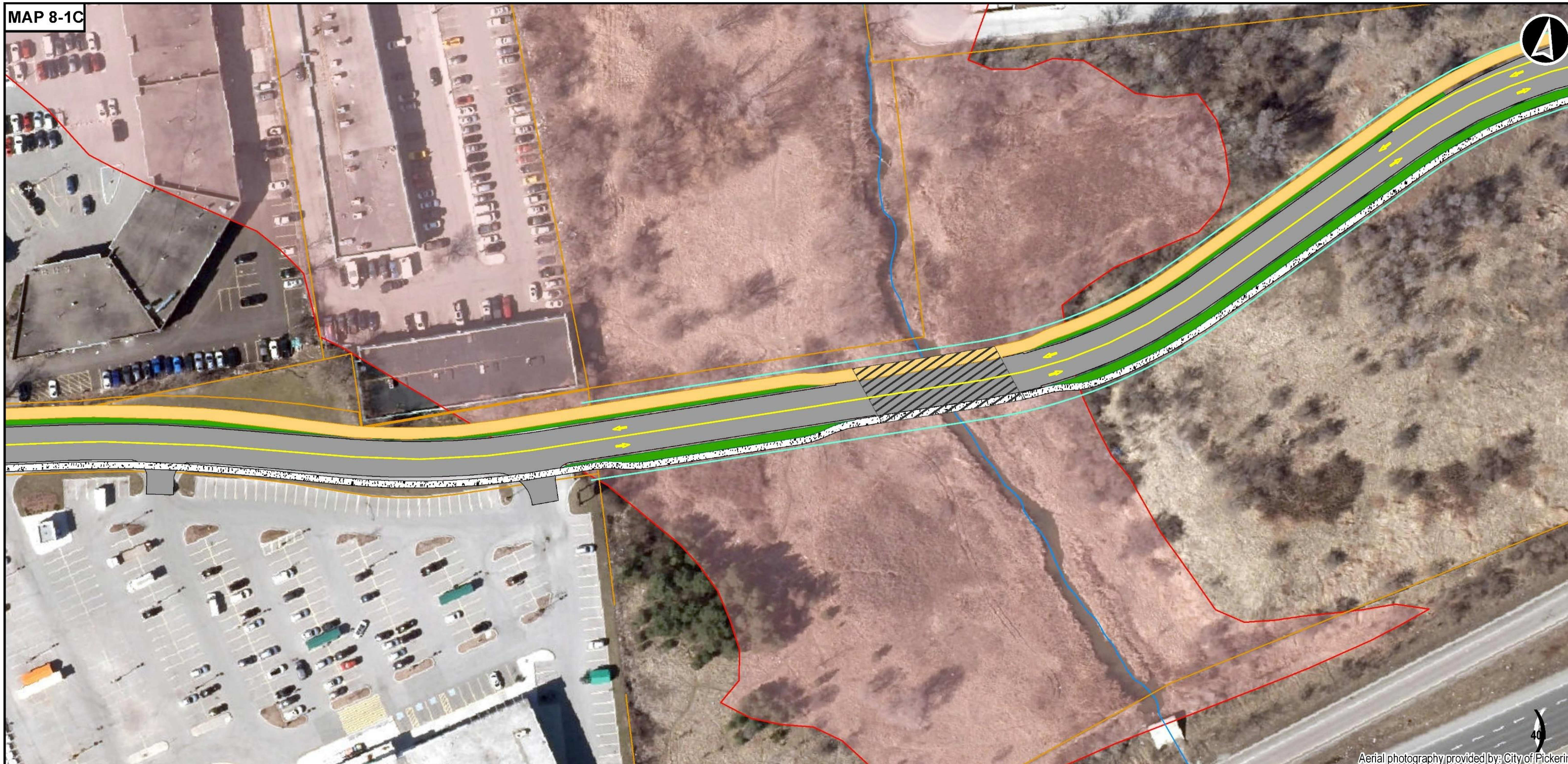
Preferred Design Concept: Alternative 1 – Central Alignment

0 10 20 40 60
Metres
DATUM: NAD 1983 UTM Zone 17N

May, 2022	1:1,000	**Data Sources:** MNRF, City of Brampton, ESRI, TRCA
P#:60547978	Rev:00	
AECOM		**Figure 8-1B**

Map location: L:\Calgary-CACGY3\Legacy\CACGY5FS002\Library\Environ... Date Saved: 5/27/2022 10:32:33 AM User Name: paige.crossman

MAP 8-1C



Legend

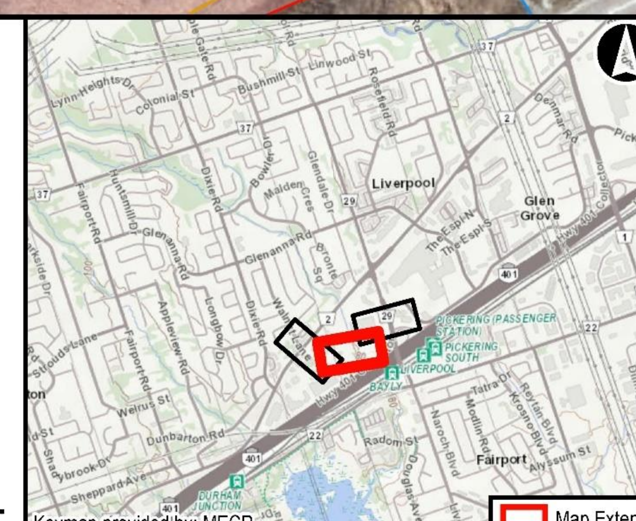
- Railway
- Parcel Fabric
- Waterbody
- Watercourse
- Regulatory Flood Line (Approximated)

Proposed Layout

- Proposed Road
- Proposed Bridge
- Proposed Multi-use Path
- Proposed Sidewalk
- Proposed Grass Area
- Proposed Island

- Pavement Marking
- ROW

***Note: Refer to ESR Appendices for the complete Design Templates.**



Walnut Lane Extension Kingston Road to Liverpool Road Municipal Class Environmental Assessment

Preferred Design Concept: Alternative 1 – Central Alignment

0 10 20 40 60 Metres

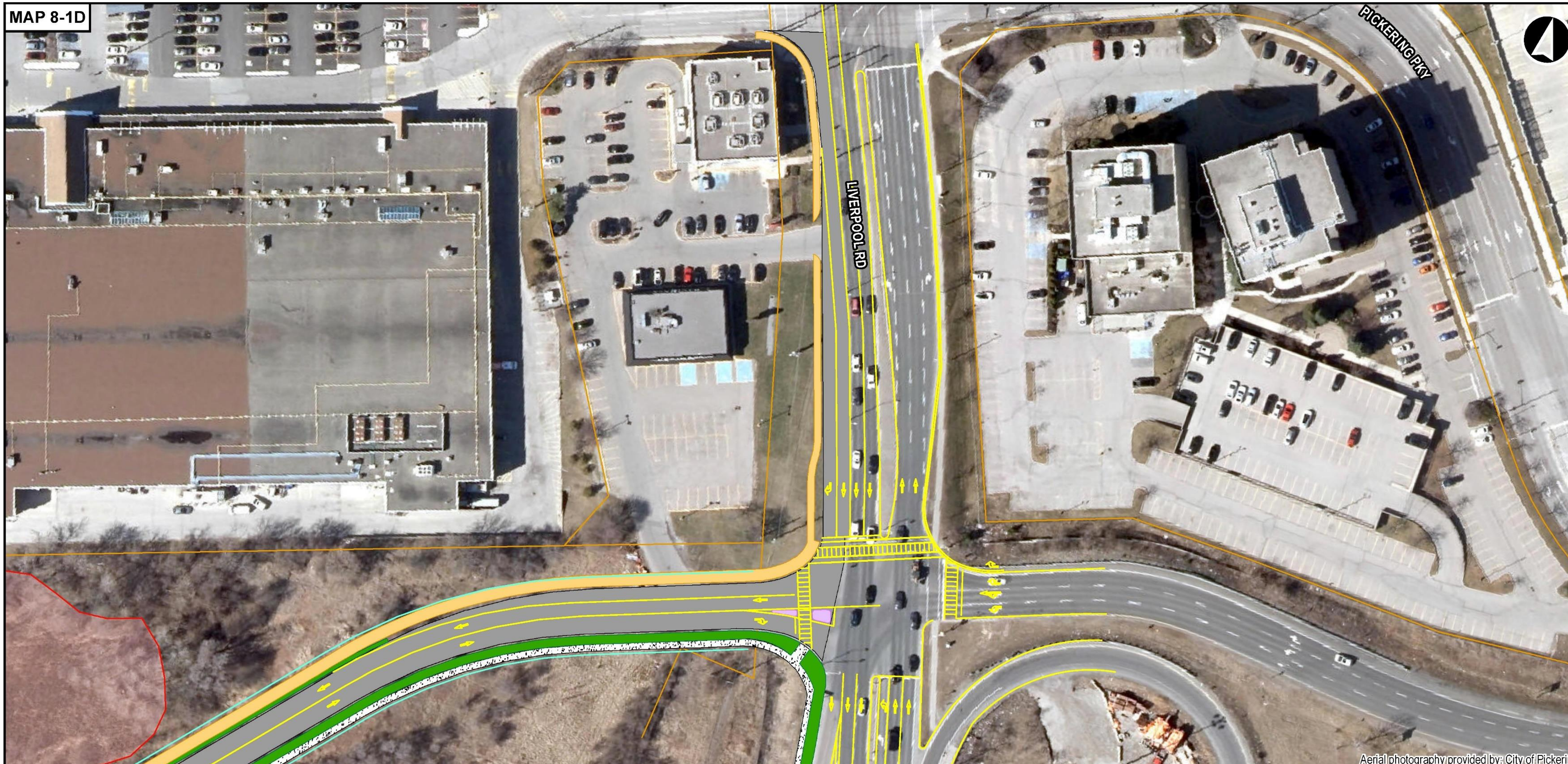
DATUM: NAD 1983 UTM Zone 17N

May, 2022	1:1,000	**Data Sources:** MNRF, City of Brampton, ESRI, TRCA
P#:60547978	Rev:00	

AECOM

Figure 8-1C

MAP 8-1D



Legend

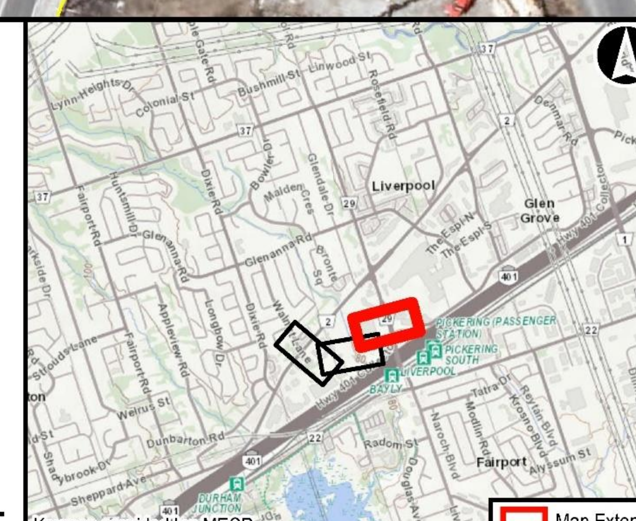
- Railway
- Parcel Fabric
- Waterbody
- Watercourse
- Regulatory Flood Line (Approximated)

Proposed Layout

- Proposed Road
- Proposed Bridge
- Proposed Multi-use Path
- Proposed Sidewalk
- Proposed Grass Area
- Proposed Island

- Pavement Marking
- ROW

***Note: Refer to ESR Appendices for the complete Design Templates.**



Walnut Lane Extension Kingston Road to Liverpool Road Municipal Class Environmental Assessment

Preferred Design Concept: Alternative 1 – Central Alignment

0 10 20 40 60 Metres

DATUM: NAD 1983 UTM Zone 17N

May, 2022	1:1,000	**Data Sources:** MNRF, City of Brampton, ESRI, TRCA
P#:60547978	Rev:00	
AECOM		**Figure 4-1D**

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8.2 Road Geometry

8.2.1 Horizontal Alignment

The proposed horizontal alignment will follow the geometry of the existing section of Walnut Lane in a southerly direction and move easterly on a curvilinear alignment to fit within the constraints of the existing development and to avoid additional property takings. Moving easterly, the new Walnut Lane roadway will cross Pine Creek and tie back to Liverpool Road opposite the Highway 401 E-N/S ramp. The design meets minimum radii standards for a design speed of 70 kilometres per hour, with the exception of the first horizontal curve south of Kingston Road (55 metres) due to property constraints.

8.2.2 Vertical Alignment

The vertical alignment of Walnut Lane exceeds the crest and sag curve minimum requirements for a 70 kilometres per hour design speed, with a crest curve K-60 (min K-17) and a sag curve of K-35 (min K-23). The maximum grade on Walnut Lane is 1.58% (max 6%) and the minimum grade is 0.5% (min. 0.5%).

8.3 Recommended Cross-sections

8.3.1 Road Platform

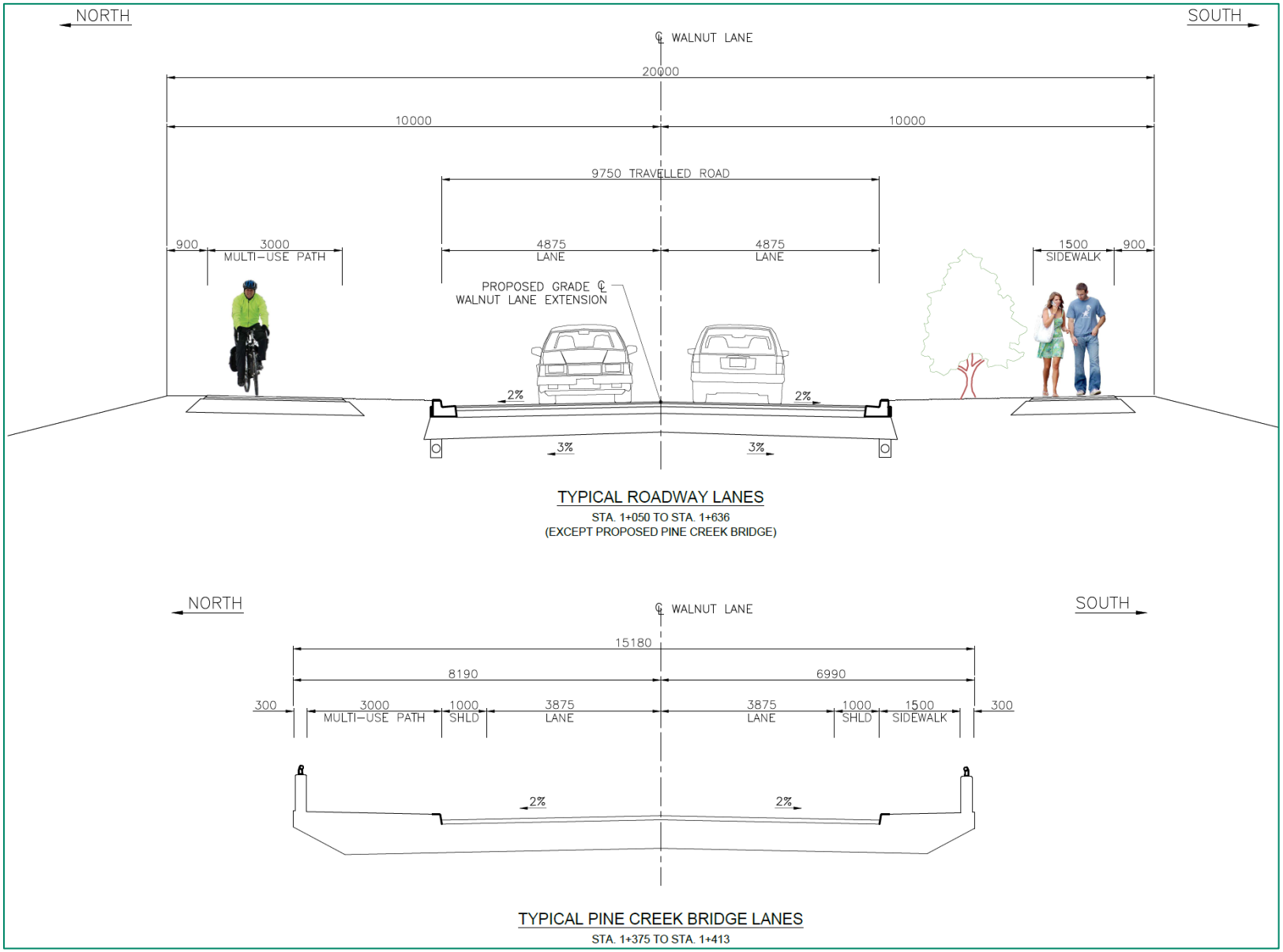
The proposed roadway consists of a two-lane urban cross-section (curb and gutter) with 4.875 metre lanes. A 3.0 metre asphalt-paved multi-use path (MUP) will be provided on the north side of Walnut Lane, and a 1.5 metre concrete sidewalk will be provided on the south side. The sidewalk will be 1.5 metres in locations where there is a grass boulevard, and 1.8 metres when it is beside the curb. The posted speed limit will be 40 kilometres per hour.

The cross-section of existing Walnut Lane through the developed area has been defined by the existing property and varies in width. In this area, the 3.0 metres MUP and 1.5 sidewalk will be maintained, while the boulevard will be shortened with some curb face locations (sidewalk immediately behind curb).

The full 20 metre right of way will be provided where the new roadway is constructed in greenfield, following the City of Pickering typical cross-section drawing P-701.

The typical road cross-section is shown in **Figure 8-2**.

Figure 8-2: Typical Cross-section



8.3.2 Bridge Structure

A new bridge structure is proposed over Pine Creek. As identified in **Section 7.4.2,** the proposed bridge is a 36 metre single span precast prestressed concrete girder bridge with integral abutments on H-Piles. The bridge will have a clear opening of 36 metres. The girders are NU1800, with a 225 mm deck slab and 90 mm asphalt and waterproofing system. The bridge crosses Pine Creek at a 20 degree skew, and carries two 3.875 metres lanes of traffic, has two 1.0 metre shoulders, a 3.0 metre multi-use path on the north side, and a 1.5 metre wide sidewalk on the south side. The barrier is a TL-4 Four Tube Steel Barrier.

The typical cross-section for the bridge structure over Pine Creek is shown in **Figure 8-2**.

8.4 Intersections

8.4.1 Walnut Lane and Liverpool Road

The proposed intersection at Liverpool Road/Walnut Lane/Highway 401 off ramp will function similar to existing conditions, with the exception of the eastbound left-turn movement that would be prohibited. The Walnut Lane eastbound movement will be right out only with no right turn on red. The existing lane configuration and all moves on the E-N/S Ramp will be maintained. All moves will be maintained for northbound and southbound Liverpool Road, and the Highway 401 E-N/S ramp, plus the addition of a southbound through lane and a dedicated southbound right turn lane. These additional southbound lanes are part of Durham Region’s planned Liverpool Road widening.

8.4.2 Walnut Lane and Kingston Road

The existing intersection will largely remain the same, with the exception of the northbound through movement that would be prohibited. Median and channelization islands will be used to physically restrict the prohibited northbound through movement, with the configuration to be determined in detail design. The Region of Durham has plans to widen Kingston Road to include median transit. The design for the intersection will accommodate the future widening, plus the addition of a southbound right-through lane.

8.4.3 Walnut Lane and Pickering Parkway (Future)

There is potential for a future connection from Pickering Parkway to Walnut Lane. This intersection would be part of the redevelopment of the Loblaws site and would be located on north side of Walnut Lane, east of Pine Creek. The exact location will be determined at a later date.

8.5 Road Safety

Guide rail will be provided on the approaches to the Pine Creek Bridge. The barrier wall height on the bridge will protect for all users, including cyclists. All pedestrian crossings will be as per OTM Book 18.

New signage and pavement markings will be provided on the eastbound approach to Liverpool Road. Additional signage will be provided on both the southbound and eastbound approaches to the intersection of Liverpool Road and Walnut Lane to provide necessary guidance / information to road users on which lane they should be in for accessing Highway 401 versus the Liverpool Road southbound travel lanes.

The Walnut Lane eastbound right turn onto Liverpool Road south will be signed as 'no right turn on red' to avoid conflicts with other vehicular manoeuvres.

