



Town of Lincoln

Greenlane Road

Schedule C Municipal Class Environmental Assessment

Environmental Study Report

November 2025
CIMA+ Project No. B001695



Engineering for **people**

Town of Lincoln

Environmental Study Report

Greenlane Road
Schedule C
Municipal Class Environmental Assessment
CIMA+ Project No. B001569

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This Environmental Study Report is available for a 30 calendar-day public review period commencing on **November 24, 2025**, and ending on **December 24, 2025**.

The Environmental Study Report is available for review on the Town's Speak Up Lincoln webpage <https://speakuplincoln.ca/greenlane-phases2-3> and in person at Town Hall and at the Lincoln Pelham Public Library – Fleming Branch, during regular hours of operation.

Town of Lincoln
4800 South Service Road
Beamsville, ON L3J 1L3

Lincoln Pelham Public Library – Fleming Branch
5020 Serena Dr
Beamsville, ON L3J 0T2

All comments and concerns should be sent directly to Town of Lincoln Project Manager, Walter Neubauer, by **December 24, 2025**.

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Executive Summary

E1 Introduction

The Town of Lincoln has completed a Schedule “C” Municipal Class Environmental Assessment (MCEA) study for improvements to Greenlane Road, between the west urban boundary limit (Konkle Creek Trail) and Bartlett Road.

Greenlane Road between the west urban boundary limit (Konkle Creek Trail) and Bartlett Road, is a local collector roadway that runs east-west in the community of Beamsville as shown in **Exhibit ES-1**.

This roadway is in poor condition, and in combination with the construction of the new West Niagara Secondary School on King Street, the future Go Station on Ontario Street, and a predicted increase in vehicle volumes resulting from development growth in the area, this corridor has been identified as high priority for reconstruction and cross-section improvements.

The Town’s 2019 Transportation Master Plan (TMP) recommends improvements for this section of Greenlane with a focus on a ‘complete streets’ approach that was identified in the Town’s Beamsville GO Transit Station Secondary Plan. In addition to normal vehicle travel and turning lanes, the ‘complete streets’ cross-section includes active transportation improvements and streetscaping opportunities.

Exhibit ES-1: Greenlane MCEA Study Area



E2 Need and Justification

Planning and Policy Context

Understanding the planning and policy context is crucial for guiding decisions related to transportation infrastructure, environmental management, development, and community well being in the study area. Provincial and municipal plans and policies reviewed for the Greenlane Road MCEA study included:

- Provincial Planning Statement (2024)
- A Place to Grow: Growth Plan for the Greater Golden Horseshoe (2020)
- Greenbelt Plan (2017)
- Niagara Escarpment Plan (2017)
- Town of Lincoln Official Plan (2018)
- Beamsville GO Transit Station Secondary Plan (2018)
- Town of Lincoln Transportation Master Plan (2019)
- Town of Lincoln Active Transportation Strategy (2019)

Transportation Assessment

A traffic operations analysis was conducted using Synchro 11 software to assess existing conditions (2023) and future needs for 2031 and 2041. The analysis concluded that Greenlane Road will continue to operate effectively without requiring widening at the unsignalized intersections between Konkle Creek and Bartlett Road, including intersections at Cedarbrook Lane, Carriage Road, Garden Gate Terrace, and Bartlett Road. However, congestion is anticipated at the Regional intersection of Ontario Street and Greenlane Road. A potential improvement includes adding dual eastbound left-turn lanes with extended storage. Alternatively, signal timing adjustments may mitigate congestion. As the Ontario Street intersection falls under Regional jurisdiction, the Town will coordinate with Niagara Region as part of future planning and EA processes.

Problem and Opportunity Statement

Based on the planning and policy context in the Town of Lincoln and the transportation assessment conducted for the Greenlane Road MCEA study area, the following problem and opportunity statement was developed:

Greenlane Road within the urban boundary in Beamsville (Konkle Creek Trail to Bartlett Road) is experiencing significant infill development and is in poor condition. In future, this corridor will experience high travel demand resulting from significant development growth in the area, including the recently built West Niagara Secondary School on King Street, and the future GO Station on Ontario Street.

The above observations are in line with the Town's Beamsville GO Transit Station Secondary Plan which recommended upgrades to Greenlane Road, within a widened (23 m) right-of-way, to implement a 'complete streets' design approach to accommodate intensification in the area and provide residents access to the area through all modes of transportation.

In addressing infrastructure needs for the increased travel demand, there is an opportunity to consider the transportation needs of the corridor, provide enhanced active transportation facilities and connections, as well as streetscaping / landscaping enhancements in the area.

The Town of Lincoln has completed a Municipal Class Environmental Assessment Study to consider cross-section improvements and right-of-way widening to address the above-noted concerns.

E3 Alternative Solutions

Alternative solutions represent reasonable means of addressing the problems and opportunities. In addition to 'Do Nothing', alternatives were explored to upgrade Greenlane Road to an urban cross-section that supports the "complete streets" approach by providing dedicated space for all modes of transportation, and provides the infrastructure required for Greenlane Road to continue in its faculty as a key community transportation link. The alternatives were assessed in their ability to address the problems and opportunities, and in consideration of their transportation function and broader socio-economic, environmental, and placemaking contributions and compatibility with existing and planned land use.

Three alternative solutions were identified to address the identified needs:

- Alternative 1 – Do Nothing: Maintain the existing roadway without improvements.
- Alternative 2 – Improvements within Existing 20 m Right-of-Way (ROW): Upgrade the roadway within the current ROW, which would limit the extent of active transportation and streetscaping enhancements.
- Alternative 3 – Improvements within a Widened 23 m ROW: Expand the ROW to 23 meters to accommodate a complete streets design, including active transportation facilities and landscaping opportunities.

Following a comparative evaluation of the above options based on criteria such as transportation benefits, safety, multimodal accommodation, cost, environmental impact, and consistency with planning policies, Alternative 3 – Improvements within a widened 23 m ROW was identified as the preferred planning solution. This alternative best supports the Town's objectives for long-term infrastructure sustainability, safety, and multimodal connectivity.

E4 Design Alternatives

Following the identification of the preferred planning solution, reconstruction of Greenlane Road within a widened 23-metre right-of-way (ROW), design alternatives were developed and

evaluated. These alternatives were categorized into two groups: Cross-Section Alternatives and Roadway Widening Alternatives. Each was assessed based on technical feasibility, environmental impact, property considerations, and alignment with the Town's planning objectives.

Cross-Section Alternatives

Three cross-section alternatives were considered to determine the optimal configuration within the proposed 23 m ROW:

- Alternative A – Sidewalk and MUP
- Alternative B – Sidewalk and Cycle Tracks
- Alternative C – MUP and Cycle Tracks

After evaluating the alternatives, Alternative A was identified as the preferred cross-section alternative.

Roadway Widening Alternatives

Three (3) roadway widening alternatives were assessed to determine how best to implement the preferred cross-section within the corridor:

- Alternative 1 – Widening to the North
- Alternative 2 – Widening about the Centreline
- Alternative 3 – Best Fit Alignment

Alternative 3 – Best Fit Alignment was selected as the preferred widening alternative. This option allows the alignment to shift within the corridor to reduce property and environmental impacts, avoid utility conflicts, and accommodate site-specific constraints in a flexible manner.

E5 Recommended Plan

The preferred solution for Greenlane Road, as identified through the Municipal Class EA process, is the reconstruction of the corridor to an urban cross-section within a widened 23-metre right-of-way (ROW), extending from the west limit near Konkle Creek Trail to Bartlett Road in Beamsville. This recommended plan supports the Town of Lincoln's vision for a safe, inclusive, and multimodal transportation network that meets current needs and accommodates future growth.

Key elements of the recommended design include:

- Expanded Right-of-Way: The corridor will be widened to 23 metres, accommodating one travel lane in each direction, a center two-way left-turn lane where feasible, and dedicated active transportation facilities.

- **North Side Sidewalk:** A sidewalk will be provided on the north side of the roadway between Konkle Creek and Carriage Road, supporting pedestrian access in this segment.
- **South Side Multi-Use Path (MUP):** A multi-use path will be constructed along the south side of the roadway from Konkle Creek to Bartlett Road. This facility will accommodate both cyclists and pedestrians and provide critical connectivity to planned MUP segments west of Konkle Creek and along Bartlett Road, contributing to a continuous and integrated active transportation network.
- **Dedicated crossings for pedestrians, cyclists and other users** throughout the corridor, including pedestrian crossovers (PXOs) at the west limit, mixed crossrides (i.e. a MUP crossing) at driveways, and refuge islands at pedestrian crossings.
- **Access Management:** Implementation of raised medians at the intersection of Greenlane with Ontario Street to restrict higher volume accesses to right-in/right-out only within the functional area of the regional intersection. Where feasible, a depressed median has been proposed to allow full moves access to low volume residential driveways.

This design aligns with the Town's Official Plan, Transportation Master Plan, and Active Transportation Master Plan, supporting the vision for a connected and accessible community

E6 Consultation

Consultation is a key component of the Municipal Class Environmental Assessment (MCEA) process and reflects the Town's commitment to engaging potentially affected or interested parties, including but not limited to technical agencies, interest groups, members of the public, property owners, and Indigenous Communities.

Exhibit ES-2 summarizes the activities, timing, purpose of key points of contact throughout the study. Consultation and engagement activities are described in further detail in **Chapter 7**.

Exhibit ES-2: Key Consultation Milestones

Activity	Timing	Purpose
Notice of Study Commencement	MCEA Phase 1 October-November 2023	To introduce and invite participation in the study and request any preliminary comments and pertinent information.
Public Information Centre #1	MCEA Phase 2 February 2024	To introduce the study and gather community feedback on the problems and opportunities in the study area and alternative solutions for the Greenlane Road corridor. Design alternatives and complete streets cross-section

Activity	Timing	Purpose
		alternatives were also presented for feedback at the PIC
Public Information Centre #2	MCEA Phase 2 January 2025	To review community feedback received at PIC #1, present an assessment of design alternatives and the preferred alternatives for Greenlane Road, and gather feedback on the overall preferred plan for the corridor
Notice of Study Completion	MCEA Phase 4 November 24, 2025 – December 24, 2025	To occur at the end of the Phase 4 MCEA study. To announce the completion of the MCEA study and notify interested parties of the 30-day calendar review period for the Environmental Study Report.

E7 Environmental Effects, Mitigation and Commitments to Future Work

Many of the environmental concerns related to this project have been mitigated through the development and selection of the preferred design alternatives. The anticipated effects and proposed mitigation measures are described in **Chapter 8**.

The proposed reconstruction is anticipated to have temporary environmental impacts during construction, including noise, dust, and potential disruptions to traffic and local access.

Mitigation measures will be implemented to minimize these effects, such as:

- Adhering to best practices for construction noise and dust control.
- Implementing traffic management plans to maintain access and safety.
- Protecting existing natural features and incorporating new landscaping to enhance the corridor's aesthetic and environmental value.

The Town is committed to ongoing communication with stakeholders throughout the detailed design and construction phases to ensure transparency and responsiveness to community needs.

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1. Introduction and Study Process

1.1 Introduction and Study Area

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Greenlane Road between the west urban boundary limit (Konkle Creek Trail) and Bartlett Road, is a local collector roadway that runs east-west in the community of Beamsville as shown in **Exhibit 1-1**.

This roadway is in poor condition, and in combination with the construction of the new West Niagara Secondary School on King Street, the future Go Station on Ontario Street, and a predicted increase in vehicle volumes resulting from development growth in the area, this corridor has been identified as high priority for reconstruction and cross-section improvements.

The Town's 2019 Transportation Master Plan (TMP) recommends improvements for this section of Greenlane with a focus on a 'complete streets' approach that was identified in the Town's Beamsville GO Transit Station Secondary Plan. In addition to normal vehicle travel and turning lanes, the 'complete streets' cross-section includes active transportation improvements and streetscaping opportunities.

Exhibit 1-1: Greenlane MCEA Study Area



1.2 Study Process

The MCEA study was carried out in accordance with Schedule 'C' of the Municipal Class Environmental Assessment document (Municipal Engineers Association October 2000, as amended in 2023). The MCEA framework outlines the process whereby municipalities can comply with the requirements of the Ontario Environmental Assessment Act by providing a comprehensive, environmentally sound planning process with public participation and facilitating dialogue with parties representing many diverse interests. This Environmental Study Report (ESR) documents the decision-making process during the Greenlane Road MCEA study.

1.3 Environmental Assessment Process

The Class Environmental Assessment (Class EA) is an approved self-assessment process under the EA Act for a specific group or "class" of projects. Projects are considered approved, subject to compliance with an approved Class EA process. The Municipal Class EA (Municipal Engineers Association October 2000, as amended in 2023) applies to municipal infrastructure projects including roads, water, and wastewater.

1.3.1 Municipal Class Environmental Assessment Process

The Municipal Class Environmental Assessment (MCEA) outlines a comprehensive planning process and rational approach when considering the environmental and technical advantages and disadvantages of alternatives. It also identifies consultation requirements with agencies, directly affected parties, Indigenous Communities and the general public throughout the process.

The key principles of successful environmental assessment planning include consultation; consideration of a reasonable range of alternatives; consideration of effects on natural, social, cultural, and economic environments and technical components; systematic evaluation; clear documentation; traceable decision making.

Provided that the MCEA planning process is followed, a proponent does not have to apply for formal approval under the Ontario Environmental Assessment Act. The MCEA process is shown in **Exhibit 1-2** and includes:

- Phase 1: Identify the problem or opportunity.
- Phase 2: Identify alternative solutions.
- Phase 3: Examine alternative methods of implementing the preferred solution.
- Phase 4: Prepare and file an Environmental Study Report.
- Phase 5: Proceed to detailed design, construction and operation.

The classification of projects and activities under the MCEA (2000, as amended in 2023) is as follows:

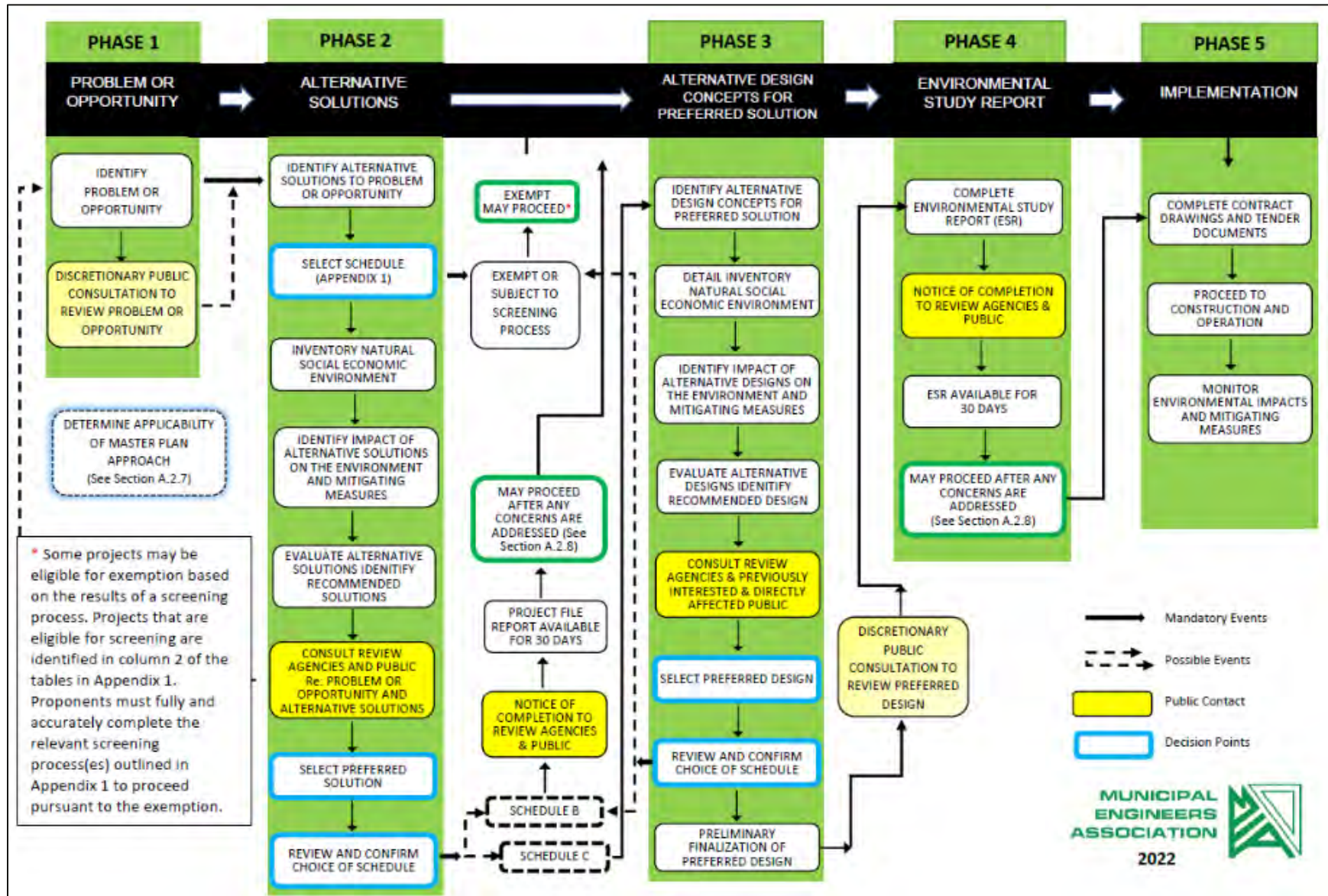
- **Exempt (formerly Schedule A and A+):** Includes municipal maintenance, operational activities, rehabilitation works, minor reconstruction or replacement of existing facilities, and new facilities that are limited in scale and have minimal adverse effects on the environment. These undertakings are exempt from the requirements of the Environmental Assessment Act.
- **Eligible for Screening to Exempt:** Some municipal maintenance, operational activities, rehabilitation works, minor reconstruction or replacement of existing facilities, and new facilities may be exempt from the Environmental Assessment Act based on the results of the archaeological screening and collector road screening processes. If the project is not exempt, it may proceed with the Schedule B or C process.
- **Schedule B:** Includes projects that have the potential for adverse environmental effects. This includes improvements and minor expansions of existing facilities. These projects are approved subject to a screening process which includes consulting with interested parties who may be directly affected and relevant review agencies.
- **Schedule C:** Includes the construction of new facilities and major expansions to existing facilities. These undertakings have the potential for significant environmental effects and must proceed under the planning and documentation procedures outlined in the MCEA document.

The MCEA also uses cost thresholds to determine the schedule for municipal road projects. For reconstruction of roads with an increase to travel lanes the cost thresholds for Schedule B and C projects are as follows:

- Schedule B < \$3M
- Schedule C ≥ \$3M

The Town of Lincoln Greenlane Road study has been identified as a Schedule “C” project under the MCEA due to the property impacts of the project and environmental effects on nearby sensitive features.

Exhibit 1-2: Municipal Class Environmental Assessment Process



1.3.2 Environmental Study Report

The Environmental Study Report (ESR) documents the process followed to determine the Recommended Plan and the environmentally significant aspects of planning, design, and construction of the proposed works. The ESR describes: the problem being addressed, the existing social, natural, cultural environmental considerations, planning and design alternatives that were considered, a description of the recommended alternative and its environmental effects and proposed mitigation measures, and commitments to further work, consultation, and monitoring associated with the implementation of the project.

It is possible that minor modifications of the corridor will be identified during the future detailed design phase. However, these modifications are not anticipated to change the intent of the undertaking. It is expected that any additional environmental impacts would be addressed through standard mitigating measures, recommended during detailed design.

As required by the MCEA, this ESR is being made available to regulatory agencies, interested parties, Indigenous communities, and the public for review.

A Notice of Study Completion was placed on the Town's website to announce completion of the study and commencement of the review period. The notice was emailed to agencies, interested parties, Indigenous communities, and members of the public on the study mailing list and mailed directly to residents in the study area.

The ESR for this study is available for a 30-day review period commencing on **November 24, 2025**, and ending on **December 24, 2025**.

During the review period, parties with outstanding comments are encouraged to bring their concerns to the attention of the Town of Lincoln for resolution.

All comments and concerns should be sent directly to the Town of Lincoln:

Walter Neubauer, C.E.T. , PMP
Manager, Capital Projects
Town of Lincoln
4800 South Service Road
Beamsville, ON L3J 1L3
Tel: 905 563 2799 ext. 278
Email: wneubauer@lincoln.ca

1.3.3 Section 16 Order Requests

The Municipal Class Environmental Assessment (MCEA) process includes an appeal provision - 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:

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

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

Before making an Order, the minister must consider the factors set out in Section 16(5) of the Environmental Assessment Act.

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.

Note, Section 16 Order requests were previously known as Part II Order requests.

Reasons for Requesting an Order

A concerned party may ask the minister to make a Section 16(6) Order if:

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

A Section 16(6) Order request cannot be made to simply delay or stop the planning and implementation of a project that is going through the MCEA process. Prior to making a Section 16(6) Order request, the concerned party should first try to resolve any concerns directly with the project proponent, in this case, the Town of Lincoln.

Timing for an Order Request

During the 30-day public comment period, anyone can review the documentation, submit any comments or concerns to the proponent, and request a Section 16(6) Order.

To request a Section 16 Order for a project, on the grounds that an Order may prevent, mitigate, or remedy potential adverse impacts on constitutionally protected, Aboriginal and treaty rights, a concerned party must make the request before the public comment period is complete.

For more information and specific instruction, please visit:

<https://www.ontario.ca/page/class-environmental-assessments-section-16-order>

1.3.4 Infrastructure Ontario Class Environmental Assessment

Where lands owned or managed by Infrastructure Ontario (IO) (e.g., hydro corridor lands) may be impacted by a municipal project, the Ministry of Infrastructure (MOI) Public Works Class Environmental Assessment may apply.

Based on the Recommended Plan (**Chapter 6**), no impact to IO lands have been identified. This will be confirmed again during detailed design.

Where impacted IO lands (e.g., property purchase / disposition, requirements for easements etc.) may be identified, consultation with IO will be required in order to confirm and complete the Public Works Class EA requirements.

1.3.5 Federal Impact Assessment Act

The Impact Assessment Act (2019) (IAA 2019) and associated regulations came into effect on August 28, 2019. Under IAA 2019, a federal environmental assessment is required for “designated projects”. A designated project is one that includes one or more physical activities that are set out in the regulations under IAA 2019 or by order of the federal Minister of the Environment and Climate Change.

The scope of the Greenlane Road MCEA study was reviewed by the project team against the federal Regulations Designating Physical Activities. The project team determined that the potential range of physical activities contemplated by the study are not “designated” and therefore will not require consideration of a federal environmental assessment.

More information about the *Impact Assessment Act* (2019) is available on [the Impact Assessment Agency of Canada](#) webpage.

1.4 Study Organization and Approach

The Greenlane Road MCEA study was carried out under the direction of staff at the Town of Lincoln. Internal consultation was conducted with senior staff across all Town departments to provide appropriate input reflective of the various department mandates and responsibilities.