8.6 Preliminary Traffic Calming Plan

The findings of the Traffic Calming Study (**Appendix A**) established the need for traffic calming measures within the Study Area. Based on the findings of the two-stage evaluation process, and subject to a future design exercise and right-of-way considerations, a preliminary traffic calming plan is being proposed for the City's consideration. The proposed traffic calming measures under consideration by the City at the time of this ESR publication are shown in **Figure 8-3**.

- Alternate on-street curb-side parking areas between opposite sides along mid-block sections of Walnut Lane to simulate a chicane effect with parked vehicles.
- Install a "NO STRAIGHT THROUGH" signs (Rb-10) at the intersection of Kingston Road and Walnut Lane. The "NO STRAIGHT THROUGH" signs are to face northbound motorists and intended to prohibit northbound through movement at the intersection of Kingston Road and Walnut Lane at all times. The sign is recommended to be installed nearside of the intersection and visible to motorists travelling northbound on approach to the intersection.
- Install a "NO LEFT TURN" sign with a tab sign specifying time of between 7:00 a.m. and 9:00 a.m. on weekdays (Rb-12A) facing southbound motorists at the intersection of Dixie Road and Culross Avenue. The "NO LEFT TURN" sign is intended to prohibit southbound left-turning movement from Dixie Road onto Culross Avenue during the weekday morning peak period. Install "NO RIGHT TURN" signs with a tab sign specifying time of between 7:00 a.m. and 9:00 a.m. on weekdays (Rb-11A) facing eastbound motorists at the intersection of Glenanna Road and Walnut Lane, the intersection of Glenanna Road and Storrington Street, and the intersection of Glenanna Road and Listowell Crescent. The "NO RIGHT TURN" signs are intended to prohibit eastbound right-turning movements from Glenanna Road onto Walnut Lane, Storrington Street, and Listowell Crescent during the weekday AM peak period.

Figure 8-3: Preliminary Proposed Traffic Calming Measures

- Install “NO RIGHT TURN” signs with a tab sign specifying time of between 7:00 a.m. and 9:00 a.m. on weekdays (Rb-11A) facing eastbound motorists at the intersection of Glenanna Road and Walnut Lane, the intersection of Glenanna Road and Storrington Street, and the intersection of Glenanna Road and Listowell Crescent. The “NO RIGHT TURN” signs are intended to prohibit eastbound right-turning movements from Glenanna Road onto Walnut Lane, Storrington Street, and Listowell Crescent during the weekday morning peak period.

Given that all the properties adjoining and in the vicinity of the studied section of Walnut Lane are residential dwellings, the majority, if not all trips generated in the weekday AM peak period by the residents of Walnut Lane and nearby parallel / intersecting local streets are home-based and destined to their places of work or study. Hence, the proposed turn restrictions during the weekday AM peak period are anticipated to only deter inbound shortcutting traffic that would otherwise (i.e., in the absence of those turn restrictions) travel through the studied section of Walnut Lane. In other words, the proposed measures are anticipated to have only marginal negative impact on accessibility of locals to the studied section of Walnut Lane and the nearby parallel / intersecting local streets because during the weekday AM peak period, the area residents are generally exiting, not entering, the studied section of Walnut Lane and the nearby parallel / intersecting local streets. The proposed measures are also anticipated not to have any negative impacts on non-local traffic access to the school, park, and the tennis club on the north end and the commercial developments on the south end of Walnut Lane.

The proposed all-day restriction of northbound through movement at the intersection of Kingston Road and Walnut Lane is expected to not only deter northbound shortcutting traffic through the studied section of Walnut Lane but also to have some negative impacts on accessibility of locals to the studied section of Walnut Lane and the nearby parallel / intersecting local streets. However, the anticipated benefits of the noted all-day restriction in terms of road safety, air quality, noise, among others would be notably greater than the expected negative impacts on accessibility of locals.

For the City’s consideration, it is also recommended that a survey is prepared to present and request feedback from the neighbourhood on the traffic calming study findings and the preliminary proposed traffic calming plan. The neighbourhood survey is recommended to be distributed to the following groups only:

- The residents and business owners on the section of Walnut Lane between Kingston Road and Glenanna Road as well as the nearby parallel and intersecting local streets, namely, Listowell Crescent, Storrington Street, Culross Avenue, Wollaston Court, and Foleyet Crescent

- Vaughn Willard Public School
- The Glendale Tennis Club president

8.7 Cycling and Pedestrian Facilities

A 3.0 metre multi-use path and 1.5 metre sidewalk will be provided on Walnut Lane to facilitate pedestrian and cyclist travel. The barrier wall height on the Pine Creek Bridge will protect for all users, including cyclists. All pedestrian crossings will be as per OTM Book 18.

8.8 Transit Operations

There is existing Durham Region Transit and GO Transit on Kingston Road and Liverpool Road. There are currently no plans for transit services to operate along the Walnut Lane extension. Future median BRT (Durham Region) lanes and station platforms will be implemented on the studied section of Kingston Road, including through the intersection of Kingston Road and Walnut Lane.

8.9 Drainage and Stormwater Management

Catch basins, manholes and storm sewers will be constructed to facilitate drainage of Walnut Lane, as per the typical section. Walnut Lane and the future Tribute development will share a storm outfall. Co-ordination with Tribute Communities is ongoing.

8.10 Illumination and Traffic Signals

Full illumination will be provided on Walnut Lane extension. The new lighting system will blend seamlessly into the existing decorative coachlight lighting system. All street lighting equipment used will be in accordance with the City's requirements and standards.

Permanent traffic signal modifications will be required at the Walnut Lane/Liverpool Road/Ramp E-N/S intersection. The permanent signal PHM-125 drawing will be revised to capture the changes to the intersection and will be submitted it to MTO for review and approval.

8.11 Accesses

The road design will control the number of accesses from Walnut Lane. The existing parking lot entrances to commercial and businesses from the Walnut Lane will be reduced to three access points; one to access the parking lot west of Walnut Lane, one to access the Home Depot parking lot, and one for truck access including a fire route (east side of Food Basics).

The unofficial entrance at Liverpool Road opposite the ramp terminal will be removed. Consultation with the property owner (1786 - 1790 Liverpool Road) is ongoing. A solution to provide a new access is under review.

Future entrance locations to the proposed developments east of Pine Creek will be identified and confirmed as part of the site developments plans.

A right in/out access will be considered, at a minimum distance of 135 metres from the Liverpool Road and Walnut Lane intersection with the approval of MTO and the Region of Durham.

8.12 Municipal Services and Utilities

A 300 mm water main runs along the south side of Kingston Road and along the east side of Liverpool Road to Pickering Parkway. A 300 mm watermain will be placed under the south boulevard of Walnut Lane, as per the typical section.

A 200 mm sanitary sewer runs along the south side of Kingston Road. A 600 mm sanitary sewer runs along the west side of Pine Creek to the 1050 mm sanitary sewer that runs along the north side of Highway 401. Future private developments will connect to existing sanitary sewers. New sanitary sewers are not included in the construction of Walnut Lane.

Hydro, gas and telecommunications will be located in the south boulevard of Walnut Lane, as per the typical section.

8.13 Geotechnical Features and Pavement Structures

Based on the City standard for a two-lane road, the preliminary pavement structure is as follows:

- 30 mm HL3 Asphalt
- 50 mm HL8 Asphalt
- 150 mm Granular A
- 300 mm Granular B

A detailed geotechnical investigation will be completed to confirm the pavement requirements and bridge foundation requirements during detailed design.

8.14 Loblaws Retaining Wall

The existing retaining wall between Pine Creek and Loblaws is in poor condition and should be repaired/reconstructed by the owner of the Loblaws site. This could be co-ordinated with the construction of the Pine Creek crossing structure.

8.15 Property Requirements

The new Walnut Lane roadway corridor (20 metres) has been identified along the existing development and will be acquired by the City. No additional property is required to facilitate this project. The City may wish to acquire property at the pinch point near station 1+240, but this would be part of a redevelopment of that specific site.

Pine Creek Corridor Public Ownership Transfer:

- As development applications proceed, valley lands (from east top of bank to west top of bank) are to be transferred from the proponent to public ownership.

8.16 Preliminary Construction Cost Estimate

The preliminary construction cost is estimated to be approximately $7.9M. This includes the cost associated with the new bridge crossing ($3.8M) and the road ($4.1M). Refer to **Appendix I** for the breakdown of the preliminary construction cost estimate.

8.17 Implementation Schedule

This project could proceed to Detail Design and construction in 2022-2023, subject to council and budgetary approvals. Construction could start in 2023 and is anticipated to take approximately one year to complete.

8.18 Preliminary Land Use and Phasing Plan

The parcels of land currently bounded by Kingston Road, Highway 401, and Liverpool Road will be developed first. This includes the Tribute Communities condominium development on the west side of Liverpool Road and north side of Highway 401 that will front the future Walnut Lane roadway. The Tribute Communities development is currently going through the site plan process.

The Loblaws property redevelopment would occur in the long term.

9. Potential Environmental Effects, Mitigation Measures and Monitoring

The implementation of the proposed Walnut Lane extension has the potential to create varied environmental effects. Maximizing positive effects while minimizing negative effects has been a key consideration throughout this MCEA study and has been influenced by discussions with stakeholders, review agencies, Indigenous Communities and the surrounding community.

Effects can be generally divided into two main categories: construction-related effects and effects related to the operation and maintenance of the project. Negative effects caused by the project are avoided to the extent possible; however, in cases where negative effects cannot be fully avoided, mitigation measures will be required during construction, operation and maintenance of the project.

The purpose of this section is to document effects on the following key features, along with proposed mitigation measures to reduce impacts to:

- Transportation and Traffic
- Technical and Engineering
- Natural Environment
- Socio-Economic Environment
- Cultural Environment

The existing conditions (**Section 4**) were used as baseline conditions against which changes due to the Project (effects) were assessed. These measures will be further refined during the detailed design phase.

9.1 Transportation and Traffic

9.1.1 Street Network

9.1.1.1 Potential Construction Effects

The construction of the Walnut Lane extension is anticipated to increase the volume of heavy construction vehicles within the Study Area, considering the extent of excavation and grading activities required, which would involve earth-moving activities and stockpiling. The increase in the volume of heavy vehicles on the road network is anticipated to result in increased average vehicular delays and queue lengths, especially at intersections where construction vehicles are required to make left-turning movements.

Construction vehicles are expected to be accommodated at off-road launch sites, and therefore, it is not anticipated that these vehicles would occupy curb lanes of nearby roads within the Study Area.

The extension of Walnut Lane is not anticipated to result in temporary lane reductions and / or full closures of any nearby roads.

9.1.1.2 Potential Operation Effects

The extension of Walnut Lane from the section presently constructed south of Kingston Road eastward to Liverpool Road is anticipated to have a positive impact on the operation of the local road network. Most of the future traffic operational issues within the Study Area are addressed through the Walnut Lane extension. Furthermore, network connectivity will be enhanced with the extension as it would provide access to adjacent mixed-use lands and contribute to materializing the Intensification Plan for the City Centre. In addition, the Walnut Lane extension would allow for development of the parcel of land bounded by Liverpool road to the east, Highway 401 to the south, Kingston Road to the north, and Pine Creek to the west; i.e., it would provide more than one option to access / egress the future development in the southwest quadrant of the intersection of Kingston Road and Liverpool Road.

9.1.1.3 Mitigation Measures and Monitoring

Standard best management practices will be applied to minimize disruptions related to construction activities. A construction staging plan will be developed during the detailed design phase and will follow the requirements from Ontario Traffic Manual Book 7 for potential temporary signal timing plans, if required. A traffic analysis of the staging plan may also be considered during detailed design to determine the impacts of construction activities on traffic. If required, adjustments will be made to minimize any identified effects to road users such as scheduling construction works during off-peak periods and overnight hours. Prior to the start of construction activities, haul routes to and from the construction zones would be identified through co-ordination with the City of Pickering and the Region of Durham. Impacts to traffic on the designated haul routes would be minimized by scheduling haul route operations during off-peak hours, where feasible.

9.1.2 Transit Network

9.1.2.1 Potential Construction Effects

The construction of the Walnut Lane extension is not anticipated to have direct impacts on the existing transit routes within the Study Area.

9.1.2.2 Potential Operation and Maintenance Effects

The extension of Walnut Lane would enhance the network connectivity, providing access to adjacent mixed-use lands and contributing to materializing the Intensification Plan for the City Centre. This would present opportunities for DRT and GO Transit to improve their transit coverage in the Study Area.

9.1.2.3 Mitigation Measures and Monitoring

Prior to the start of construction activities, haul routes to and from the construction zones would be identified through co-ordination with the City of Pickering and the Region of Durham. Impacts to transit services on the designated haul routes would be minimized by scheduling haul route operations during off-peak hours, where feasible. Local transit operators and users would be alerted of potential travel delays to the bus services in advance.

9.1.3 Active Transportation

9.1.3.1 Potential Construction Effects

The construction of the Walnut Lane extension is not anticipated to have any impacts on existing active transportation facilities.

9.1.3.2 Potential Operation and Maintenance Effects

The provision of the proposed active transportation facilities along Walnut Lane (i.e., a MUP and a sidewalk) would connect pedestrians and cyclists along Liverpool Road and Kingston Road to existing and planned attractions and amenities along Walnut Lane. In addition, the proposed active transportation facilities would complement the planned regional active transportation facilities within the Study Area (i.e., a planned MUP along the studied section of Liverpool Road) and help create a continuous cycling and pedestrian network within the City Centre. It should be noted that the provision of the proposed active transportation facilities would result in additional maintenance commitments in the future.

9.1.3.3 Mitigation Measures and Monitoring

The construction of the Walnut Lane extension is not anticipated to impact any of the existing active transportation facilities. Hence, no mitigation measures are recommended at this point. Safety measures and signage will be used where necessary to identify the presence of construction crews and/or activities, and to separate the work area from pedestrians and cyclists.

9.2 Technical and Engineering

9.2.1 Servicing and Utilities

9.2.1.1 Construction Effects

The proposed road network improvements which include new road construction, pavement widening/reconstruction, boulevard construction, and profile and alignment adjustments may conflict with existing utility pole lines or underground services that occupy the existing right-of-way and future. If the proposed work create conflicts with any service or utility (manholes, pedestals, poles, drainage structures, aerial and underground lines) the service or utility may need to be relocated. Utility relocations would occur prior to, or be co-ordinated with, any construction activities for the new road alignment.

Construction activities can have a negative effect on utilities as there is the risk that utility infrastructure could be damaged during construction, especially if the exact location of the infrastructure is unknown or incorrectly identified prior to construction activities. Construction may also have a negative effect on utility maintenance, as work zones may inhibit access to existing utility infrastructure. However, these effects are temporary and is a typical risk associated with all construction activities for any project.

9.2.1.2 Potential Operation and Maintenance Effects

It is anticipated that there will be no negative effects to utilities as a result of the project once it is in operation. Therefore, no measures are proposed to avoid or minimize the effects of project operation on utilities.

9.2.1.3 Mitigation Measures and Monitoring

Mitigation measures to address temporary effects of the project will include:

- Co-ordinating with utility providers whose facilities may be affected by the infrastructure; if required, utility relocations will be completed prior to construction
- Completing the subsurface utility engineering (SUE) investigation during detailed design, ensuring the location and depth of all underground utilities is accurately established
- Provide sufficient notice of utility interruptions to the public (when a utility is switched from an old line to a new relocated line, small interruptions may occur)
- Ensure that all utility infrastructure remains in service during construction

9.3 Natural Environment

9.3.1 Upland Vegetation Cover and Designated Natural Heritage Features

9.3.1.1 Potential Construction Effects

Removal of natural vegetation will be one of the main impacts of the Walnut Lane extension. The upland vegetation is of relatively low significance due to the dominance of invasive plant species in most communities. The proposed Walnut Lane extension traverses the middle natural areas occupied by CUT1 and CUM1 communities with a 60 metre length crossing. It crosses a greater area of CUT1 than the other alternatives.

Potential negative impacts include:

- Loss of upland vegetation cover
- Clearing and/or damage to adjacent vegetation outside of the work area
- Facilitating further spread of invasive plant species
- Damage to vegetation as a result of soil or water contamination (including groundwater) by oils, gasoline, grease and other materials from construction equipment, materials storage and handling

Vegetation removal will be required for the road itself but also for areas adjacent where grading is required on terrain sloping down from the road. The east side of Pine Creek is one such area where there was a moderate gradient slope.

9.3.1.2 Potential Operation Effects

Once construction activities are completed and the Walnut Lane extension is operational, it is anticipated that there will be minimal impacts on vegetation cover or designated heritage features beyond the initial removal at the construction phase. However, with activity of vehicles utilizing the road extension, as well as road maintenance operation activities may cause some further disturbances.

Potential negative impacts include:

- Introduction of additional invasive species
- Dumping of litter and debris

9.3.1.3 Mitigation Measures and Monitoring

It is strongly recommended that vegetation removal occur during the dormant months and be limited to within the construction footprint. Stockpiled materials or equipment

should be stored within the construction footprint. Construction fencing (or similar delineation) should be installed and maintained to clearly define the construction footprint and prevent accidental damage or intrusion to adjacent vegetated areas being retained. Trees should be felled toward the construction footprint area to reduce damage to adjacent vegetation. Where excavation and/or grading is required within the rooting zone of trees (i.e., within 1 metre of the dripline), proper root pruning measures should be implemented, under the supervision of, or by, a certified Arborist or Forester.

All machinery, construction equipment and vehicles arriving on site should be in clean condition (e.g., free of fluid leaks, soils containing seeds of plant material from invasive species) and be inspected and washed in accordance with the Clean Equipment Protocol for Industry (Halloran et al., 2013) prior to arriving and leaving the construction site in order to prevent the spread of invasive species to other locations.

Monitoring should be undertaken on a weekly basis during construction to ensure that only specified trees are removed, fencing is intact, and document that there is no damage caused to the remaining trees and adjacent vegetation communities. Construction and/or silt fencing should be repaired if it is damaged. Any damaged trees should be pruned through the implementation of proper arboricultural techniques, under supervision of an Arborist or Forester.

Rehabilitation should occur where feasible after construction has been completed. A planting restoration plan should be developed in consultation with the City and TRCA and in accordance with TRCA's Seed Mix Guideline (2004) and Guideline for Determining Ecosystem Compensation (2018), to compensate for the removal of vegetation within the construction footprint with a focus on increasing the cover by native trees and shrubs; compensation should take into consideration replanting on either a per-stem or per-hectare basis. The top soil layer should be preserved and set aside to be utilized for rehabilitation. Additional mitigation measures specific to trees will be provided in the Tree Inventory and Preservation Plan.

Post-planting monitoring of restoration areas should occur for two years following the completion of restoration activities, which will entail two site visits per year during the growing season to confirm survival of plantings and/or seed mix. Should the plantings and/or seed mix not survive, additional seeding and/or plantings should be undertaken one year thereafter with two additional monitoring visits in the following years during the growing season. Post-planting monitoring should also document any new invasive species or spread of existing invasive species post-construction as well as suggest recommendations for additional control, if feasible. An annual report/memorandum will be prepared to document the findings of the post-planting monitoring activities, which will include a photographic log of existing conditions and recommendations for adaptive management. The report will be provided to City of Pickering.

Monitoring should be undertaken on a weekly basis during construction to ensure that only specified trees are removed, fencing is intact, and document that there is no damage caused to the remaining trees and adjacent vegetation communities. Any damaged trees should be pruned through the implementation of proper arboricultural techniques, under supervision of an Arborist or Forester.

9.3.2 Provincially Significant Wetland

9.3.2.1 Potential Construction Effects

The wetland communities on the floodplain of the Pine Creek which have been determined to be part of the Provincially Significant Wetland (PSW) cannot be avoided. Development is generally prohibited in a PSW, however municipal infrastructure is permissible where it is unavoidable. The proposed Walnut Lane extension requires removal of an estimated 0.115 hectares of the MAMM1-12 and MAM2 wetland communities.

Potential negative impacts include:

- Loss of wetland vegetation cover that is part of the PSW
- Damage to adjacent wetland vegetation outside of the work area
- Alteration of the water table through excavation
- Impacts to regionally rare Baltic rush
- Facilitating further spread of invasive plant species

Vegetation removal will be required for the road itself and also some wetland vegetation may be covered where grading is required on terrain sloping down from the road, such as on the east side of Pine Creek.

9.3.2.2 Potential Operation Effects

Additional affects may result once the new road is operational. There will be no further loss of vegetation cover. However, vehicles utilizing the road extension and road maintenance activities may cause some further disturbances. Potential negative impacts include:

- Introduction of additional invasive species
- Contamination of wetland vegetation by road salt and other substances in runoff

9.3.2.3 Mitigation Measures and Monitoring

During vegetation removal and excavation care should be taken to minimize the amount of wetland vegetation that is affected. Construction fencing (or similar delineation device) will be installed and maintained to clearly define the construction footprint within

the wetland and reduce the likelihood of accidental damage or intrusion to adjacent vegetated areas being retained.

During detailed design, a Planting Restoration Plan should be developed to enhance adjacent remaining wetland in accordance with TRCA's Seed Mix Guideline (2004) and Guideline for Determining Ecosystem Compensation (2018b) as well as in consultation with the City of Pickering and TRCA. In addition, control and removal of invasive plant species, particularly to preventing common reed from dominating the more diverse MAM2 community. A plan should be developed to increase the cover of native meadow marsh and thicket swamp plant species. Control of invasive plants may involve digging, smothering with black plastic or herbicide application. The wetland area is likely to succeed to thicket swamp in coming years, therefore incorporating native shrubs is intended to prevent domination by non-native shrubs.

The portion of the wetland containing the regionally rare Baltic rush should be avoided from construction and protected by construction fencing. If some of the Baltic rush patch is within the construction footprint it should be dug up and transplanted to another suitable portion of the wetland with similar conditions, as far from the road as possible. The plants should be monitored for two years following construction, which will entail two site visits per year during the peak growing season (May to July) to confirm survival.

In accordance with the PPS and NHRM (MNRF, 2010), construction activities must avoid negative effects on MAM communities and downstream negative effects on the PSW through the implementation of prescribed mitigation measures described below.

Pine Creek flows into the Provincially Significant Frenchman's Bay Coastal Wetland Complex 600 metres south of the Project site. The PSW is unlikely to be affected by Project activities. However, construction activities will take place in MAM2 and MAM1-12 meadow marsh communities.

Permanent infrastructure and temporary construction areas will be sited outside of the MAM communities. An undisturbed buffer strip of at least 30 metres in width around the boundary of these wetlands should be maintained wherever possible. Where construction activities occur within 30 metres of a wetland, construction fencing (or similar delineation device) should be installed and maintained to clearly define the construction footprint area to reduce the likelihood of accidental damage or intrusion to wetland.

Best Management Practices (BMPs) will be used to maintain current drainage patterns, including:

- Minimize paved surfaces and design roads to promote infiltration
- Limit changes in land contours to the maximum extent possible
- Design and install roadway culverts to maintain existing drainage patterns

It is anticipated that an Environmental Impact Statement Report from TRCA will be required in support of the O. Reg. 166/06: TRCA Regulation of Development, Interference with Wetlands and Alterations to Shorelines and Watercourses to assess the potential impacts on the wetland units within the Study Area. This will be confirmed through consultation with TRCA during the detailed design phase.

A Detailed Water Taking Assessment based on geotechnical investigation results should be conducted to determine anticipated groundwater taking quantities, groundwater quality and predicted Zone of Influence (ZOI) prior to construction. Based on this assessment, mitigation measures and a monitoring program for groundwater dependent natural features within the anticipated ZOI should be provided.

An Erosion and Sediment Control Plan, prepared prior to the start of construction, will be developed and include plans to monitor and review the environmental impacts predicted and the effectiveness of the mitigation measures identified below and implemented during and post-construction, as well as recommendations for adaptive management. Erosion and sediment control measures such as silt fence barriers, rock flow check dams, compost filter socks or approved alternative should be installed and maintained along the edge of the construction footprint area if within 30 metres of a wetland to minimize potential sediment loading to the wetland feature. Erosion and sediment control measures should be in place until re-vegetation of disturbed areas is complete.

Any proposed grading should be scheduled to avoid times of high runoff volumes (spring and fall). The following mitigation measures should be implemented to avoid soil or water contamination:

- Ensure machinery is maintained free of fluid leaks
- Site maintenance, vehicle maintenance, vehicle washing and refuelling to be done in specified areas at least 30 metres away from wetlands, woodlands, wildlife habitat or waterbodies
- Store any stockpiled materials at least 30 metres away from wetlands, woodlands, wildlife habitats or waterbodies
- Store any potential contaminants (e.g., oil, fuels and chemicals) in designated areas using secondary containment, where necessary
- Keep road ROW clear of garbage and debris
- Implement appropriate stormwater management
- Consider the use of de-icing alternatives to reduce chloride effects on natural features. The City’s Public Works Section have a Salt Management Plan (2005) in place that is currently in the process of being updated for the 2022/2023 winter season. The Plan takes direction from Environment Canada’s Code of Practice for the Environmental Management of Road Salts and documents current policies and operational practices.

9.3.3 Watercourse

9.3.3.1 Potential Construction Effects

Clearing and grading of the land to accommodate construction of the Walnut Lane extension will require the removal of vegetation and exposure of soils which can result in sediment runoff discharging into the nearby watercourse. Elevated levels of sediment and related turbidity can reduce the productivity of an aquatic system by clogging the gills of fish, covering fry and eggs within the substrate and reducing prey availability. Sediment deposition within aquatic communities can also lead to changes in bed substrate composition and aquatic vegetation resulting in an alteration of fish habitat. Additionally, the use of construction machinery and vehicles within the Study Area could result in spills or leaks of oil, gasoline and other fluids which could enter the watercourse.

During construction of the watercourse crossing, there is potential for disturbance to fish species as well as their habitat. Construction activities near the watercourse have the potential to introduce sediment and increase turbidity within the watercourse, and the activities may also disturb the watercourse substrate and banks. Temporary dewatering of the work area may be necessary during construction of the watercourse crossing. If work area isolation, dewatering, and bypass pumping is not managed properly, there is potential for negative effects to occur to the associated watercourse and fish and fish habitat through incidental death to fish within the work area.

9.3.3.2 Potential Operation Effects

Changes to land use can have effects on receiving watercourses, including a change in flow regime and increased erosive potential. As a result of the proposed land use changes, there is potential for a change in flow rate and volume discharging to Pine Creek due to an increase in impermeable surfaces in the Study Area once the new road way is operational. The change in land use has the potential to exacerbate the existing erosion problem within Pine Creek resulting in increased bank undercutting and decreased bank stability. At the watercourse crossing there is potential loss of aquatic habitat as native substrates and aquatic/riparian vegetation are disturbed or removed.

9.3.3.3 Mitigation Measures and Monitoring

In order to mitigate the effects of erosion and sedimentation from construction related vegetation clearing and grading, sediment and erosion control measures, including silt fencing, should be installed prior to construction activities. Potential effects during construction of the watercourse crossing can be minimized through appropriate mitigation measures, including but not limited to, the implementation of an erosion and

sediment control plan. In order to minimize disturbance to aquatic communities during critical periods, any proposed in-water works will need to be restricted to the applicable period to protect sensitive life stages of fish. This timing window will allow for all possible species to complete their reproduction without construction disturbance. A specific in-water work timing window should be determined through consultation with the MNRF; however, a typical timing window for watercourses with a warm water thermal regime and spring spawning species for which in-water work is restricted is March 15 to July 15.

An Erosion and Sediment Control Plan should be prepared as part of detailed design and implemented by the contractor prior to the start of construction. Erosion and sediment control measures such as silt fence barriers, rock flow check dams, compost filter socks or approved alternative should be installed and maintained along the edge of the construction footprint area if works within 30 metres of a watercourse are proposed, to minimize potential sediment loading to the watercourse. Erosion and sediment control measures should be in place until re-vegetation of disturbed areas is complete and vegetation is established to a point such that it reduces the likelihood of erosion and sediment mobilization.

Monitoring via on-site inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions if required. Monitoring will include inspection of construction fencing/silt fencing to confirm appropriate installation, maintenance and rehabilitation to prevent accidental damage to vegetation or ELC communities outside of the work construction area. Corrective actions may include additional site maintenance and alteration of activities to minimize impacts.

All erosion and sediment control measures should be inspected weekly, after every rainfall and significant snow melt event, and daily during periods of extended rain or snow melt. All damaged erosion and sediment control measures will be repaired and/or replaced within 48 hours of the inspection.

Construction equipment and vehicle maintenance, washing and refuelling should be done in specified areas at least 30 metres away from the watercourse. Equipment and machinery should be maintained free of fluid leaks. Stockpiled materials and potential contaminants (e.g., oil, fuels and chemicals) should be stored in designated areas at least 30 metres away from the watercourse.

9.3.4 Breeding Birds

9.3.4.1 Potential Construction Effects

Vegetation communities in the Study Area support breeding and nesting habitat for birds. Numerous breeding birds were recorded in the vicinity of the proposed Walnut Lane extension during the 2018 field investigations. Many of them are protected under the MBCA while others receive protection under the *Fish and Wildlife Conservation Act, 1997* (FWCA). Any harm or destruction to these birds, their eggs and/or their active nests is prohibited. Potential effects to breeding birds include the following:

- Possible mortality of or harm to breeding birds due to vegetation clearing
- Possible loss of or damage to bird eggs and/or active nests due to vegetation clearing
- Disturbance and/or displacement of breeding birds due to noise

These impacts may occur if vegetation removal for the construction of the Project occurs during the overall breeding bird season (April 1 to August 31). The potential effects on breeding birds are considered low provided that the avoidance and mitigation measures described below are implemented.

9.3.4.2 Potential Operation Effects

It is not anticipated that breeding birds will be substantially affected by the potential increase in noise and vibration during the operations phase of the Project, as the species occurring in the area within the road ROW are tolerant to disturbances associated with urban settings.

9.3.4.3 Mitigation Measures and Monitoring

To avoid contravention of the MBCA and FWCA, vegetation removal should be scheduled to occur outside of the overall bird nesting season of April 1 to August 31 and strictly should not occur within complex habitat, as defined by Environment Canada, during the core bird nesting season of May 1 to July 31, as per Environment and Climate Change Canada's (ECCC's) Nesting Calendar for Zone C2 (ECCC, 2018).

The majority of the Study Area would be considered complex habitats (aside from cultural meadow communities present). Complex habitats are defined as large habitats with many potential nesting sites where presence of nests would be too difficult to locate by qualified nest searchers due to obstructions in visibility (e.g., tall and dense vegetation cover). Examples of complex habitats include woodlands, thicket and meadow marsh.

If vegetation removal can't be avoided within simple and complex habitats during the migratory bird nesting season of April 1 to August 31, nest and nesting activity searches should be conducted by a Qualified Biologist 24 hours prior to vegetation removal to confirm the presence or absence of nests of migratory birds.

If an active nest or confirmed nesting activity of a migratory bird is observed, a species-specific buffer area following ECCC guidelines will be applied to the location of the nest or confirmed nesting activity wherein no vegetation removal will be permitted until the young have fledged from the nest. The radius of the buffer will depend on species, level of disturbance, and landscape context (ECCC, 2016), which will be confirmed by a Qualified Biologist, but will protect a minimum of 10 metres around the nest or nesting activity.

The slope of any stockpiled soil material should be reduced and maintained to 70 degrees or less during the breeding bird season (April 1 to August 31) to deter burrow-making birds from nesting in stockpiles.

Consideration should be given to covering up equipment, machinery or material left idle for more than 48 hours during the breeding bird season (April 1 to August 31) using bird exclusion methods to prevent migratory birds from accessing and building nests in the constructions site. If a nest is found in the construction site, all work in the immediate vicinity must stop and a Qualified Biologist be contacted to determine appropriate next steps in order to avoid contravention of the MBCA.

9.3.5 Species at Risk

No Species at Risk (SAR) were encountered during field investigations and the potential for SAR occurring with the Study Area has been evaluated in **Section 4.3.3.** Given the small area of the proposed works, poor habitat conditions and intensively developed surrounding lands, it is unlikely that most of the SAR identified through the background review are present. The Study Area was identified to provide marginal habitat for SAR with the potential of occurring SAR bats and Monarch butterfly.

9.3.5.1 Potential Construction Effects

Monarch may occur in the Mineral Cultural Meadows (CUM1-1) within the Study Area, of which 0.21 hectares is anticipated to be removed for the preferred Alternative; however, this species does not receive protection under the ESA but receives protection under the PPS 2020.

If any snags containing roosting or maternity cavities with SAR bats are identified, potential negative effects would include:

- Possible mortality of or harm to bat SAR due to vegetation clearing when bats are present
- Possible loss of or damage to bat SAR residences or habitat due to vegetation clearing
- Disturbance and/or displacement of bat SAR due to noise

The four potential SAR bats may forage widely but depend on the presence of suitable snags or cavity trees with a DBH of ≥10 cm for roosting.

Habitats capable of supporting bat maternity colonies (e.g., CUW, CUP and FOD), as identified by MNRF's *Technical Note Species at Risk (SAR) Bats* (2015), may be affected by construction activities, particularly during the most sensitive maternity roosting period of June 1 to July 31. Bats may also roost in isolated snag or cavity trees; therefore, removal of these snags or cavity trees may also result in negative effects if removed during the bat roosting season of April 1 to September 30. A minimal amount of 0.02 hectares of the Cultural Woodland (CUW1) may require tree removal; however, if assumed bat SAR are present, this nominal amount is not anticipated to impair or eliminate the function of habitat for supporting bat life processes provided that removal of trees be undertaken outside of the bat active season.

9.3.5.2 Potential Operation Effects

Impacts during the operation phase on SAR bats are not anticipated beyond the initial removal of any SAR bat habitat identified during the construction phase.

9.3.5.3 Mitigation Measures and Monitoring

Based on the design available at the time of preparation of this EIS report, minimal tree removal may be required within the Cultural Woodland (CUW1). Removal of 0.02 hectares of the Cultural Woodland (CUW1) is not anticipated to eliminate or impair the function of the potential roosting habitat such that authorization under the ESA would be required provided that tree removal occurs outside of the bat active season (refer to Item #46). However, if the amount of tree removal increased during detail design in the Cultural Woodland (CUW1), the need for additional species-specific surveys to confirm suitable habitat and/or presence of bat SAR following the protocols described by MNRF (2017), as well as, authorization from MECP will need to be re-assessed during detail design.

The following are the proposed general mitigation measures to be confirmed with MECP:

- Removal of any trees or woody vegetation should be scheduled to occur outside of April 1 to September 30 to avoid potential to effect snags with roosting bats
- A qualified Environmental Monitor would monitor the removal of suitable cavity trees

The Monarch is a SOCC that is not protected under the ESA; however, it receives some protection under the PPS (2020) and other municipal planning documents. Vegetation removal will be required within this habitat; however, planting native, herbaceous flowering plants in temporarily disturbed areas or incorporating these into the restoration plan will minimize effects on this SOCC and its habitat.

9.3.6 Wildlife and Wildlife Habitat

9.3.6.1 Potential Construction Effects

As determined by the Significant Wildlife Habitat (SWH) screening exercise summarized in **Section 4.3.4**, no confirmed or candidate SWH have been identified within the Study Area. Nevertheless, the vegetation within the Study Area provides habitat for some common wildlife species and impacts to them are likely but should be avoided where possible. Activities such as permanent vegetation removal and increased noise and vibrations may lead to adverse effects on these habitats.

Potential negative Impacts include:

- Mortality of or harm to wildlife due to vegetation clearing
- Loss of or damage to wildlife habitat due to vegetation clearing
- Disturbance and/or displacement of wildlife due to noise

9.3.6.2 Potential Operation Effects

The Walnut Lane extension can pose a risk to the wildlife and wildlife habitat in the area after construction activities are completed. These risks associated with new traffic can include:

- Roadkill: mortality of wildlife as result of vehicles using road
- Increase in lighting and noise disturbing wildlife

9.3.6.3 Mitigation Measures and Monitoring

Efforts to reduce negative effects on wildlife and wildlife habitat as a result of the road extension can include:

- If wildlife is encountered, measures will be implemented to avoid destruction, injury, or interference with the species, and/or its habitat. For example, construction activities will cease or be reduced, and wildlife will be encouraged to move off-site and away from the construction area on its own. A qualified Biologist will be contacted to identify next steps if wildlife does not move on its own and is in harm's way.
- Lighting to be focused downwards and away from Natural Core Areas.
- Restore temporarily disturbed construction areas in cultural meadows with native. herbaceous, flowering plants to restore pollinator habitat wherever possible
- Vegetation removal will not occur between April 1 and September 30.
- Garbage control and anti-littering on construction site to minimize terrestrial predators (e.g., raccoons, skunks)

9.3.7 Net Effects Assessment

Net environmental impacts are those impacts that remain or are residual after avoidance, standard mitigation and compensation measures have been implemented. The following criteria were applied during the assignment of net effects. Impacts caused by the proposed development were considered relative to the significance and sensitivity of the ecological feature and/or function. **Table 9-1 and** provides an outline of the net effects predicted from the Walnut Lane extension.

- **No Net Effect** – Indicates no measurable impact to the identified ecological features.
- **Low Net Effect** – Indicates loss of habitat possessing limited potential habitat value, and/or loss of a portion of habitat, which will not result in long-term impact to the remaining habitat and/or reduction in associated key ecological functions.
- **Medium Net Effects** – Indicates loss of habitat possessing moderate potential habitat value, and/or loss of a portion of habitat that may result in long-term impacts to the remaining habitat, and/or loss of associated key ecological functions.

Table 9-1: Net Effects Assessment

Net Effect	Source of Potential Effect	Potential Areas Effected / Potential Effects	Mitigation / Compensation	Anticipated Net Effects / Rationale
Potential Short-term Impacts - Construction	■ Construction related runoff contributing to erosion of soils	■ Throughout Study Area	■ Installation and maintenance of erosion and sediment control measures.	NO NET EFFECT ■ Proper installation and monitoring of sediment control fencing can prevent deposition of fill and sedimentation.
Potential Short-term Impacts – Construction	■ Damage and Disturbance to Adjacent Natural Features	■ Potential areas affected include natural heritage features present within the Study Area including the wetland and upland cultural communities.	■ Implementation of buffers to provide setback from natural heritage communities ■ Installation of protective fencing. ■ Access restrictions/prohibition.	(-) NO – LOW NET EFFECT ■ Implementation of appropriate setbacks and proper installation of protective fencing and restriction of access can prevent potential effects.
Potential Short-term Impacts - Construction	■ Degradation of soil/water quality through compaction/ contamination	■ Throughout Study Area	■ Implementation of buffers to provide setback from natural features. ■ Installation of protective fencing. ■ Access restrictions/prohibition including maintenance and refuelling stations located away from natural features. ■ Regular equipment and machinery inspections to reduce the risk of leaks or risks of soil or water contamination.	NO NET EFFECT ■ Implementation of appropriate setbacks and proper installation of protective fencing, restriction of access and proper locating of maintenance and refuelling stations can prevent potential effects.
Potential Short-term Impacts - Construction	■ Disturbance to wildlife through construction and related noise impacts	■ Disturbance to breeding birds, fish, mussels and other wildlife	■ Restriction of construction to 7:00 a.m. to 7:00 p.m.; ■ Where feasible, restrict construction activities to periods outside of sensitive wildlife periods (i.e., bird nesting period of April 1st to August 31st, bat roosting period of April 1st to September 30th, adherence to in-water works period determined in consultation with Ministry of Northern Development, Mines, Natural Resources and Forestry)	(-) LOW NET NEGATIVE EFFECT ■ With the implementation of restrictions to the timing of construction disturbance to birds & wildlife can be reduced.
Potential Long-term Impacts	■ Removal of natural communities	■ Removal of 0.114 hectares of wetland, 0.001 hectares of the FOD8-1, and 0.217 hectares of CUM1 will be required for the preferred alternative.	■ Implementation of appropriate setbacks and erosion and sediment control fencing to define the construction footprint area and prevent accidental removal. ■ Restoration plan (to be developed with the City of Pickering and the TRCA) including planting of native species to compensate for the removal of vegetation within the construction footprint and the control of invasive species. ■ Restriction to vegetation removal within natural features outside of sensitive wildlife periods (i.e., bird nesting period of April 1st to August 31st, bat roosting period of April 1st to September 30th) to avoid incidental take.	(-) LOW NEGATIVE EFFECT ■ Retaining portions of the natural communities, along with native plantings and invasive species control within these communities will retain and enhance the remaining habitat.
Potential Long-term Impacts	■ Changes to water quality and quantity	■ Throughout Study Area – increase in surface runoff and potential for decrease in water quality due to sediment loading and water contamination.	■ Maintain existing drainage patterns and implement appropriate stormwater management for the new section of road; utilize alternatives for de-icing for consideration in the long term to reduce chloride effects on natural features	(-) LOW - NO NEGATIVE EFFECT ■ The implementation of SWM facilities and BMPs, if executed as designed, should mitigate water quality and quantity impacts.
Potential Long-term Impacts	■ Disturbance to wildlife through lighting	■ Throughout Study Area.	■ Limit or relocate lighting in areas adjacent to Natural Heritage Features and to select lighting standards that minimize diffuse light. ■ Light standards and fixtures can also be shielded to reduce the direct light exposure to natural areas.	(-) LOW NEGATIVE EFFECT ■ With the implementation of proper light location and position disturbance to wildlife in adjacent natural features can be reduced.
Potential Long-term Impacts	■ Disturbance to wildlife through noise and vibration	■ Throughout Study Area.	■ Existing noise impacts are present within the surrounding landscape. ■ Implementation of planted landscape buffers to reduce noise effects	(-) LOW NEGATIVE EFFECT ■ Impacts can be reduced with the implementation of suitable landscape buffer zones.
Potential Long-term Impacts	■ Buffer Implementation	■ Wetland communities will be buffered using native species.	■ Will increase natural vegetation and wildlife habitat with existing Natural Heritage Features.	(+) NET POSITIVE EFFECT ■ The added buffer will increase vegetation cover and wildlife habitat within the Study Area.