The consultant team was led by CIMA+ Canada Inc. (CIMA+), who was responsible for the following activities on behalf of the Town of Lincoln:

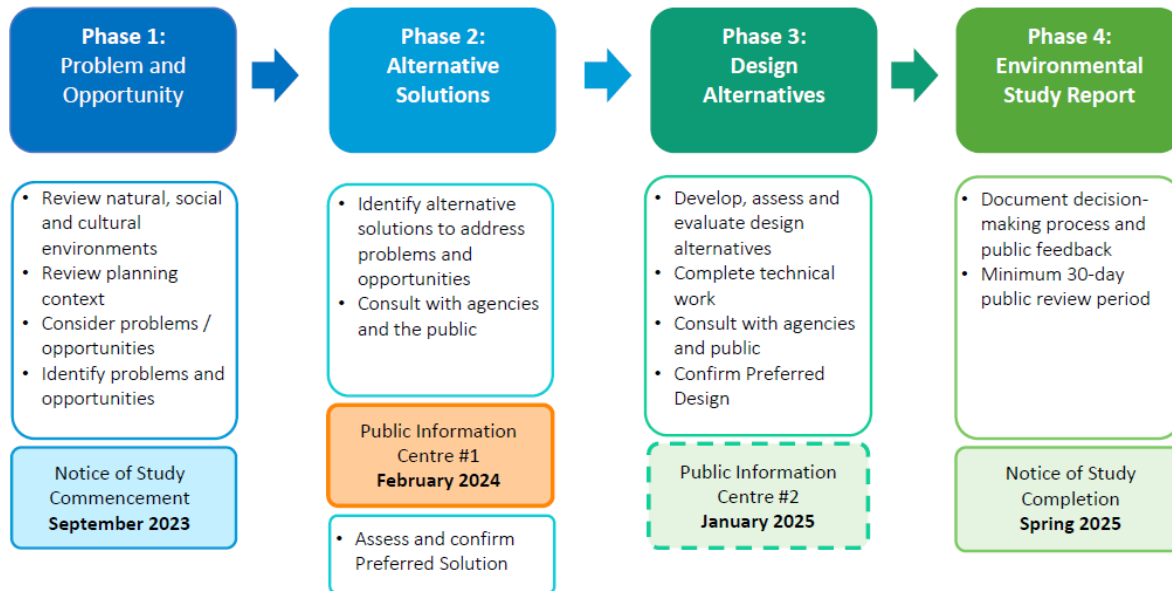
- Project Management
- MCEA Process and Consultation
- Transportation Planning / Traffic Engineering
- Roadway Design
- Natural Environment
- Drainage and Stormwater Management
- Streetscape Design

Timmins Martelle Heritage Consultations (TMHC) undertook the Stage 1 and Stage 2 Archaeological Assessments and the Cultural Heritage Assessment.

While the overall MCEA process is depicted in **Exhibit 1-2**, a more simplified and tailored schematic of the study approach is depicted in **Exhibit 1-3**.

The Greenlane Road MCEA process formally commenced in September 2023. The work for Phases 1 and 2 was ongoing from September 2023 through February 2024. Phase 2 included one Public Information Centre (PIC) 1 to present and gather feedback on the study area needs and alternative solutions. Phase 3 was ongoing from February 2024 to January 2025 to develop and assess design alternatives for the corridor. PIC 2 was held in January 2025 during Phase 3 to present the design alternatives and proposed design. Technical agencies and Indigenous Communities were consulted during the course of the MCEA Study. The Environmental Study Report was prepared through early 2025. Following Council approval, a Notice of Study Completion was issued on **November 24, 2025**.

Exhibit 1-3: Greenlane Road MCEA Study Process



2. Need and Justification

2.1 Planning and Policy Context

The improvements recommended for the Greenlane Road MCEA study are based on the provincial and local planning and policy context, which is summarized in this Chapter. The policy framework guides infrastructure and land use planning and strategic investment decisions to support municipal (and provincial) growth and transportation objectives. These policies are in place to sustain and improve the quality of life of residents while considering the broader municipal interests.

All aspects of the study (e.g., identifying the problems and opportunities, assessing, and evaluating alternative solutions and design concepts, and developing the preferred design concept plan) were carried out considering the policy framework. This approach was taken to ensure the final recommendations are consistent with the Town's plans and policies.

2.1.1 Provincial Policies

Provincial Planning Statement (2024)

The Provincial Planning Statement (PPS) (2024) is issued under the Planning Act to support land use planning across the province. As an infrastructure project, the Greenlane MCEA study is being undertaken to meet the requirements of the Ontario Environmental Assessment Act. The PPS policy direction for using and managing land and infrastructure while protecting the environment and resources and ensuring opportunities for employment and residential development is relevant to the Greenlane MCEA study.

While the PPS is intended to be read in its entirety, relevant policies are to be applied to each situation. Sections of the PPS that apply to the planning of transportation infrastructure include:

Section 3.2.1 Transportation Systems Policies – Transportation systems should be provided which are safe, energy efficient, facilitate the movement of people and goods, are appropriate to address projected needs, and support the use of zero- and low-emission vehicles.

Section 3.2.3 Transportation Systems Policies – As part of a multimodal transportation system, connectivity within and among transportation systems and modes should be planned for, maintained and, where possible, improved, including connections which cross jurisdictional boundaries.

Section 3.1.1 General Policies for Infrastructure and Public Service Facilities –

Infrastructure and public service facilities shall be provided in an efficient manner while accommodating projected needs.

Planning for infrastructure and public service facilities shall be coordinated and integrated with land use planning and growth management so that they:

- a) are financially viable over their life cycle, which may be demonstrated through asset management planning;
- b) leverage the capacity of development proponents, where appropriate; and
- c) are available to meet current and projected needs.

The Greenlane MCEA study is consistent with the PPS as roadway modifications will:

- Improve the quality and safety of the roadway and provide space for pedestrians and cyclists separate from vehicular traffic
- Promote the use of multimodal transportation options, including active transportation
- Make efficient use of infrastructure by improving the existing roadway and accommodating projected need

A Place to Grow: Growth Plan for the Greater Golden Horseshoe (2020)

While the 2024 PPS largely replaces the Provincial Policy Statement (PPS) (2020) and A Place to Grow: Growth Plan for the Greater Golden Horseshoe (“Growth Plan”) (2020) the Growth Plan continues to apply where the Greenbelt Plan refers to them.

The Growth Plan was prepared and approved under the Places to Grow Act (2005), a legal framework that implements the province’s vision for managing growth within the Greater Golden Horseshoe (GGH). The Act enables the provincial government to plan for population growth, economic expansion and the protection of the environment, agricultural lands, and other resources in a coordinated and strategic manner.

A Place to Grow plans for growth and development in a way that supports economic prosperity, protects the environment, and helps communities achieve a high quality of life.

Key sections and policies of the updated Growth Plan that are relevant to Greenlane MCEA study are highlighted below:

Section 3.2 Policies for Infrastructure to Support Growth

The Growth Plan provides the framework to guide and prioritize infrastructure planning and investments. The infrastructure framework requires municipalities to undertake an integrated approach to land use planning, infrastructure investments, and environmental protection to support and accommodate forecasted growth.

Section 3.2.2 Transportation – General:

1. Transportation system planning, land use planning, and transportation investment will be coordinated to implement the Growth Plan.
2. The transportation system within the GGH will be planned and managed to:
 - a) provide connectivity among transportation modes for moving people and for moving goods.
 - b) offer a balance of transportation choices that reduces reliance upon the automobile and promotes transit and active transportation.
 - c) be sustainable and reduce greenhouse gas emissions by encouraging the most financially and environmentally appropriate mode for trip-making and supporting the use of zero- and low-emission vehicles.
 - d) offer multimodal access to jobs, housing, schools, cultural, and recreational opportunities, and goods and services.
 - e) accommodate agricultural vehicles and equipment, as appropriate; and
 - f) provide for the safety of system users.
3. In the design, refurbishment, or reconstruction of the existing and planned street network, a complete streets approach will be adopted that ensures the needs and safety of all road users are considered and appropriately accommodated.
4. Municipalities will develop and implement transportation demand management policies in official plans or other planning documents or programs to:
 - a) reduce trip distance and time.
 - b) increase the modal share of alternatives to the automobile, which may include setting modal share targets.
 - c) prioritize active transportation, transit, and goods movement over single occupant automobiles.
 - d) expand infrastructure to support active transportation; and

e) consider the needs of major trip generators.

The Greenlane MCEA study focuses on improvements that are consistent with the direction the Growth Plan to support multi-modal uses through provision of safe and comfortable facilities for pedestrians, cyclists, and other active transportation uses. It also increases efficiency and provides future flexibility in the transportation network.

Greenbelt Plan (2017)

The Greenbelt Plan was prepared and approved under the Greenbelt Act, 2005 and identifies where urbanization should not occur to provide permanent protection to the agricultural land base and the ecological and hydrological features, areas and functions occurring in the Greater Golden Horseshoe.

The Project study area lies within an area classified as “Town/Village,” and is therefore not subject to the policies of the Greenbelt Plan, save for the policies of sections 3.1.5, 3.2.3, 3.2.6, 3.3 and 3.4.2. Of these, Section 3.4.2.2 is particularly relevant to the Greenlane MCEA study.

Section 3.4.2.2. General Settlement Area Policies – Municipalities shall incorporate policies in their official plans to facilitate the development of community hubs that:

- a) Enable the co-location of public services to promote cost-effectiveness and service integration;
- b) Facilitate access through locations served by a range of transportation options, including active transportation and, where available, transit;
- c) Give priority to existing public service facilities within settlement areas as the preferred location, where appropriate; and
- d) Enable the adaptive reuse of existing facilities and spaces in settlement areas, where appropriate.

The Greenlane MCEA is consistent with this policy, as it promotes cost-effectiveness and service integration by improving the existing roadway. It also facilitates a range of transportation options, including active transportation.

Niagara Escarpment Plan (2017)

The study area is outside of the Niagara Escarpment Plan area as defined in the Niagara Escarpment Plan (2017).

2.1.2 Regional Policies

Niagara Region Official Plan (2022)

The 2022 Niagara Official Plan is a land use planning document that sets out a long-term, strategic policy planning framework for managing growth in the Niagara Region. The policies of the Plan guide land use and development planning, guiding economic, environmental, and planning decisions until 2015 and beyond. The Plan's policies recognize the need to manage growth to protect the Region's natural and cultural resources.

Transportation planning is addressed in **Section 5.1 – Multimodal Transportation System**. This section details transportation systems planning within the region, laying out specific objectives including creating and enhancing interconnected active transportation systems. Active transportation facilities are specifically addressed in Section 5.1.3

Section 5.1.3.1 Interconnected Active Transportation System – Comprehensive active transportation networks will be integrated into the transportation system to:

- a. enable safe and convenient inter-municipal and intra-municipal travel for active transportation users; and
- b. provide continuous linkages from neighbourhoods to strategic growth areas, major trip generators, employment land, tourism destinations, public service facilities, post-secondary institutions and transit stations, including sidewalks and dedicated lane space for cyclists on the major street network, or other safe and convenient alternatives.

The Greenlane MCEA study is consistent with the Niagara Official Plan's focus on developing a robust multimodal transportation system, including the expansion of active transportation facilities.

Ontario Street Urban Design Vision and Streetscape Master Plan (2022)

The Town of Lincoln, in collaboration with Niagara Region, completed an Urban Design Vision and Streetscape Master Plan for Ontario Street (Regional Road 18), Beamsville in 2022. The study area encompassed the 2 km segment of Ontario Street that runs from the south edge of the South Service Road in the north to the King Street intersection (Regional Road 81) in the south.

The plan recommends consistent and continuous streetscaping and landscaping to enhance the mix of uses to create a welcoming environment at major gateways such as the Greenlane and Ontario Street intersection. These placemaking elements will create visual enhancements and anchor each end of this Character area. Potential public spaces such as parkettes and urban plazas are proposed at strategic places along the corridor in association with new developments. New midblock connections are encouraged to allow pedestrians and active transportation users safer crossing while calming traffic.

The intersection of Greenlane Road and Ontario Street is a regional intersection and is subject to the Ontario Street Urban Design Vision and Streetscape Master Plan. As such, the future and final design of this intersection will be decided through a future EA study undertaken by the Region.

To facilitate future intersection improvements, the Greenlane MCEA study makes the following intersection recommendations:

- a. medians on Greenlane Road for access management and safety benefits
- b. reduced corner radii to lower vehicles speeds and reduce pedestrian crossing distance
- c. combined crossride pavement markings at the south leg to provide increased awareness and visibility for cyclists crossing at the intersection

2.1.3 Town of Lincoln Policies

Town of Lincoln Official Plan (2018)

The Town of Lincoln Official Plan sets out the long-term vision for the future and contains goals, objectives, and policies to guide future land use, physical development, growth and change within the Town.

Numerous policies within the Official Plan provide direct guidance to the Greenlane MCEA. While the Official Plan is intended to be considered in its entirety, selected policies that are directly relevant to the Greenlane MCEA study are highlighted below:

Section 2.4 Natural Environment Area – The purpose of the Natural Environment designation is to improve, protect and enhance the ecological integrity of “The Core Natural Heritage System” as identified by the Region of Niagara and the Greenbelt Natural Heritage and Water Resources Systems as established in the Greenbelt Plan (2005).

Section 6.1.4 (iii) Local Roads – Local roads are designated to carry low vehicle volumes, primarily used to gain direct access to abutting properties, and complete the road network within the Town. As noted, Greenlane is classified as a local road. Local roads are designed to ensure the road design supports active transportation, safety for all road users (including farm operators with large, slow moving farm vehicles/machinery) and complements adjacent land uses.

The Greenlane MCEA study is consistent with the Official Plan founding principles in the following ways:

- Making efficient use of its infrastructure by focusing on a compact, mixed-use, walkable, bikeable, and connected community. The addition of sidewalks and a multi-use path provide an opportunity for pedestrians and cyclist to use the road safely.
- Ensuring that natural resources are protected and used in a manner that has minimal impacts on the environment and character of the Town. The study looks at minimizing impacts to the existing agricultural lands/natural heritage features while providing a safe local road function.
- Creating a local road that allows for multi-modal use. This infrastructure supports complete communities and an efficient transportation network that accommodates all users on all roads.

Beamsville GO Transit Station Secondary Plan (2018)

Lincoln (Beamsville) has been identified as a potential future site of a GO Transit rail station to better connect Niagara to the Greater Golden Horseshoe. In 2018, the Beamsville GO Station Secondary Plan was prepared to provide a vision and planning framework to guide future transit-supportive development and redevelopment around the recommended future GO Station located off Ontario Street.

The Plan provides long range policy guidance for land use; transportation, including walking, cycling, transit and road networks; and urban design and public realm improvements, including design of complete streets and communities.

The Greenlane MCEA study supports recommendations in the Plan by including streetscape improvements along Greenlane, preparing for future gateway improvements at the intersection of Ontario Street and Greenlane, and improving active transportation connectivity between the proposed GO Station and areas west of the Town.

Town of Lincoln Transportation Master Plan (2019)

The Town of Lincoln completed a Transportation Master Plan (TMP) in 2019. The TMP establishes a vision for transportation services by assessing existing transportation system performance, forecasting future demand, and defining actions to address the Town's needs in terms of active transportation, transit, and road infrastructure. The TMP focuses on improvements to active transportation infrastructure, transit, goods movement, and roads.

The Plan recommends modifications to improve roadway conditions on Greenlane Road between Durham Road and Bartlett Road in the short- to medium-term. While the TMP does not specifically identify the addition of sidewalks and a multi-use path on Greenlane, this addition is in line with an overall focus on improving active transportation infrastructure and increasing active transportation mode share.

The TMP also identifies the need for improvements on Greenlane to help facilitate transportation to and from the proposed Beamsville GO Station. Modifications to Greenlane Road will help facilitate the growth of this area and provide active transportation infrastructure to access the proposed station.

Town of Lincoln Active Transportation Strategy (2019)

As part of the development of the Town of Lincoln's Transportation Master Plan (TMP), a comprehensive Active Transportation Strategy (ATS) was prepared. The Town is experiencing increased need and demand for infrastructure, programs, and initiatives that support active transportation for day-to-day travel as well as recreational and tourism opportunities. The intent of the ATS is to provide staff and decision makers with the processes and tools to address these changes, as well as the needs of residents, visitors and employees within the Town.

The Greenlane MCEA study supports this strategy by expanding active transportation infrastructure through the addition of a multi-use path on the north side of the street.

2.2 Problem and Opportunity Statement

Greenlane Road within the urban boundary in Beamsville (Konkle Creek Trail to Bartlett Road) is experiencing significant infill development and is in poor condition. In future, this corridor will experience high travel demand resulting from significant development growth in the area, including the recently built West Niagara Secondary School on King Street, and the future GO Station on Ontario Street.

The above observations are in line with the Town's Beamsville GO Transit Station Secondary Plan which recommended upgrades to Greenlane Road, within a widened

(23 m) right-of-way, to implement a 'complete streets' design approach to accommodate intensification in the area and provide residents access to the area through all modes of transportation.

In addressing infrastructure needs for the increased travel demand, there is an opportunity to consider the transportation needs of the corridor, provide enhanced active transportation facilities and connections, as well as streetscaping / landscaping enhancements in the area.

The Town of Lincoln is undertaking a Municipal Class Environmental Assessment Study to consider cross-section improvements and right-of-way widening to address the above-noted concerns.

3. Existing Conditions

3.1 Transportation Assessment

Detailed traffic analysis was undertaken to assess existing (2023) operations and to identify the operational needs for intersections along Greenlane Road for the future planning horizons of 2031 and 2041. The Traffic Operational Analysis Report is provided as **Appendix A** to this report.

Traffic operational analysis for Greenlane Road between Konkle Creek and Bartlett Road was conducted using Synchro 11 software which follows the Highway Capacity Manual (HCM) approach to evaluate the operational performance of both signalized and unsignalized intersections in a road corridor or network considering the spacing, interaction, queues, and operations between intersections.

The performance measures used to assess operations at intersections included level of service (LOS), volume-to-capacity (v/c) ratio, and 95th percentile queue lengths.

3.1.1 Summary of Findings

Greenlane Road is expected to operate effectively in the future without the need for widening at the unsignalized intersections between the west urban boundary (Kongle Creek) and Bartlett Road. No operational issues or modifications are anticipated at the Cedarbrook, Carriage, Garden Gate, or Bartlett intersections.

Congestion is anticipated at the Regional intersection of Ontario Street and Greenlane Road. One proposed improvement involves widening the eastbound left-turn (EBL) approach to provide dual left-turn lanes and extending storage capacity to 60 metres. This option, as illustrated in the “2041 Future Scenario – Greenlane and Ontario Improvements”, improves performance.

However, the need for a dual left-turn lane may be reduced if signal timing adjustments are made (e.g., reallocating green time) and some additional queuing on Ontario Street is permitted. This would align with typical design strategies for arterial roads like Ontario Street.

As this is a Regional intersection, and an Environmental Assessment (EA) is expected in the near future, the Town will continue to engage with the Region to determine the most appropriate long-term solution.

3.2 Socio-Economic Environment

3.2.1 Existing Land Use

Greenlane Road from Konkle Creek Trail to Bartlett Road is an urban local collector roadway. The road is an east-west corridor that connects the Town of Beamsville downtown core with areas to the west of the town.

The study area is a flat linear corridor approximately 1.3 km long surrounded by agriculture, residential homes, and commercial businesses. Buildings on the south side of Greenlane Road between Konkle Creek and Ontario Street are predominantly low-density single-family homes. West of Ontario Street, the south side of the street contains a mixture of low-density single-family homes and agricultural uses. The north side of Greenlane Road between Konkle Creek and Ontario Street contains a mixture of agricultural, commercial, and mid-rise residential properties. The north side of the street between Ontario Street and Carriage Road is currently a grassy meadow, though this land is subject to a development application. East of Carriage Road, Greenlane abuts the Canadian National Railway (CNR) corridor.

3.2.2 Planned Land Use Intensification

Future growth in and around the study area is being guided by the Town of Lincoln's Official Plan, which establishes a strategic framework for sustainable development. The Plan directs the majority of growth to designated urban areas, where infrastructure and services can be efficiently provided. The segment of Greenlane Road between Konkle Creek and Bartlett Road lies entirely within the urban boundary of Beamsville, positioning it as a focal point for future intensification and infill development.

Within this context, Ontario Street, intersecting Greenlane Road within the study area, is identified in the Official Plan as a key intensification corridor. This designation highlights the area as a target for substantial residential and mixed-use infill, supporting the Town's goals of creating complete and compact communities.

Greenlane Road is expected to experience increased travel demand due to several significant growth drivers in the immediate vicinity. These include the recently completed West Niagara Secondary School on King Street, the planned Catholic public school at the corner of Greenlane Road and Ottawa Street, and the proposed Beamsville GO Station. These developments will significantly increase activity in the area, both in terms of daily trips and long-term community growth.

In recognition of its strategic location and anticipated role in supporting future development, Greenlane Road is identified as a key corridor in the Beamsville GO Transit Secondary Plan. It serves as an essential transportation link between Beamsville's urban core and communities to the west, providing connectivity for residents, students, and commuters alike.

The Greenlane Road MCEA study includes proposed roadway improvements designed to accommodate this anticipated growth. These enhancements will support a safe, efficient, and multi-modal transportation network—helping to create a vibrant, accessible, and resilient community as Beamsville continues to evolve.

3.3 Cultural Environment

Section 3.2 describes the existing conditions of the cultural heritage component of the environment. Cultural heritage resources include archaeological resources, built heritage resources, and cultural heritage landscapes.

3.3.1 Archaeology

Stage 1 Archaeological Assessment

A Stage 1 archaeological assessment (under Project Information Form (PIF) number P1078-0205-2023) was completed in accordance with the Standards and Guidelines of Consultant Archaeologists (MTC 2011, "Standards and Guidelines"). The Stage 1 Archaeological Assessment report is provided in **Appendix B**.

The purpose of the Stage 1 Archaeological Assessment was to provide information about the study area geography, history, previous archaeological fieldwork, and current land uses to determine the potential for the presence of archaeological resources in the project area. The assessment identified the following areas appear to retain archaeological potential and require further assessment:

- fenced in residential properties and manicured grass lawns;
- manicured grass associated with residential properties on the southern side of the Greenlane Road; and,
- manicured grass in the northeast corner of the intersection of Ontario Street and Greenlane Road.

The results of the assessment indicated that the majority of the study area (3.61 ha; 70.2%) had experienced prior disturbance and is of low archaeological potential. As

such, these areas do not require further assessment. Some portions of the study area (0.92 ha; 17.9%) have been previously assessed and do require further assessment. The remainder of the study area (0.61 ha, 11.9%) retains archaeological potential and requires further assessment. The areas recommended for Stage 2 Archaeological Assessment are shown in **Exhibits 3-1 to 3-3**.

Stage 2 Archaeological Assessment

A Stage 2 archaeological assessment (under Project Information Form (PIF) number P1078-0252-2024) was completed in accordance with the Standards and Guidelines of Consultant Archaeologists (MTC 2011, “Standards and Guidelines”). The Stage 1 Archaeological Assessment report is provided in **Appendix C**.

The Stage 2 assessment was conducted through a standard test pit survey at a 5 m transect interval, in keeping with provincial standards. No archaeological material was documented during the Stage 2 Archaeological Assessment. As such, no further archaeological assessment was recommended.

It is noted that the Draft Stage 1 and Stage 2 Archaeological Assessment Reports were circulated to all Indigenous Communities with an invitation to review and provide comment. Indigenous Community outreach is discussed in more detail in **Chapter 7**.