- **High Net Effects** – Indicates loss of habitat possessing significant potential habitat value, and/or loss of a portion of habitat that may result in long-term and potentially critical impacts to the remaining habitat, and/or significant loss of associated key ecological functions.

After the implementation of avoidance and mitigation measures, the total net effect on the natural environment is anticipated to be low.

9.3.8 Fluvial Geomorphology - Crossing Design

9.3.8.1 Potential Construction Effects

There is the potential to impact Pine Creek channel form and function during construction.

9.3.8.2 Potential Operation and Maintenance Effects

When crossings are placed over a watercourse without due consideration of the geomorphological processes that are occurring within the watercourse, risks to the crossing structure and/or channel form and function may occur.

Crossings situated along a watercourse interact with, and exert an influence on, channel processes. The scientific literature has identified common impacts of watercourse crossings both on channel functions and on aquatic species. In some situations, impacts of a crossing on the channel result in a risk to the crossing.

Specific to Pine Creek, the following concerns have been noted:

- Channel morphology is significantly influenced by the Kingston Road and Hwy 401 culverts, which act as grade controls
- Channel has recovered its sinuosity particularly in sub-reach PC-3a-2
- Deformation of the channel bed has developed large scour pools creating an alternating thalweg with channel migration anticipated

9.3.8.3 Mitigation Measures and Monitoring

The continued evolution of Pine Creek from a straight to meandering channel needs to be taken into consideration in the location and configuration of the new crossing.

Initial crossing-specific design recommendations are:

- To span the Meander Belt Width (MBW), a 36 metre crossing span would be required. This approach would allow natural processes to occur over the next 100 years, through which the creek is recovering its sinuous planform. This study recommends a 36 m span width.

- At minimum, the new crossing will need to span the bankfull width of the channel (6 metres), with additional allowance for localised channel adjustment over the lifespan of the structure (e.g., the next 50 years). This is particularly the case if the crossing is located within sub-reaches PC-3a-2 or PC-3a-3, since these are the areas undergoing planimetric adjustment.
- If the crossing does not span the MBW, additional erosion protection will be required to protect the crossing. This would apply to the recommended 25 metre span width, which is not being recommended through this study. Erosion protection disturbs natural geomorphological processes and typically has a negative impact on creek integrity in the long-term.
- It is recommended that a fluvial geomorphologist is directly involved in the detailed design of the new proposed crossing in order to specifically address the observed geomorphological issues along Pine Creek, namely re-meandering of the creek.

Refer to the **Fluvial Geomorphology Assessment (Appendix C)** for the general crossing design recommendations.

In addition, the following channel rehabilitation opportunities can be considered as part of the proposed 36 metre road crossing of Pine Creek at Walnut Lane. These restoration options are associated with the proposed crossing location, as well as at the existing bank failure located near the Loblaws parking lot and should be further refined with the updated HEC-RAS model completed as part of the detailed design work. The following options to consider are:

- **100-year erosion rate** – based on the 100 year erosion rate, a proposed span of 36 metres is greater than the bankfull width of the channel plus an erosion rate of 5 metres on either side of the channel (approximately 16 metres total). This implies there is adequate space for the watercourse considering the lifespan of the structure.

If additional protection measures are required, the following can be considered:

- **Buried Offset Protection** – The buried offset protection would be installed between the watercourse and the bridge abutments. The buried offset protection typically consists of stone and/or woody debris and provides additional protection should lateral migration of the channel occur. This type of protection has no construction impact to the channel as it is installed between the top of bank and the abutment.

- **Bank Protection – Sub-angular Stone / Vegetated Riprap** – Bank slopes of Pine Creek would potentially be armoured and protected with hydraulically sized sub-angular stone with vegetation incorporated in it (where possible) to provide habitat benefits. This option will limit the lateral movement of the channel where the stone is placed. Size of stone depends on the hydraulic properties of the watercourse. Incorporation of vegetation (i.e., vegetated riprap) will be constrained by accessible sunlight, which will be limited at the proposed road crossing**.**
- **Bank Protection - Vertical / Near Vertical Bank Protection** – Due to the steeper bank slopes located near the Loblaws parking lot, vegetated riprap will not be possible to use for restoration at this location. Vertical or near vertical treatment types such as vegetated geogrids, brush layering, and armourstone should be considered and will be dependent on the hydraulic properties of the watercourse, as well as its tie-in with existing bank revetments (existing gabion baskets present). If vertical or near vertical treatments are not an option, then channel alignment adjustments could also be considered.

9.3.9 Drainage and Stormwater Management

9.3.9.1 Potential Construction Effects

No adverse effects related to stormwater and flooding are anticipated to occur during construction.

9.3.9.2 Potential Operation and Maintenance Effects

A 36 metre span bridge over Pine Creek will meet design criteria that includes no increase in Regulatory Flood levels upstream of Kingston Road (Highway 2).

The proposed Pine Creek crossing will result in the loss of storage, and as such, an updated routing analysis is required to establish the new fixed water surface elevation (WSE) upstream of Highway 401 and a cut-fill balance exercise will need to be completed. These activities will be carried out during detailed design.

The design and operation of the stormwater management works is not anticipated to negatively impact the downstream Provincially Significant Wetland as there is no change in the peak flow. Furthermore, as mentioned below, water quality will be maintained by using oil grit separators (OGS).

9.3.9.3 Mitigation Measures and Monitoring

Catch basins, manholes and storm sewers will be constructed to facilitate drainage of Walnut Lane, as per the typical section with reference to MECP's Stormwater Management Planning and Design Manual (2003) and applicable guidelines. Walnut Lane and the future Tribute Communities development will share a storm outfall. Co-ordination with Tribute Communities is ongoing. A new outlet (ditch) is anticipated in order to convey runoff within Walnut Lane extension from Brookdale Centre to west of Pine Creek and within Walnut Lane extension from Liverpool Rd to east of Pine Creek.

A stormwater management plan will be submitted during the detailed design phase as per TRCA's criteria for Pine Creek outlined in their December 21, 2020 correspondence, and in accordance with MECP's Stormwater Management Planning and Design Manual (2003). The following potential stormwater management options will be reviewed during detailed design to meet the noted MECP design guidelines and manual:

- Quantity Control: super pipes
- Quality Control: OGS and or enhanced swales
- Erosion Control: super pipe with orifice
- Water Balance: via LID features, if feasible.

The hydraulic analysis to be provided at the detailed design stage must also confirm that there will be no increase in floodplain elevation and velocity upstream or downstream of the site and within the neighboring private properties. Also, the proposed infrastructure must be in compliance with Section 7.4.4. of the TRCA's Living City Policies (LCP) and ensure no increased risk to life and property as a result of the project.

Lastly, it is noted that due to the close proximity of the alternative road design concept alignments (as described in **Section 7.1**), the proposed stormwater management plan would not have an impact on the selection of the preferred design concept.

9.3.10 Groundwater

9.3.10.1 Construction Effects

There is a potential need to control groundwater during construction (areas of deep excavations) at Pine Creek. The construction dewatering may affect surface water levels within Pine Creek. Uncontrolled and untreated dewatering discharge has a potential to create erosion and other negative impact to Pine Creek. This will depend on the dewatering daily volume and effluent discharge location.

9.3.10.2 Operation and Maintenance Effects

Operation of the new Walnut Lane roadway has a potential to contaminate local groundwater system by road salt during the winter season.

9.3.10.3 Mitigation Measures and Monitoring

To minimize potential effects during construction, operation, and maintenance of the project, best management practices need to be applied by the City.

9.3.11 Source Water Protection

9.3.11.1 Construction Effects

The Study Area transects a portion of a Highly Vulnerable Aquifer (HVA) with a vulnerability score of 6. No adverse effects to groundwater resources are anticipated.

9.3.11.2 Operation and Maintenance Effects

Operation of the Walnut Lane extension has a potential to contaminate local groundwater system by road salt during winter season.

9.3.11.3 Mitigation Measures and Monitoring

To minimize potential effects during construction, operation, and maintenance of the project, best management practices should be applied by the City. In addition, the City's Public Works Section has a Salt Management Plan in place that is to be updated before the 2022/2023 winter season.

The Plan takes direction from Environment Canada's Code of Practice for the Environmental Management of Road Salts and documents current policies and operational practices.

In addition, to reduce the application of salt, all of the City's salters are calibrated prior to start of winter and all have ground speed sensors.

9.4 Socio-Economic Environment

9.4.1 Noise

9.4.1.1 Potential Construction Effects

There is potential for temporary noise effects to businesses within the Study Area as a result of construction of the Walnut Lane extension. The severity of construction noise

impact at Noise Sensitive Areas (NSAs) is dependent on various factors such as type of activity, its location relative to sensitive receptors, time of operation and size of equipment. However, these effects are all temporary in nature.

9.4.1.2 Potential Operation and Maintenance Effects

As identified in **Section 4.4.1** it is anticipated that during operation of the road, the change in noise level due to the Walnut Lane extension is expected to be negligible and not exceed the MTO/MOE objective limits.

9.4.1.3 Mitigation Measures and Monitoring

Recommendations relating to the management of construction noise include:

- Contract documents provided to the contractor should contain general noise control measures to mitigate the noise impact at NSAs including standard clauses regarding equipment noise
- A noise complaint process may be set in place. Any initial complaint from the public will require verification by the City that all noise control measures to be applied are in effect
- Construction activities undertaken should conform to the City's Noise By-law 6834/08.
- Where adherence to the local Noise By-law is not possible and mitigation is not feasible, an exemption should be obtained from the City before construction

9.4.2 Air Quality

9.4.2.1 Potential Construction Effects

Construction activity creates and releases fine particulates and traces of other vapours into the surrounding community. Emissions from construction of the Walnut Lane extension will be temporary and are not anticipated to have long-lasting effects on the surrounding area.

Construction activities which potentially prove most impactful to the local air quality include, but are not limited to:

- Clearing and grubbing
- Grading and rock blasting
- Road and surface paving

- Storage of granular material
- Structure construction/deconstruction
- Mobile on-site equipment

Construction activities may result in temporary traffic disruption and detour, which can lead to increased traffic congestion, thereby increasing motor vehicle exhaust emissions on nearby roadways, and could result in elevated localized contaminant concentrations.

Compared with emissions from the larger volume of other motor vehicle sources in the Air Quality Study Area, emissions from construction equipment and trucks are generally insignificant with respect to compliance with the Provincial and Federal ambient air quality standards.

Fugitive dust is a common contaminant from construction sites with the increased exposure and constant movement and disturbance to uncovered soil. High winds and dry meteorological conditions will exacerbate the release of fugitive dust to the surrounding community of a construction site.

Fugitive dust emissions can result from movement of construction equipment and transport of materials to and from a construction site. Fugitive dust would generally be a problem during periods of intense construction activity and would be accentuated by windy and/or dry conditions.

9.4.2.2 Potential Operation and Maintenance Effects

The Walnut Lane Extension will include altered predicted vehicular air emissions from traffic travelling along the selected recommended alternative due the extension of Walnut Lane between Kingston Road and Liverpool Road.

Traffic modelling was completed for both future do-nothing scenarios and the preferred central alignment implementation on a 2027 horizon year. The PM Peak Hour traffic volume for representative future do nothing and future build build-out conditions (Alignment 1) is provided in **Table 9-2** for all significant sources of existing road traffic.

Table 9-2: Future Traffic Data within the Air Quality Study Area

Road	Year	Future Do-Nothing PM Peak Hour (# vehicles)	Build PM Peak Hour (# vehicles)	% Change from Future Do-Nothing
Kingston Road, west of Walnut Lane	2027	2,784	2,874	3%
Kingston Road, east of Walnut Lane	2027	3,069	3,057	0%
Kingston Road, west of Liverpool Road	2027	3,157	2,970	-6%
Kingston Road, east of Liverpool Road	2027	2,734	2,849	4%
Walnut Lane, north of Kingston Road	2027	184	184	0%
Walnut Lane, south of Kingston Road	2027	707	1,545	119%
Walnut Lane, west of Liverpool Road	2027	1,405	1,016	-28%
Highway 401E-N/S ramp	2027	732	732	0%
Liverpool Road, north of Kingston Road	2027	2,100	2,100	0%
Liverpool Road, between Kingston Road and Pickering Parkway	2027	3,259	2,459	-25%
Liverpool Road, between Pickering Parkway and Walnut Lane	2027	4,028	2,224	-45%
Liverpool Road, south of Walnut Lane	2027	3,426	3,426	0%
Pickering Parkway, west of Liverpool Road	2027	593	593	0%
Pickering Parkway, east of Liverpool Road	2027	1,680	1,565	-7%

The predicted increase in AADT traffic along Walnut Lane has the greatest potential increase on air quality impact at the nearby future sensitive and critical receptors, CR1, SR1, SR2, and SR3 with projected traffic increase of 119%. The sensitive receptors SR9 and SR10 are also expected to experience a slight decrease in traffic levels and thus, a decreased air quality impact but to a much lesser extent than sensitive receptors SR1, SR2, and SR3 and critical receptor CR1. It is worth noting that without the project development, CR1, SR1, SR2, and SR3 would be without road access, which makes this project a necessary component of the development. In addition, the development of the project shows reduced peak PM traffic volumes on other key arterial roads within the project Air Quality Study Area, such as Kingston Road and Liverpool Road, which will help reduce the overall air quality impact on other sensitive receptors and critical receptors within the area.

Even with the expected increases in traffic levels, continuing improvement of vehicle emissions from new vehicles entering the market over a 20-year future projection span, including new hybrid and electric vehicles, and the removal of older high-emission vehicles from the road are expected to lead to air quality impact reductions.

While the project shows air quality impacts when compared to the do-nothing scenario, the main contributing source to air quality within the local area will remain the Highway 401, which is directly to the south of the project Study Area.

9.4.2.3 Mitigation Measures and Monitoring

Exposure to construction-related emissions can be mitigated by the following:

- Ensuring all mobile equipment is in good condition, properly and regularly maintained, and compliant with applicable federal and provincial regulations for off-road diesel engines
- Ensuring all machinery is maintained and operated in accordance with manufacturer's specification
- Locating stationary equipment (generators, compressors, etc.) as far away from critical and sensitive receptors as practical
- Minimizing idling time and posting signage to this effect around the construction site
- Ensuring stationary and mobile equipment are not operated during early morning (before 6:00 a.m., or sunrise) or evening periods (after 8:00 p.m., or sunset) as often as practical
- Implementing a Dust Management Plan for the duration of the construction phase, which includes practices to minimize fine particulate release from mobile equipment, materials handling, and wind erosion
- Ensuring that the areas most impacted by particulate levels are vegetated (i.e., tree planting) to reduce the cumulative particulate impacts
- All equipment and vehicles should be kept properly maintained and repaired to minimize exhaust emissions, including odours
- Excessive idling of vehicles and equipment (greater than five minutes) should be minimized. Other potential mitigation measures may include the use of alternative-fuelled or electric equipment where feasible

Site supervisors during the construction phase should monitor the site for wind direction and weather conditions to ensure that high-impact activities be reduced when the wind is blowing consistently towards nearby critical and sensitive receptors. The site supervisor should also monitor for visible fugitive dust and take immediate action to determine the root-cause in order to counteract this. Specific details to this effect should be included in the construction site Dust Management Plan.

9.4.3 Property

9.4.3.1 Potential Construction Effects

The new Walnut Lane roadway corridor (20 metres) has been identified along the existing development and will be acquired by the City. No additional property is required to facilitate this project. The City may wish to acquire property at the pinch point near station 1+240, but this would be part of a redevelopment of that specific site.

Pine Creek Corridor Public Ownership Transfer:

- As development applications proceed, valley lands (from east top of bank to west top of bank) are to be transferred from the proponent to public ownership

9.4.3.2 Potential Operation and Maintenance Effects

As noted in **Section 9.4.4**, property impacts include that the proposed Walnut Lane Extension will displace the existing access to the Makimono Japanese Restaurant/TD Bank parking lot from Liverpool Road (opposite the Highway 401 westbound off-ramp).

9.4.3.3 Mitigation Measures and Monitoring

During detailed design, opportunities to further minimize property impacts will be reviewed. Consultations with affected owners will continue to confirm and address ultimate property impacts.

9.4.4 Operation of Businesses and Institutions, including Access

9.4.4.1 Potential Construction Effects

There are effects to business operations during construction. The construction of the Walnut Lane extension is anticipated disrupt access within the Study Area.

The current access from Liverpool Road opposite the Highway 401 westbound off-ramp is located within the Highway 401 Controlled Access Highway designation and is not sanctioned by the Ministry of Transportation. This access will be removed as part of this Walnut Lane extension. Providing an access from the proposed Walnut Lane extension west of Liverpool Road is problematic and has been ruled out due to the need to acquire property, difficult topography and tight turning radii. The current access from Liverpool Road opposite the Highway 401 westbound off-ramp will remain in place / operational until the proposed Walnut Lane extension is under construction.

The extension of Walnut Lane is not anticipated to result in temporary lane reductions and / or full closures of any nearby roads.

9.4.4.2 Potential Operation and Maintenance Effects

The Walnut Lane Extension will displace the existing access to the Makimono Japanese Restaurant/TD Bank parking lot from Liverpool Road (opposite the Highway 401 westbound off-ramp). This means that access to the restaurant and bank will only be from the current right in, right out access off southbound Liverpool Road, south of Pickering Parkway.

Furthermore, network connectivity will be enhanced with the extension as it would provide access to adjacent mixed-use lands and contribute to materializing the Intensification Plan for the City Centre. In addition, the Walnut Lane extension would also allow for development of the parcel of land bounded by Liverpool road to the east, Highway 401 to the south, Kingston Road to the north, and Pine Creek to the west; i.e., it would provide more than one option to access / egress the future development in the southwest quadrant of the intersection of Kingston Road and Liverpool Road.

9.4.4.3 Mitigation Measures and Monitoring

Prior to construction, notices and contact information should be delivered to property owners and businesses within the Study Area informing them of construction details. Standard best management practices will be applied to minimize access disruptions related to construction activities. A construction staging plan will be developed during the detailed design phase.

9.4.5 Proposed or Planned Development/Infrastructure Improvements

9.4.5.1 Potential Construction Effects

Temporary property impacts on developable lands are anticipated. See **Section 4.4** for proposed or planned development and infrastructure improvements within the Study Area.

9.4.5.2 Potential Operation and Maintenance Effects

While the construction of the Walnut Lane extension may affect properties with development potential, the road will ultimately help to unlock the development potential for the parcel of land bounded by Liverpool Road to the east, Highway 401 to the south, Kingston Road to the north, and Pine Creek to the west.

9.4.5.3 Mitigation Measures and Monitoring

During detailed design, opportunities to minimize impacts to properties with development potential will be reviewed along with continued consultation with affected property owners to confirm and address anticipated property impacts.

9.4.6 Aesthetics and Property Use

9.4.6.1 Potential Construction Effects

There is potential for temporary visual effects to businesses associated with construction sites, including heavy machinery and nuisance effects such as dust and noise.

9.4.6.2 Potential Operation and Maintenance Effects

The proposed Walnut Lane Extension will impact the local viewscape through future development of this area.

9.4.6.3 Mitigation Measures and Monitoring

A landscaping plan will be developed during the detailed design phase of the Project to enhance streetscaping features.

9.4.7 Climate Change

Effects of climate change on a project as well as a project's effect on climate change are important considerations for project planning; i.e., climate change adaptation and mitigation.

Climate change is now being integrated into infrastructure planning and design as a way of building more resilient and robust systems. Incorporating sustainability and resiliency early on in the decision-making process provides a level of flexibility and allows for changes in future weather and climate uncertainty to be incorporated into project design.

Climate change trends across Ontario show that temperatures are increasing across all seasons, precipitation patterns are changing, and extreme weather events are becoming more intense and frequent. Planning to account for these changes in historical averages, as well as shorter-term more extreme events, is challenging but essential.

9.4.7.1 Potential Construction Effects

Potential climate change effects to consider during construction include the greenhouse gas (GHG) emissions associated with the construction period, including the physical machinery and equipment, travel distance and time for construction workers to get to and from the site, and the sourcing of building materials. Further, vegetation within the construction footprint which helps to sequester GHGs will be removed.

9.4.7.2 Potential Operation and Maintenance Effects

Climate change impacts are also related to the operation and maintenance of the constructed Walnut Lane extension, as the transportation sector is one of the biggest contributors to carbon dioxide (CO_2) levels which is a primary GHG emitted through human activities. There is the potential for an increase in network volumes in terms of vehicular traffic volume, thus there is the potential to increase GHG emissions compared to current emissions.

That said, as previously indicated, the extension of Walnut Lane from the section presently constructed south of Kingston Road eastward to Liverpool Road is anticipated to have a positive impact on the operation of the local road network. Most of the future traffic operational issues within the Study Area are addressed through the Walnut Lane extension. The provision of a MUP can help promote active transportation through the Study Area.

Climate change may also potentially impact the Walnut Lane extension as extreme weather conditions may affect the condition of the roadway and potentially cause travel disruptions.

9.4.7.3 Mitigation Measures

To minimize potential effects during construction, the idling of construction equipment will be avoided, and equipment will be in good working order to reduce inefficiencies in the operation of the equipment.

The detailed design phase of the Project should take into consideration key factors and climate change trends, such as constructing the road to withstand extreme precipitation and extreme heat. The proper storage capacity will be incorporated within the storm sewer system to accommodate additional flows during extreme storm events. As discussed in **Section 9.3.9**, since the proposed Pine Creek crossing will result in the loss of storage, an updated routing analysis is required to establish the new fixed water surface elevation (WSE) upstream of Highway 401 and a cut-fill balance exercise. As agreed by TRCA, these tasks will be carried out during detailed design.

Consideration should also be given to planting new vegetation to replace or supplement any vegetation that may need to be removed by the Walnut Lane extension, to help sequester GHGs. A full detailed tree inventory and preservation plan should be completed and submitted during the detailed design phase of the Project.

Additionally, in response to the risks posed to infrastructure due to climate change, improving the performance of roads under extreme heat conditions, road embankments, and protect roads from washout during extreme storm event will be considered during the detailed design phase of the Project.

9.5 Cultural Environment

9.5.1 Archaeology

9.5.1.1 Potential Construction Effects

The results of the Stage 1 archaeological assessment indicate there are sections of the proposed Walnut Lane extension that require a Stage 2 archaeological assessment.

9.5.1.2 Potential Operation and Maintenance Effects

No effects to archaeological resources are anticipated during the operation and maintenance phases of the Project.

9.5.1.3 Mitigation Measures and Monitoring

A Stage 2 archaeological assessment (and further assessments, as required) must be conducted for areas marked in the Stage 1 archaeological assessment as requiring a Stage 2 archaeological assessment The Stage 2 assessment should be completed during the early stages of detailed design prior to any ground-disturbing construction activities in accordance with *Section 2.1.2 Test Pit Survey* of the *Standards and Guidelines for Consultant Archaeologists* (2011). This section requires a test pit survey to be conducted identify any archaeological sites and to determine the extent and degree of ground disturbance.

Should archaeological material be encountered during construction, all activities impacting archaeological resources will cease immediately, the Ministry of Citizenship and Multiculturalism (MCM) will be contacted, and a licensed archaeologist will be engaged to carry out an archaeological assessment in accordance with the Ontario Heritage Act and the Standards and Guidelines for Consultant Archaeologists. Further, if human remains are encountered, all activities must cease immediately and the local police as well as the coroner must be contacted.

9.5.2 Built Heritage Resources and Cultural Heritage Landscapes

9.5.2.1 Potential Construction Effects

No impacts to the Built Heritage Resources and Cultural Heritage Landscapes are anticipated as a result of the Walnut Lane Extension.

9.5.2.2 Potential Operation and Maintenance Effects

The operation and maintenance of the new Walnut Lane extension will not impact Built Heritage Resources and Cultural Heritage Landscapes.

9.5.2.3 Mitigation Measures and Monitoring

No mitigation measures have been recommended as a result of no impacts to Built Heritage Resources and Cultural Heritage Landscapes.

9.6 Cumulative Effects

Cumulative effects are changes to the environment caused by the residual effects from a project combined with residual effects from other projects. Cumulative effects are generally assessed under the Federal EA process and is not typically required as part of the MCEA process.

Other proposed or planned projects within the Study Area are detailed in **Section 4.4**. Construction of the proposed Walnut Lane extension, including the crossing at Pine Creek along with implementation of the approved transportation projects in vicinity of the Study Area will help to reduce potential traffic slow-downs, improve traffic movement, emergency services, and accommodate long-term capacity and operational needs. Any negative effects of the project contributing to cumulative impacts are not anticipated to be significant.

10. Future Commitments

10.1 Change in Project or Environment

As per the Municipal Engineers Association (MEA) MCEA manual (October 2000, amended 2007, 2011 and 2015), any significant modification to the project or change in the environmental setting for the project which occurs after the filing of the ESR shall be reviewed by the proponent and an addendum to the ESR shall be written. The addendum shall describe the circumstances necessitating the change, the environmental implications of the change, and what, if anything can and will be done to mitigate any negative environmental impacts.

The addendum shall be filed with the ESR and Notice of Filing of Addendum whereby only the proposed changes are subject to review and Section 16 Orders. A period of 30 calendar days following the issue of the Notice of Filing of Addendum shall be allowed for review and response by affected parties. If no Section 16 Order request is received by the Minister or delegate, the project may proceed with implementation and construction.

10.2 Lapse of Time

According to the MEA MCEA manual (October 2000, amended 2007, 2011 and 2015), “if the period of time from the filing of the Notice of Completion of ESR in the public record or the MECP’s denial of a Part II Order request(s), to the proposed commencement of construction for the project exceeds ten (10) years, the proponent shall review the planning and design process and the current environmental setting to ensure that the project and the mitigation measures are still valid given the current planning period. The review shall be recorded in an addendum to the ESR which shall be placed on the public record.”

Notice of Filing of Addendum shall be placed on the public record with the ESR and shall be given to the public and review agencies, for a minimum 30-day review period. If no Section 16 Order (previously referred to as a Part II Order) request is received the project proponent may proceed with the project.

10.3 Commitments

10.3.1 Future Work

In addition to the permitting and approval requirements (**Section 10.4**), **Table 10-1** summarizes the following future commitments / additional investigations recommended to be undertaken during the detailed design, and construction phases of the Project. TRCA commitments are specifically outlined in **Section 10.3.2**.

Table 10-1: Commitments to Future Work

Category	Commitments to Future Work	Project Phase
Traffic and Transportation – Road Network	■ Update Traffic Report by addressing the comments made by Durham Region and received on August 6, 2021, as well as another set of comments from Durham Region received on March 31, 2022.	■ Detailed Design
Traffic and Transportation – Road Network	■ Confirm design meets minimum radii standards for a design speed of 70 kilometres per hour (the first horizontal curve south of Kingston Road (55 metres) does not currently meet design standard due to property constraints).	■ Detailed Design
Traffic and Transportation – Road Network	■ The Liverpool Road/Walnut Lane intersection shall be brought to AODA compliance including all crossings in all directions.	■ Detailed Design
Traffic and Transportation – Road Network	■ Confirm the location of the monotube overhead lane designation sign on Liverpool Road does not interfere with sight distances to the traffic signals.	■ Detailed Design
Traffic and Transportation – Road Network	■ A cantilever overhead sign shall be placed on the south side of the Liverpool Road/Walnut Lane intersection and designed to MTO structural standards.	■ Detailed Design
Traffic and Transportation – Road Network	■ Obtain agreement in principle during the current MCEA phase from MTO for the Liverpool Road/Walnut Lane Intersection. Approval of the final configuration and design of the intersection by MTO and the Region will be required as part of the detailed design phase of the project. A 1:500 scale plan drawing will be required for final approval from MTO.	■ Detailed Design
Traffic and Transportation – Road Network	■ Develop a construction staging and traffic management plan.	■ Detailed Design
Traffic and Transportation – Road Network	■ City to consider implementing the recommended changes from the preliminary proposed traffic calming plan. ■ As part of the detailed design of Walnut Lane Extension, the City and their consultant will also assess needs for and if needed, the most suitable type of design elements (e.g., smart channels, etc.) to physically prohibit motorists from travelling northbound through the intersection of Kingston Road and Walnut Lane. ■ For the City's consideration, it is also recommended that a survey is prepared to present and request feedback from the neighbourhood on the traffic calming study findings and the preliminary proposed traffic calming plan.	■ Detailed Design
Traffic and Transportation – Road Network	■ All lands within the MTO permit controlled area will require site plan review process to be followed, relevant approvals met and MTO permits for any developments. ■ As this is an area going through development on a large scale, MTO requests that all reports conducted for sites within the permit controlled area consider all surrounding sites in their studies/reports for MTO review as the cumulative impact is a concern for the MTO right-of-way.	■ Detailed Design
Traffic and Transportation – Road Network	■ There shall be no on-street parking along the inbound lane(s) of Walnut from the MTO ramp-terminal IS. MTO considers the area a transition zone from Highway speed to municipal speed zone. No on-street furniture, parking or other traffic calming measures will be permitted on the in-bound lanes.	■ Detailed Design
Traffic and Transportation – Road Network	■ The monotube OHS on Liverpool Road is to be move northerly to be located at the start of the exclusive right turn lane to Walnut Lane. ■ The existing ground mounted sign to Hwy 401 West on-ramp is to be replaced with a cantilever sign	■ Detailed Design
Technical and Engineering – Servicing and Utilities	■ Co-ordinate with utility providers whose facilities may be affected by the infrastructure and determine the need for any utility relocations prior to construction.	■ Detailed Design/Prior to Construction
Technical and Engineering – Geotechnical	■ Complete a detailed geotechnical investigation to confirm the pavement requirements and bridge foundation requirements.	■ Detailed Design
Natural Environment	■ Development of a mitigation and restoration plan in consultation with the City of Pickering and TRCA. Restoration and compensation efforts for the Walnut Lane extension will be confirmed and co-ordinated with the Tribute Communities site works to ensure that there is no overlap.	■ Detailed Design
Natural Environment	■ A Detailed Water Taking Assessment based on geotechnical investigation results will be conducted to determine anticipated groundwater taking quantities, groundwater quality and predicted Zone of Influence (ZOI) prior to construction. Based on this assessment, mitigation measures and a monitoring program for groundwater dependent natural features within the anticipated ZOI will be provided.	■ Detailed Design

Category	Commitments to Future Work	Project Phase
Natural Environment	■ Preparation and implementation of an Erosion and Sediment Control Plan prior to construction activities. This will include plans to monitor and review the environmental impacts predicted and the effectiveness of the mitigation measures identified below and implemented during and post-construction, as well as recommendations for adaptive management.	■ Detailed Design
Natural Environment	■ Tree removal is anticipated and as such a full detailed tree inventory and preservation plan should be completed and submitted once the 60-90% detailed design has been completed in order to determine permitting requirements, if any, of the City of Pickering Tree Protection By-law 6108/03.	■ Detailed Design
Natural Environment	■ If increased tree removal is proposed during detailed design within suitable bat SAR roosting habitat (e.g., CUW1, CUP3-3 and FOD8-1) cannot be avoided, additional species-specific surveys such as leaf-off cavity tree searches, leaf-on surveys and acoustic monitoring following the Survey Protocol for Species at Risk Bats within Treed Habitats: Little Brown Myotis, Northern Myotis & Tri-colored Bat (MNRF, 2017b) to confirm suitable habitat and/or presence of bat SAR, as well as, authorization from MECP under the ESA will be required prior to construction.	■ Detailed Design
Natural Environment – Source Water Protection	■ Prepare a spills management, spill contingency and emergency response plans to protect shallow groundwater.	■ Detailed Design / Prior to Construction
Natural Environment – Fluvial Geomorphology	■ If the crossing does not span the MBW (36 metres crossing span), additional erosion protection will be required to protect the crossing.	■ Detailed Design
Natural Environment – Fluvial Geomorphology	■ It is recommended that a fluvial geomorphologist is directly involved in the detailed design of the new proposed crossing in order to specifically address the observed geomorphological issues along Pine Creek, namely re-meandering of the creek.	■ Detailed Design
Natural Environment – Fluvial Geomorphology	■ Review the channel rehabilitation opportunities associated with the proposed crossing location at Pine Creek, as well as at the existing bank failure located near the Loblaws parking lot. Further refine restoration options with the updated HEC-RAS model completed as part of the detailed design work.	■ Detailed Design
Natural Environment – Hydraulic Assessment	■ The City should pursue additional studies for upgrading the Radom Street culverts and determine the impact this might have on the sizing of the Walnut Lane crossing of Pine Creek.	■ Detailed Design
Natural Environment – Hydraulic Assessment	■ Complete an updated routing analysis to establish the new fixed water surface elevation (WSE) upstream of Hwy 401 and a cut-fill balance exercise. ■ The hydraulic analysis to be provided at the detailed design stage must confirm that there will be no increase in floodplain elevation and velocity upstream or downstream of the site and within the neighboring private properties. Also, the proposed infrastructure must be in compliance with Section 7.4.4. of the TRCA's Living City Policies (LCP) and ensure no increased risk to life and property as a result of the project.	■ Detailed Design
Storm Drainage / Stormwater Management	■ Develop a worksite isolation plan for the proposed undertaking.	■ Detailed Design
Storm Drainage / Stormwater Management	■ Preparation and implementation of an Erosion and Sediment Control Plan prior to construction activities.	■ Detailed Design
Storm Drainage / Stormwater Management	■ Prepare a stormwater management plan.	■ Detailed Design
Storm Drainage / Stormwater Management	■ Finalize details of co-ordination with Tribute Communities as Walnut Lane and the future Tribute Communities development will share a storm outfall.	■ Detailed Design
Socio-economic – Property, Access and Proposed or Planned Development / Infrastructure Improvements/ Business operation	■ Review design opportunities to further minimize property impacts and maintain consultation with affected owners to address ultimate property impacts to the extent possible.	■ Detailed Design
Socio-economic – Property, Access and Proposed or Planned Development / Infrastructure Improvements/ Business operation	■ Continue discussion with key businesses within the Study Area to determine ultimate impacts to operation of their business and acceptable mitigation.	■ Detailed Design

Category	Commitments to Future Work	Project Phase
Socio-economic – Air Quality	■ Develop and Implement a Dust Management Plan for the duration of the construction phase.	■ Detailed Design/ Construction
Socio-economic – Aesthetic	■ Develop a landscaping plan.	■ Detailed Design
Cultural Heritage Environment	■ Conduct a Stage 2 archaeological assessment (and further assessments, as required) during the early stages of detailed design prior to any ground-disturbing construction activities. ■ Should archaeological material be encountered during construction, all activities impacting archaeological resources will cease immediately, MCM will be contacted, and a licensed archaeologist will be engaged to carry out an archaeological assessment in accordance with the Ontario Heritage Act and the Standards and Guidelines for Consultant Archaeologists. Further, if human remains are encountered, all activities must cease immediately and the local police as well as the coroner must be contacted.	■ Detailed Design
Consultation	■ Continue to engage with all impacted/adjacent property owners, including businesses and keep them up-to-date on the progress of the Project, including when/where construction works are anticipated.	■ Detailed Design/Construction
Consultation	■ A pre-consultation meeting with TRCA staff at the detailed design stage to assist in the submission of a complete permit application under O.Reg. 166/06: TRCA Regulation of Development, Interference with Wetlands and Alterations to Shorelines and Watercourses. This includes confirmation of restoration plan details in support of the permit application.	■ Detailed Design
Consultation	■ TRCA to review and comment on detailed design work program (prepared by Tribute Communities consultant team) prior to initiating the detailed design stage of the project. ■ Refer to Section 10.3.2 for the complete list of commitments for Toronto and Region Conservation Authority during detailed design.	■ Detailed Design
Consultation	■ Engage Indigenous Communities who requested to participate in the Stage 2 archaeological assessment (Refer to **Table 11-3** and **Appendix L**).	■ Detailed Design

10.3.2 Toronto and Region Conservation Authority Commitments

Through consultation with TRCA for this Project, the following commitments specific to TRCA, some of which are also identified in **Table 10-1**, are summarized below to assist with TRCA's involvement in the detailed design phase of the Project:

- Circulate the detailed design work program (prepared by Tribute Communities consultant team) prior to the detailed design stage of the project for TRCA's review and comment prior to initiation of detailed design.
- Set up a pre-consultation meeting with TRCA staff at the detailed design stage to assist in the submission of a complete application for the permit application under O.Reg. 166/06. Consultation with TRCA will also be required to confirm restoration plan details.
- Prepare and submit the permit application under O.Reg. 166/06.
- Develop a mitigation and restoration plan in consultation with the City of Pickering and TRCA. Restoration and compensation efforts for the Walnut Lane extension will be co-ordinated with the Tribute Communities Lands site works to ensure that there is no overlap. There will be consideration for opportunities for wetland creation as part of the compensation and restoration plan, subject to further review and discussion during detailed design.
- TRCA's Seed Mix Guidelines and Guideline for Determining Ecosystem Compensation will be reviewed to help develop the restoration planting plan.
- Prepare and implement an Erosion and Sediment Control Plan prior to construction activities.
- Directly involve a fluvial geomorphologist in the detailed design of the new proposed crossing in order to specifically address the observed geomorphological issues along Pine Creek, namely re-meandering of the creek.
- Review the channel rehabilitation opportunities associated with the proposed crossing location at Pine Creek, as well as at the existing bank failure located near the Loblaws parking lot. Further refine restoration options with the updated HEC-RAS model completed as part of the detailed design work.
- The proposed bridge will span the meander belt width of minimum 36 m or greater.
- Complete an updated routing analysis to establish the new fixed water surface elevation (WSE) upstream of Hwy 401 and a cut-fill balance exercise that considers lands on west side of Pine Creek (between Kingston Road and new Walnut Lane extension).

- The hydraulic analysis to be provided at the detailed design stage must confirm that there will be no increase in floodplain elevation and velocity upstream or downstream of the site and within the neighboring private properties. Also, the proposed infrastructure must be in compliance with Section 7.4.4. of the TRCA's Living City Policies (LCP) and ensure no increased risk to life and property as a result of the project.
- Complete a geotechnical study to inform the design of the various elements of the earthworks, crossing, abutments and retaining walls for TRCA sign-off. The crossing, including the abutments, wing walls and foundations will also need to be designed from a geotechnical standpoint.
- Develop a stormwater management report for TRCA sign-off.
- Further develop conceptual grading strategy.
- Review and sign-off of the grading works by a geotechnical engineer to provide the site grading plans, longitudinal profiles and cross-sections at the detailed design stage. The grading works including the earthworks and retaining systems will need to be reviewed and signed-off by geotechnical engineer to ensure the global stability.
- Make the mitigation recommendations in the EIS into action items and included in the design and drawings in the detailed design submissions.
- If removal within suitable bat Species at Risk roosting habitat cannot be avoided, additional species-specific surveys such as leaf-off cavity tree searches, leaf-on surveys and acoustic monitoring following the Survey Protocol for Species at Risk Bats within Treed Habitats: Little Brown Myotis, Northern Myotis & Tri-colored Bat to confirm suitable habitat and/or presence of bat SAR, as well as authorization from MECP under the ESA will be required prior to construction.
- Provide TRCA with engineering drawings showing all necessary details and specifications as per the studies and design recommendations.