Exhibit 3-1: Stage 1 AA – Areas of Archaeological Potential (Map 1 of 3)

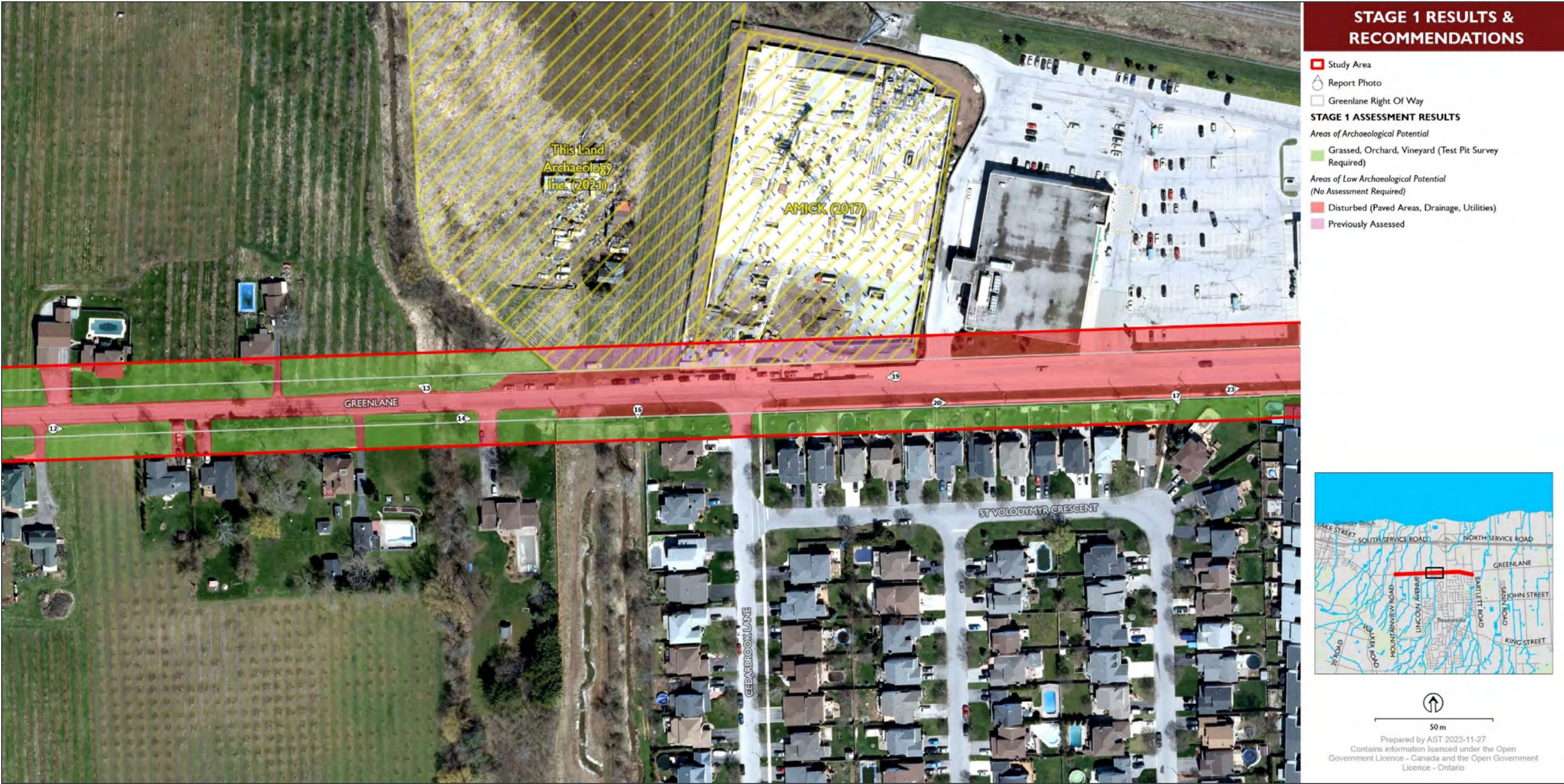


Exhibit 3-2: Stage 1 AA – Areas of Archaeological Potential (Map 2 of 3)



-3: Stage 1 AA – Areas of Archaeological Potential (Map 3 of 3)



3.3.2 Built Heritage Resources and Cultural Heritage Landscapes

A Cultural Heritage Report: Existing Conditions and Preliminary Impact Assessment (dated November 2024 by TMHC Inc.) was prepared for the Greenlane Road MCEA study and is included in **Appendix D**. The purpose of the Cultural Heritage Report is to inventory known and potential built heritage resources (BHR) and cultural heritage landscapes (CHL) in the study area.

For the purposes of this study, a 50 m buffer zone was established around the study corridor to identify BHRs or CHLs that may experience direct or indirect impacts because of close proximity to construction activities. The results of background research and review of secondary sources indicate the study area spans the historical lot and concession fabric of Lots 15-18, concessions 1 and 2 in the Geographic Township of Clinton, Niagara Region, Ontario.

Through a review of federal, provincial, and municipal registers, inventories, databases, and field review, 119 properties, structures, and landscapes were screened, out of which only 89 were found to require additional heritage review. Of the 89 properties, only one potential CHL, 5124 Greenlane Road (CHL-01), was determined to have potential cultural heritage value or interest. The location of the CHL is shown on the map in **Exhibit 3-4**.

Exhibit 3-4: Heritage Review and Impact Assessment Results



3.4 Natural Environment

A Natural Heritage Assessment (NHA) was conducted to identify and describe natural heritage features which may be present in or within 120 m (the adjacent lands) of the study area. This NHA identifies known or potential natural heritage features and provides guidance on how to minimize or avoid negative impacts that could result from the proposed project.

The complete Natural Heritage Assessment Report is included in **Appendix E**.

3.3.1 Data Collection

Background information was reviewed to assess the general character of the study area and identify potential constraints and sensitivities. Background information was collected from the following key sources throughout the study:

- Aerial/Satellite Imagery (ERIS, 2021)
- Atlas of the Mammals of Ontario (Dobbyn, 1994)
- Conservation Halton (CH, 2023)
- eBird Status and Trends (Cornell Lab of Ornithology, Released 2023)
- Fisheries and Oceans (DFO) Aquatic Species at Risk Mapping (DFO, 2023)
- Geographic information from Land Information Ontario (LIO, 2021)
- Global Biodiversity Information Facility (GBIF) Occurrence Data
- Greenbelt Plan (2017)
- Important Bird and Biodiversity Areas (IBA) Birdlife International (No Date)
- iNaturalist (2022)
- The Ministry of Natural Resources and Forestry's (MNRF) Natural Heritage Information Center (NHIC) Make A Map (NHIC, 2023)
- Ontario Breeding Bird Atlas (Atlas 2- 2001 - 2005)
- Ontario Reptile and Amphibian Atlas (ORAA) (2019)
- Niagara Peninsula Conservation Authority (NPCA, 2023)
- Town of Lincoln Official Plan (December 2018)
- Niagara Official Plan (November 4, 2022)

Vegetation communities were mapped using satellite imagery and verified during field visits. Field studies were completed by systematically walking the site. Field investigations included a botanical inventory and plants that could not be identified in the field were collected for a more detailed examination in the laboratory.

Specific attention was paid to locating Species at Risk (SAR) or species of conservational value listed as potentially occurring within the site.

3.3.2 Designated Natural Areas

There are no Environmental Conservation Areas (ECA), Environmental Protection Areas (EPA), or Greenbelt Natural Heritage Systems (NHS) identified in or within 120m of the study area.

A review of available data sources confirmed the absence of Provincially Significant Wetlands (PSWs), unevaluated wetlands, and Areas of Natural or Scientific Interest (ANSIs).

3.3.3 Evaluation of Significance

Site investigations did not identify any high value features such as: savannahs, tall grass prairie, barrens, seeps, springs or vernal pools or small wetlands. As such, the features brought forward for evaluation of significance in the NHA included:

- Endangered and Threatened Species and their Habitats; and,
- Fish Habitat.

3.3.4 Endangered and Threatened Species and their Habitats

The background review and field investigations identified 28 Species at Risk (SAR) that potentially occur in the study area. The list includes: one fish, one amphibian, one reptile, twelve birds, four mammals, and nine plants.

Based on further analysis, the report found that there is a potential for the following endangered and threatened species and their habitat in and near the project site:

- Blanding's Turtle
- Little brown myotis
- Bats in general
- Butternuts

The status, preferred habit, and evaluation of these species is summarized in **Exhibit 3-5** below.

Exhibit 3-5: Potential Endangered or Threatened Species Brought Forward following Site Investigations

Common Name	Scientific Name	SRank	ESA Reg. 230/08 SARO List Status	SARA Schedule 1 List of Wildlife SAR Status	Preferred Habitat Federal and/or Provincial Guidelines	Evaluation
REPTILES						
Blanding's Turtle	<i>Emydoidea blandingii</i>	SNR	THR	END	Shallow water, large marshes, shallow lakes or similar such water bodies. General habitat protection is provided for suitable habitat that is within 2 km of an occurrence when certain conditions are met (COSEWIC, 2016).	NHIC occurrences overlap with the Site, triggering the mapping of Category 1-3 habitat as per provincial General Habitat Descriptions. No suitable nesting habitat identified during site investigations. Watercourses could provide potential movement corridors and overwintering habitat where water depths are sufficient.
MAMMALS						
Little Brown Myotis	<i>Myotis lucifugus</i>	S4	END	END	Females establish summer maternity colonies, often in buildings or large-diameter trees. Foraging occurs over water, along waterways, and forest edges. Overwinter in cold and humid hibernacula (caves/mines). (COSEWIC 2013).	No rocky habitat suitable for hibernacula or for Eastern Small-footed Myotis maternity sites was present within the Site. Trees that were at least 10 cm in diameter were present in the Site. As such, the potential for maternity habitat for Little Brown Myotis and for day-roosts (all species) is brought forward.
Northern Myotis	<i>Myotis septentrionalis</i>	S3	END	END	Older (late successional or primary forests) with large interior habitat and snags that are in the mid-stage of decay. They prefer intact interior habitat and are sensitive to edge habitats (Menzel et al., 2002; Broders et al., 2006; SWH 6E Ecoregion Criterion Schedule). Critical habitat has not yet been defined by the province.	

Common Name	Scientific Name	SRank	ESA Reg. 230/08 SARO List Status	SARA Schedule 1 List of Wildlife SAR Status	Preferred Habitat Federal and/or Provincial Guidelines	Evaluation
Eastern Small-footed Myotis	<i>Myotis leibii</i>	S2S3	END		Roost in a variety of habitats, including in or under rocks, in rock outcrops, or in caves, mines, or hollow trees. Preferred maternity habitat of this species consists of open rock habitats, it rarely uses old buildings as roosting/maternity sites. In the winter, these bats hibernate, most often in caves and abandoned mines (Humphrey 2017). Critical habitat has not yet been defined by the province.	
Tri-colored Bat	<i>Perimyotis subflavus</i>	S3?	END	END	Females establish summer maternity colonies, often in buildings or large-diameter trees. Foraging occurs over water, along waterways, and forest edges. Overwinter in cold and humid hibernacula (caves/mines). (COSEWIC, 2013). Critical habitat has not yet been defined by the province.	
PLANTS						
Butternut	<i>Juglans cinerea</i>	S2?	END	END	Found in a variety of habitat types but grows best on well-drained fertile soils in shallow valleys and on gradual slopes (COSEWIC, 2017). The federal recovery strategy does not outline critical habitat for this species. Provincially, butternuts are assessed and categorized based on the amount of canker. These categories are outlined in Section 5.	Five hybrid individuals were observed on the western end of Area A, within 50m of Area B. As the ESA does not protect hybrids, this species is considered absent. However, a BHA submission to MECP is still needed 30 days prior to work.

3.3.5 Fish and Fish Habitat

Following the site investigations, it was confirmed that there are two watercourse features in the study area: Konkle Creek, and one other unnamed watercourse feature.

- Konkle Creek is known to provide fish habitat. The other feature was presumed to provide fish habitat, as no barriers were noted.
- Neither feature neither has confirmed or suspected presence of endangered or threatened species.

3.5 Drainage and Stormwater Management

A Drainage and Stormwater Management (SWM) report was prepared for the Greenlane Road study area to identify current drainage and stormwater management conditions, determine the flow related to stormwater management design, identify features that may need to be reconfigured, and design new features to accommodate the proposed roadway improvements.

The complete Drainage and Stormwater Management is included in **Appendix F** and the findings of the assessment are summarized below.

3.5.1 Existing Drainage Conditions

Greenlane Road from Konkle Creek Trail to Bartlett Road is an urban two-lane collector road. The study area is bounded by medium-density residential developments to the south and commercial developments to the north. Roadway runoff is conveyed through a combination of existing storm sewers and roadside ditches. The drainage pattern is divided into three outlet areas. The existing drainage conditions are shown in **Exhibit 3-6 to 3-8** and described below:

- Catchment 100 (0.60 ha): Road runoff drains toward a low point along Greenlane via roadside ditches and discharges into Konkle Creek near an existing box culvert west of Konkle Creek Trail. This catchment lies outside the current study limits.
- Catchments 110 (0.64 ha) and 120 (0.13 ha): Runoff flows through an existing storm sewer along Greenlane in a westerly direction and discharges into Konkle Creek to the north of Greenlane. The total area draining through the storm sewers is 0.77 ha, of which 0.59 ha is impervious.

- Catchment 130 (0.17 ha): Runoff flows eastward overland and is captured by a catch basin near the intersection of Greenlane and Ontario Street. These catch basins are connected to the Ontario Street storm sewer system, which conveys the flow northward.
- Catchments 140 (0.16 ha) and 150 (1.71 ha): Runoff is conveyed by existing storm sewers and roadside ditches along Greenlane in an easterly and northerly direction, crossing the Canadian National Railway before reaching its outlet. The total drainage area is 1.87 ha, with 0.87 ha being impervious.
- Catchment 160 (0.28 ha): Runoff is conveyed by ditches and storm sewers on Greenlane and discharges into a ditch on the west side of Bartlett Road via an existing culvert under the CN Railway tracks.
- In addition to roadway drainage, the existing storm sewer system on Greenlane also conveys minor (5-year) runoff from adjacent external areas, including Catchments 101, 102, 170, 180, 190, 200, and 210.
- Catchments 170 (0.20 ha), 190 (1.05 ha), 200 (4.11 ha), and 210 (1.84 ha): These are existing residential areas located on the south side of Greenlane. These four external catchments will not be affected by the proposed road reconstruction. Together, they total 7.20 ha, with approximately 2.90 ha of impervious area.
- Catchments 101 (1.25 ha) and 102 (0.17 ha): Defined in the Functional Servicing Report prepared by S. Llewellyn & Associates Limited, these areas currently consist of grassed fields with a forested section in the southeast corner. According to the report, runoff flows easterly, is captured by an existing ditch inlet in a reed area and is conveyed to the Greenlane municipal storm sewer.
- Catchment 180 (2.22 ha): This is currently a grass field and is proposed as the site for a future elementary school.

An existing conditions storm sewer capacity assessment was completed as part of the Stormwater Management (SWM) report. Key findings from the assessment include:

- No storm sewers were found to exceed 100% capacity; i.e., no surcharging conditions were observed.
- The 3000 x 1500 mm concrete box storm sewer on Westney Road North is operating at approximately 94% capacity from MH 900 to the Millers Creek

outfall. This high usage is attributed to flow from external catchments along Westney Road North.

- One 600 mm diameter PVC storm sewer from OGS #6 to CBMH 75 (Station 61+635 to 61+730) is operating at 92% capacity due to the relatively flat slope of the sewer.
- All remaining storm sewers along Kingston Road are operating below 80% capacity.

3.4.2 Stormwater Management

Under existing conditions, there are no stormwater management (SWM) measures in place to address either runoff quality or quantity. The proposed improvements to Greenlane Road will increase the amount of impervious surface, leading to higher volumes of stormwater runoff. To mitigate these impacts, a combination of SWM strategies will be implemented, including quantity control measures to manage peak flows, quality control measures to treat pollutants, and the incorporation of Low Impact Development (LID) features to promote infiltration and reduce runoff at the source.

Exhibit 3-6: Existing Drainage Conditions (Map 1 of 3)



Exhibit 3-7: Existing Drainage Conditions (Map 2 of 3)



Exhibit 3-8: Existing Drainage Conditions (Map 3 of 3)



4. Alternative Solutions

4.1 Alternative solutions Development

The problem and opportunity statements for Greenlane Road are noted in **Section 2.3** of the Environmental Study Report (ESR). Alternative solutions represent reasonable means of addressing transportation problems and opportunities. The development of these alternative solutions explored fundamentally different ways to upgrade Greenlane Road to an urban cross-section that supports the "complete streets" approach by providing dedicated space for all modes of transportation, and provides the infrastructure required for Greenlane Road to continue in its faculty as a key community transportation link. In addition to their transportation function, the alternative solutions were considered for their broader socio-economic, environmental (cultural and natural) contributions as well as compatibility with existing and planned land use.

The following alternative solutions were identified and assessed against their ability to address the problems and opportunities, and in consideration of the constraints identified in the study area.

- Alternative 1: Do Nothing
- Alternative 2: Improvements within the Existing (20 m) Right-of-Way
- Alternative 3: Improvements within a Widened (23 m) Right-of-Way

4.1.1 Do Nothing

"Do Nothing" is considered the status quo, maintaining the existing road network as is. Under this alternative, Greenlane Road would remain in its existing condition within the study limits. This alternative serves as a baseline to which other alternatives are compared.

4.1.2 Improvements within the Existing Right-of-Way

This alternative involves improvements to Greenlane Road within the existing 20 m right-of-way (ROW). This approach will assist in avoiding property impacts; however, the constrained width will leave limited or reduced opportunity for active transportation improvements and little-to-no opportunity for landscaping/streetscaping.

4.1.3 Improvements within a Widened Right-of-Way

This alternative involves improvements along Greenlane within a widened ROW. The Town of Lincoln Beamsville GO Transit Station Secondary Plan identified a proposed

23 m ROW which will be confirmed by this study, resulting in property impacts but enabling a preferred complete streets design approach.

4.2 Analysis and Evaluation of Alternative Solutions

The alternative solutions were assessed against their ability to address the problems and opportunities. Criteria were developed to guide the assessment process so that transportation planning, technical, and environmental (socio-economic, cultural environment, natural environment) conditions were factored into the assessment. Consultation with landowners, public, agencies, and Indigenous Communities was undertaken to identify and refine a preferred solution.

The comprehensive set of factors used to evaluate the alternative solutions is presented in **Exhibit 4-1**. The comparison of the alternative solutions is provided in **Exhibit 4-2**. A summary of the assessment that highlights decision-relevant factors can be found in **Exhibit 4-3**.

Exhibit 4-1: Factors Considered in Evaluating Alternative Solutions

Category	Factors
Socio-Economic Environment	• Community input and feedback • Consistency with Town's Planning Policies (Beamsville GO Transit Station Secondary Plan, Transportation Master Plan, Active Transportation Strategy) • Potential property impacts • Opportunities to enhance streetscaping, landscaping and public realm along Greenlane
Cultural Environment	• Potential to impact archaeological resources • Potential to impact built heritage resources and / or cultural heritage landscapes • Indigenous Community interests and rights
Climate Change / Natural Environment	• Climate change considerations • Potential to impact fish and fish habitat

Category	Factors
	• Potential to impact significant natural features • Potential to impact significant wildlife, wildlife habitat, and Species at Risk (SAR) • Drainage / Stormwater Management Opportunities
Technical / Transportation	• Maintain or improve traffic operations and road safety • Ability to accommodate active transportation facilities and improve overall network connectivity and accessibility • Cost to construct

Exhibit 4-2: Assessment of Alternative Planning Solutions

Factors	Alternative 1: Do Nothing	Alternative 2: Improvements within the Existing ROW	Alternative 3: Improvements within the Widened ROW
Description of Alternative Solutions	Greenlane would remain ‘as-is’ within the study limits.	Improvements within the existing 20 m ROW, avoiding property impacts, however with limited or reduced active transportation improvements and little-to-no opportunity for landscaping/streetscaping.	Improvements within a widened 23 m ROW, resulting in property impacts but enabling preferred complete streets design approaches.
Socio-Economic Environment - Community input and feedback - Consistency with Town’s Planning Policies (Beamsville GO Transit Station Secondary Plan, Transportation Master Plan, Active Transportation Strategy) - Potential property impacts - Opportunities to enhance streetscaping, landscaping and public realm along Greenlane	- Not consistent with Town’s planning policies (Beamsville GO Transit Station Secondary Plan, Transportation Master Plan, Active Transportation Strategy) to support growth and accommodate the mobility of all modes of travel. - No potential property impacts. - No opportunities for streetscape / landscape enhancements.	- Community feedback is supportive of active transportation facility improvements in the corridor. - Not consistent with Town’s planning policies including Beamsville GO Transit Station Secondary Plan which recommends widening to 23 m to accommodate complete streets approaches or the Transportation Master Plan which recommends widening of travel lanes. - No potential property impacts as improvements will be restricted within the existing ROW. - Minimal opportunities for streetscape / landscape enhancements.	- Community feedback is supportive of active transportation facility improvements in the corridor. However, some property impact concerns were raised. - Consistent with Town’s planning policies (Beamsville GO Transit Station Secondary Plan, Transportation Master Plan, Active Transportation Strategy) to upgrade Greenlane to an urban standard that supports the complete streets approach by providing dedicated space for all modes of transportation and the complete streets design for Greenlane to be accommodated within a widened 23 m ROW. - Potential property impacts to accommodate widening of the corridor. - Opportunities for streetscape / landscape enhancements to create a safe and comfortable public realm for all users.
Cultural Environment - Potential to impact archaeological resources - Potential to impact built heritage resources (BHR) and / or cultural heritage landscapes (CHL) - Indigenous Community interests and rights	- No impacts to archaeological resources, BHR, or CHL. - No known impacts to areas of Indigenous Community interests and rights.	Improvements are expected to impact areas that have been previously disturbed within the existing right-of-way. Therefore, no anticipated impacts to archaeological resources, BHR, or CHL.	Improvements will extend outside of the existing right-of-way, therefore, there is potential for impacts to archaeological resources, BHR, and CHL.

Factors	Alternative 1: Do Nothing	Alternative 2: Improvements within the Existing ROW	Alternative 3: Improvements within the Widened ROW
		No known impacts to areas of Indigenous Community interests and rights.	Potential for impacts to areas of Indigenous Community interests and rights.
Natural Environment - Climate change considerations - Potential to impact fish and fish habitat - Potential to impact significant natural features - Potential to impact significant wildlife, wildlife habitat, and Species at Risk (SAR) - Drainage / Stormwater Management Opportunities	- No opportunity to consider climate change mitigation and adaptation strategies. - Maintains the status quo. No impacts to the natural environment.	- Provision of active transportation facilities and connections will support climate change mitigation and adaptation strategies by encouraging a shift to modes of transportation other than vehicles. - Improvements would mostly occur within the existing right-of-way, therefore low potential for impacts to the natural environment. - Minimal changes to the existing stormwater management and drainage strategy.	- Provision of enhanced active transportation facilities and connections will support climate change mitigation and adaptation strategies by encouraging a shift to modes of transportation other than vehicles. - Improvements will extend beyond the existing right-of-way. Therefore, there is potential to impact environmentally significant areas and natural habitats in the study area. - Opportunities to enhance the existing stormwater management and drainage strategy.
Technical / Transportation - Maintain or improve traffic operations and road safety - Ability to accommodate active transportation facilities and improve overall network connectivity and accessibility - Cost to construct	- No opportunity to improve traffic operations and road safety along the corridor. - No opportunity to enhance active transportation facilities along Greenlane. - No cost.	- Improvements to traffic operations and road safety. - Limited active transportation improvements. \$	- Improvements to traffic operations and road safety to address future needs. - Opportunity to provide enhanced active transportation facilities and connections with potential to improve overall network connectivity. \$\$
Result	Do not carry forward	Do not carry forward	Recommended Solution

Exhibit 4-3: Summary of Alternative Planning Solutions Assessment

Alternative Solutions	Key Considerations	Does it Address the Problems and Opportunities?
Alternative 1: Do Nothing	- Does not address future multi-modal transportation network needs to support planned intensification in the area - Not consistent with Town's planning policies (Beamsville GO Transit Station Secondary Plan, Transportation Master Plan, Active Transportation Strategy)	x
Alternative 2: Improvements within the Existing (20 m) ROW	- Not consistent with Town's planning policies (Beamsville GO Transit Station Secondary Plan, Transportation Master Plan, Active Transportation Strategy) - Limited active transportation improvements - Little-to-no opportunities for streetscape / landscape enhancements	x
Alternative 3: Improvements within the Widened (23 m) ROW	- Consistent with Town's planning policies (Beamsville GO Transit Station Secondary Plan, Transportation Master Plan, Active Transportation Strategy) to upgrade Greenlane to accommodate all modes of transportation - Opportunity to provide enhanced active transportation facilities and connections to create a comfortable, safe, and convenient pedestrian and cycling network - Opportunity for streetscape / landscape enhancements to define the character of the Beamsville area	✓

4.3 Preferred Solution

Alternative #3 – Improvements within the Widened (23 m) ROW is recommended as the preferred planning solution. This alternative will enable the upgrade of Greenlane Road to an urban standard, providing a "complete streets" approach with dedicated space for all modes of transportation and enable the accommodation of the future transportation demand.

This alternative is consistent with Town's planning policies, including the Beamsville GO Transit Station Secondary Plan, Transportation Master Plan, and Active Transportation Strategy. It will upgrade Greenlane to an urban standard that supports the complete streets approach by providing dedicated space for all modes of transportation and the complete streets design for Greenlane to be accommodated within a widened 23 m ROW.

This alternative includes provision of enhanced active transportation facilities and connections along Greenlane Road to create a comfortable, safe, and convenient pedestrian and cycling network. Moreover, this alternative allows for streetscape / landscape enhancements which will improve the public realm for pedestrians, cyclists, and transit users as well as define the character of the Beamsville area.

5. Design Alternatives

5.1 Design Process for Greenlane Road

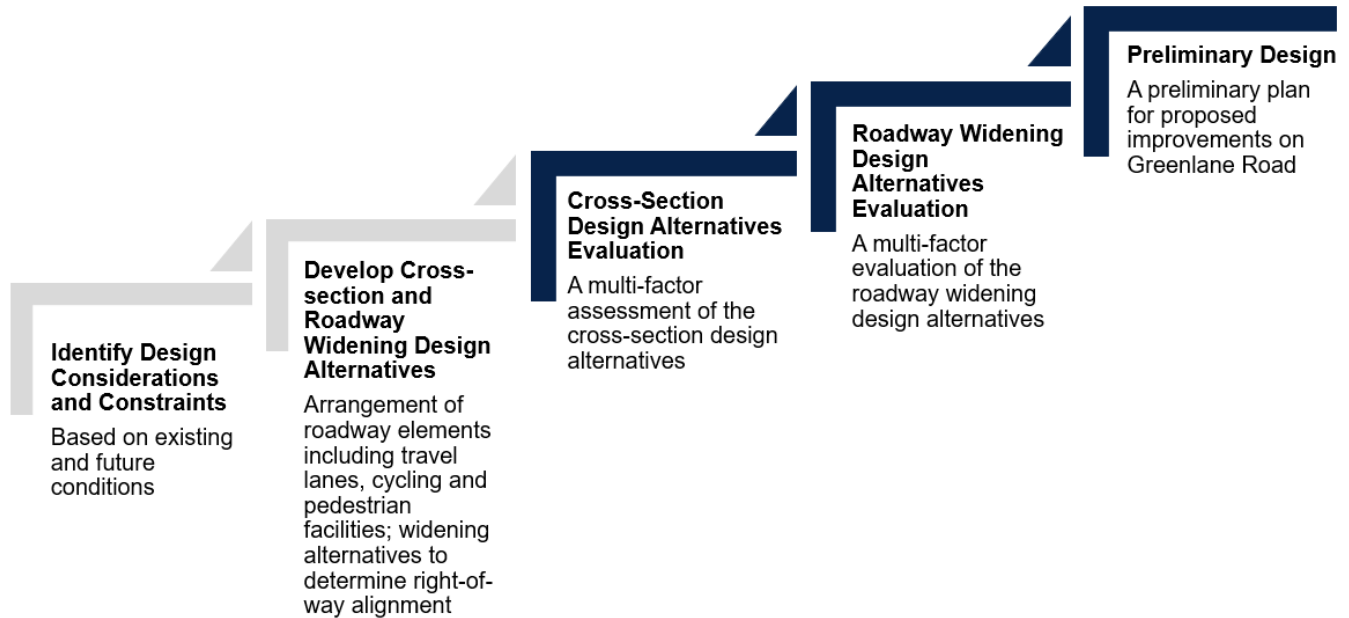
Phase 3 of the Municipal Class Environmental Assessment (MCEA) process involves developing and assessing alternative design concepts. Having established the problems and opportunities for Greenlane Road in Phase 1 (**Chapter 2**) and selecting the preferred solutions in Phase 2 (**Chapter 4**), the next phase of the study was to develop and evaluate alternative designs for the various components of the proposed improvements to Greenlane Road.

Phase 3 of the MCEA study involved the following activities:

- Develop and assess complete street cross-section design alternatives that accommodate one travel lane in each direction with centre left-turn lanes and active transportation facilities to accommodate walking and cycling (see **Section 5.2**)
- Develop and evaluate widening design alternatives to minimize impacts to existing business and residences, constructability, and cost (see **Section 5.3**)
- Invite interested parties (agencies, interest groups, landowners, residents, public) to attend Public Information Centre #2 to review and provide comments on the preferred alternative (see **Chapter 7**)
- Develop the preferred plan and profile (i.e., the recommended plan) for Greenlane Road based on the cross-section and associated right-of-way requirements (see **Chapter 8**)

The process for developing and evaluating design alternatives consisted of several decision points for each roadway component. The stepwise process is illustrated in **Exhibit 5-1**.

Exhibit 5-1: Process for Developing and Evaluating Design Alternatives



5.2 Design Considerations and Constraints

As is typical in an MCEA study, the Project Team's understanding of technical design constraints evolved through Phase 3 of the MCEA process based on supporting technical investigations and consultation.

The development of design alternatives for Greenlane Road considered the following:

Socio-Economic Environment:

- Compatibility with the Town of Lincoln's policies and plans, including the Official Plan, Beamsville GO Transit Station Secondary Plan, Transportation Master Plan, and Active Transportation Strategy
- Impacts to private property, including number of properties impacted, the area of impact (m²), and the nature of impacts to residences and businesses
- Number of access points that would change (e.g., become right-in/right-out)
- Impacts to cemeteries, schools, places of worship, and unique community features
- Compatibility with existing and future land uses
- Input and feedback from the community

Cultural Environment:

- Potential impacts to known archaeological resources
- Impacts to Built Heritage Resources (BHR) and Cultural Heritage Landscapes (CHL) (i.e. number of BHRs and CHLs disrupted or displaced)
- Potential impacts to Indigenous Community rights and interests

Natural Environment:

- Climate change considerations, including consideration of construction materials and techniques
- Potential impacts to adjacent vegetation, watercourses, and aquatic habitat, including surrounding Species At Risk (SAR) and existing/potential SAR habitat
- Qualitative assessment of the ability to manage surface water quality, quantity and opportunities to improve existing conditions

Transportation/Technical:

- Vehicle level of service (LOS) and Traffic Safety; the ability to accommodate large vehicles for goods movement and emergency response and the provision of parking
- Safety, comfort, and security for users of all ages and abilities
- Network continuity and accessibility, including AODA requirements
- Design conformance to current industry guidelines
- Potential conflicts with utilities and ability to accommodate planned new and upgraded utilities
- Daily and seasonal operation and maintenance considerations
- Complexity of construction operations and staging
- Estimated construction costs

5.3 Evaluation of Design Alternatives

The effects of the design alternatives were assessed and evaluated based on the criteria and factors listed in **Exhibit 5-2 and Exhibit 5-3**. A reasoned argument approach was used to assess and evaluate the potential impact of each alternative and compare the relative significance of the impacts to select a preferred design alternative for each roadway component (road cross-section and roadway widening alternatives).

The cross-section alternatives were ranked as low, medium, high. The roadway widening alternatives were evaluated as preferred, neutral, or not preferred.

Exhibit 5-2: Evaluation Criteria for Cross-section Design Alternatives

Category	Factor	Criteria
Socio-Economic	Land Use	Compatible with planned land uses by supporting a wide range of users
	Streetscape opportunities	Opportunities to enhance the streetscape (furnish street with functional and aesthetic items that provide amenities and utility to users)
Transportation	Active Transportation Operation	User comfort and safety, inc.: separation between cyclists and vehicles, separation between cyclists and pedestrians, and capacity
	Active Transportation Network Continuity	Provides continuous facilities throughout the corridor and connection to other existing and planned facilities
	Design	Ability to confirm with design standards to accommodate a range of users (e.g., adaptive bicycles, electric bicycles, pedestrians, etc.)
Technical	Utilities	Impacts to utilities in the corridor (hydro poles on the south side of Greenlane Road)
	Maintenance	Daily and seasonal operation and maintenance considerations
	Constructability and Cost	Ease and efficiency to construct. High-level cost estimates.

Exhibit 5-3: Evaluation Criteria for Roadway Widening Design Alternatives

Criteria	Factors
Socio-Economic Environment: to assess the impacts on the community and properties adjacent Greenlane Road and the compatibility with Town's policies and priorities	• Property • Access • Community Effects • Land Use • City Policies and Priorities

Criteria	Factors
	- Noise - Community Feedback
Cultural Environment: to assess impacts on archaeological resources, built heritage resources and cultural heritage landscapes, and Indigenous community rights	- Archaeological Sites and Areas of Archaeological Potential - Potential and Known Built Heritage Resources and Cultural Heritage Landscapes - Indigenous Community Rights
Natural Environment: to assess Climate Change impacts on sensitive natural features in the study area	- Climate Change - Fish and Fish Habitat - Wildlife Habitat and Linkages - Designated Natural Features - Vegetation - Surface Water and Groundwater
Transportation: to assess the efficiency, movement, and safety of all modes of transportation	- Active Transportation - Accessibility - Design
Technical: to assess the anticipated magnitude of disruption that would be caused by construction and the capital costs	- Utilities - Maintenance - Constructability - Cost

5.4 Cross-Section Design Alternatives

As part of the Greenlane MCEA study, design alternatives were assessed for the active transportation improvements along Greenlane Road. The existing active transportation facilities in the study area are not adequate and do not align with the existing plan and policy documents. An active transportation assessment was completed to develop complete streets

cross-section design alternatives. The alternatives were evaluated based on the criteria outlined in **Section 5.3**.

5.4.1 Active Transportation Assessment

While the Beamsville GO Secondary Plan originally recommended protected bike lanes (e.g., delineated with flexi-posts) along Greenlane Road, the Greenlane Road MCEA study has since re-evaluated this recommendation considering updated industry standards, specifically the 2021 update to OTM Book 18. This guidance was released after the approval of the Secondary Plan and offers a more current framework for planning active transportation (AT) infrastructure.

Greenlane Road is classified as a collector road, with a projected average annual daily traffic (AADT) of approximately 7,430 vehicles by the year 2041 and a posted speed limit of 50 km/h. Based on these parameters, OTM Book 18 recommends either a designated operating space or a physically separated bikeway for cyclists along this corridor.

Further guidance based on roadway context—such as vehicle speed and volume, road function, and vehicle mix—reinforces the need for high-quality cycling infrastructure:

- Bicycle lanes (of any type), cycle tracks, or multi-use paths (MUP) are generally recommended where motor vehicle speeds are 50 km/h. Although the posted speed on Greenlane is 50 km/h, actual operating speeds tend to be higher.
- Separated bicycle lanes, cycle tracks, or multi-use paths are typically appropriate for roadways with daily traffic volumes between 6,000 and 10,000 vehicles—a range that includes Greenlane Road.
- These facilities are also advised for roads that serve both mobility and access functions, which is the case for Greenlane.
- On streets with on-street parking, separated bicycle facilities such as cycle tracks or multi-use paths are preferred to minimize conflict points.

Considering these factors, the most appropriate form of cycling infrastructure for Greenlane Road would be a physically separated facility—either a cycle track or a multi-use path. Although protected bike lanes with flexi-posts, as proposed in the Beamsville GO Secondary Plan, technically qualify as separated facilities, they are generally less desirable than in-boulevard cycle tracks or multi-use paths in terms of comfort and safety.

The surrounding active transportation network and planned infrastructure were also reviewed to ensure continuity and connectivity:

- Phase 1 of the Greenlane Road reconstruction is implementing a multi-use path on the south side of Greenlane, west of the current EA study area.

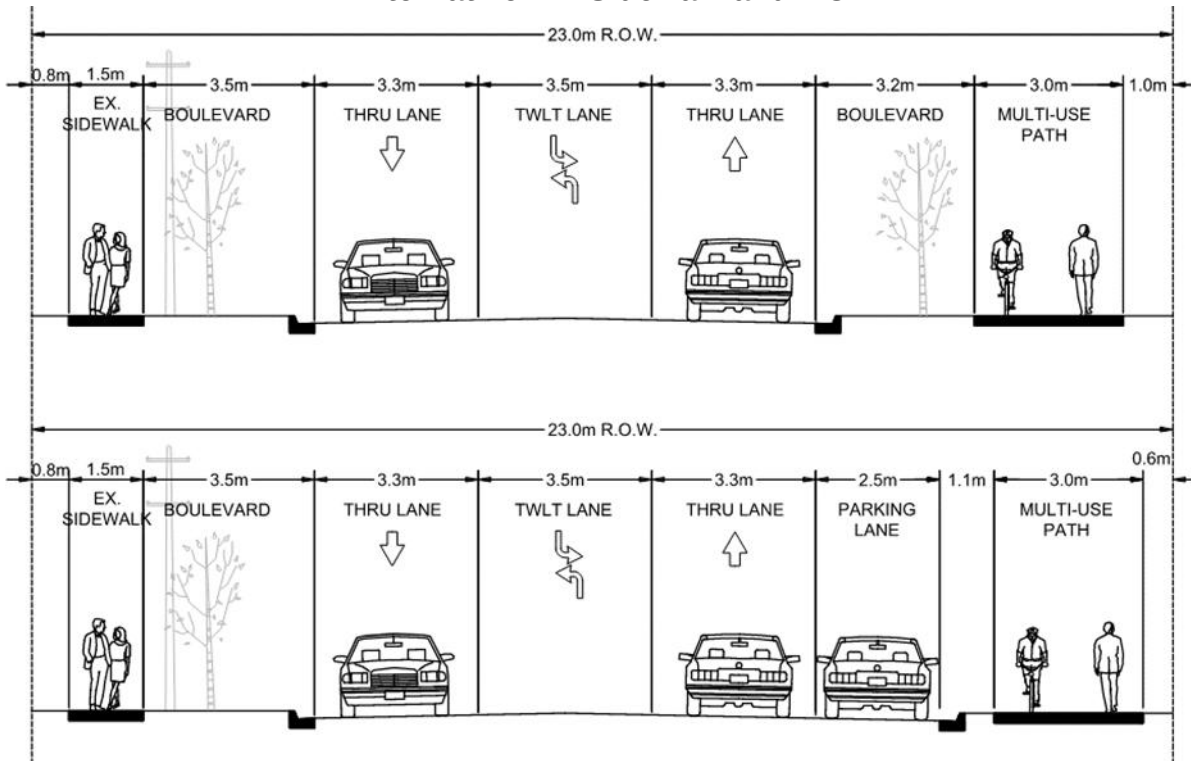
- The Town's Active Transportation Strategy (ATS) proposes bike lanes on Ontario Street south of Greenlane and in-boulevard facilities north of Greenlane; however, as Ontario Street is a Regional Road, final design is subject to confirmation.
- The Town is also undertaking design work for a potential multi-use path on Bartlett Road, which lies at the eastern boundary of the EA study area.
- Additionally, an existing multi-use trail along Konkle Creek runs south of Greenlane Road, contributing to the broader AT network.

Based on both the surrounding network and the updated OTM Book 18 guidance, a continuous, high-quality active transportation facility—such as an in-boulevard cycle track or multi-use path—would be the most suitable option along Greenlane Road. These facilities not only align with best practices but also ensure effective integration with existing and planned infrastructure in the area.

5.4.2 Cross Section Alternatives

Using the active transportation assessment, three cross-section alternatives were developed for Greenlane Road. The alternatives include a combination of sidewalks, cycle tracks, and multi-use paths (MUP), as shown in **Exhibits 5-4 through 5-6**.

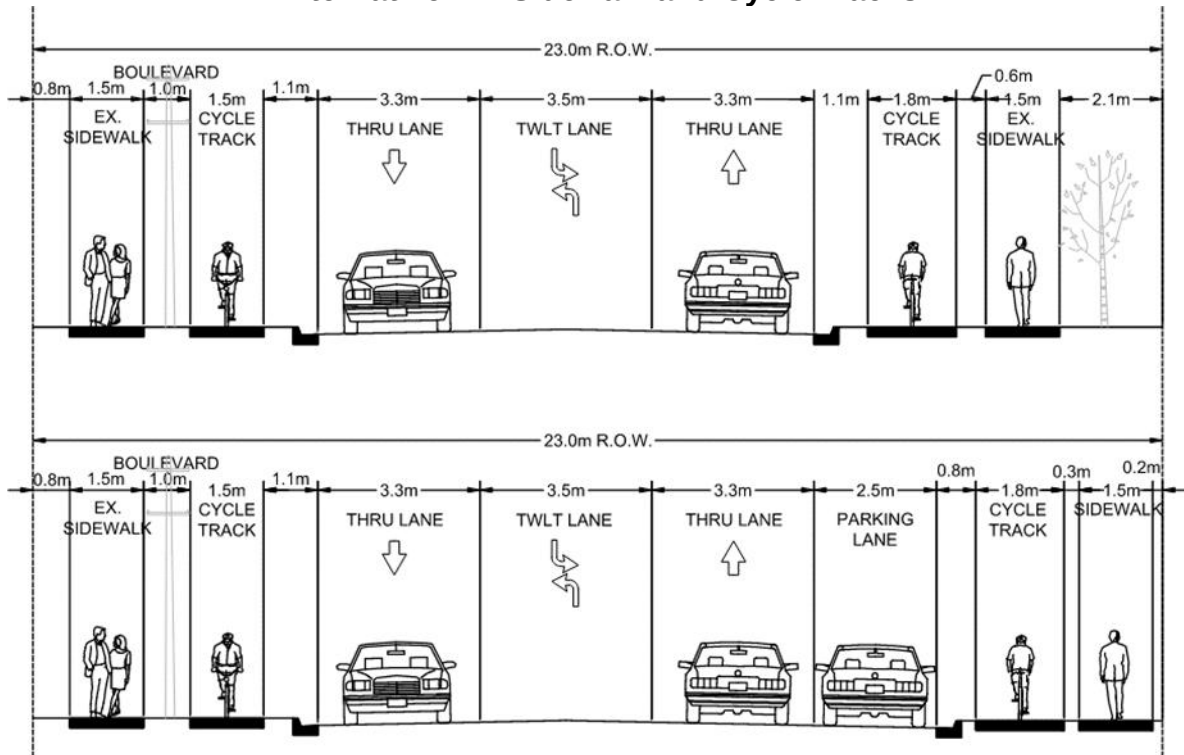
**Exhibit 5-4: Greenlane Road Complete Streets Cross-Section
Alternative A – Sidewalk and MUP**



Notes:

- MUP on one side and sidewalk on the other. MUP location to be confirmed.
- Cross-section can be amended for on-street parking, with the trade-off being reduced boulevard width.
- Opportunities will be sought to improve the existing sidewalk on the southern side.

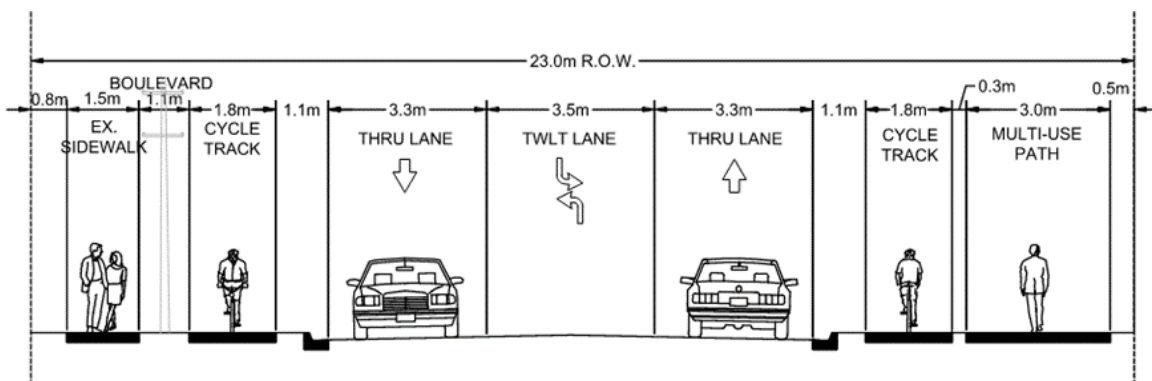
**Exhibit 5-5: Greenlane Road Complete Streets Cross-Section
Alternative B – Sidewalk and Cycle Tracks**



Notes:

- Cross-section can be amended for on-street parking, with the trade-off being reduced boulevard width, reduced buffer width for the cycle tracks, and reduced buffer to ROW.
- Dedicated facilities are provided for cyclists and pedestrians; however, these will likely be constrained to minimum widths due to the ROW width.

**Exhibit 5-6: Greenlane Road Complete Streets Cross-Section
Alternative C – MUP and Cycle Tracks**



Notes:

- MUP on one side and sidewalk on the other.
- Cross-section cannot be amended for on-street parking and there is limited boulevard width.
- Dedicated facilities are provided for multi-use, cyclists and pedestrians; however, these will likely be constrained to minimum widths due to the ROW width

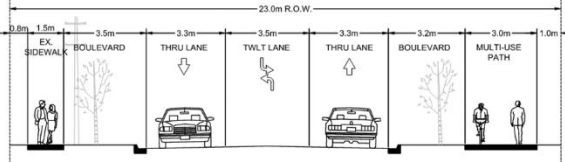
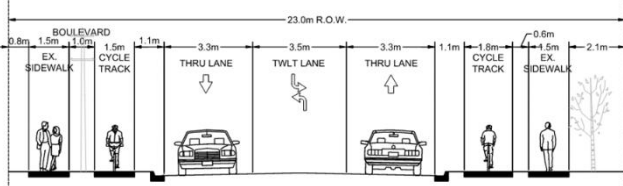
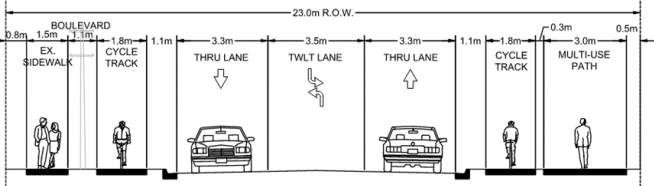
5.4.3 Cross-section Alternatives Assessment

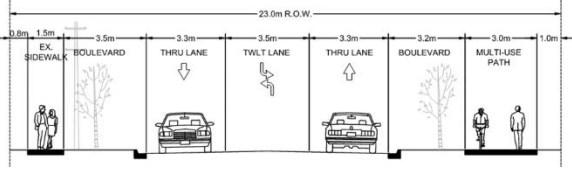
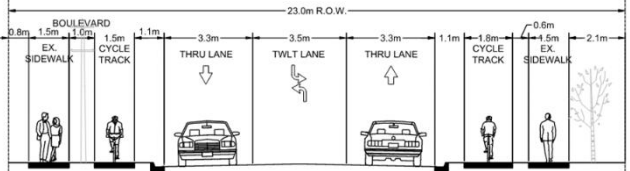
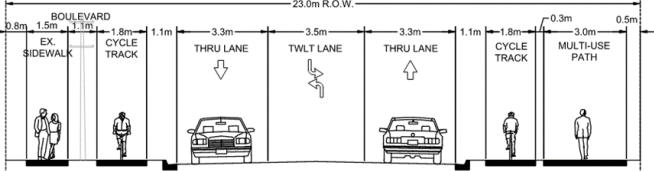
Exhibit 5-7 summarizes the assessment of the three proposed cross-section alternatives in accordance with the criteria outlined in **Section 5.3**.