The following ESR sections and appendices will be used by TRCA to support their detailed design review:

- Section 1.2 – Study Area, Figure 1-1
- Section 4.3 – Natural Environment, Figure 4-1a-b Natural Environment Field Investigation Results, Figure 4-2 Pine Creek Historical Watercourse Alignments
- Section 7.0 – Alternative Design Concepts

- Section 8.0 – Project Description, Figure 8-1 a-d Simplified Preliminary Preferred Design Concept, Figure 8-2 Typical Cross-section
- Section 9.3 – Potential Environmental Effects, Mitigation Measures and Monitoring: Natural Environment
- Section 10.0 – Future Commitments
- Section 10.3.2 – Toronto and Region Authority Commitments
- Section 11.3 – Agency and Stakeholder Consultation
- Appendix B – Scoped EIS Report
- Appendix C – Fluvial Geomorphology Assessment Report
- Appendix D – Hydraulic Assessment Memorandum
- Appendix H – Drawings
- Appendix K – Stakeholder and Agency Consultation Record

10.4 Permits and Approvals

Table 10-2 details the anticipated permits and approvals for the proposed Walnut Lane Extension.

Table 10-2: Anticipated Permits and Approvals

Category	Permit / Approval	Timing
Technical and Engineering	■ Approvals may be required for temporary protection and/or permanent relocation of utilities and planned or future utilities/upgrades.	■ Detailed Design
Technical and Engineering	■ Approval will be required from Durham Region for the design of the intersections at Kingston Road and Liverpool Road, and a Regional Road occupancy permit is required for any work within the Region's right-of-way.	■ Detailed Design
Technical and Engineering	■ MTO approval is required for the intersection at Liverpool Road, and an MTO permit will be required for any work within the Highway 401 Permit Control Area. A 1:500 scale plan drawing will be required for final approval by MTO.	■ Detailed Design
Natural Environment	■ A project-specific Environmental Compliance Approval (ECA) will be required for the proposed storm sewer system and oil grit separators.	■ Detailed Design
Natural Environment	■ Permit to Take Water (PTTW) or registration on the Environmental Activity and Sector Registry system will be required if construction dewatering exceeds the MECP limits for water takings.	■ Prior to Construction
Natural Environment	■ DFO Request for Review should be completed and submitted for any proposed in-water works or works within the high-water mark.	■ Detailed Design
Natural Environment	■ TRCA permit application under O.Reg. 166/06: TRCA Regulation of Development, Interference with Wetlands and Alterations to Shorelines and Watercourses.	■ Detailed Design
Natural Environment	■ Authorization from MECP under the ESA will be required prior to construction if significant removal within suitable bat SAR roosting habitat (e.g., CUW1, CUP3-3 and FOD8-1) that impairs or eliminates the function of the habitat cannot be avoided.	■ Detailed Design
Natural Environment	■ A permit under the Migratory Bird Convention Act (MBCA) (1994) is not anticipated if the proper mitigation measures (**Section 9.3.4**) are implemented.	■ Detailed Design
Natural Environment	■ Confirm permitting requirements, if any, of the City of Pickering Tree Protection By-law 6108/03 once the full detailed tree inventory and preservation plan are completed	■ Detailed Design

11. Consultation Summary

Several steps have been undertaken to inform and facilitate dialogue with interested and affected stakeholders, review agencies, Indigenous communities and members of the public in the MCEA decision-making process, thereby contributing to the study outcome. The following hereafter summarizes the public, agency/stakeholder and Indigenous community consultation activities during MCEA planning process.

11.1 Notifications

11.1.1 Notice of Commencement

At the beginning of the study, a Notice of Study Commencement (**Appendix J**) was issued that presented an overview of the project and how to participate in the study.

The methods by which the notice was issued included:

- Email or regular mail to the study's contact list
- Postal walk within the Study Area to notify residents and businesses
- Newspaper publication in two editions of the News Advertiser
- Posted to the City's website

11.1.2 Notice of Public Information Centre 1

A Notice of Public Information Centre (PIC) #1 (**Appendix J**) invited all members of the public with an interest in the study to view and participate in the online PIC.

The methods by which the notice was issued included:

- Email or regular mail to the study's contact list
- Postal walk within the Study Area to notify residents and businesses
- Newspaper publication in two editions of the News Advertiser on June 19, 2019 and June 26, 2019
- Posted to the City's website

11.1.3 Notice of Public Information Centre 2

A Notice of PIC #2 (**Appendix J**) invited all members of the public with an interest in the study to view and participate in the second virtual PIC.

The methods by which the notice was issued included:

- Email or regular mail to the study's contact list
- Postal walk within the Study Area to notify residents and businesses
- Newspaper publication in two editions of the News Advertiser
- Posted to the City's website

11.1.4 Notice of Completion

A Notice of Completion (**Appendix J**) was issued to signify the completion of the MCEA phase of the study. The notice included the locations available to review the ESR during the 30 day review period, contact information, and the procedure for submitting comments and Section 16 Order Requests.

The methods by which the notice was issued included:

- Email or regular mail to the study's contact list
- Postal walk within the Study Area to notify residents and businesses
- Newspaper publication in two editions of the News Advertiser
- Posted to the City's website

11.2 Public Consultation

11.2.1 Public Information Centre No. 1

The first PIC was held virtually with content available to review on the City's website. An online comment form was available starting on June 27, 2019 to solicit input for consideration by the Project Team.

The purpose of the first PIC was to:

- Introduce the Walnut Lane Extension – Kingston Road to Liverpool Road Municipal Class Environmental Assessment (MCEA)
- Present the Study's problems and opportunities and recommended solution
- Provide the next steps of this study and how the community can provide their input

While most participants found the PIC #1 information helpful, the majority did not agree with the problem/ opportunity statement and recommended MCEA phase 2 preferred solution. The reoccurring feedback as to why participants did not agree is summarized as follows:

1. Potential impacts to Walnut Lane north of Kingston Road
2. Preference to widen and/or extend alternative routes
3. Potential impacts to the existing natural environment
4. Access and connectivity of the proposed road extension with regard to how it functions with the local road network, including Home Depot commercial site internal network, public transit and active transportation

A review of these key concerns, including how they relate to this project, and the corresponding response from the Project Team is included in the PIC #1 Briefing (**Appendix J**).

11.2.2 Public Information Centre No. 2

The second PIC was held virtually with two methods of participation:

- Live Information Meeting. PIC #2 was hosted virtually as a live Town Hall event using the Zoom platform on Thursday, November 19, 2020 from 6:30 pm to 8:00 pm. PIC #2 required participants to register prior to the event and included a presentation by the Project Team followed by a Question and Answer session. The presentation included a recap of feedback from the first PIC, in addition to sharing the evaluation of road alignment alternatives and span width options for crossing Pine Creek, including the preliminary recommended design concept and mitigation measures to address potential impacts the project may have.
- Review of online materials. The recording of the virtual PIC #2 was posted on the City's website. An online feedback survey was also made available to receive input.

The following summarizes the key themes of comments received for PIC #2:

1. Response to the proposed preliminary traffic calming plan under consideration by the City for the area of Walnut Lane north of Kingston Road
2. Preference to extend Dixie Road as an alternative route
3. Access and Egress from the existing businesses (e.g., Home Depot/Food Basics and TD Bank/Makimono Restaurant)
4. Environmental effects related to the proposed Walnut Lane extension

A review of the corresponding comments and responses associated with these themes is included in the PIC #2 Briefing (**Appendix J**).

11.2.3 City of Pickering Council Meeting

The ESR including its recommendations was presented to City of Pickering Council on June 27, 2022. Following the presentation Council voted to endorse the filing of the Environmental Study Report and authorized staff to complete the MCEA planning process and issue the Notice of Completion.

Comments received during the 30-day public review period of the Environmental Study Report are documented in **Appendix L**.

11.3 Agency and Stakeholder Consultation

The key agencies and stakeholders notified for this study are as follows:

- Ministry of Transportation (MTO)
- Ministry of Natural Resources and Forestry (MNRF)
- Ministry of the Environment, Conservation and Parks (MECP)
- Ministry of Citizenship and Multiculturalism (MCM)
- Ministry of Municipal Affairs and Housing
- Ontario Provincial Police
- Infrastructure Ontario
- Toronto and Region Area Conservation Authority (TRCA)
- Regional Municipality of Durham
- Durham Region Cycling Coalition
- Durham District School Board
- Durham Catholic District School Board
- KingSett Capital Inc.
- Tribute Communities
- Choice Properties REIT
- Glen Square Ltd.

In addition to the above noted stakeholders and agencies, a postal walk was undertaken to notify local property and business owners in the Study Area. Utility companies with potential interest in the study were also kept informed and engaged by way of notification at key project milestones (i.e., Notice of Commencement, Notice of PIC #1, Notice of PIC #2, and Notice of Completion).

The key agencies and stakeholders have been notified, informed and engaged, as necessary or as opportunities arose, throughout the MCEA process. A summary of the consultation activities and correspondence is summarized in **Table 11-1** and **Table 11-2**. Refer to **Appendix K** for the complete correspondence and meeting minutes.

Table 11-1: Agency and Stakeholder Correspondence – MCEA Phases 1, 2 and 3

Agency / Stakeholder	Date	Summary of Correspondence	Summary of Project Team Response
Rogers	September 21, 2017	■ No comments at this time. ■ Requested to update contact.	■ Contact updated.
Toronto and Region Conservation Authority (TRCA)	October 2, 2017	■ In response to the Notice of Commencement, TRCA highlighted their Areas of Interest (Regulated Areas, TRCA Program and Policy Areas). ■ TRCA requires the preferred alternative to meet the following criteria: 1. Prevents the risk associated with flooding, erosion or slope instability. 2. Protects and rehabilitates existing landforms, features and functions. 3. Provides for aquatic, terrestrial and human access. 4. Minimizes water/energy consumption and pollution. 5. Addresses TRCA property and heritage resource concerns. ■ TRCA staff recommends that a summary of detailed design commitments be included in the final report. ■ Requested a site visit with TRCA staff to identify wetlands and other natural features. ■ Request copies of notices, PIC materials and the MCEA report.	■ Commitments made during the MCEA are detailed in **Section 10**. ■ Site visit with TRCA staff was completed November 14, 2017. ■ TRCA will be circulated the draft ESR.
Toronto and Region Conservation Authority (TRCA)	August 30, 2019	■ TRCA provided comments on the PIC #1 display boards, including: 1. Demonstrate how the proposed development on the undeveloped parcel, and redevelopment of the adjacent parcels surrounding the road extension have been examined prior to road options being designed. The EIS and floodplain should show the limits of the current open space as well as the limits of future development to ensure that the proposed road options are feasible. 2. Requested that further evaluation be provided into increasing the minimum size of the structure to span the meander belt (36 metres). An EIS and Flood Study should determine the span and the exact location of the crossing, so that the EA does not “lock down” a particular span and location. 3. The studies must demonstrate how the proposed crossing structure adheres to TRCA’s Crossing Guideline: http://www.trca.on.ca/dotAsset/214493.pdf. 4. TRCA staff recommends that the Draft Evaluation Criteria for the natural heritage be expanded to include restoration opportunities. 5. The HEC-RAS model is not conservative. As such, TRCA staff will not support any additional fill to be placed within the floodplain. The project team must be able to provide an equivalent amount of cut to be placed in order to mitigate the loss of floodplain storage. This must be completed and an updated HEC-RAS model with an updated Regional Storm Routing analysis completed.	■ Response letter issued October 29, 2020 addressing TRCA comments and included the following supporting documents – TRCA Crossing Guidelines - Activities at Early and Intermediate Planning Stages for New Crossings Memorandum – Result of Wetland Investigations Memo – Scoped EIS – Fluvial Geomorphic Assessment Report – Hydraulic Assessment Memorandum – October 29, 2019 meeting minutes
Toronto and Region Conservation Authority (TRCA)	December 21, 2020	■ TRCA provided comments on the supporting studies issued October 29, 2020 with respect to the outstanding TRCA comments from the PIC, Pine Creek crossing, fluvial geomorphic assessment report, stormwater management, Environmental Impact Study (EIS), and general comments related to the Project.	■ Response to TRCA December 21, 2021 comments issued with the draft ESR.
Toronto and Region Conservation Authority (TRCA)	March 31, 2022	■ TRCA provided comments on the draft ESR pertaining to previous outstanding comments, Pine Creek crossing, Fluvial Geomorphic Assessment Report, stormwater management, Environmental Impact Study and general comments. See **Appendix K** for complete comments. ■ A meeting was held May 9, 2022 to review and clarify key comments.	■ Response issued to TRCA dated August 30, 2022 addressing comments received March 31, 2022 with direction from the meeting held on May 9, 2022. Draft ESR was also circulated for TRCA sign off prior to the issuance of the Notice of Completion. ■ The project team has agreed to increasing the size of the structure to span the meander belt (36 metres) with additional analysis (hydraulic assessment, a cut and fill analysis and an updated fluvial geomorphic assessment memo

Agency / Stakeholder	Date	Summary of Correspondence	Summary of Project Team Response
			addressing TRCA's crossings guidelines) being completed during detailed design that will confirm 36 metres as appropriate span width. ■ A new section specific to TRCA Commitments has been added (**Section 10.3.2**). ■ Refer to the TRCA correspondence record in **Appendix K** for complete responses.
Toronto and Region Conservation Authority (TRCA)	September 29, 2022	■ Confirmed agreement with revisions made to the ESR. ■ Requested to revise bullet point no 9 in Section 10.3.2 to clearly state that "the proposed bridge will span the meander belt width of minimum 36 m or greater. ■ Request to add the following to the commitments: "The hydraulic analysis to be provided at the detailed design stage must confirm that there will be no increase in floodplain elevation and velocity upstream or downstream of the site and within the neighboring private properties. Also, the proposed infrastructure must be in compliance with Section 7.4.4. of the TRCA's Living City Policies (LCP) and ensure no increased risk to life and property as a result of the project. ■ Noted that the lifting of the zoning hold for the adjacent properties has been deferred to the City. TRCA staff however understands that the holding will not be lifted until a comprehensive evaluation of alternatives for flood remediation has been completed.	■ **Section 10.3.2** revised to reflect TRCA's comments. ■ The City Centre By Law #7553/17 is already in place. The holding zone will be lifted as per the by-law provisions already in place. Any future adjacent property will also be dealt with as per the by-law provisions. ■ TRCA will be circulated the ESR with the Notice of Completion.
Toronto and Region Conservation Authority (TRCA)	November 25, 2022	■ TRCA has no objection in principle to the preferred alternative, noting the commitments related to detail design in **Section 10.3.2** of the ESR. ■ Permits in accordance with Ontario Regulation 166/06 are required from TRCA prior to project construction. In advance of the permit submission, a Pre-Design Brief summarizing all TRCA requirements and technical commitments made during the EA stage should be completed and submitted in draft, to TRCA for review together with a copy of the TRCA permit application form. ■ The TRCA Complete Submission Checklist for Infrastructure should be used as a guide to the permit submission. The Permit Application Form, together with additional submission checklist and guidelines should be used as appropriate to inform the development of the application.	■ The City acknowledges receipt of the comments. A Pre-Design Brief will be included with the TRCA permit application during the detailed design phase of the Project and this will include how the Toronto and Region Conservation Authority commitments identified in the Environmental Study Report will be addressed.
Ministry of Citizenship and Multiculturalism (MCM)	October 10, 2017	■ In response to the Notice of Commencement, MCM (formerly MHSTCI) indicated their interests in relation to this MCEA process as it relates to its mandate of conserving Ontario's cultural heritage, which includes: – Archaeological resources, including land-based and marine. – Built heritage resources, including bridges and monuments. – Cultural heritage landscapes.	■ A stage 1 archaeological assessment and cultural heritage screening memorandum have been completed in support of this MCEA study.
Ministry of Citizenship and Multiculturalism (MCM)	June 19, 2019	■ Confirmed heritage planner contact for the project.	■ MCM will be provided copies of all future notices and a copy of the draft ESR.
Ministry of Citizenship and Multiculturalism (MCM)	March 16, 2022	■ MCM provided comments on the draft ESR. ■ The comments primarily related to submission of the Stage 1 archaeological assessment report, terminology and mitigation measures pertaining to the cultural environment.	■ Response to MCM comments addressing comments issued prior to the issuance of the Notice of Completion. ■ The terminology and mitigation measures have been updated in the ESR as per the ministry's recommendations. ■ The Stage 1 archaeological assessment has been entered into the Ontario Public Registry of Archaeological Reports (refer to **Appendix F**).
Ministry of Citizenship and Multiculturalism (MCM)	November 24, 2022	■ Confirmed ESR comments dated March 6, 2022 have all been addressed,	■ Comments noted.

Agency / Stakeholder	Date	Summary of Correspondence	Summary of Project Team Response
Infrastructure Ontario	December 4, 2017	■ In response to the Notice of Commencement, Infrastructure Ontario indicated it was unclear if lands under the control of the Ministry of Infrastructure are being proposed to support the proposed project.	■ MOI lands are not impacted by the proposed project.
Dorsay Development	April 25, 2019	■ Requested information about the MCEA process, timing and questions regarding costs/funding.	■ The Project is in Phase 2: Evaluation of Alternative Solutions of the Municipal Class Environmental Assessment Process where alignment options are being considered. A preferred alignment has not been confirmed at this time. ■ It is too early in the MCEA process to comment on questions regarding the subject lands and costs/funding.
KingSett Capital	June 18, 2019	■ Request for the revised construction cost and timelines.	■ Construction costs and preliminary schedule will be confirmed upon confirmation of the preferred road alignment and crossing span.
KingSett Capital	June 27, 2019	■ Confirm whether field work to confirm Species at Risk potentially occurring within the Study Area has been completed. ■ Has it been determined whether any of the Natural Environment conditions would impede the potential for the project to move forward? ■ Alignment 3 will significantly impact the development potential of the lands south of the same and north of highway 401, when factoring in the MTO and floodplain setbacks. ■ Has it been determined whether Alignment 2 is cutting through a wetland?	■ Targeted terrestrial SAR surveys are completed after impact assessment / mitigation has been exhausted, and consultation with MECP through submission of an Information Gathering Form indicates that particular terrestrial SAR are likely to be affected. In regard to the aquatic environment, investigations are not typically conducted to confirm aquatic SAR. If they are mapped and confirmed by an agency, they are considered present. ■ The natural environment Impact Assessment has not been completed as the preferred road solution has not been confirmed at this time. Any potential impacts to the natural environment will require mitigative measures and possible future EA commitments, but will not prevent the project from moving forward. ■ Comments for impacts to alignment 3 have been noted. The evaluation of alignments considers development. ■ Alignment 2 cuts through an unevaluated wetland. The wetland has been staked as per the request of the Ministry of Northern Development, Mines, Natural Resources and Forestry.
Ministry of Northern Development, Mines, Natural Resources and Forestry	September 6, 2017	■ Confirmed receipt of the Notice of Commencement. ■ Pickering's official plan has recognized the stream corridor of Pine Creek in its natural systems plan. The study area contains natural herbaceous and treed communities. Significant habitats may be present. ■ Species at risk to be considered include Butternut (endangered), Bank Swallow (threatened), Barn Swallow (threatened), Bobolink (threatened), Eastern Meadowlark, endangered bats (Eastern Small-footed Myotis, Little Brown Myotis, Northern Myotis and Tri-colored Bat) and others.	■ Scoped EIS completed, which captures the Species at Risk for the area of interest.
Ministry of Northern Development, Mines, Natural Resources and Forestry	November 15, 2017	■ Ministry of Northern Development, Mines, Natural Resources and Forestry (formerly MNRF) confirmed that the wetland should be evaluated and accessed to see if it should be complexed with any adjacent wetlands as part of the MCEA. It should be staked in the field this spring to determine its full extent.	■ Wetlands staked as per Ministry of Northern Development, Mines, Natural Resources and Forestry recommendations.
Ministry of Northern Development, Mines, Natural Resources and Forestry	June 18, 2019	■ Requested an update on the natural features/areas/wetland assessment as recommended in Ministry of Northern Development, Mines, Natural Resources and Forestry's September 6, 2017 and November 16, 2017 correspondence.	■ The remaining wetlands within the Study Area have been staked.
Ministry of Northern Development, Mines, Natural Resources and Forestry	August 9, 2019	■ Ministry of Northern Development, Mines, Natural Resources and Forestry management biologist confirmed the wetlands that should be evaluated. ■ To evaluate the wetland on the subject property the intervening wetland on public lands just south of Highway 401 will also need to be characterized.	■ Wetlands staked as per Ministry of Northern Development, Mines, Natural Resources and Forestry recommendations. ■ Follow-up memo compiling the data collected was circulated to Ministry of Northern Development, Mines, Natural Resources and Forestry on November 18, 2019.