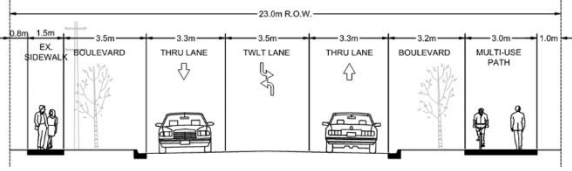
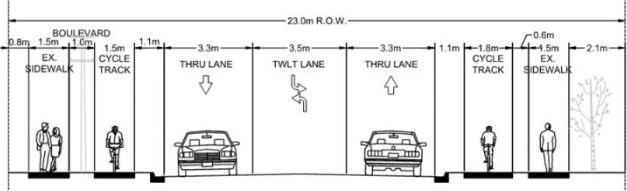
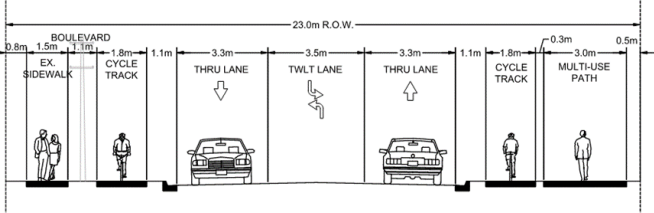
Alternative A has been identified as preferred for the following reasons:

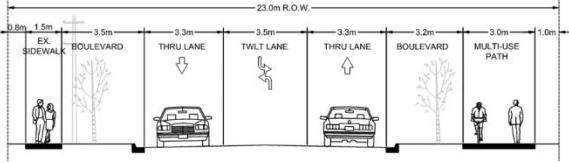
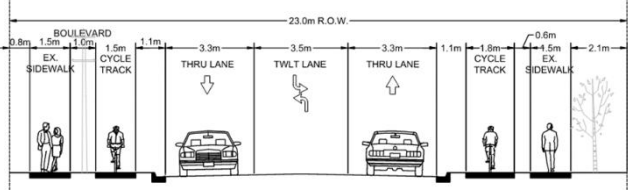
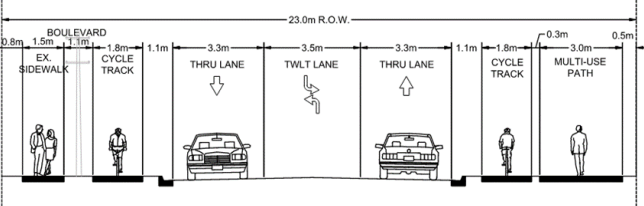
- The MUP appeals to wide variety of users with a range of skills, which suits the existing land use and destinations along the corridor (featuring existing / proposed schools and residential uses).
- Larger network benefits, as the MUP will tie with the proposed MUP along Greenlane at the west limits, and the proposed MUP on Bartlett Road at the east limits of this EA study, providing a consistent experience to active transportation users.
- A MUP can be easily enhanced for greater accessibility by using physical features like appropriate slopes, edge protection with bright color contrast, signage on the trail to describe the length, width, slope, materials, amenities, and safety information with tactile communication.
- A MUP will better support the surrounding area demographic (higher percentage of senior citizens, school-goers) and land uses, than dedicated cycle tracks.
- A MUP can be utilized by all active users other than cyclists and pedestrians (e.g., scooters, skateboards, non-motorized wheelchairs).
- Consolidated AT facilities on one side would typically make construction staging simpler and are easier to maintain.

Exhibit 5-7:Evaluation of Cross-Section Alternatives

Factors	Criteria	Alternative A – MUP and Sidewalk	Alternative B – Cycle Tracks and Sidewalk	Alternative C – MUP, Sidewalk and Cycle Tracks
				
Socio-Economic Environment				
Land Use and Property	Compatible with planned land uses by supporting a wide range of users. Within and adjacent the study area, there are schools (existing and proposed), commercial properties, and residential subdivisions.	– MUP appeal to wide variety of users with a range of skills, which suits the existing and future land use and destinations along the corridor (featuring schools and residential uses). – Utilitarian cyclists may prefer cycle tracks for longer distance travel. – MUP will support the surrounding area demographic (higher percentage of senior citizens, school-goers) and land uses. – MUP can be utilized by active users other than cyclists and pedestrians, e.g., skateboards, non-motorized wheelchairs.	– Cycle tracks will be preferred by utilitarian cyclists for longer distance travel. – However, cycle tracks may be less attractive to less experienced users or cyclists travelling together with pedestrians (e.g., young children on bicycle with adult). – If cycle tracks experience a high volume, there may be spillover onto the sidewalk and potential for conflict. – The surrounding area demographic does not represent a high number of cyclists; thus, a dedicated cycle track might not be very well-utilized by the area residents.	– MUP and cycle tracks can appeal to wide variety of users: Cycle tracks will be preferred by utilitarian cyclists for longer distance travel, while the MUP will be ideal for less experienced users or cyclists travelling together with pedestrians (e.g., young children on bicycle with adult). – On the south side, however, if cycle track experiences a high volume, there might be spillover onto the sidewalk and potential for conflict. – The surrounding area demographic does not represent a high number of cyclists; thus, a cycle track might not be very well-utilized by the area residents.
Streetscape	Opportunities to enhance the streetscape (furnish street with functional and aesthetic items that provide amenities and utility to users)	– Ample space on both sides of the corridor to incorporate boulevard width for streetscape compared with the other alternatives.	– Limited space to accommodate streetscape amenities and landscaping through escarpment. – Opportunities present towards study limits on the north side.	– Limited to no space to accommodate streetscape amenities and landscaping.
Ranking		High	Low	Medium
Transportation				

Factors	Criteria	Alternative A – MUP and Sidewalk	Alternative B – Cycle Tracks and Sidewalk	Alternative C – MUP, Sidewalk and Cycle Tracks
				
Active Transportation Operation	User comfort and safety, inc.: separation between cyclists and vehicles, Separation between cyclists and pedestrians and capacity Consideration of accesses and potential for conflict with vehicles.	- Physical separation between active users and vehicles. - No physical separation between pedestrians and other active users, thus increases risk of user conflict (different modes and speeds). - Variation of user speed (cyclists vs pedestrian) may lead to potential conflicts between cyclists (recreation vs. utilitarian) and pedestrians on the MUP. - Accommodates a lower volume of cyclists compared with cycle tracks.	- Physical separation between active users and vehicles. - Physical separation between pedestrians and other active users; reduces risk of user conflict; however, less experienced cyclists do not have a dedicated facility and the variation of user speed may lead to potential conflicts between recreation and utilitarian users. - Accommodates a higher volume of cyclists compared with MUP only.	- Physical separation between active users and vehicles. - Cycle track will attract utilitarian cyclists and a MUP along the cycle track will be ideal for less experienced users, thus, prevent the potential for conflicts between recreation and utilitarian users. - However, there will be no physical separation between pedestrians and cyclists using the MUP and thus increases risk of user conflict (different modes and speeds).
Active Transportation Network Continuity	Provides continuous facilities throughout the corridor and connection to other existing and planned facilities.	MUP will tie-up with the proposed MUP along Greenlane at the west limits, and the proposed MUP on Bartlett Road, at the east limits of this EA study; thus, will provide a consistent experience to active users.	For cyclists using the cycle tracks, transition points will be required to cross to the other side of the road to switch direction.	- MUP will tie-up with the proposed MUP along Greenlane at the west limits, and the proposed MUP on Bartlett Road, at the east limits of this EA study; thus, will provide a consistent experience to active users. - For cyclists using the cycle tracks, transition points will be required to cross to the other side of the road to switch direction.
Design and Accessibility	Ability to conform with design standards to accommodate a range of users (e.g., adaptive bicycles, electric bicycles, pedestrians, etc.)	- Design will conform with current design standards. - MUP can be enhanced by using accessibility-focused design elements, including using physical features like appropriate slopes, edge protection with bright color contrast, signage on the trail to describe the length, width, slope, materials, amenities, and safety information with tactile communication.	- Design will conform with current design standards. - MUP will be more desirable compared to cycle tracks from an accessibility perspective.	- Design will conform with current design standards. - MUP coupled with the cycle tracks will constrict the ROW and might require narrowing the MUP which will limit the space to introduce accessibility features to make the MUP more accessible to people with disabilities.

Factors	Criteria	Alternative A – MUP and Sidewalk	Alternative B – Cycle Tracks and Sidewalk	Alternative C – MUP, Sidewalk and Cycle Tracks
				
	Ability to provide AT facilities which cater to users of all ages and ability.			
Ranking		Medium	Medium	Medium
Technical				
Utilities	Impacts to utilities in the corridor (hydro poles on the south side)	– No significant impacts to utilities anticipated.	– Potential impacts to utilities anticipated due to proximity to hydro poles along the south side of the corridor.	– Potential impacts to utilities anticipated due to proximity to hydro poles along the south side of the corridor.
Maintenance	Daily and seasonal operation and maintenance considerations	– Lesser number of facilities to maintain.	– More facilities to maintain.	– More facilities to maintain.
Constructability and Cost	Ease and efficiency to construct. High-level cost estimates.	– No significant constructability issues identified. – AT facilities on one side would typically make construction staging simpler.	– Most width for AT and thus largest construction requirement.	– Most width for AT and thus largest construction requirement.
Ranking		High	Low	Low
Overall Recommendation		Preferred	Not Preferred	Not Preferred

Factors	Cross-section Option 1 – MUP and Sidewalk	Cross-section Option 2 – Cycle Tracks and Sidewalk	Cross-section Option 3 – MUP, Sidewalk and Cycle Tracks
			
Socio-Economic Environment	High	Low	Medium
Transportation	Medium	Medium	Medium
Technical	High	Low	Low
Overall Recommendation	Preferred	Not Preferred	Not Preferred

Summary of Rationale

The MUP has been identified as preferred due to the following key rationale:

- MUP appeal to wide variety of users with a range of skills, which suits the existing land use and destinations along the corridor (featuring existing / proposed schools and residential uses).
- MUP will tie-up with the proposed MUP along Greenlane at the west limits, and the proposed MUP on Bartlett Road at the east limits of this EA study; thus, will provide a consistent experience to active users.
- MUP can be enhanced by using accessibility-focused design elements, including using physical features like appropriate slopes, edge protection with bright color contrast, signage on the trail to describe the length, width, slope, materials, amenities, and safety information with tactile communication.
- MUP will support the surrounding area demographic (higher percentage of senior citizens, school-goers) and land uses.
- MUP can be utilized by active users other than cyclists and pedestrians, e.g., skateboards, non-motorized wheelchairs.
- AT facilities on one side would typically make construction staging simpler and are easier to maintain.
- MUP option has the least anticipated property impacts.

5.5 Roadway Widening Design Alternative

5.5.1 Development of Design Alternatives for ROW Widening

Once the preferred cross-section was selected, three design alternatives were developed as options to widen the existing Greenlane Road right-of-way (ROW) to 23 metres along the study area. These alternatives are described below and shown in **Exhibits 5-8 to 5-10**.

- **Alternative A: Widen to the North**

This option proposes shifting the ROW approximately 3 metres to the north to achieve a consistent 23-metre ROW throughout the entire study area.

- **Alternative B: Widen Symmetrically About the Centreline**

Under this alternative, the ROW would be widened by approximately 1.5 metres on both the north and south sides of the existing centreline, resulting in a uniform 23-metre ROW across the study area.

- **Alternative C: Best-Fit Alignment**

This approach recommends a targeted widening strategy. From the western limit of Study Area A to approximately 390 metres east of Ontario Street, the ROW would be widened by about 3 metres to the north. East of this point, extending to Bartlett Road (the eastern study limit), the existing ROW would be maintained without widening.

Exhibit 5-8: Alternative A – Widen to the north



Exhibit 5-9: Alternative B – Widen about the centreline



Exhibit 5-10: Alternative C: Best-fit alignment



5.5.2 Roadway Widening Alternatives Assessment

The effects of the design alternatives were assessed and evaluated based on the criteria and factors discussed in **Section 5.3**. **Exhibit 5-11** documents the assessment of the three proposed roadway widening alternatives in accordance with the above criteria. **Exhibit 5-12** provides a brief summary of the detailed assessment of the three roadway widening alternatives.

Alternative C – Best-Fit Alignment has been identified as preferred for the following reasons:

- **Minimizes Impact on Private Property:** This alternative results in the least impact to adjacent private properties and avoids any land acquisition from CNR lands.
- **Reduced Archaeological Sensitivity:** It affects fewer areas with archaeological potential compared to Alternative B, lowering the risk of heritage resource disruption.
- **Minimal Vegetation Removal:** Requires less vegetation clearing than the other alternatives, with no disturbance to vegetation within CNR lands.
- **Supports Streetscape Enhancements:** Accommodates on-street parking east of the Greenlane Road/Ontario Street intersection and allows for a wider sidewalk along the south side of the corridor, improving pedestrian accessibility and comfort.

Exhibit 5-11: Evaluation of Roadway Widening Alternatives for Greenlane Road

Factors	Measures	Alternative A: Widen to North	Alternative B: Widen about the Centre Line	Alternative C: Best-fit Alignment
Socio-Economic Environment				
Property	- Number of properties impacted and area of impact (m²)* - Nature of impacts to residences and businesses (e.g., encroachment, full displacement)	7 private properties impacted 3.95 ha total property impact - Property takings from Canadian National Rail (CNR) lands - Small frontage encroachment for affected properties.	58 private properties impacted 3.76 ha total property impact - Property takings from CNR lands - Small frontage encroachment to most affected properties, however, encroaches onto the side of some residential properties which may require full displacement.	19 private properties impacted 2.94 ha total property impact - No property takings from CNR lands - Small frontage requirement for most affected properties.
		Not Preferred	Not Preferred	Preferred
Access	Number of access points that would change (e.g., become right-in/right-out)	The entrance to the Gas Station Plaza will become Right-In-Right-Out only.	The entrance to the Gas Station Plaza will become Right-In-Right-Out only.	The entrance to the Gas Station Plaza will become Right-In-Right-Out only.
		Neutral	Neutral	Neutral
Community Effects	Impacts to cemeteries, schools, places of worship, unique community features	- There are no cemeteries, schools, or places of worship along the corridor. - No impacts to the proposed school at the southeast quadrant of Greenlane Road / Ontario Street.	- There are no cemeteries, schools, or places of worship along the corridor. - Might require changes to the setback distance for the proposed school at the southeast quadrant of Greenlane Road / Ontario Street.	- There are no cemeteries, schools, or places of worship along the corridor. - No impacts to the proposed school at the southeast quadrant of Greenlane Road / Ontario Street.
		Neutral	Not Preferred	Neutral
Land Use	Compatibility with existing and future land uses/ community context	The surrounding land-use consists of mixed use to the north and low/medium/high density residential uses to the south. The corridor is experiencing significant infill growth and is expected to continue to attract high travel demand including a shift to active transportation modes for connections to the proposed future GO Station to the north.	- The surrounding land-use consists of mixed use to the north and low/medium/high density residential uses to the south. The corridor is experiencing significant infill growth and is expected to continue to attract high travel demand including a shift to active transportation modes for connections to the proposed future GO Station to the north. - All alternatives provide enhanced AT facilities as well as improvements to overall traffic operations.	The surrounding land-use consists of mixed use to the north and low/medium/high density residential uses to the south. The corridor is experiencing significant infill growth and is expected to continue to attract high travel demand including a shift to active transportation modes for connections to the proposed future GO Station to the north.

Factors	Measures	Alternative A: Widen to North	Alternative B: Widen about the Centre Line	Alternative C: Best-fit Alignment
		– All alternatives provide enhanced AT facilities as well as improvements to overall traffic operations.		– All alternatives provide enhanced AT facilities as well as improvements to overall traffic operations.
		Neutral	Neutral	Neutral
Town Policies and Priorities	– Compatibility with the Town’s policies and plans (Beamsville GO Transit Station Secondary Plan, Transportation Master Plan, Active Transportation Strategy)	– All alternatives are aligned with the Town’s plans and policies as they improve operations along the corridor and accommodate future demand, and improve the experience for active users (pedestrians, cyclists, mobility device users, etc.).	– All alternatives are aligned with the Town’s plans and policies as they improve operations along the corridor and accommodate future demand, and improve the experience for active users (pedestrians, cyclists, mobility device users, etc.).	– All alternatives are aligned with the Town’s plans and policies as they improve operations along the corridor and accommodate future demand, and improve the experience for active users (pedestrians, cyclists, mobility device users, etc.).
		– All alternatives align with the Beamsville GO Transit Station Secondary Plan which recommends widening the right-of-way to 23 m.	– All alternatives align with the Beamsville GO Transit Station Secondary Plan which recommends widening the right-of-way to 23 m.	– All alternatives align with the Beamsville GO Transit Station Secondary Plan which recommends widening the right-of-way to 23 m.
Community Feedback	– Considers / addresses community feedback	– Avoids property impacts to residential properties to the south.	– General aversion for impacts to residential properties.	– Avoids property impacts to residential properties to the south.
		Neutral	Not Preferred	Neutral
Socio-Economic Environment Summary		– From a socio-economic perspective, Alternative C is the preferred as it has the least amount of property impacts and does not involve any property impacts to CNR lands.	– From a socio-economic perspective, Alternative C is the preferred as it has the least amount of property impacts and does not involve any property impacts to CNR lands.	– From a socio-economic perspective, Alternative C is the preferred as it has the least amount of property impacts and does not involve any property impacts to CNR lands.
Cultural Environment				
Archaeology	– Potential impacts to known archaeological resources – Area requiring further assessment to confirm potential impacts	– Most lands along the corridor are of low archaeological potential (i.e., disturbed, or previously assessed with no further archaeological concern identified). – A small section of land at the north-east corner of Greenlane Road / Ontario Street have been identified as having archaeological potential and require further assessment.	– Most lands along the corridor are of low archaeological potential (i.e., disturbed, or previously assessed with no further archaeological concern identified). – Portions of lands along the corridor and within the right-of-way have been identified as having archaeological potential and require further assessment.	– Most lands along the corridor are of low archaeological potential (i.e., disturbed, or previously assessed with no further archaeological concern identified). – A small section of land at the north-east corner of Greenlane Road / Ontario Street have been identified as

Factors	Measures	Alternative A: Widen to North	Alternative B: Widen about the Centre Line	Alternative C: Best-fit Alignment
				having archaeological potential and require further assessment.
		Neutral	Not Preferred	Neutral
Cultural Heritage Resources	– Impacts to Built Heritage Resources (BHR) and Cultural Heritage Landscapes (CHL) (i.e. number of BHRs and CHLs disrupted or displaced)	– No impacts to BHRs and CHLs.	– No impacts to BHRs and CHLs.	– No impacts to BHRs and CHLs.
		Neutral	Neutral	Neutral
Indigenous Community Rights	– Potential impacts to Indigenous Community rights and interests	– No known impacts to Indigenous Community rights and interests.	– No known impacts to Indigenous Community rights and interests.	– No known impacts to Indigenous Community rights and interests.
		Neutral	Neutral	Neutral
Cultural Environment Summary		From a Cultural perspective, Alternative A and C are preferred because they have less impacts on areas with archaeological potential. Otherwise, all alternatives are not expected to have impacts to BHRs, CHLs, and Indigenous Community Rights.	From a Cultural perspective, Alternative A and C are preferred because they have less impacts on areas with archaeological potential. Otherwise, all alternatives are not expected to have impacts to BHRs, CHLs, and Indigenous Community Rights.	From a Cultural perspective, Alternative A and C are preferred because they have less impacts on areas with archaeological potential. Otherwise, all alternatives are not expected to have impacts to BHRs, CHLs, and Indigenous Community Rights.
Natural Environment				
Climate Change	– Climate Change Considerations – Consideration of construction materials and techniques	– Reduced congestion as a result of operational improvements decreases travel time for vehicles and could reduce GHG emissions. – Use of construction material would be similar across all alternatives.	– Reduced congestion as a result of operational improvements decreases travel time for vehicles and could reduce GHG emissions. – Use of construction material would be similar across all alternatives.	– Reduced congestion as a result of operational improvements decreases travel time for vehicles and could reduce GHG emissions. – Use of construction material would be similar across all alternatives.
		Neutral	Neutral	Neutral

Factors	Measures	Alternative A: Widen to North	Alternative B: Widen about the Centre Line	Alternative C: Best-fit Alignment
Impacts to adjacent Natural Environment	- Assessment that considers the magnitude and nature of potential impacts to adjacent vegetation, watercourses, and potential aquatic habitat, and surrounding Species At Risk (SAR) and existing/potential SAR habitat. - There are no ANSIs, provincially significant wetlands, significant woodlands, or significant valleylands within the study limits.	- The ROW widening will require vegetation / tree removal, mostly to the east of the Greenlane Road / Ontario Street. - Vegetation clearance windows will need to be adhered to during construction to mitigate impacts to breeding birds.	- The ROW widening will require vegetation / tree removal along both sides of the roadway throughout the length of the corridor. - Vegetation clearance windows will need to be adhered to during construction to mitigate impacts to breeding birds. - Vegetation removal will be to a greater extent compared to other the other two alternatives.	- The ROW widening will require vegetation / tree removal mostly to the east of the Greenlane Road / Ontario Street along both sides of the corridor. - Vegetation clearance windows will need to be adhered to during construction to mitigate impacts to breeding birds. - No vegetation removal impacts to CNR lands as widening doesn't extend into CNR lands for this alternative. - Lesser vegetation removal will be required compared to the other alternatives.
		Neutral	Neutral	Preferred
Surface Water and Groundwater	Qualitative assessment of the ability to manage surface water quality, quantity and opportunities to improve existing conditions	- All alternatives have urban cross sections with curb and gutter. - All alternatives have the same overall drainage and stormwater approach.	- All alternatives have urban cross sections with curb and gutter. - All alternatives have the same overall drainage and stormwater approach.	- All alternatives have urban cross sections with curb and gutter. - All alternatives have the same overall drainage and stormwater approach.
		Neutral	Neutral	Neutral
Natural Environment Summary		From a Natural Environment perspective, Alternative C is preferred.	From a Natural Environment perspective, Alternative C is preferred.	From a Natural Environment perspective, Alternative C is preferred.
Transportation				
Traffic Operations & Safety	- Traffic Operations and safety - Accommodates large vehicles for goods movement & emergency response - Parking provision	- All alternatives provide the same vehicular capacity and safety - All alternatives will be able to similarly. accommodate large vehicles and emergency response vehicles. - Allows for on-street parking to the east of Greenlane Road / Ontario Street.	- All alternatives provide the same vehicular capacity and safety - All alternatives will be able to similarly. accommodate large vehicles and emergency response vehicles. - Doesn't allow for on-street parking provisions.	- All alternatives provide the same vehicular capacity and safety - All alternatives will be able to similarly. accommodate large vehicles and emergency response vehicles. - Allows for on-street parking to the east of Greenlane Road / Ontario Street.
		Preferred	Neutral	Preferred
Active Transportation	Safety, comfort, and security for users of all ages and abilities	The preferred cross-section for the corridor was determined through a	The preferred cross-section for the corridor was determined through a detailed	The preferred cross-section for the corridor was determined through a

Factors	Measures	Alternative A: Widen to North	Alternative B: Widen about the Centre Line	Alternative C: Best-fit Alignment
	– Network continuity	detailed assessment of various cross-section options. – All alternatives will allow for the provision of enhanced AT facilities to ensure user safety, comfort, and security for users of all ages and abilities. – All alternatives provide active transportation crossings in all directions to maintain network continuity. – Maintains existing (1.5 m) sidewalk to the south of roadway up until Garden Gate Terrace.	assessment of various cross-section options. – All alternatives will allow for the provision of enhanced AT facilities to ensure user safety, comfort, and security for users of all ages and abilities. – All alternatives provide active transportation crossings in all directions to maintain network continuity. – Allows for wider (2.1 m) sidewalk between Greenlane Road / Ontario Street intersection and Bartlett Road.	detailed assessment of various cross-section options. – All alternatives will allow for the provision of enhanced AT facilities to ensure user safety, comfort, and security for users of all ages and abilities. – All alternatives provide active transportation crossings in all directions to maintain network continuity. – Maintains existing (1.5 m) sidewalk to the south of roadway up until Garden Gate Terrace.
		Neutral	Preferred	Neutral
Accessibility	– Accessibility measures and AODA requirements	– The preferred cross-section for the corridor, which includes a MUP along the north side of the corridor, was determined through a detailed assessment of various cross-section options. Accessibility was a key consideration for the cross-section assessment. – MUP can be enhanced by using accessibility-focused design elements, including using physical features like appropriate slopes, edge protection with bright color contrast, signage on the trail to describe the length, width, slope, materials, amenities, and safety information with tactile communication. – All alternatives will be compliant with AODA requirements.	– The preferred cross-section for the corridor, which includes a MUP along the north side of the corridor, was determined through a detailed assessment of various cross-section options. Accessibility was a key consideration for the cross-section assessment. – MUP can be enhanced by using accessibility-focused design elements, including using physical features like appropriate slopes, edge protection with bright color contrast, signage on the trail to describe the length, width, slope, materials, amenities, and safety information with tactile communication. – All alternatives will be compliant with AODA requirements.	– The preferred cross-section for the corridor, which includes a MUP along the north side of the corridor, was determined through a detailed assessment of various cross-section options. Accessibility was a key consideration for the cross-section assessment. – MUP can be enhanced by using accessibility-focused design elements, including using physical features like appropriate slopes, edge protection with bright color contrast, signage on the trail to describe the length, width, slope, materials, amenities, and safety information with tactile communication. – All alternatives will be compliant with AODA requirements.
		Neutral	Neutral	Neutral

Factors	Measures	Alternative A: Widen to North	Alternative B: Widen about the Centre Line	Alternative C: Best-fit Alignment
Design	– Design (conformance to current industry guidance)	– All alternatives will conform with current design standards.	– All alternatives will conform with current design standards.	– All alternatives will conform with current design standards.
		Neutral	Neutral	Neutral
Transportation Summary		From a Transportation perspective, there are marginal differences between the three alternatives. therefore, all alternatives are rated neutral.	From a Transportation perspective, there are marginal differences between the three alternatives. therefore, all alternatives are rated neutral.	From a Transportation perspective, there are marginal differences between the three alternatives. therefore, all alternatives are rated neutral.
Technical				
Utilities	– Potential conflicts with utilities – Ability to accommodate planned new and upgraded utilities	– Traffic signal relocation likely required – Potential catch basin relocation required – Minimal impacts to hydro poles – Utility impacts will be similar for all alternatives	– Traffic signal relocation likely required – Potential catch basin relocation required – Minimal impacts to hydro poles – Utility impacts will be similar for all alternatives	– Traffic signal relocation likely required – Potential catch basin relocation required – Minimal impacts to hydro poles – Utility impacts will be similar for all alternatives
		Neutral	Neutral	Neutral
Maintenance	– Daily and seasonal operation and maintenance considerations	– Minor maintenance and operational constraints. – 3.0m MUP may require two passes for snow removal.	– Minor maintenance and operational constraints. – 3.0m MUP may require two passes for snow removal.	– Minor maintenance and operational constraints. – 3.0m MUP may require two passes for snow removal.
		Neutral	Neutral	Neutral
Constructability	– Qualitative assessment considering the complexity of construction operations and staging	– Minor constructability constraints for all alternatives	– Minor constructability constraints for all alternatives	– Minor constructability constraints for all alternatives
		Neutral	Neutral	Neutral
Cost	– Estimated construction costs	– \$		
		Neutral	Neutral	Neutral
Technical Summary		From a Technical perspective, all three alternatives have marginal differences; therefore, all alternatives are rated neutral.	From a Technical perspective, all three alternatives have marginal differences; therefore, all alternatives are rated neutral.	From a Technical perspective, all three alternatives have marginal differences; therefore, all alternatives are rated neutral.
Overall		Neutral	Not Preferred	Preferred

Preferred	Neutral	Not Preferred

Exhibit 5-12: Summary of Assessment and Evaluation of Roadway Widening Alternatives for Greenlane Road

Factors	Alternative A: Widen to North	Alternative B: Widen about the Centre Line	Alternative C: Best-fit Alignment
Socio-Economic Environment	Neutral	Not Preferred	Preferred
	From a socio-economic perspective, Alternative C is the preferred as it has the least amount of property impacts and does not involve any property impacts to CNR lands	From a socio-economic perspective, Alternative C is the preferred as it has the least amount of property impacts and does not involve any property impacts to CNR lands	From a socio-economic perspective, Alternative C is the preferred as it has the least amount of property impacts and does not involve any property impacts to CNR lands
Cultural Environment	Neutral	Not Preferred	Neutral
	From a Cultural perspective, Alternative A and C are preferred because they have less impacts on areas with archaeological potential. Otherwise, all alternatives are not expected to have impacts to BHRs, CHLs, and Indigenous Community Rights.	From a Cultural perspective, Alternative A and C are preferred because they have less impacts on areas with archaeological potential. Otherwise, all alternatives are not expected to have impacts to BHRs, CHLs, and Indigenous Community Rights.	From a Cultural perspective, Alternative A and C are preferred because they have less impacts on areas with archaeological potential. Otherwise, all alternatives are not expected to have impacts to BHRs, CHLs, and Indigenous Community Rights.
Natural Environment	Neutral	Neutral	Preferred
	From a Natural Environment perspective, Alternative C is preferred due to lesser vegetation / removal requirements and no impacts to CNR lands.	From a Natural Environment perspective, Alternative C is preferred due to lesser vegetation / removal requirements and no impacts to CNR lands.	From a Natural Environment perspective, Alternative C is preferred due to lesser vegetation / removal requirements and no impacts to CNR lands.
Transportation	Neutral	Neutral	Preferred
	From a Transportation perspective, there are marginal differences between the three alternatives. However, Alternative C is preferred due to the provision of on-street parking as well as wider (2.1 m) sidewalk along the south side of the roadway.	From a Transportation perspective, there are marginal differences between the three alternatives. However, Alternative C is preferred due to the provision of on-street parking as well as wider (2.1 m) sidewalk along the south side of the roadway.	From a Transportation perspective, there are marginal differences between the three alternatives. However, Alternative C is preferred due to the provision of on-street parking as well as wider (2.1 m) sidewalk along the south side of the roadway.
Technical	Neutral	Neutral	Neutral
	From a Technical perspective, all three alternatives have marginal differences; therefore, all alternatives are rated neutral.	From a Technical perspective, all three alternatives have marginal differences; therefore, all alternatives are rated neutral.	From a Technical perspective, all three alternatives have marginal differences; therefore, all alternatives are rated neutral.
Overall	Neutral	Not Preferred	Preferred
	Overall, Alternative C is recommended as the preferred design alternative due to lesser property impacts and most importantly no impacts to CNR lands as widening won't extend into the CNR lands. This option also involves lesser vegetation / tree removal requirements and of on-street parking as well as wider (2.1 m) sidewalk along the south side of the roadway.	Overall, Alternative C is recommended as the preferred design alternative due to lesser property impacts and most importantly no impacts to CNR lands as widening won't extend into the CNR lands. This option also involves lesser vegetation / tree removal requirements and of on-street parking as well as wider (2.1 m) sidewalk along the south side of the roadway.	Overall, Alternative C is recommended as the preferred design alternative due to lesser property impacts and most importantly no impacts to CNR lands as widening won't extend into the CNR lands. This option also involves lesser vegetation / tree removal requirements and of on-street parking as well as wider (2.1 m) sidewalk along the south side of the roadway.

5.6 Preferred Cross-Section and Roadway Widening Option

As outlined in the preceding sections, **Alternative C – Best-Fit Alignment** has been identified as the preferred design alternative due to its minimal property impacts and the avoidance of any land acquisition from CNR lands. This option also requires less vegetation and tree removal compared to the other alternatives, while providing additional benefits such as the inclusion of on-street parking and a wider 2.1-metre sidewalk along the south side of the roadway.

Alternative C will be implemented using **Cross-Section Alternative A**, which has been selected as the preferred cross-section for complete street improvements. This cross-section includes the addition of a multi-use path (MUP) on the south side of the road.

An MUP on the south side was preferred due to:

- Connectivity to the proposed MUP along south side of Greenlane at the west limits, and the proposed MUP on Bartlett Road at the east limits of this EA study
- Proximity to the residential areas and existing sidewalk connections
- Improved interface with incoming school southeast of Ontario Street and potential future development south of Greenlane Road.

Consolidating active transportation (AT) facilities on one side of the road not only simplifies construction staging but also improves long-term maintenance efficiency.

6. Recommended Plan

The preferred design alternatives for Greenlane Road between Konkle Creek and Bartlett Road are collectively referred to as the “Recommended Plan” in the context of the Greenlane Road Municipal Class Environmental Assessment (MCEA) study. The development and evaluation of design alternatives for Greenlane Road is discussed in **Chapter 5**.

The Recommended Plan is shown in the plates provided as **Appendix G** and depicts the proposed changes to Greenlane Road. The plan and profile are subject to further refinement during detailed design, at which time there will be further technical work, as well as consultation with relevant technical agencies and other interested and affected parties.

6.1 Major Features

The Recommended Plan for Greenlane Road includes the following key features:

- **Expanded Right-of-Way:** The corridor will be widened to 23 metres, accommodating one travel lane in each direction, a center two-way left-turn lane where feasible, and dedicated active transportation facilities.

- **North Side Sidewalk:** A sidewalk will be provided on the north side of the roadway between Konkle Creek and Carriage Road, supporting pedestrian access in this segment.
- **South Side Multi-Use Path (MUP):** A multi-use path will be constructed along the south side of the roadway from Konkle Creek to Bartlett Road. This facility will accommodate both cyclists and pedestrians and provide critical connectivity to planned MUP segments west of Konkle Creek and along Bartlett Road, contributing to a continuous and integrated active transportation network.
- **Dedicated crossings for pedestrians, cyclists and other users** throughout the corridor, including pedestrian crossovers (PXOs) at the west limit, mixed crossrides (i.e. a MUP crossing) at driveways, and refuge islands at pedestrian crossings.
- **Access Management:** Implementation of raised medians at the intersection of Greenlane with Ontario Street to restrict higher volume accesses to RIRO within the functional area of the regional intersection. Where feasible, a depressed median has been proposed to allow full moves access to low volume residential driveways.

6.2 Design Criteria

The Recommended Plan for the Greenlane Road corridor has been developed in accordance with the Town of Lincoln Municipal Design and Quality Standards (2023), the Transportation Association of Canada (TAC) Geometric Design Guide for Canadian Roads (2017), and Ontario Traffic Manual (OTM) Book 18 Cycling Facilities (2021).

Design criteria for the Recommended Plan is presented in **Exhibit 6-1**.

During detailed design, the design criteria will be updated based on the latest Accessibility for Ontarians with Disabilities Act (AODA) standards, as well as the Town's design standards. Accessibility measures and material selection will be considered and incorporated into the design at that time. These measures may include but are not limited to tactile warning surface indicators, audible signals, and curb cuts (sidewalk ramps).

Exhibit 6-1: Greenlane Road Design Criteria

Design Criteria	Reference	Existing Conditions	Standards ¹	Proposed Standards
Road Classification And Typology		Collector Road	Collector Road	Collector Road
ROW Width (m)	City Standards Section 3.1.2	20	20, 23, 26	23
Design Speed (km/h)	-	60	60	60

Design Criteria	Reference	Existing Conditions	Standards ¹	Proposed Standards
Posted Speed (km/h)	-	50	50	50
Minimum Stopping Sight Distance (m)	City Standards Section 3.1.2	-	85	85
Minimum Radii (m)	City Standards Section 3.1.2	100	85	100
Min Grade (%)	City Standards Section 3.1.2	0	0.5	0.3
Max Grade (%)	City Standards Section 3.1.2	1.43	6.0 (5.0 Desirable)	1.7
Minimum Vertical Curve (Sag) (K Value)	City Standards Section 3.1.2	20	18	20
Minimum Vertical Curve (Crest) (K Value)	City Standards Section 3.1.2	20	15	20
Cross-section				
Lane widths (m) – Through Lanes	TAC Table 4.2.3	3.5	3.0-3.7 ¹	3.3 ^{1 2}
Lane widths (m) – LT Lanes	TAC Section 4.3.2.2	3.5	3.0 min (3.25 desired)	3.3-3.5
Lane widths (m) – RT Lanes ³	TAC Section 4.3.2.3	N/A	3.0 min (3.25 desired)	3.3
Lane widths (m) – TWLT Lanes	TAC Section 8.6.2	4.0	Same as adjacent lanes (3.5 min)	3.5 ²
Curb and Gutter (m)	OPSD 600.040	0.5	0.5	0.5
Sidewalk Width (m)	City Standard Drawing DPW- 402	1.5	1.5	1.5 - 1.8 ^{2 3}
Cycle Track Buffer to travel lane (m)	OTM Book 18 Table 4.6	N/A	0.6 (min) 1.5-2.5 (desirable)	0.8 ²
Cycle Track Buffer to Sidewalk (m)	OTM Book 18	N/A	0.3 (min)	0.3 ²
On-Street Parking	-	N/A	2.5	2.5

Design Criteria	Reference	Existing Conditions	Standards ¹	Proposed Standards
Multi-use Path (m)	OTM Book 18 Table 4.5	N/A	3.0 (min) 3.5 (desirable)	3.5 ²

Notes:

1. Where buses and trucks are expected to use a lane, TAC 2017 recommends a minimum of 3.3 m travel lane width.
2. 3.3 m curb lanes are proposed in the Town's recent Lincoln Avenue Road Reconstruction project, which is similar to this project. Recommended cross-section widths also align with the Niagara Region Complete Streets Manual. Characteristics of Greenlane Road are similar with either "Main Street" or "Hamlet" street typologies.
3. While desirable widths of 1.8 m will be sought for the sidewalk and cycle track, minimum widths of 1.5 m will be used in areas of constraint. A 1.5 m cycle track is similarly proposed.
4. Right-turn lanes can have a negative impact on pedestrian and cycling crossing distances and increase areas of conflict at intersections, in addition to requiring more right-of-way at intersections. A Transportation Study is being conducted to identify needs; however, right-turn lanes are recommended to be discouraged unless critical, given the future characteristics and vision of Greenlane Road desired by the Town.

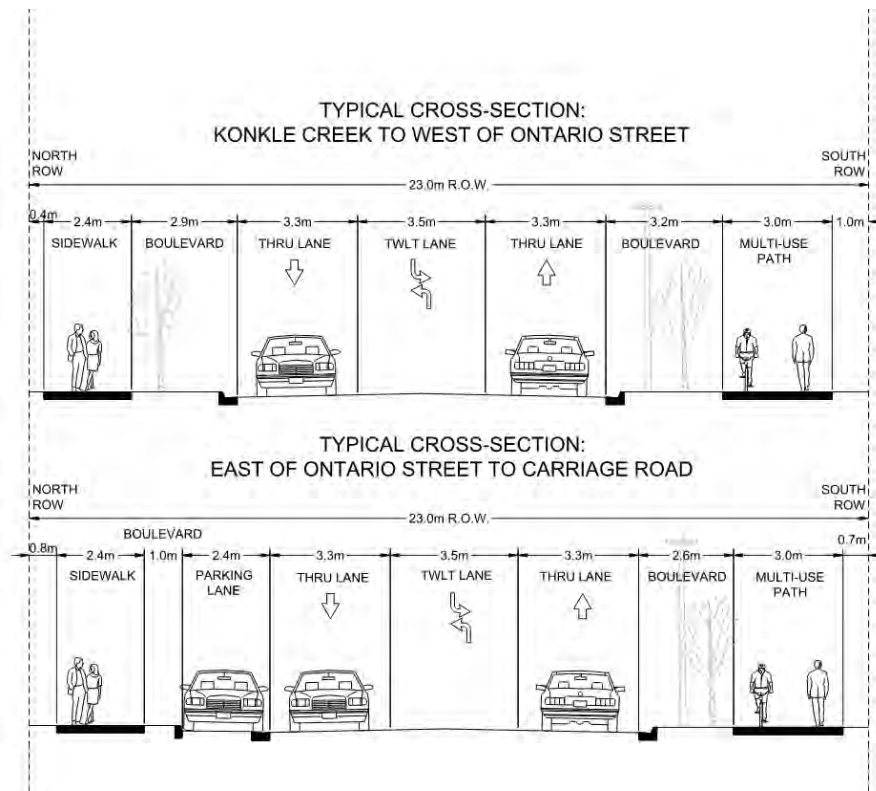
6.3 Typical Road Cross-Section

A typical cross section for Greenlane Road is shown in **Exhibit 6-2** and described below. The basic features of the typical cross-section include:

- **23-Metre Right-of-Way (ROW):** The roadway will be designed within an expanded 23-metre ROW, ensuring adequate space for all necessary features.
- **Travel Lanes and Centre Left-Turn Lane:** One travel lane in each direction, with each through lane measuring 3.3 metres. A centre left-turn lane is also incorporated, measuring 3.5 metres in width to accommodate turning vehicles safely.
- **Parking Lane and Boulevard on the South Side:** A 2.5-metre parking lane is provided on the south side of the road where on-street parking is permitted. In areas where parking is not present, a 3.2-metre-wide boulevard will separate the Multi-Use Path (MUP) from the roadway, enhancing pedestrian and cyclist safety.

- **Existing Sidewalk on the North Side:** A 1.5-metre sidewalk on the north side of the road, separated from the roadway by a 3.5-metre-wide boulevard, providing a safe pedestrian zone.
- **Multi-Use Path (MUP) on the South Side:** A 3.0-metre-wide MUP on the south side of the road, separated from vehicle traffic by a minimum 3.2-metre buffer. This buffer will consist of either a parking lane or a boulevard, enhancing the safety and comfort of cyclists and pedestrians.

Exhibit 6-2: Greenlane Road Typical Cross Section



6.4 Active Transportation

As illustrated in **Exhibit 6-2**, the active transportation network includes a sidewalk on the north side of Greenlane Road extending to Carriage Road and a Multi-Use Path (MUP) on the south side of the road.

The sidewalk on the north side terminates at Carriage Road due to the proximity of Greenlane Road to the CN Rail corridor east of the intersection. At the west limits of the study area, the proposed sidewalk connects to future roadworks that extend the sidewalk further west to King Street, connecting to the existing sidewalk network.

The MUP on the south side will provide continuity by linking to future planned MUPs on Greenlane Road to the west and Bartlett Road to the east, facilitating seamless active transportation connections across the region.

To enhance pedestrian safety, several new pedestrian crossovers will be incorporated along Greenlane Road. In addition to the existing traffic signals at Ontario Street, two additional crossing opportunities are proposed that will be confirmed in Detail Design; pedestrian crossovers at Carriage Road, and a mid-block crossing between Cedarbrook Lane and Juniper Court. A PXO will be present at Konkle Creek, as it is being constructed as part of early works with development. These crossings will connect to existing active transportation infrastructure, including the sidewalk and MUP that link Greenlane Road to areas south of the study area.

6.5 Drainage and Stormwater Management

The Recommended Plan will result in minor impacts on the drainage patterns, catchment areas, and runoff in the study area due to the changes in impervious surfaces associated with the change in roadway width and active transportation facilities.

A Drainage and Stormwater Management Report was prepared for the Lincoln Greenlane MCEA study to analyze both existing and proposed drainage conditions, including drainage patterns and catchment areas. The report also outlines the development of the stormwater management strategy for the study area, with the full report provided in **Appendix F**. The following sections summarize the proposed drainage conditions and stormwater management strategy.

Proposed Drainage Conditions

Overall, there is no significant change to the drainage patterns under the Recommended Plan. However, there will be minor modifications in sewershed catchments and an increase in impervious areas due to the proposed multi-use path and associated lane adjustments. The existing storm sewer system will continue to function with only minor adjustments to catch basin locations, particularly where curb lines shift slightly from Cedarbrook Avenue to approximately 40 metres east of Carriage Road.

Below is a summary of the proposed changes to the drainage conditions:

- Catchment 100: This catchment lies outside the current study area, but its impervious coverage will change due to urbanization along Greenlane Road.
- Catchments 110 and 120: There are no changes to the drainage patterns for these catchments. The total drainage area for these catchments remains at 0.77 hectares. The impervious coverage slightly increases from 0.59 hectares to 0.61 hectares—an increase of 3%, which is negligible compared to the existing conditions.
- Catchment 130: No changes are proposed to the drainage area or pattern for Catchment 130. Runoff will continue to be directed to the existing storm sewers along

Ontario Street. However, the introduction of a landscape area reduces the imperviousness from 91% to 89%.

- Catchments 140 and 150: These catchments are redefined as Catchments 140, 150A, and 150B. Due to the urbanization of Greenlane Road, a sidewalk will be added on the north side up to Carriage Road, and the existing north ditch will be retained from Garden Gate to Bartlett Road. Runoff from these redefined catchments will be conveyed by proposed storm sewers to the Stormwater Management (SWM) pond north of the study area, as in the existing condition. The total drainage area to this outlet remains unchanged, but the impervious area increases from 0.87 hectares to 1.22 hectares—an increase of 19% due to the addition of parking bays and the multi-use path.
- Catchments 160: This catchment is redefined as Catchments 160A and 160B. Runoff will be captured by proposed catch basins and ditch inlets. The drainage pattern and discharge to the west-side ditch on Bartlett Road will remain unchanged. The total drainage area to this outlet remains the same, but the impervious area increases from 0.11 hectares to 0.16 hectares, representing an 18% increase.
- External Catchments (170, 190, 200, and 210): These catchments will not be affected by the proposed road reconstruction.
- Catchment 180: It is proposed that an elementary school be constructed within Catchment 180. No information is available regarding peak flow control measures for this catchment. It is assumed that the minor storm runoff (equivalent to the 5-year pre-development condition) from external Catchment 180 (drainage area of 2.22 hectares) will discharge into the Greenlane storm sewer system.
- External Catchment 102: According to the Functional Servicing Report prepared by S. Llewellyn & Associates Limited, there is no change in the drainage pattern or area for external Catchment 102. Catchments 201, 202, and 203 are defined based on the FSR. Runoff from Catchment 202 will be controlled before being discharged into the existing storm sewer on Greenlane Road. Uncontrolled runoff from Catchment 203 will drain overland to the south, entering the Greenlane ROW and being captured by the storm sewer system. Runoff from Catchment 203 will flow northward to the watercourse, with its outfall located outside the study limits.

Under the proposed conditions, no significant increase in impervious area is expected for Greenlane Road between Konkle Creek Trail and Ontario Street. However, from Ontario Street to Bartlett Road, the addition of parking bays and a multi-use path at the northern end will result in a substantial increase in impervious surfaces within this segment.

- The percentage of imperviousness in Catchments 110 and 120 increases slightly from 77% to 79%, which is considered a negligible change.
- The imperviousness in Catchment 130 decreases from 91% to 89%, reflecting the introduction of more landscape areas.
- The imperviousness in Catchments 140 and 150 increases significantly from 47% to 65% due to the addition of parking bays and the multi-use path.
- Catchment 160 experiences an increase in imperviousness from 39% to 57%.
- Currently, an existing Stormwater Management (SWM) Pond located north of the study area provides quality control for Catchments 140 and 150. Under the Recommended Plan, this SWM Pond will continue to provide quality control for Catchments 140, 150A, and 150B.

To address the increased imperviousness in Catchments 160A and 160B, the following measures are proposed:

- For Catchment 150B, an Oil-Grit Separator (OGS) unit (OGS #1) is proposed at Station 1+232, just before the runoff is conveyed by an existing 1350 mm diameter pipe across the CNR tracks to the outlet. The sizing of the OGS unit will be finalized during the detailed design stage.
- To offset the increased imperviousness in Catchments 160A and 160B, pervious pavement along the multi-use path will be considered as part of the detailed design process.

Additionally, to address the increased impervious surfaces, an infiltration gallery will be proposed for the landscape area on the north side of Greenlane Road. However, the feasibility of this infiltration gallery will need to be further assessed during the detailed design phase, particularly with respect to any potential constraints related to underground utilities.

6.6 Utilities

Niagara Peninsula Energy Inc. (NPEI) is the local electricity distributor for the Town of Lincoln. Under existing conditions, NPEI utility poles are located along the south side of the right-of-way. The existing hydro poles conflict with the proposed road modifications and will require relocation. The following options for re-location are being considered and the preferred option will be determined during the detailed design phase:

- Relocating the hydro lines to the north
- Burying the hydro lines within the study limits

- A hybrid approach, consisting of a combination of the above two options.