Agency / Stakeholder	Date	Summary of Correspondence	Summary of Project Team Response
Ministry of Environment, Conservation and Parks (MECP)	September 21, 2017	■ In response to the Notice of Commencement, provided MECP's Areas of Interest document to provide MCEA guidance from the Ministry.	■ Comments noted. ■ Provided status update via email on June 18, 2019 that the Project is now following the Schedule C planning process (previous schedule B undertaking).
Ministry of Environment, Conservation and Parks (MECP)	November 16, 2020	■ In response to the Notice of PIC, provided updates to the Areas of Interest document previously circulated.	■ Confirmed receipt of email and confirmed the draft ESR will be circulated to MECP prior to issuance of the Notice of Completion.
Ministry of Environment, Conservation and Parks (MECP)	April 11, 2022	■ Provided comments on the draft ESR. ■ The comments provided were related to noise, completion of the Stage 2 archaeological assessment, provincially significant wetland, drainage and stormwater management, natural environment monitoring, consultation and Section 16 Order requests.	■ Response issued to MECP dated August 30, 2022 addressing comments issued prior to the issuance of the Notice of Completion. ■ A new section on noise has been added to the ESR (see **Section 4.4**). ■ The Stage 2 archaeological assessment will be completed during the early phases of detailed design. ■ The ESR identifies the City's Salt Management Plan (2005) that is to be updated before the 2022/2023 winter related to salt management in reference to the provincially significant wetland. ■ A stormwater management plan will be completed at detailed design ■ Natural environment monitoring requirements have been included in the Scoped EIS (**Appendix B**) and ESR **Section 9.3**. ■ The City will distribute the Notice of Completion via postal walk, similar to previous notices to be consistent with previous notifications. ■ The study team will follow-up with Indigenous Communities that have not responded to the notifications to date and document this outreach in the Indigenous Consultation record. ■ Part II Order wording updated to Section 16 Order request wording as per the latest information for Section 16 Order requests. Refer to the new ESR **Section 2.2.1**.
Ministry of Environment, Conservation and Parks (MECP)	September 28, 2022	■ Responded to letter dated August 30, 2022 with additional comments. ■ Confirmed no further comments on the updated noise section and requested to reference local noise by-laws during construction. ■ Recommends that a stormwater management plan be developed as part of the MCEA; however, if completing during detailed design, at a minimum, the ESR should include a summary of current drainage conditions as part of the inventory of the natural environment and a preliminary assessment of potential impacts (e.g. considerations for PSW downstream) and potential stormwater management options (e.g. options described in response). Additionally, the report should provide rationale on whether the stormwater management plan would impact the selection of the preferred design concept for the road alignment and Pine Creek crossing. ■ Confirm whether the proposed storm sewer system and oil grit separators is intended to be a project-specific ECA (as opposed to consolidated linear infrastructure approvals).	■ Adherence to the City's Noise By-law 6834/08 during construction referenced in **Section 9.4.1**. ■ The stormwater management report will be completed at detailed design. ■ A summary of current drainage conditions is included in **Section 4.3.8** and a preliminary assessment of potential impacts and potential stormwater management options (e.g., options described in response) has been added to **Section 9.3.9** ■ The stormwater management plan will not impact the selection of the preferred design concept for the road alignment and Pine Creek crossing. ■ MECP will be provided the ESR with the Notice of Completion.
Ministry of Environment, Conservation and Parks (MECP)	November 10, 2022	■ Confirmed no further comments on the ESR and reiterated the importance of the stormwater management plan commitment, to be completed during detail design. ■ The project cannot proceed until at least 30 days after the end of the public comment period.	■ The City acknowledges the project cannot proceed until at least 30 days after the end of the public comment period and will ensure the stormwater management plan commitment is completed during detailed design.
Durham Region Cycling Coalition (DRCC)	June 18, 2019	■ Requested meeting details for PIC #1.	■ Provided online information details for PIC #1.
Durham Region Cycling Coalition (DRCC)	November 12, 2020	■ In response to the Notice of PIC #2, DRCC indicated that the proposed extension to Walnut Lane will have no adverse effects to cycling in the City of Pickering.	■ Comments noted.

Agency / Stakeholder	Date	Summary of Correspondence	Summary of Project Team Response
Enbridge	June 21, 2019	■ Provided general location drawings. ■ Submit final drawings at the detailed design phase.	■ General location of utilities noted.
Ministry of Transportation (MTO)	June 28, 2018	■ MTO provided the following comments: – MTO is agreeable to a new Walnut lane intersection at Liverpool north of the 401 – Walnut lane can have a right out. – A right in from Liverpool onto Walnut lane is acceptable. – MTO is agreeable to the left in from Liverpool provided the storage in the left turn lane is acceptable to all stakeholders. – MTO is still not agreeable and requires more justification on the left out from Walnut Lane. The Safety and operation of the intersection is still our concern. – There are many needs and issues in and around this interchange in all 4 quadrants around Liverpool and 401. There are many intensification projects in and around this interchange which will affect the Walnut Lane extension. Intensification of Pickering Town, Universal and the high Residential below Hwy 401 and west of Liverpool.	■ AECOM agrees with all of the comments provided by MTO. There will not be a left out from Walnut Lane. ■ MTO will be provided with review material as the design of the interchange intersection progresses.
Ministry of Transportation (MTO)	March 9, 2020	■ In response to the draft Traffic report circulated to MTO for review, MTO was in general agreeable to the report as it deals with the No left turn going North from Walnut lane. ■ The northbound lane with a left onto Walnut, will need to be reviewed for storage.	■ Comments noted.
Ministry of Transportation (MTO)	October 12, 2021	■ MTO provided the following comments on the Project: 1. The design for Walnut Lane should include 2 inbound lanes from Liverpool Road, to provide adequate through access from the off-ramp in the event of future expansion. One lane can provide left turn access into the proposed facility on the south side of Walnut Lane. 2. There are issues with the functionality of the right-out lane, which will direct traffic to the on-ramp and lead to weaving. If the geometry can be accommodated, the ramp should be redesigned to connect to Liverpool Road south of the intersection so that the right-out will direct traffic onto the Liverpool Road outside through lane. Vehicles can then enter the on-ramp from this lane. 3. The right-out shall not be channelized. 4. A “no right turn on red” prohibition will be required to avoid unexpected and conflicting movements in the intersection. 5. If this geometry cannot be accommodated, a grade-separated on-ramp that connects with Liverpool Road north of the intersection should be considered instead. 6. The design should consider options to increase the storage capacity of the inbound left turn lane, to ensure all stakeholders are satisfied.	■ The Project Team provided the following responses: 1. Based on the approved intersection connection to Liverpool Road, AECOM proceeded with the design of a two lane roadway cross-section, including the bridge crossing of Pine Creek. The potential inclusion of two inbound lanes causes weaving and safety concerns on Walnut Lane between vehicles making a southbound right turn on Walnut followed by a subsequent left turn into the Tribute development, and the northbound left turning vehicles that continue westerly along Walnut Lane. 2. Providing greater separation between the right turn lane and the on-ramp was reviewed early on in the project. Given the available space at this intersection is very limited, this was not achievable. Signage is included in the design on eastbound Walnut Lane to advise vehicles to keep left for Liverpool Road south and keep right for 401 West. The intersection signals are "split" phased for westbound traffic (from the off-ramp) and eastbound traffic (from Walnut Lane), so right turning vehicles operate on a protected phase. With the no-right on red, there will not be other southbound traffic interfering with the southbound right turn from Walnut Lane. Given these conditions, vehicles will have ample opportunity to keep left to continue south on Liverpool Road. 3. A “no right turn on red” prohibition is included in the design. 4. The possibility for a grade separated ramp was reviewed early on in the project. It was determined there is not enough available property or distance to the next signalized intersection to accommodate a grade separated ramp. A grade separated ramp is outside of the scope of the Walnut Lane extension project. 5. AECOM completed a traffic analysis and confirmed the 95th percentile queue for the northbound left-turn movement can be accommodated within the proposed storage area on Liverpool Road.

Agency / Stakeholder	Date	Summary of Correspondence	Summary of Project Team Response
Ministry of Transportation (MTO)	March 23, 2022	■ MTO indicated no comments on the draft ESR. ■ Follow-up meeting held with MTO and Durham Region on April 8, 2022 to review the updated Liverpool Road/Walnut Lane intersection design.	■ Circulated April 8, 2022 meeting minutes, as well as the updated set of drawings for the Liverpool Road/Walnut Lane intersection design.
Ministry of Transportation (MTO)	September 12, 2022	■ Provided comments on the revised Liverpool Road/Walnut Lane intersection design ■ Confirmed the intersection is acceptable in principle. ■ The proposed monopole installation should be set to a distance which will not prevent vision of traffic signals. ■ A cantilever style overhead sign shall be placed on the South side of the intersection according to MTO structural standards. ■ The entire intersection footprint shall be brought to AODA compliance including all crossings in all directions. ■ A 1:500 scale plan drawing will be required for final approval.	■ The comments have been identified as commitments for Detailed Design (see **Table 10-1**). ■ The requested 1:500 scale plan drawing required for final approval has been referenced in the MTO permits and approvals (**Table 10-2**). ■ **Appendix H** contains the updated drawings.
Ministry of Transportation (MTO)	November 28, 2022	■ MTO provided comments on the ESR related to the Corridor, preliminary Traffic Calming Plan, noise, access, preliminary land use, traffic, site lighting. ■ Posed questions related to the Loblaws Site.	■ The MTO review and approval requirements for all lands within the MTO permit controlled area will be included in the future commitments table. The future commitments table will include MTO's request that all reports conducted for sites within the permit-controlled area consider all surrounding sites in their studies/reports for MTO review as the cumulative impact is a concern for the MTO right-of-way. ■ The future commitments table will include MTO's request that there shall be no on-street furniture, parking or other traffic calming measures along the inbound lane(s) of Walnut from the MTO ramp-terminal intersection ■ The access to 1786 Liverpool Road from the intersection of Liverpool Road/Walnut Lane will be closed ■ The monotube OHS on Liverpool Rd. is to be move northerly to be located at the start of the exclusive right turn lane to Walnut Lane ■ The existing ground mounted sign to Hwy 401 West on-ramp is to be replaced with a cantilever sign ■ This Study does not trigger any need for widening or changes to the current lane configuration of the Highway 401 westbound off ramp ■ Lighting and signal (temp/perm) design and construction staging will be evaluated during detailed design ■ There are no firm long-term plans in place regarding the Loblaws lands at this time. ■ Refer to **Appendix M** for the complete response documented in the Close-out Memorandum.
Hydro One	July 4, 2019	■ Provided map of approximate location of Hydro One underground plant in the area.	■ Noted.
Hydro One	July 24, 2019	■ Confirmed there are no existing Hydro One Transmission assets in the subject area based on preliminary assessment.	■ Noted.
Hydro One	November 10, 2020	■ Hydro One does not own nor operates underground high voltage transmission facilities in Study Area.	■ Noted.
Durham District School Board	July 10, 2019	■ Traffic Calming measures to be implemented at the north end of Walnut Lane to ensure the safety of students, buses and all other pedestrian, bicycle and vehicular traffic entering and exiting the school site located on the north side of Glenanna Road.	■ A traffic calming study that would recommend measures to be implemented along the section of Walnut Lane between Kingston Road and Glenanna Road has been completed and will be considered by the City.

Agency / Stakeholder	Date	Summary of Correspondence	Summary of Project Team Response
Regional Municipality of Durham	July 24, 2019	■ Requested to be circulated on draft deliverables, such as supporting traffic assessment work, draft PIC #2 materials. ■ Confirmed the Region's Works department provided information on existing sanitary sewer and watermain infrastructure in the area, and accommodation for future extensions as part of the project. ■ Provided Comments on the PIC #1 materials	■ The Region will be circulated on PIC #2 boards, preliminary design and the draft Environmental Study Report. ■ Comments from PIC #1 addressed in letter dated October 19, 2020.
Regional Municipality of Durham	August 13, 2020	■ Provided comments in response to the meeting held on February 26, 2020	■ Issued response letter dated October 19, 2020 addressing the comments received from the Region
Regional Municipality of Durham	November 10, 2020	■ Confirmed receipt of October 19, 2020 letter, which included draft design drawing package, meeting minutes and comments/responses table (PIC #1) ■ Provided comments on the design drawing package.	■ Response to Durham Region comments issued with a copy of the draft ESR. ■ Drawings updated based on comments from the Region.
Regional Municipality of Durham	November 16, 2020	■ Provided comments on the draft PIC #2 materials.	■ PIC #2 comments addressed. Response to Durham Region comments issued with a copy of the draft ESR.
Regional Municipality of Durham	August 6, 2021	■ Provided comments on the updated Traffic Report prepared by AECOM (June 2021).	■ Traffic Report comments will be addressed during Detailed Design as per the ESR Commitments (**Section 10.3.1**).
Regional Municipality of Durham	March 31, 2022	■ Durham Region provided comments on the draft ESR. ■ Refer to **Appendix K** for the complete set of comments.	■ Response letter dated August 30, 2022 issued to Durham Region addressing comments prior to the Notice of Completion. ■ Updated drawings are in **Appendix H**. ■ Refer to **Appendix K** for the complete set of responses.
Regional Municipality of Durham	November 24, 2022	■ Confirmed no additional comments on the ESR.	■ The Region will be engaged through the detailed design phase of the Project and the commitments identified during the Municipal Class Environmental Assessment phase of the Project will be addressed.
Choice Properties REIT	December 14, 2020	■ Does this road plan occur if we do any redevelopment to the site? Or is the 'case of redevelopment' only representative to the Loblaws? ■ Is there any flexibility in this plan or is what is shown secured and moving forward? ■ Did the PIC 2 occur in November? Requested details from PIC 2. ■ Could you please provide a timeline?	■ Virtual PIC #2 was held on November 19, 2020. All the details and the timing of the PIC #2 is available on our City's website ■ The City's consultant (AECOM) had attempted to contact Loblaws prior to the PIC. A letter was also sent out regarding this ■ Added to the study contact list.
Choice Properties REIT	December 14, 2020	■ Concerns of how road that runs through the Loblaws site will impact the property.	■ Followed up via phone on December 14, 2020. ■ Noted that the Loblaws site is reflected in the City's approved Official Plan. There is no timeline for the new N-S road shown and it will be triggered if and when Loblaws-Choice Properties decides to redevelop. The new road does not require any land from Loblaws-Choice Properties
Property Owner Representatives for 1786 - 1790 Liverpool Road	February 22, 2021	■ Asked if Choice REIT has been consulted on access to Pickering Road. Glen Square Ltd. is looking for a solution to address the proposed access closure to their property.	■ There are no proposed plans for the Loblaws site at this time ■ Requested materials that were previously presented to Choice REIT
Property Owner Representatives for 1786 - 1790 Liverpool Road	March 15, 2021	■ Provided package previously issued to Choice REIT regarding suggested access modifications related to 1786-1790 Liverpool Road and Loblaws site	■ The Project Team reviewed and discussed possible modifications with the City.

Agency / Stakeholder	Date	Summary of Correspondence	Summary of Project Team Response
Property Owner Representatives for 1786 - 1790 Liverpool Road	July 26, 2021	■ The most recent proposal contemplates full closure of that access to the subject property, however has a connection to Walnut Lane to the subject property been reviewed? Is it possible to have all access turns onto Walnut Lane from the subject property? ■ If that southern access was eliminated completely, has there been a traffic study or a review to understand the implications to the subject property? In other words, leaving only 1 right-in, right-out access point onto Liverpool going south. ■ Have full turns been considered from the subject property, which would include creating a space in the centre median? Also, have there been any consideration into allowing U-turns at the intersection of Liverpool Rd & Pickering Parkway?	■ Yes, we have reviewed a potential connection from Walnut Lane to the subject property. ■ This current full-move access is situated within Highway 401 Controlled Access Highway designation. It has always been an illegal access from the MTO's viewpoint. ■ Providing an access from the proposed Walnut Lane Extension west of Liverpool Road and with minimum standard clearance distance from Liverpool Road is problematic and has been ruled out due to the need to acquire property and would result in the road cutting through the developable lands, in addition to difficult topography and tight turning radii. ■ This current access will remain in place / operational until the proposed Walnut Lane Extension is under construction. Future access to the subject property will only be from the current right in, right out access off southbound Liverpool Road, south of Pickering Parkway. ■ The Project Team have looked at internal access modifications through the Loblaws east side driveway. It is the City's position that this arrangement would need to be undertaken between the subject property owners, including Choice REIT as all works would be on private property. ■ Based on the most recent pre-COVID traffic counts, the closure of the current full-move access driveway to the subject property would require a total of 35 inbound vehicles (i.e., destined to the subject property) to change their current access travel paths to the subject property during the peak hour on a typical weekday. In other words, a total of 35 vehicles would require to either make a northbound U-turn at the intersection of Pickering parkway and Liverpool Road before taking the current right-in, right-out access driveway, or to take other relatively longer detours to access the subject property. Note that in the absence of any sign, indicating otherwise, northbound U-turn is currently a permitted movement at the intersection of Pickering Parkway and Liverpool Road. ■ The noted 35 vehicles per hour is equivalent to an average increase of 1 vehicle per each signal cycle (i.e., 120 seconds or 2 minutes) in volume of traffic entering the intersection of Pickering Parkway and Liverpool Road and therefore, can be easily accommodated without any notable impact to traffic conditions at the noted intersection. ■ Conversion of the existing right-in / right-out only access driveway to a full-move access driveway (which requires provision of an opening in the median on the section of Liverpool Road between Pickering Parkway and the Highway 401 ramp terminal) is not feasible as it would create significant traffic safety and operational issues. ■ In the absence of any sign prohibiting U-turns at the intersection of Liverpool Road and Pickering Parkway, northbound motorists on Liverpool Road can "technically" access the current right-in, right-out only access driveway to the subject property by making a U-turn at the intersection of Liverpool Road and Pickering Parkway. ■ Any modifications / changes to the section of Liverpool Road bordering the subject property, including the intersection of Pickering Parkway and Liverpool Road is subject to review / approval by the Region of Durham as this section of Liverpool Road is under the jurisdiction of the Region.

Agency / Stakeholder	Date	Summary of Correspondence	Summary of Project Team Response
Property Owner Representatives for 1786 - 1790 Liverpool Road	September 9, 2021	■ Requested to further discuss the ingress/egress from 1790 Liverpool Road.	■ City/AECOM to follow-up.
Chestnut Hill Developments – Property owner of 1790 Liverpool Road	November 21, 2022	■ Wildav International Developments Limited is the legal owner of 1790 Liverpool Road. There has been and is an access from the south side of our property over a portion of the property now owned by Tribute (Liverpool) Limited that connects our property to Liverpool Road and this access over the Tribute property to Liverpool Road has been and is used and will continue to be used moving forward.	■ The current access from Liverpool Road opposite the Highway 401 westbound off-ramp is located within the Highway 401 Controlled Access Highway designation and is not recognized as a legal entrance by the Ministry of Transportation. At the onset of this project, MTO clearly communicated the above to the Project team and City. As such, this access will be removed as part of this project. Providing an access from the proposed Walnut Lane Extension west of Liverpool Road is problematic and has been ruled out due to the need to acquire property, difficult topography and tight turning radii that restricts large truck movements. This current access to your property off Liverpool Road will remain in place / operational until the proposed Walnut Lane Extension is under construction which is estimated to be as early as 2023. ■ The Study Team met virtually with the property owner representatives of 1790 Liverpool Road on February 11, 2021 (see attached meeting minutes). After this meeting the noted access was reviewed in further detail by the Project Team to confirm whether there was a potential solution to address closing the current 1790 Liverpool Road access. Potential solutions to make a connection through the Loblaws property were reviewed at that time. As a result of the grade difference between the restaurant/bank and the Loblaws property, the tight geometry and property constraints, it was determined that it is not feasible to make this connection without redevelopment of the site.