Other utilities along the corridor include municipal infrastructure (storm sewers, sanitary sewers, watermains), telecommunication lines, and gas lines. Storm sewer and catch basin modifications have been highlighted in **Section 6.5** above. There are locations where other aboveground utility infrastructure (TV boxes, bell pedestals, fire hydrants, etc.) conflict with the Recommended Plan. These are highlighted in the Utility Conflict Plans provided in **Appendix H**. While they are currently recommended to be relocated outside of the proposed roadway and active transportation infrastructure, design mitigations will be further reviewed and considered during Detailed Design.

6.7 Preliminary Cost Estimates

Using the MTO parametric estimating guide as basis, a preliminary cost estimate of around \$5M to \$8M is expected to accommodate the roadway modifications and any corresponding utility relocations. This estimate assumes approximately \$4M for reconstruction of the roadway and new active transportation facilities, and \$1M to \$5M to relocate the conflicting hydro infrastructure. Hydro relocation estimates are expected to vary due to cost sharing agreements with the utility company and differing relocation/mitigation approaches (i.e. burying the lines is a consideration). Further to this EA, the Town will undertake a further planning and design exercise to further refine this estimate.

6.8 Property Requirements

The Recommended Plan has been developed to minimize overall property impacts by choosing **Alternative C: Best Fit Alignment**. While Alternative C minimizes property takings, some property is required to expand the right-of-way from the existing 20 m (i.e. “Existing Property Line”) to a widened 23 m right-of-way (i.e. “Proposed Property Line”).

As outlined in **Chapter 4**, widening the right-of-way was identified as the preferred solution, as it is consistent with Town’s planning policies (Beamsville GO Transit Station Secondary Plan, Transportation Master Plan, Active Transportation Strategy) to upgrade Greenlane to an urban standard that supports the complete streets approach by providing dedicated space for all modes of transportation, including enhanced active transportation facilities.

The Greenlane Road MCEA acknowledges the impacts to existing land use and property owners. As such, discussions were held with the impacted property owners who had raised concerns (refer to **Chapter 7** for details). Impacted properties are listed in **Exhibit 6-3**.

Exhibit 6-3: Preliminary Property Impacts

Municipal Address	Property Area Impacted	Nature of Impact
4998 Greenlane Road	4.2 m ²	Permanent acquisition to accommodate ROW widening.
4996 Greenlane Road	16.9 m ²	Permanent acquisition to accommodate ROW widening.
4994 Greenlane Road	12.0 m ²	Permanent acquisition to accommodate ROW widening.
4992 Greenlane Road	12.2 m ²	Permanent acquisition to accommodate ROW widening.
No address PIN#460970012	24.4 m ²	Permanent acquisition to accommodate ROW widening.
5001 Greenlane Road	284.3 m ²	Permanent acquisition to accommodate ROW widening.
4610 Ontario Street	485.3 m ²	Permanent acquisition to accommodate ROW widening.
5103 Greenlane Road	176.5 m ²	Permanent acquisition to accommodate ROW widening.
4594 Cedarbrook Lane	24.5 m ²	Permanent acquisition to accommodate sight triangle.
4507 St Volodymyr Crescent	24.5 m ²	Permanent acquisition to accommodate sight triangle.
4596 Juniper Court	24.5 m ²	Permanent acquisition to accommodate sight triangle.
4948 Greenlane Road	24.5 m ²	Permanent acquisition to accommodate sight triangle.
4557 Carriage Road	12.7 m ²	Permanent acquisition to accommodate sight triangle.
4552 Garden Gate Terrace	24.5 m ²	Permanent acquisition to accommodate sight triangle.
4899 Northgate Crescent	24.5 m ²	Permanent acquisition to accommodate sight triangle.
4594 Ontario Street	24.5 m ²	Permanent acquisition to accommodate sight triangle.
No address PIN#460960103	87.5 m ²	Permanent acquisition to accommodate ROW widening.

Municipal Address	Property Area Impacted	Nature of Impact
No address PIN#460960090	1036.7 m ²	Permanent acquisition to accommodate ROW widening.

6.9 Access

The Recommended Plan for Greenlane Road includes a raised centre median on Greenlane Road on either side of Ontario Street. This raised centre median will enhance intersection safety by providing a clear separation between opposing lanes of traffic, reducing the risk of head-on collisions, and helping to regulate the flow of traffic by slowing turning vehicles.

The raised centre median requires some existing full moves accesses to be converted to right-in/right-out only access. However, access restrictions to existing properties have been minimized wherever possible. A depression will be added to the median east of Ontario Street to retain the current full move vehicle access to most single family home driveways in the southeast quadrant of the intersection.

Exhibit 6-4 details the changes in the movements at access because of the Recommended Plan. Grading details for all accesses will be confirmed during detailed design.

Exhibit 6-4: Access Movement Modifications on Greenlane Road

Property	Existing Access	Proposed Access
4998 Greenlane Road	One full-move access	Access modified to right-in/right-out
5001 Greenlane Road	Two full-move access	Easterly access modified to right-in/right-out Westerly access retained to provide full moves; location modified to align with Juniper Court

6.10 Construction Staging

The changes recommended constitute a typical reconstruction and new active transportation facilities. As such, complex construction staging is not anticipated, and the construction activities can follow typical stages as completed with the Town's typical reconstruction program. West of Ontario Street, the wider existing roadway will afford opportunities to shift

traffic to one side while re-construction occurs on the other. East of Ontario Street, traffic will likely be shifted to the south to the extent possible, while new construction occurs to the north. Traffic will then be shifted as required thereafter to accommodate the proposed changes.

7. Consultation

7.1 Consultation Overview

Consultation is a key component of the Municipal Class Environmental Assessment (MCEA) process and reflects the Town of Lincoln's commitment to engaging potentially affected or interested parties, including but not limited to technical agencies, interest groups, members of the public, property owners, and Indigenous Communities.

The MCEA framework specifies three mandatory points of contact for Schedule 'C' projects, as shown in **Exhibit 1-2** in **Chapter 1**. Methods of outreach and engagement included notices, newspaper advertisements, direct mail, email correspondence, phone calls, in-person public meetings (Public Information Centres), public meeting materials (information packages), project website updates (Speak Up Lincoln), social media (X/Twitter and Facebook), technical committee meetings, and individual property owner meetings.

Exhibit 7-1 summarizes the activities, timing, purpose, and notification tactics for key points of contact throughout the study. Consultation and engagement activities are described in further detail in the following sections of this Chapter. The full consultation record can be found in **Appendix G**.

Exhibit 7-1: Key Points of Contact

Activity	Timing	Purpose	Notification Tactics
Notice of Study Commencement (See Section 7.2.1)	MCEA Phase 1 October-November 2023	To introduce and invite participation in the study and request any preliminary comments and pertinent information.	• Notice published in News Now on October 5, 2023, and the St. Catharines Standard on October 5 and 12, 2023 • Notice posted on the project website on September 29, 2023 • Notice emailed to agencies, utilities, and interest groups on November 1, 2023 • Indigenous Communities notified by email of the study start-up via email on November 1, 2023 • Notice mailed to over 2,100 residents on November 1, 2023

Activity	Timing	Purpose	Notification Tactics
Public Information Centre #1 (See Section 7.2.2)	MCEA Phase 2 February 2024	To introduce the study and gather community feedback on the problems and opportunities in the study area and alternative solutions for the Greenlane Road corridor. Design alternatives and complete streets cross-section alternatives were also presented for feedback at the PIC	• Notice published in in the St. Catharines Standard and News Now on February 8 and 15, 2024 • Notice posed on project website on February 5, 2024 • Notice mailed to property owners and tenants in the area during the week of February 5, 2024 • Notice emailed to agencies, utilities, interest groups and members of the public on the project mailing list on February 7, 2024 • Indigenous Communities notified by email on February 8, 2024
Public Information Centre #2 (See Section 7.2.3)	MCEA Phase 2 January 2025	To review community feedback received at PIC #1, present an assessment of design alternatives and the preferred alternatives for Greenlane Road, and gather feedback on the overall preferred plan for the corridor	• Notice posed on project website on January 6, 2025 • Notice mailed to property owners and tenants in the area during the week of January 6, 2025 • Notice emailed to agencies, utilities, interest groups and members of the public on the project mailing list January 13, 2025 • Indigenous Communities notified by email on January 13, 2025
Notice of Study Completion (See Section 7.2.5)	MCEA Phase 4	To occur at the end of the Phase 4 MCEA study. To announce the completion of the MCEA study and notify interested parties of the 30-day calendar review period for	• Notice mailed to property owners and occupants during week of November 10, 2025 • Notice emailed to contact list (Agencies, members of the public etc.) on November 24, 2025 • Notice emailed to Indigenous Communities on November 24, 2025

Activity	Timing	Purpose	Notification Tactics
		the Environmental Study Report.	- ESR package posted on project webpage on November 24, 2025. - Hard copies made available at Lincoln Town Hall and the Lincoln Pelham Public Library – Fleming Branch on November 24, 2025.

7.2 Public Consultation

7.2.1 Notice of Study Commencement

The Notice of Study Commencement was issued to introduce and invite study participation and request preliminary comments or pertinent information. The Notice of Study Commencement was posted on the project-specific webpage, <https://speakuplincoln.ca/greenlane-phases2-3>, on September 29, 2023, and published in two local newspapers: News Now on October 5, 2023, and the St. Catharines Standard on October 5 and 12, 2023.

Initial notification was emailed to stakeholders including agencies, utilities, Indigenous Communities, and developers on November 1, 2023. The Notice of Study Commencement was mailed directly to over 2,100 residents in the area on September 29, 2023.

Members of the public were made aware of the study through notifications in News Now and the St. Catharines Standard and were invited to contact the project team to be added to the study mailing list. An online form was posted on the project webpage for members of the public to ask questions and/or join the study mailing list. Members of the public requesting to be on the study mailing list received direct notification of subsequent study milestones via email at the key points of contact listed in **Exhibit 7-1**.

Feedback received in response to the Notice of Study Commencement was primarily from agencies noting general interest in the study. This feedback is documented in **Appendix G**.

7.2.2 Public Information Centre #1

The first Public Information Centre (PIC #1) was held on February 22, 2024, at Fleming Memorial Arena in Beamsville. The PIC consisted of an open house, drop-in event with project team members available to discuss the project and assist with any questions or comments. The attendees were asked to sign the Sign-In Sheet to record their attendance. Comment Sheets were provided to document feedback received during the event.

The purpose of the PIC was to introduce the study and gather community feedback on the problems and opportunities in the study area and alternative solutions for the Greenlane Road corridor. Design alternatives and complete streets cross-section alternatives were also presented for feedback at the PIC.

Notices for the PIC were published in the St. Catharines Standard and News Now on February 8 and 15, 2024 and posted to the project webpage on February 5, 2024. Hard copies of the notice were mailed to property owners and tenants in the area during the week of February 5, 2024. Agencies, interest groups, and the public (on the project mailing list) were notified via email on February 7, 2024. Indigenous Communities were notified of the PIC by email on February 8, 2024. The PIC information package was uploaded on the project webpage on February 21, 2024.

Approximately 18 people attended the meeting. Potentially affected and interested stakeholders were invited to provide feedback at the meeting, through the comment form on the project website, or by contacting the Town of Lincoln Project Manager. Comments on PIC #1 were accepted until March 8, 2024.

Those at the PIC discussed their comments and feedback with project team representatives. Three (3) comment sheets were received during the PIC. No additional comments were received through the website.

The main concerns and interests expressed by those who submitted written and verbal comments at PIC #1 were related to the following study components:

- Active Transportation – Support for enhanced AT facilities along the corridor.
- Accessibility – Consideration of AT design which supports all ages and abilities including features to make the recommended AT facility more accessible.
- Safety – prioritize safety through the provision of PXOs.
- Integration with adjacent projects to provide a consistent experience to active users.

All verbal and written comments and project team responses are included in **Appendix G**.

7.2.3 Public Information Centre #2

The second Public Information Centre (PIC #2) was held on January 30, 2025, at Fleming Memorial Arena in Beamsville. The PIC consisted of an open house, drop-in event with project team members available to discuss the project and assist with any questions or comments. The attendees were asked to sign the Sign-In Sheet to record their attendance. Comment Sheets were provided to document feedback received during the event.

The purpose of PIC #2 was to review community feedback received at PIC #1, present an assessment of design alternatives for Greenlane Road, and gather feedback on the overall preferred plan for the corridor.

Notice of the PIC was posted on the project website on January 6, 2025. The notice was mailed to property owners and tenants in the study area during the week of January 6, 2025. Agencies, interest groups, and the public (on the project mailing list) were notified via email on January 13, 2025. Indigenous Communities were notified via email on January 13, 2025. The PIC information package was uploaded on the project webpage on January 29, 2025.

Approximately 17 people attended the meeting. Potentially affected and interested stakeholders were invited to provide feedback at the meeting, through the comment form on the project website, or by contacting the Town of Lincoln Project Manager. Comments on PIC #2 were accepted until February 28, 2025.

Those at the PIC discussed their comments and feedback with the project team. One (1) comment sheet was received during the PIC. Two (2) additional comments were received through the website as of February 28, 2025 (the last day of the comment period). The main concerns and interests expressed by those who submitted written and verbal comments at PIC #2 were related to the following study components:

- Private Property – Concerns about the impact of the MUP on private property along Greenlane and a suggestion to consider fence replacement behind properties between Cedarbrook and Juniper
- Safety – Concerns about excessive speed and conflicts with residents driving in or out of their driveways
- Traffic – Concerns about increased traffic due to a new school and an expressed preference for keeping truck traffic off Greenlane
- Parking – Concerns about a potential parking shortage/removal of parking spaces
- Intersections – Resident input on converting Two-way Stop-Control at Cedarbrook to All-way
- Timeline – Concerns about the duration of disruptions and potential project delays
- Impacts to Adjacent Roads – Question about the need for roadway improvements on Lincoln Avenue

All verbal and written comments and project team responses are documented in **Appendix G**. Following the PIC, officials from the Town of Lincoln met with individual property owners who identified concerns.

7.2.4 Notice of Study Completion

7.3 Agency, Interest Groups and Utilities

A list of agencies, interest groups, emergency services, advisory committees, and utilities was assembled to form the Greenlane Road MCEA study contact list, based on the Town's contact list and the Ministry of the Environment Conservation and Parks (MECP) Government Review Team (GRT) list. The study contact list included:

- Federal
 - o Canadian National Rail
- Provincial
 - o Ministry of the Environment, Conservation and Parks
 - o Ministry of Agriculture, Food and Rural Affairs
 - o Ministry of Citizenship and Multiculturalism (formerly Ministry of Tourism, Culture and Sport)
 - o Ministry of Northern Development, Mines, Natural Resources, and Forestry
 - o Niagara Peninsula Conservation Authority
- Emergency Services
 - o Niagara Regional Police Service
 - o Town of Lincoln Fire Rescue
 - o Niagara emergency Medical Services
- Utilities
 - o Bell Canada
 - o Cogeco
 - o Enbridge
 - o Hydro One Networks Inc.
 - o Niagara Peninsula Energy Inc.
 - o Niagara Regional Broadband Network
 - o Rogers Canada

All agencies, interest groups, and utilities were notified of key study milestones by email on the dates summarized in **Exhibit 7-1**. All agency correspondence is provided in **Appendix G**.

7.4 Indigenous Communities Consultation

Indigenous Communities with potential interest in the study were identified by the Ministry of the Environment, Conservation and Parks (MECP) in correspondence dated October 16, 2023. The following communities were identified as having potential interest in the study:

- Mississaugas of the Credit First Nation (MCFN)
- Six Nations of the Grand River
- Haudenosaunee Confederacy Chiefs Council (HCCC)

The key points of contact and communication with Indigenous Communities are summarized in **Exhibit 7-2** and the summary of correspondence is detailed in **Exhibit 7-3**. All correspondence was exchanged over email.

Exhibit 7-2: Key Points of Contact with Indigenous Communities

Milestone	Date	Purpose
Notice of Study Commencement	November 1, 2023	To introduce the study, ascertain whether the Indigenous Community has an interest in the study, and request any preliminary comments or pertinent information.
Stage 1 Archaeological Assessment Report & Notice of Public Information Centre #1	February 8, 2024	To provide interested parties with an opportunity to review the draft Stage 1 Archaeological Report and to notify and invite them to attend the first Public Information Centre.
Stage 2 Archaeological Assessment Report	December 10, 2024	To provide interested parties with an opportunity to review the draft Stage 1 Archaeological Report.
Notice of Public Information Centre #2	January 13, 2024	To notify and invite interested parties to the second Public Information Centre.
Notice of Study Completion	November 24, 2025	To announce study completion and notify interested parties of the 30-day calendar review period for the Environmental Study Report.

Exhibit 7-3: Indigenous Community Correspondence Summary

Indigenous Community	Key Correspondence from Indigenous Community	Course of Action
Mississaugas of the Credit First Nation	Indicated interest in having a Field Liaison Representative on location for Stage 2 Archaeological Assessment fieldwork.	Field Liaison Representative agreement signed.
	Responded to Stage 2 Archaeological Assessment. Indicated that the report had been read, and no questions, concerns, or comments were identified.	Continue to provide project information.
Six Nations of the Grand River	Indicated interest in having a Field Liaison Representative on location for Stage 2 Archaeological Assessment fieldwork.	Field Liaison Representative agreement signed.
	Responded to Stage 2 Archaeological Assessment. Indicated that the report had been read, and no questions, concerns, or comments were identified.	Continue to provide project information.
Haudenosaunee Confederacy Chiefs Council	Indicated interest in having a Field Liaison Representative on location for Stage 2 Archaeological Assessment fieldwork.	Field Liaison Representative agreement signed.
	Responded to Stage 2 Archaeological Assessment. Indicated that the report had been read, and no questions, concerns, or comments were identified.	Continue to provide project information.

8. Environmental Effects, Mitigation Measures, and Commitment to Future Works

The following sections highlight the key negative and positive impacts of the Recommended Plan. **Exhibit 8-1** in **Section 8.7** provides a concise list of the commitments to further work and preliminary mitigation measures for future consideration.

8.1 Socio-Economic Environment

8.1.1 Land Use

The existing land use along Greenlane Road is a blend of agricultural, low-density residential, mid-rise residential, and commercial areas. However, the land use in the study area is transitioning towards higher-density, mixed-use development, aligning with provincial policies and the Town of Lincoln's Official Plan. Development plans along Greenlane Road, particularly near Ontario Street, include a mid-rise mixed-use development and a future elementary school.

A key objective of this urban intensification is to foster a more active, pedestrian-friendly environment and encourage a shift towards non-vehicular modes of transportation. The Recommended Plan supports this objective by incorporating separated active transportation facilities that enhance mobility and accessibility for all road users, without increasing lane capacity for vehicular traffic on Greenlane Road.

The Recommended Plan is fully aligned with the future land use vision set out in the Town of Lincoln's Official Plan and the Beamsville GO Transit Station Secondary Plan. The addition of sidewalks and a Multi-Use Path (MUP) promotes multi-modal transportation, consistent with the transportation policies outlined in the Provincial Planning Statement and the Niagara Region Official Plan. Furthermore, the inclusion of active transportation infrastructure is in line with the Town's Transportation Master Plan and Active Transportation Strategy, as it will contribute to a safer, more accessible, and interconnected active transportation network.

The intersection of Greenlane Road and Ontario Street is part of the Niagara Region's Ontario Street Urban Design Vision and Streetscape Master Plan. Consequently, the final design for this intersection will be developed through a future Environmental Assessment (EA) study conducted by the Region. However, the Recommended Plan incorporates several features—such as medians and reduced corner radii—that will facilitate the implementation of these future intersection improvements.

Chapter 2 outlines how the Greenlane Road MCEA has considered the broader planning context and policies related to integrated land use and transportation planning.

8.1.2 Property

Some private property acquisition is necessary to expand the right-of-way to 23 meters. However, the Recommended Plan utilizes a best-fit alignment to minimize the extent of property required. A detailed discussion of Greenlane Road property requirements and impacts is provided in **Section 6.8**.

The final impacts to private property will be confirmed during subsequent design phases. The Town of Lincoln will maintain ongoing communication with affected property owners on an individual basis throughout these phases. Property acquisition or conveyance, in accordance with the Town's procedures, will be completed prior to the commencement of construction.

8.1.3 Access

The Recommended Plan will result in changes to existing property access along Greenlane Road within the study limits.

Currently, some properties along Greenlane Road have full-move access (allowing both left and right turns) onto the roadway. To improve safety, a raised median is proposed on either side of Ontario Street, which will provide clear separation between opposing traffic lanes, reduce the risk of head-on collisions, and help regulate traffic flow. As a result, some existing full-move accesses may be converted to right-in/right-out accesses. A detailed discussion of these access impacts can be found in **Section 6.9**.

The final impacts to property access will be confirmed during the detailed design phase. Throughout construction, access to existing businesses and residences will be maintained. In the event of any necessary short-term temporary closures, affected parties will be notified in advance. Emergency access will be maintained at all times.

8.1.4 Accessibility

The Recommended Plan will significantly enhance accessibility. The addition of a sidewalk and Multi-Use Path (MUP) will support active transportation for individuals of all ages and abilities, improve connectivity within the overall active transportation network, and provide better access to key destinations, such as the new West Niagara Secondary School and the future Beamsville GO Station. These facilities will be designed and constructed in accordance with the accessibility standards and requirements in place at the time of implementation.

8.1.5 Noise

An increase in traffic noise is not expected as a result of this project, as the Recommended Plan does not involve expanding roadway capacity (i.e., no additional traffic lanes). While traffic volumes may rise due to planned land use changes and higher-density development, the current two lanes of traffic will ultimately dictate the roadway's capacity and the volume of traffic that can be accommodated.

The potential for construction-related noise impacts will be assessed further during the detailed design phase, once the construction methodology and schedule are fully developed.

8.1.6 Streetscape and Landscape

The Recommended Plan will result in minimal impacts to the existing streetscape and landscape along Greenlane Road. A widened boulevard on the north side of the road offers an opportunity for future streetscape and landscape enhancements. Further details and specific improvements will be developed during the detailed design phase.

8.1.7 Climate Change

The Ministry of the Environment, Conservation and Parks' guide titled Consideration of Climate Change in the Environmental Assessment Process outlines the Ministry's expectations and supports the Province's Climate Change Action Plan by detailing climate change considerations for environmental assessment studies.

The guide defines 'climate consideration' within a project as the process of addressing methods to reduce greenhouse gas emissions, developing a design that is resilient to future climate changes, and ensuring the ecological integrity of the local environment amidst a changing climate. Specifically, proponents are encouraged to consider both mitigation (how the project might reduce or offset climate change) and adaptation (measures to make the project more resilient to the effects of climate change). Understanding how a project may contribute to climate change—through its greenhouse gas emissions or its impact on the natural landscape—is a key part of the planning process, enabling proponents to incorporate mitigation measures that avoid, minimize, or offset such effects.

The objectives outlined in the climate change document have been considered throughout the Greenlane Road MCEA, particularly in the assessment and evaluation of planning solutions (**Chapter 4**), design alternatives (**Chapter 5**), the recommended plan, and proposed mitigation measures.

In 2021, the Town of Lincoln adopted the Corporate Climate Adaptation Plan (CCAP), which recognizes the urgent need to mitigate the effects of climate change. The CCAP includes 47 actions that support eight high-level goals, including:

- Goal 1: Integrating climate change considerations into Town strategies, plans, policies, procedures, operations, and services.
- Goal 2: Increasing resiliency and adaptive capacity within economic development, community services, parks, and recreation.
- Goal 3: Protecting natural resources, promoting ecosystem services, and minimizing environmental degradation.

The Town is also in the process of developing a Corporate Climate Change Mitigation Plan (CCMP) to address and reduce greenhouse gas (GHG) emissions from municipal infrastructure, assets, operations, and services.

The proposed improvements to Greenlane Road offer climate change mitigation by supporting an efficient transportation network that encourages active forms of travel (walking and cycling), which in turn helps reduce GHG emissions from vehicular traffic. The Recommended Plan also considers climate change adaptation by minimizing impacts to the natural heritage system, reducing tree removal where possible, and accounting for intense rainfall in the design of municipal infrastructure.

8.1.8 Air Quality

The Recommended Plan focuses on creating a street environment that encourages a shift toward active transportation, without proposing additional travel lanes on Greenlane Road. As a result, the project is expected to have minimal or negligible impacts on air quality.

8.1.9 Air Quality During Construction

During the construction of the roadway, dust will be the primary air quality concern. Other potential contaminants, including nitrogen oxides (NO_x) and volatile organic compounds (VOCs), may be emitted from construction equipment and activities.

Given the temporary nature of the construction process, there are no specific air quality criteria for construction activities. However, Environment Canada's *"Best Practices for the Reduction of Air Emissions from Construction and Demolition Activities"* outlines several effective mitigation measures to minimize emissions during construction. These measures include wetting materials or using chemical suppressants to control dust, installing wind barriers, limiting the exposure of areas prone to dust generation, and washing construction equipment regularly.

It is strongly recommended that these best management practices be implemented throughout the construction process to minimize any potential air quality impacts. Additionally, the Ministry of the Environment, Conservation and Parks (MECP) advises the use of non-chloride dust

suppressants. For further guidance on dust control measures, MECP recommends referring to *“the Cheminfo Services Inc. publication, Best Practices for the Reduction of Air Emissions from Construction and Demolition Activities, prepared for Environment Canada in March 2005”*.

8.2 Cultural Environment

8.2.1 Archaeology

A Stage 1 Archaeological Assessment was completed for the Greenlane Road MCEA and can be found in **Appendix B**. The findings and recommendations are as follows:

- Stage 1 background research and property inspection determined that large portions of the project area had been previously disturbed or assessed and did not require further assessment.
- The remainder of the project area required further assessment. These portions of the project area were subject to Stage 2 Archaeological Assessment.

The full Stage 2 Archaeological Assessment is provided in **Appendix C** and summarized below.

- The Stage 2 Archaeological Assessment did not uncover any archaeological material, and no further archaeological assessment was recommended.
- However, should previously undocumented archaeological resources be discovered, they may be a new archaeological site and therefore subject to Section 48 (1) of the Ontario Heritage Act. The proponent or person discovering the archaeological resources must cease alteration of the site immediately and engage a licensed consultant archaeologist to carry out archaeological fieldwork, in compliance with sec. 48 (1) of the Ontario Heritage Act.
- Should the proposed work extend beyond the current study area, further archaeological assessment should be conducted to determine the archaeological potential of the surrounding lands.

8.2.2 Indigenous Interests

Based on Indigenous Community engagement to date, which included circulation of the Cultural Heritage Report, Stage 1 and 2 Archaeology Assessment Reports, the presence of an Indigenous field liaison during the Stage 2 Archaeology Assessment, and circulation of the ESR draft in advance of the public review period, no concerns were identified regarding Indigenous Community interests or Aboriginal¹ rights. Full details of engagement with Indigenous Communities can be found in **Section 7.4**.

¹ The term Aboriginal is used in the specific context of Section 35 of the Constitution Act which recognizes and affirms Aboriginal and treaty rights.

Given the sensitivity of the general area from an Indigenous perspective, there is a need for continued and ongoing engagement with Indigenous Communities through future design and implementation stages. The Town remains committed to engagement with Indigenous Communities and will continue to provide information, invite feedback, and extend the invitation to meet with Indigenous Communities during detailed design.

8.2.3 Built Heritage Resources and Cultural Heritage Landscapes

A Cultural Heritage Report was prepared for Greenlane Road MCEA study and can be found in **Appendix D**. The findings of this report included:

- There are no National Historic Sites, Ontario Heritage Trust-owned properties, conservation easements or Provincial Heritage Properties present within or adjacent to the study area.
- One potential CHL, 5124 Greenlane Road (CHL-01), was determined to have potential cultural heritage value or interest.

Based on the assessment, the following recommendations are made:

- The proposed road realignment in the study area has the potential to cause direct and indirect impacts to the heritage attributes of one identified CHL. As the realignment may cause impacts to CHL-01's mature trees, a tree preservation plan developed by a qualified professional is recommended.
- As a precaution, a designated construction staging area and setbacks from identified potential heritage attributes should be agreed upon prior to the commencement of construction. Ongoing monitoring of construction activities is also recommended to ensure the safety of CHL-01.
- It is recommended that the property at 5124 Greenlane Road (CHL-01) with its stands of mature trees remain as uninhibited as possible. Any necessary road improvements should be sympathetic to the rural character of the area and maintain and retain naturalized waterways and embankments and mature trees, if possible.
- If detailed design confirms the removal of any mature trees identified in CHL-01, an additional comprehensive, site-specific Cultural Heritage Evaluation Report (CHER) and Heritage Impact Assessment (HIA) should be completed to inform the proposed construction activities.
- Copies or summaries of the Cultural Heritage Report should be included in future Public Information Centres (PICs) and other public/municipal outreach. These materials should also be made available to Indigenous Communities and other interested organizations or individuals, upon request.

8.3 Natural Environment

The proposed improvements to Greenlane Road are expected to require minor clearing of vegetation adjacent to the roadway. The background review, site investigations, and evaluation / assessment have determined that there are several confirmed or assumed natural heritage features within the direct or indirect area of impact. The complete Natural Heritage Assessment Report is provided in **Appendix E**.

A preliminary list of measures is provided below:

- Minimize the area to be cleared, grubbed or graded (i.e., where feasible only trim the vegetation to prevent disturbance to soil, and to leave cover in place).
- Clearly mark environmentally sensitive habitats/areas on construction drawings and delineate in the field with sturdy fencing.
- Develop contractor awareness training.
- Implement measures to minimize the spread of invasive plants.
- Avoid alterations to existing drainage patterns, or changes to the water quantities/qualities reaching aquatic habitats.
- Ensure that erosion and sediment control measures are designed for the protection of fish habitat.
- Minimize harm to all fauna through the application of timing windows. Note that exact dates are subject to change, but they would currently include:
 - o Avoid clearing any vegetation during active seasons (anticipated timeline to cover all species is no clearing between April 1 and September 30 to protect breeding birds and their nests).
 - o Avoid work around watercourses during the turtle active season (Between April 1 and October 31)
 - o Avoid disturbance soil during hibernation period for snakes (hibernation typically between April 1 and October 31)
 - o Install, monitor, and maintain reptile exclusion fences
 - o Complete daily sweeps of active work area for wildlife
- Minimize sensory impacts to fauna by working during the day and ensuring that equipment and vehicles have the appropriate mufflers and implement a no idling policy. If working at night, ensure that only the lighting needed to perform the work safely is installed and this lighting is focused on the work area (minimize lighting of sky).

- Confirm the appropriate in-water timing window for any proposed works below the high-water mark (No work between March 15-July 15 if spring spawning species; No work between October 1 to May 31 if fall spawners; both windows could apply).
- Review available DFO guidelines in their Code of Practice
- Review the advice herein once detailed design is completed to update based on any new findings or guidelines. Ensure that at least one full year is available prior to construction should new inventories be required.

It is anticipated that typical best management practices and guidelines can be implemented to minimize or avoid negative impacts to the natural environment. Because of the potential for species at risk, and the presence of regulated habitats, consultations with MECP will be required and there is a potential for approvals/permitting for impacts to SAR species.

8.3.1 Endangered and Threatened Species and their Habitats

The NHA found the potential for the following endangered and threatened species and their habitat in or near the project site:

- Blanding's Turtle (presence of Category 2 Habitat and potential movement corridors)
- Little brown myotis (potential for maternity roosts in the area)
- Bats in general (day roosts)
- Butternuts (hybrids present within the work area)

The study concluded that the Ministry of Environment, Conservation and Parks (MECP) may need to be consulted during detailed design.

8.3.2 Fish and Fish Habitat

There are two watercourse features within the study area: Konkle Creek and one other unnamed feature. These watercourses are all either known or assumed to provide fish habitat. Based on this information, the following recommendations are made:

- Design should ensure that the same water quality and quantity continues to flow to each feature
- Ensure that alterations to culverts allow for fish passage during the spring and baseflow conditions (as needed)

- Additional sampling or habitat descriptions may be required depending on the potential impact. At this time, a conservative approach was followed, and all features are considered direct fish habitat due to the lack of barriers found near the road.

8.4 Drainage and Stormwater Management

The Recommended Plan for Greenlane Road will result in an increase in surface runoff due to the expansion of impervious surfaces associated with roadway and active transportation improvements. To mitigate the impacts of increased peak flows to the receiving watercourse, stormwater management measures are recommended to address both runoff quality and quantity control.

Within the study area, runoff from the upgraded roadway will ultimately be directed to existing stormwater management (SWM) facilities. To address the increase in impervious area and support water balance objectives, the implementation of an infiltration gallery is proposed. This facility will help promote groundwater recharge and reduce the volume of direct surface runoff.

Additionally, Low Impact Development (LID) measure, such as pervious pavement along the proposed Multi-Use Path (MUP), may be further explored and refined during the detailed design phase to support sustainability, improve infiltration, and enhance overall stormwater performance.

8.5 Design and Construction

The proposed improvements to Greenlane Road as described in **Chapter 6** support future transportation needs by providing enhanced transportation options for all road users.

The Recommended Plan was developed based on a “best fit” alignment (horizontal and vertical) along the existing corridor to minimize impacts to adjacent properties, built heritage resources, archaeological resources, and natural environment resources where feasible.

8.5.1 Utilities

As noted in **Chapter 6**, a high level of consultation with private utility companies will be required during detailed design.

8.5.2 Materials Management

Activities related to the movement, storage or removal of soils / excess materials should be completed in accordance with the MECP’s current guidance document titled *Management of Excess Soil – A Guide for Best Management Practices* (current as of October 2021) found at the following link: <https://www.ontario.ca/page/management-excess-soil-guide-best-managementpractices>.

The disposal of contaminated soils will be consistent with Part XV.1 of the Environmental Protection Act (EPA) and Ontario Regulation 153/04, Records of Site Condition, which details the new requirements related to site assessment and clean up.

Upon completion of disposing, leveling, and grading of surplus excavated materials on any property, the Contractor shall obtain a written statement from the property owner(s) releasing the Contractor and the City from any claims and accepting the condition of the property as satisfactory.

All waste generated during construction must be disposed of in accordance with provincial requirements.

8.5.3 Construction Monitoring

A general environmental monitoring program will be developed during the detailed design phase and implemented during construction to monitor potential impacts on watercourses. The program will also identify contingency measures to mitigate or minimize any unforeseen effects.

During construction, the Contractor will be responsible for ensuring that all mitigation measures and key design features are implemented in accordance with the contract specifications and any external agency commitments. These measures will be maintained throughout construction to protect the natural, social, and economic environments.

The Contractor will also be responsible for:

- Implementing and maintaining sediment and erosion control measures,
- Installing and maintaining appropriate signage to ensure public safety and effective traffic management,
- Clearly marking detour routes during temporary road or sidewalk closures,
- Coordinating any closures or restricted access in a manner that ensures continued movement for vehicles and pedestrians and minimizes disruption to local residents and businesses.

The effectiveness of environmental mitigation measures will be assessed throughout construction to ensure:

- Each mitigation measure is functioning as intended to provide the required protection and control,
- Additional or alternative mitigation measures are implemented if unexpected environmental issues arise,

- All environmental protection measures identified in this report—and further refined during detailed design—are fully implemented,
- Relevant regulatory agencies are consulted if significant, unanticipated environmental impacts are observed.
- If construction impacts exceed those anticipated in the planning and design stages, or if the construction methodology results in greater-than-expected environmental disturbance, the Contractor will be required to adjust or modify their operations to reduce and manage those impacts effectively.

8.6 Permits and Approvals

Upon successful completion of the Municipal Class Environmental Assessment (MCEA) process, as documented in this Environmental Study Report (ESR), all environmental assessment requirements will have been fulfilled. Remaining approval requirements will be addressed during the detailed design phase, as the project moves toward implementation. These may include, but are not limited to:

- Confirmation from the Ministry of Citizenship and Multiculturalism that all required archaeological assessment reports have been entered into the Ontario Public Register of Archaeological Reports;
- Permits, approvals, or requirements from the Town of Lincoln relating to impacts on heritage properties and associated mitigation measures;
- An Environmental Compliance Approval (ECA) from the Ministry of the Environment, Conservation and Parks (MECP) for the proposed stormwater management infrastructure;
- Notifications and coordination with utility providers whose infrastructure may be affected by the project, including obtaining necessary permissions or relocations where applicable.

These approvals will ensure that the project complies with all applicable legislation, regulations, and municipal requirements as it progresses toward construction.

8.7 Proposed Mitigation and Commitments to Further Work

Exhibit 8-1: Summary of Preliminary Mitigation Measures and Commitments to Future Works

Summary of Preliminary Mitigation Measures and Commitments to Future Work	
Property	1. Final impacts to / acquisition of private property will be confirmed during detailed design. The Town of Lincoln will consult with affected property owners on an individual basis during future phases. 2. Property acquisition or conveyance in accordance with Town of Lincoln procedures will occur in advance of construction. 3. Permission-to-enter private properties will be required to perform driveway reconstruction and minor grading activities associated with the roadway construction.
Access	4. Final impacts to accesses will be confirmed during detailed design. 5. During construction, access to existing businesses and residential areas will be maintained. Should any short-term temporary closures be required, notification will be provided in advance of the closure. 6. Emergency access will be maintained at all times.
Accessibility	7. Further details, including intersection crossing treatments and transitions to cross street active transportation facilities and existing facilities at intersections, will be finalized during detailed design considering the most current design guidelines and the Town's active transportation network (i.e., facility types in other parts of the network). Intersections will be constructed

Summary of Preliminary Mitigation Measures and Commitments to Future Work
with the objective of improving conditions for pedestrians and cyclists, including provisions for cross-rides, signal heads, etc. 8. All intersections and active transportation facilities will meet the most current Accessibility for Ontarians with Disabilities Act (AODA) standards at the time of detailed design and construction. 9. Should temporary sidewalk closures be required during construction, notification will be provided in advance of the closure.
Streetscape and Landscape
10. A detailed Streetscape/Landscape Plan will be developed during detailed design. The Streetscape/Landscape Plan will adhere to the most current urban design policies and guidelines.
Noise and Vibration
11. Construction noise and vibration issues will be further reviewed during detailed design when construction methodology and schedule is fully developed. 12. Construction activities will conform to the Town of Lincoln's Noise Control By-Laws. In the Contract Documents, there shall be explicit indication that Contractors are expected to comply with all applicable requirements of the contract and local noise by-laws. Enforcement of noise control by-law will be the responsibility of the Town for all work done by Contractors. 13. All equipment shall be properly maintained to limit noise emissions. As such, all construction equipment will be operated with effective muffling devices that are in good working order. 14. In the presence of noise complaints, all construction equipment will be verified to comply with MECP NPC-115 guidelines (or future guidelines).

Summary of Preliminary Mitigation Measures and Commitments to Future Work
Climate Change
15. Continue to consider how this project can support the Town’s Corporate Climate Adaptation Plan by protecting natural resources and supporting active transportation as an alternative to automobiles. 16. Consider the various approaches to climate change mitigation and climate change adaptation outlined in Section 8.1.8 of this ESR.
Air Quality During Construction
17. During construction, vehicles/machinery and equipment will be in good repair, equipped with emission controls, as applicable, properly maintained and operated within regulatory requirements. 18. A minimal number of machines operating in any one area shall be carefully considered during construction activities. 19. Refer to Environment Canada “Best Practices for the Reduction of Air Emissions from Construction and Demolition Activities” for mitigation measures for reducing emissions during construction activities. Mitigation techniques discussed in the document include material wetting or use of chemical suppressants to reduce dust, use of wind barriers, limiting exposed areas that may be a source of dust, and equipment washing. 20. It is noted that MECP recommends that non-chloride dust suppressants be applied. MECP also recommends referring to the following publication in developing dust control measures: Cheminfo Services Inc. Best Practices for the Reduction of Air Emissions from Construction and Demolition Activities. Report prepared for Environment Canada, March 2005.
Archaeology

Summary of Preliminary Mitigation Measures and Commitments to Future Work

21. While the Stage 2 Archaeological Assessment did not uncover any archaeological material, should previously undocumented archaeological resources be discovered, they may be a new archaeological site and therefore subject to Section 48(1) of the Ontario Heritage Act. The proponent or person discovering the archaeological resources must cease alteration of the site immediately and engage a licenced consultant archaeologist to carry out any archaeological assessment, in compliance with Section 48(1) of the Ontario Heritage Act.
22. Should the proposed work extend beyond the current Study Area, further archaeological assessment should be conducted to determine the archaeological potential of the surrounding lands.

Indigenous Community Engagement

23. Given the sensitivity of the general area from an Indigenous Peoples perspective, there is a need for continued and ongoing engagement of Indigenous Communities through future design and implementation stages. The Town remains commitment to engagement of Indigenous Communities and will continue to provide information, invite feedback, and extend the invitation to meet, during detailed design.
24. The Town commits to supporting Indigenous Community participation in the project through capacity funding.

Built Heritage Resources and Cultural Heritage Landscapes

25. A tree preservation plan developed by a qualified professional is recommended to ensure that impacts to CHL-01's mature trees are minimized.
26. A designated construction staging area and setbacks from identified potential heritage attributes should be agreed upon prior to the commencement of construction. Ongoing monitoring of construction activities is also recommended to ensure the safety of CHL-01.

Summary of Preliminary Mitigation Measures and Commitments to Future Work

- 27. Any necessary road improvements should be sympathetic to the rural character of the area and maintain and retain naturalized waterways and embankments and mature trees, if possible. It is recommended that the property at 5124 Greenlane Road (CHL-01) with its stands of mature trees remain as uninhibited as possible.
- 28. If detailed design confirms the removal of any mature trees identified in CHL-01, an additional comprehensive, site-specific Cultural Heritage Evaluation Report (CHER) and Heritage Impact Assessment (HIA) should be completed to inform the proposed construction activities.
- 29. Copies or summaries of the CHRECPIA should be included in future Public Information Centres (PICs) and other public/municipal outreach. These materials should also be made available to Indigenous Communities and other interested organizations or individuals, upon request.

Natural Environment

- 30. Minimize the area to be cleared, grubbed and graded
- 31. Minimize the area to be grubbed and graded (i.e., where feasible only trim the vegetation to prevent disturbance to soil, and to leave cover in place).
- 32. Clearly mark environmentally sensitive habitats/areas on construction drawings and delineate in the field with sturdy fencing.
- 33. Develop contractor awareness training.
- 34. Implement measures to minimize the spread of invasive plants.
- 35. Avoid alterations to existing drainage patterns, or changes to the water quantities/qualities reaching aquatic habitats.

Summary of Preliminary Mitigation Measures and Commitments to Future Work

36. Ensure that erosion and sediment control measures are designed for the protection of fish habitat.
37. Minimize harm to all fauna through the application of timing windows. Note that exact dates are subject to change, but they would currently include:
38. Avoid clearing any vegetation during active seasons (anticipated timeline to cover all species is no clearing between April 1 and September 30 to protect breeding birds and their nests).
39. Avoid work around watercourses during the turtle active season (Between April 1 and October 31)
40. Avoid disturbance soil during hibernation period for snakes (hibernation typically between April 1 and October 31)
41. Install, monitor, and maintain reptile exclusion fences
42. Complete daily sweeps of active work area for wildlife
43. Minimize sensory impacts to fauna by working during the day and ensuring that equipment and vehicles have the appropriate mufflers and implement a no idling policy. If working at night, ensure that only the lighting needed to perform the work safely is installed and this lighting is focused on the work area (minimize lighting of sky).
44. Confirm the appropriate in-water timing window for any proposed works below the high-water mark (No work between March 15-July 15 if spring spawning species; No work between October 1 to May 31 if fall spawners; both windows could apply).
45. Review available DFO guidelines in their Code of Practice
46. Review the advice herein once detailed design is completed to update based on any new findings or guidelines. Ensure that at least one full year is available prior to construction should new inventories be required.

Summary of Preliminary Mitigation Measures and Commitments to Future Work

Endangered and Threatened Species and their Habitats

47. Due to the potential presence of Blanding's Turtle, Little brown myotis, and Butternuts, the Ministry of the Environment, Conservation and Parks (MECP) may need to be consulted during detailed design.

Fish and Fish Habitat

48. Design should ensure that the same water quality and quantity continues to flow to each feature.

49. Ensure that alterations to culverts allow for fish passage during the spring and baseflow conditions (as needed)

50. Additional sampling or habitat descriptions may be required depending on the potential impact. At this time, a conservative approach was followed, and all features are considered direct fish habitat due to the lack of barriers found near the road.

Stormwater Management

51. Due to the increase in impervious area, an infiltration gallery should be implemented for water balance requirements.

52. Geotechnical and hydrogeological investigations will be conducted during detailed design to appropriately determine groundwater conditions and confirm the need for and type of Permit to Take Water (PTTW).

53. A PTTW will be obtained, prior to construction, from MECP per the Ontario Water Taking Regulation (O. Reg. 387/04 made under the Ontario Water Resources Act.

54. Other LID measures such as pervious pavement along the multi-use path may be explored during detailed design.

Materials Management

Summary of Preliminary Mitigation Measures and Commitments to Future Work

- 55. Activities related to the movement, storage or removal of soils / excess materials should be completed in accordance with the MECP's current guidance document titled Management of Excess Soil – A Guide for Best Management Practices.
- 56. The disposal of contaminated soils will be consistent with Part XV.1 of the Environmental Protection Act (EPA) and Ontario Regulation 153/04, Records of Site Condition, which details the new requirements related to site assessment and clean up.
- 57. The disposal of contaminated soils will be consistent with Part XV.1 of the Environmental Protection Act (EPA) and Ontario Regulation 153/04, Records of Site Condition, which details the new requirements related to site assessment and clean up.
- 58. All waste generated during construction must be disposed of in accordance with provincial requirements.

Utilities

- 59. Utility relocations will be identified during detail design in consultation with the affected utility providers. Utility relocations shall be coordinated to minimize service disruptions where possible through liaison and contract requirements.

Traffic Management During Construction

- 60. A construction staging and traffic management plan will be developed and communicated to all area residents and emergency services will in advance of execution. Communication would typically involve a direct mailout to all residents and information posted on the City's website. Direct outreach to emergency services will be coordinated as required.
- 61. Emergency vehicle access will be maintained at all times.

Construction Monitoring

Summary of Preliminary Mitigation Measures and Commitments to Future Work

62. A general monitoring program will be developed during detailed design and shall be implemented during construction to measure and monitor any potential project impacts on watercourses, including identifying contingency measures to mitigate or minimize the impact, if any.
63. During construction, the Contractor will ensure that implementation of mitigating measures and key design features are consistent with the contract and external commitments.
64. Mitigation measures shall be implemented and maintained by the Contractor who will ensure that the natural, social, and economic environments are not impacted by the construction activities and/or that impacts are minimized. The Contractor will also ensure that items such as sedimentation controls and appropriate signage are maintained throughout construction.
65. Appropriate signage shall be implemented to identify detour routes at the time of temporary roadway/sidewalk closures. In addition, closure events and restricted access to local residents and/or businesses shall be planned to accommodate vehicle and pedestrian movement during construction.
66. In addition, the effectiveness of the environmental mitigating measures will be assessed to ensure that:
- a) Individual mitigation measures are providing the expected control and / or protection.
 - b) Additional mitigation measures are provided, as required, for any unanticipated environmental problems that may develop during construction.
 - c) The Contractor will ensure that the environmental measures outlined in this report and further developed during detailed design are carried out. In an event that problems arise, appropriate agencies will be contacted to provide further input.
 - d) If the impacts of construction are different than anticipated, or if the method of construction is such that there are greater than anticipated impacts, the Contractor's methods of operation will be changed or modified to reduce those impacts.