Table 11-2: Agency and Stakeholder Meetings – MCEA Phases 1, 2 and 3

Agency / Stakeholder	Date of Meeting	Purpose and Key Considerations
Ministry of Transportation	October 10, 2017	■ Introduced the Project ■ Discussed ramp terminal alternatives ■ MTO noted that the purpose for the access at the ramp terminal was for a previous construction work area, and it is considered an “unlawful” road connection ■ Based on MTO Policy, the left in and left out movements are not permitted. ■ For a 3 lane off ramp (existing conditions), there is a requirement for two inbound lanes on an access road. ■ The first intersecting road on the new Walnut Lane must be a minimum of 200 metres away from the signalized intersection. ■ MTO noted that a protected phase for right out movements would be required. ■ MTO has concerns with the right out movement onto the Highway 401 N-W Ramp.
Ministry of Transportation	December 17, 2021	■ Discussed the Liverpool Road/Walnut Lane Intersection. ■ Prior to the meeting, MTO circulated a conceptual sketch of the intersection that demonstrated what may be required to meet the MTO guidelines for access at a ramp terminal. ■ MTO’s policy is for two inbound ramp lanes. ■ The existing off-ramp is three lanes (left, thru-left, and right) ■ MTO requested confirmation that traffic volumes do not warrant ramp widening. ■ Post Meeting Note: AECOM Traffic confirmed the Walnut Lane extension project does not trigger any need for widening or changes to the current lane configuration of the Highway 401 westbound off ramp. ■ In the future, the off-ramp will be widened to four lanes. At that time, MTO suggested two inbound lanes to Walnut Lane would be required. ■ MTO inquired about the length of the Liverpool northbound left turn lane. AECOM Traffic has reviewed the storage length for this left turn lane as part of the Traffic Report, and it is adequate. ■ MTO suggested the design needs to be modified to include the following: – Liverpool Road southbound right turn lane to Walnut Lane should include a channelized right turn with porkchop island – The eastbound right turn lane from Walnut Lane should direct traffic to the southbound through lane on Liverpool Road in advance of the taper to the Highway 401 westbound on ramp. ■ AECOM will review options to address MTO’s concerns and recirculate to MTO for comment.
Ministry of Transportation	April 8, 2022	■ Meeting held with MTO and Durham Region to provide an overview of the modified Liverpool Road/Walnut Lane/Highway 401 WB ramp terminal intersection design. The modified design includes the addition of one southbound lane on Liverpool Road from Pickering Parkway to the exit Ramp to Highway 401 WB lanes. ■ The Region of Durham are planning to widen Liverpool Road to six lanes (3 lanes in each direction) between Kingston Road and Highway 401 as part of a future project. By advancing the additional SB lane through the ramp terminal intersection it will allow for the final intersection configuration in the SB direction to be constructed in one project. ■ MTO noted that ideally the widening of Liverpool Road would include a widening of the Highway 401 bridge underpass structure. It was questioned whether traffic volumes support dropping the third southbound lane at the Highway 401 WB on-ramp. Durham Region noted that they expect to have close to a full lane of capacity entering Highway 401 WB in the AM peak hour and therefore there is some logic to terminating the lane at the Highway 401. ■ MTO noted that they can support the modified intersection design with the following additional details/clarifications: – The design is to include an overhead sign structure (monotube) with lane designations on Liverpool Road at the SB approach to the intersection – Additional ground mounted signs to support the lane configurations will be developed during detailed design – Two inbound lanes are to be provided opposite the Highway 401 off-ramp. AECOM noted that the current design includes space for two lanes. ■ Durham noted that Brock Road at Highway 401 is an example where additional signage was used to avoid driver confusion. ■ MTO requested that two inbound lanes be provided on Walnut Lane. AECOM will revise the design to include two inbound lanes with MTO standard lane widths. AECOM will also lengthen the median island at the right-turn channelization to ensure two vehicles cannot get through side by side. ■ AECOM will circulate revised drawings to D. Robertson and C. Leitch at Durham Region. ■ Once satisfied with the revisions noted above, MTO noted that they would support an agreement in principle for the intersection configuration.

Agency / Stakeholder	Date of Meeting	Purpose and Key Considerations
Toronto and Region Conservation Authority	November 14, 2017	■ Conducted a site walk with TRCA staff. ■ Introduced the Project. ■ TRCA noted that design of the Pine Creek water crossing must consider TRCA Crossings Guidelines for Valley and Stream Corridors (September 2015). ■ AECOM to contact Ministry of Northern Development, Mines, Natural Resources and Forestry to confirm if there is interest from provincially significant wetlands (PSW) perspective. Potential to complex-add Pine Creek Wetland the Frenchman's Bay PSW to the south. ■ Pine Creek regulated floodplain covers a significant portion of the development site. ■ TRCA has concerns with proposed culvert recognizing hydraulic performance limits. Kingston Road is already experiencing overtopping and upstream flooding complaints. ■ MCEA should also include geotechnical study – TRCA to review proposed geotechnical scope including borehole (BH) access, location and depth. No permits required for BHs. TRCA staff will need to review the location of the boreholes to determine if an Ontario Regulation 166/06 permit will be required. Post Meeting Note: This will be completed during Detailed Design. ■ MCEA alternatives evaluation to look at how road alignments impact wetlands. ■ Noted significant erosion, cutting into Loblaw's rear parking lot that may impact potential north-south future connecting roads. ■ There are opportunities to improve Pine Creek form/function and fish habitat.
Toronto and Region Conservation Authority	October 30, 2018	■ AECOM noted that the 2018 additional field work completed included Pine Creek aquatic assessment, ELC mapping, 2 rounds of breeding bird surveys, and wetland boundary update. No amphibian survey was undertaken (no amphibian habitat present). ■ Summarized findings of fluvial geomorphology report. 36 metre span needed to span the meander belt width. The final report will have a section on future conditions which will discuss how possible land use and channel changes may affect the meander belt width. ■ Reviewed preliminary hydraulic analysis. ■ TRCA would like to see holistic land use vision that captures all properties that guides road alignment and location/type of water crossing structure opposed to road guiding land use. ■ TRCA also like to see development phasing. ■ TRCA should be able to see how entire creek corridor can be naturalized when all properties are developed. ■ Need remediation if moving floodplain into Loblaws lands. ■ MCEA and preferred road must not compromise future floodplain and naturalization of stream corridor. ■ As development applications proceed, valley lands (from east top of bank to west top of bank) to be transferred from proponent to public ownership.
Toronto and Region Conservation Authority	October 29, 2019	■ Provided a status update to TRCA. The Project was previously following the MCEA Schedule B planning process, but has now been upgraded to a Schedule C based on the construction cost (now greater than $2.7M which is a Schedule C trigger). ■ Purpose was to present and discuss the three (3) alternative road alignments and water crossing span options. Water crossing options are based on 25 metre, 30 metre and 35 metre clear span bridge which considers hydraulic modelling and meander belt findings. ■ Alternative 1 (central alignment) and 25 metre span culvert or bridge is recommended. Detailed design to confirm crossing type. ■ TRCA asked whether there is a holistic development vision for the area including the Loblaws lands. Thought is that a comprehensive redevelopment may result in a reshaped naturalized Pine Creek stream corridor (need to consider entire creek corridor between Kingston Road and Highway 401). City replied that the landowners, including Loblaws have not presented development concepts. Loblaws is likely far out in terms of redevelopment timeline. It is difficult to get a full development picture nailed down at this time. ■ Reviewed natural environment findings. Wetland area is within 700 metres of the Frenchman's Bay PSW and therefore qualifies to be complexed with it. The boundaries were surveyed by an AECOM professional surveyor on October 11, 2019. ■ Another wetland unit located off-site along Pine Creek between Radom and Bayly Streets, south of Highway 401, was also examined on October 9, 2019 at request of Ministry of Northern Development, Mines, Natural Resources and Forestry. ■ Wetland data has been sent to Ministry of Northern Development, Mines, Natural Resources and Forestry to update their wetland data file. ■ Summarized the results of the fluvial geomorphic assessment. To span the meander belt width (MBW) a 36 metre crossing span would be required, if the crossing does not span the MBW additional erosion protection will be required for protection to the crossing. At minimum, the new crossing should span the bank full width (6 metres). ■ A review of the hydraulic analysis was presented. The 25 metre, 30 metre and 35 metre bridge spans all meet TRCA and City of Pickering criteria. An updated routing analysis and cut-fill balance will be carried out during detail design. ■ TRCA stated concern is if a 25-metre span is enough to not restrict future stream corridor remediation improvements related to Loblaws lands. Loblaws lands redevelopment presents an opportunity for cut fill remediation. New crossing should not negate what the City is trying to achieve through redevelopment and zoning by-law. Noted that land uses are changing from low density to high density and ultimately the City needs to be comfortable in what it is building. ■ Noted that proper remediation of the stream corridor would require the replacement of the Kingston Road culvert with a larger span. This is not possible as the timing for culvert replacement is a long-term action and was not part of the recent Kingston Road improvements EA and design (includes BRT). This should be documented in the MCEA decision making.

Agency / Stakeholder	Date of Meeting	Purpose and Key Considerations
Toronto and Region Conservation Authority	May 9, 2022	■ Reviewed key TRCA comments on the draft Environmental Study Report and confirmed the project team's approach to address them. ■ Key items to note from the meeting include agreement that Pine Creek bridge span width will be based on a 36 metre span width, at minimum, and hydraulic routing and cut fill analysis can be done as part of the detailed design phase. ■ AECOM to include section in ESR specific to TRCA Commitments (see **Section 10.3.2**). ■ AECOM will provide the updated draft ESR with responses to comments to TRCA for sign off prior to the City issuing the Notice of Completion. TRCA requires 2-3 weeks to review and comment.
Regional Municipality of Durham	October 10, 2017	■ Introduced the Project.
Regional Municipality of Durham	February 26, 2020	■ Reviewed the draft Walnut Lane Extension Need and Justification Report (also known as the Traffic Report). Feedback from the Region included: – The Region requested the projected hourly number of vehicles exiting Liverpool Road by taking the Highway 401 N-W ramp. The Region will then review the noted traffic volume and compare that with the projected traffic volume for the southbound right-turn lane at the future intersection of Walnut Lane Extension / Liverpool Road to advise on their preferred (from traffic safety standpoint) lane configuration on the southbound approach to the intersection. – The Region indicated that an RFP for the Liverpool Road Widening EA is scheduled to be issued in 2023. Considering the current timelines for widening of Liverpool Road and if the Region's assessment (noted above) shows a need for provision of an auxiliary southbound right-turn lane, the southbound approach should have two southbound through lanes and one southbound right-turn lane until the time Liverpool Road is widened to six lanes. – The Region asked that AECOM analyze the intersection of Walnut Lane Extension/ Liverpool Road from traffic operational perspective under the eastbound dual right conditions. – Due to the project high volume of northbound right-turn traffic at the intersection of Walnut Lane / Kingston Road (as a result of prohibition of eastbound left-turn movement at the intersection of Walnut Lane Extension / Liverpool Road), the Region suggested that AECOM assess need for provision of a separate right-turn lane on the northbound approach at the intersection of Walnut Lane / Kingston Road. ■ Reviewed the Preliminary Recommended Road Alignment, Cross-section and Intersection Details (consider planned improvements to Liverpool Road). Comments from the Region included: – There was a suggestion by the Region to provide additional storage for the northbound left-turn movement at the intersection of Walnut Lane Extension / Liverpool Road. The Region suggested to move the stop bar for the northbound approach further north and as close as possible to the nearest edge of the Highway 401 westbound off-ramp which forms the westbound leg of the intersection. AECOM will undertake Auto-Turn analyses to determine how far the stop bar could be shifted northerly without interfering with the westbound left-turning heavy vehicle paths at the intersection – The Region also asked that AECOM provide some additional write-up in the Traffic Report to indicate that the need for provision of a longer storage lane should be revisited beyond 2027 when the Region / MTO may consider widening the bridge. – The Region suggested to implement a "road diet" technique on Walnut Lane Extension (such as narrower traffic lanes, allowing on-street parking during off-peak hours, etc.). – Provide adequate width for eastbound dual rights. – The Region raised some road safety concerns regarding the location (being on the outside of a horizontal curve on the west end of Walnut Lane Extension), traffic control devices, and close spacing between the existing access driveway to Home Depot / Food Basics off of Walnut Lane and the immediately adjacent local road. ■ Discussed active transportation and public transit considerations: – the Region indicated that there could be a need for provision of cross-rides at the intersection of Walnut Lane Extension / Liverpool Road. The general agreement was that the design for the intersection makes necessary provisions for implementing cross-rides across different intersection legs. – At this time there are no plans to provide any transit service for the Walnut Lane Extension. – The Region suggested that an appropriate location and control type for a controlled mid-block crossing (as either an intersection pedestrian signal, a mid-block pedestrian signal, or PXO, etc.) be identified along the Walnut Lane Extension. – The Region is to provide the median busway drawings at the intersection of Walnut Lane / Kingston Road. The Region asked that the AECOM design drawing for the intersection of Walnut Lane / Kingston Road should reflect the future lane configuration on Kingston Road with median busways and far-side stops, etc. ■ Noted that a traffic calming study is being completed. Suggested that AECOM consider travel paths of interest for non-residents (e.g., vehicles coming off the Liverpool Road Highway 401 WB off ramp), gateway treatments and positive guidance signage.

Agency / Stakeholder	Date of Meeting	Purpose and Key Considerations
Regional Municipality of Durham	March 2, 2022	■ Meeting to discuss the Project ■ For the Walnut Lane/Kingston Road intersection design, the Region requested that the intersection configuration be updated to integrate the Durham-Scarborough BRT detailed design work, with physical measures (along with the signage recommended in the Draft ESR and design drawings) to restrict the northbound through movement.
Regional Municipality of Durham	April 8, 2022	■ Meeting held with MTO and Durham Region to provide an overview of the modified Liverpool Road and Walnut Lane intersection design at Highway 401 interchange. ■ Refer to above April 8, 2022 meeting summary provided under MTO.
Property Owner at 1786 – 1790 Liverpool Road (TD Bank and Makimono Japanese Restaurant); Represented by Glen Square Limited and Advisory Services Investment Group	February 11, 2021	■ AECOM provided overview of the draft plan drawings showing the proposed central alignment towards the east at the Liverpool Road intersection. ■ AECOM did look at shifting the access to 1790 Liverpool Road to the west and acknowledged the resulting challenges providing the following rationale as to why access for 1790 Liverpool Road is shown as closed in the future: – MTO has safety concerns (e.g., drivers going wrong way opposite MTO's ramp terminal on to Highway 401 west bound and queuing of vehicles onto Liverpool Road). – MTO does not approve of a left turn movement from the new Walnut Lane Liverpool Road intersection on to Liverpool Road (north bound). MTO will only allow a right out turn movement on to Liverpool road (when green traffic signal) – Subject lands fall within MTO access control area and MTO has a setback requirement of 100 metres from its ramp terminal. – MTO did not provide approval for the current access to 1790 Liverpool road and therefore can legally remove the for the access. This area between Loblaws and Highway 401 was previously used a construction laydown area for the ministry. – Difficult grade differences (very steep). – The geometry does not work for large truck movements. – The current driveway access to 1790 Liverpool Road crosses over the KingSett Capital property to the south. ■ There is interest to redevelop the 1790 Liverpool Road property and there is concern due to removal of the access. Explained they already approached Choice REIT Properties (Loblaws) to discuss the potential or 1790 Liverpool Road to use the current access to Pickering Parkway and Liverpool Road signalized intersection. Choice Properties cited grading and traffic concerns. ■ The Project Team will look into concerns raised and if there is a potential solution to address closing the current 1790 Liverpool Road access.
Tribute Communities	December 4, 2020	■ Provided an overview and status of the Walnut Lane MCEA study, including recommended design concept. ■ Shared relevant project information.

11.4 Indigenous Communities Consultation

The duty to consult with Indigenous communities is triggered when a proponent contemplates decisions or actions that may adversely impact asserted or established Indigenous or Treaty rights. Consultation was initiated with Indigenous communities and organizations who were anticipated to have interest in the Project. A letter requesting interest in the project was circulated to the following Indigenous communities:

- Alderville First Nation
- Curve Lake First Nation
- Hiawatha First Nation
- Mississaugas of Scugog Island First Nation
- Huron Wendat First Nation
- Karry Sandy-McKenzie, Williams Treaty Claims Co-ordinator

The above noted Indigenous Communities were circulated on all notifications and the study team also followed up via phone with those Communities that did not respond to the initial notice circulation. Correspondence received during Phases 1 to 3 of the MCEA process is summarized in **Table 11-3**. The complete Indigenous consultation record can be found in **Appendix L**. The Project Team responded to all comments to the extent possible.

Table 11-3: Indigenous Community Correspondence – MCEA Phases 1, 2 and 3

Indigenous Community/ Organization	Date	Summary of Correspondence	Project Team Response
Curve Lake First Nation	June 28, 2019	■ Curve Lake First Nation responded to the Notice of PIC #1 letter dated June 28, 2019. The letter specifies the project will require a special consultation framework outlined in Curve Lake First Nation's Consultation and Accommodation Standards. Curve Lake First Nation requests a summary of how the project will address impacts to Aboriginal heritage and cultural values, drinking water, fish and wildlife, endangered species, lands, etc. A meeting may be set up to discuss the project. ■ Curve Lake First Nation requests engagement for Stage 1 archaeological assessment to include Indigenous knowledge of the land, as well as at least one (1) of their Cultural Heritage Liaisons in subsequent Stage 2-4 assessments. Curve Lake First Nation is to be notified of any native burial sites or any other archaeological findings.	■ Response issued November 4, 2020 offering virtual meeting to bring Curve Lake First Nation up to date on the Project. ■ Summary prepared explaining how the Project will potentially address areas that are of concern to Curve Lake First Nation. ■ Notified of archaeological assessment being completed. ■ Curve Lake First Nation will be engaged regarding participation prior to the stage 2 archaeological field work.
Curve Lake First Nation	April 19, 2021	■ Provided comments on the draft stage 1 archaeological assessment report, including oral history to add to the report	■ The stage 1 archaeological assessment report (**Appendix F**) has been updated to reflect the received comments.
Huron-Wendat Nation	November 18, 2020	■ Huron-Wendat Nation is requesting to receive copy of the Stage 1 report once available as well as being involved on field for the stage 2 archaeological field work.	■ Stage 1 archaeological assessment report circulated to Huron-Wendat Nation on August 20, 2021.
Huron-Wendat Nation	August 27, 2021	■ Requested confirmation of funding for participation in the stage 2 archaeological field work.	■ Huron-Wendat Nation will be engaged regarding participation prior to the stage 2 archaeological field work.

12. Conclusion and Next Steps

12.1 Confirmation of Preferred Solution and Design Concept

The preferred planning solution includes a combination of **Alternatives 2, 3, 4 and 5** as follows:

- Alternative 2: Operational Improvements
- Alternative 3: Extend Walnut Lane Easterly to Liverpool Road
- Alternative 4: Widen or Extend Alternate Routes (Note: being addressed through other studies – future Liverpool Road Widening, Durham-Scarborough Bus Rapid Transit project, Complete Streets Strategy as per the City's Integrated Transportation Master Plan)
- Alternative 5: Transportation Demand Management

The preferred design concept for the Walnut Lane extension and Pine Creek crossing span width is **Alternative 1 – Central Alignment** and **Option 3: 36 metre Span Width.**

12.2 Conclusions and Recommendations

This MCEA covers the processes required to ensure that the proposed Walnut Lane Extension meets the requirements of the *Environmental Assessment Act*. The preferred planning solution and design concept as described in **Section 8** resolves the problem and opportunity statement (**Section 5**).

Considering the above, it is recommended that:

1. Following MCEA documentation filing and clearance, the preferred solution and design concept proceed to the detailed design phase
2. Mitigation measures identified in **Section 9** be expanded upon, where required, during detailed design and implemented as part of construction
3. Future Commitments, including remaining permits and approvals identified in **Section 10** be addressed during the detailed design phase and construction and be monitored for fulfillment

No Section 16 Order Requests were received during the 30-day public review period, thereby allowing the Project, as documented in this ESR to proceed to the detailed design phase. Refer to **Appendix M** for a copy of the Municipal Class Environmental Assessment Close-out Memorandum.